

# CEPA 1999

*Canadian Environmental Protection Act, 1999*



## Annual Report

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## Foreword

This annual report provides an overview of the results achieved under the *Canadian Environmental Protection Act, 1999* (CEPA 1999) for the period April 1, 2004, to March 31, 2005.

The publication of this report responds to the requirement under CEPA 1999 to provide an annual report to Parliament on the administration and enforcement of the Act. The chapters are organized according to the 11 major Parts of CEPA 1999. Each chapter contains introductory remarks that describe the applicable provisions of CEPA 1999, followed by a description of the results achieved under that Part.

CEPA 1999 requires reporting on the following:

- **Administration of agreements respecting equivalent provisions**—Section 1.3 of this report describes the activities under the Canada–Alberta Equivalency Agreement during 2004–05.
- **Research conducted under the authority of the Act**—Environment Canada and Health Canada scientists published numerous reports, papers, book chapters, articles, and manuscripts on subjects related to CEPA 1999. Although it is not possible to describe all of these activities, Section 3.2 of this report provides examples of the types of research initiatives under way and their key contributions in 2004–05.
- **Administration of the international air pollution provisions**—There were no activities under these provisions (Division 6 of Part 7) of CEPA 1999 during 2004–05. Section 7.7 of this report highlights results that flow from commitments on several international agreements respecting air pollution.
- **Administration of the international water pollution provisions**—There were no activities under these provisions (Division 7 of Part 7) of CEPA 1999 during 2004–05. Section 7.8 of this report highlights results that flow from commitments on one international initiative respecting water pollution. The report also describes the findings from the International Joint Commission's Twelfth Biennial Report on Great Lakes Water Quality.
- **Activities of the CEPA 1999 National Advisory Committee and of any committees established under paragraph 7(1) (a)**—Section 1.1 of this report highlights the activities of the National Advisory Committee during 2004–05. There were no other committees established under paragraph 7(1) (a) of CEPA 1999 in 2004–05.
- **Administration of the Act under administrative agreements**—Section 1.2 of this report describes the activities under the administrative agreements during 2004–05.



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# 1 Administration (Part 1)

The administrative duties set out in the preamble of the Act are binding on the Government of Canada. They include requirements to:

- protect the environment, including its biological diversity;
- apply the precautionary principle—i.e., where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation;
- promote pollution prevention;
- implement an ecosystem approach;
- encourage public participation;
- cooperate with other governments;
- avoid duplicating other federal regulations; and
- apply and enforce the Act fairly.

Part 1 of CEPA 1999 contains authorities related to advisory committees such as the National Advisory Committee and to the implementation of administrative and equivalency agreements.

## 1.1 National Advisory Committee

*CEPA 1999 requires the Minister of the Environment to establish a National Advisory Committee composed of one representative for each of the federal Ministers of the Environment and of Health (the Ministers), representatives from each province and territory, and not more than six representatives of Aboriginal governments drawn from across Canada.*

The Committee advises the Ministers on actions taken under the Act, enables national, cooperative action, and seeks to avoid duplication in regulatory activity among governments. The Committee also serves as the single window into provincial and territorial governments and representatives of Aboriginal governments on offers to consult.

To carry out its duties in 2004–05, the National Advisory Committee held two face-to-face meetings and five conference calls. Some of the federal initiatives brought to the Committee for discussion included the following:

- Risk management activities, such as amending or repealing regulations, revising guidelines, proposed options for managing various environmental risks, and issues related to duplication of efforts under CEPA 1999 and the *Fisheries Act*.
- Risk assessment activities, such as screening assessments, procedures for categorizing substances on the Domestic Substances List for greatest potential for exposure of humans, and an integrated framework for the health-related components of the Domestic Substances List categorization when it is released for public comment.
- Other issues, including improved decision-making under uncertainty (the precautionary principle) and Aboriginal involvement in implementation of CEPA 1999.

The Committee's involvement varies with the nature of the issue and its relative priority for each jurisdiction. Two examples of where the Committee's advice helped to advance policy initiatives follow:

- **Underground Storage Tanks**—Spill reporting by fuel suppliers under the proposed *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* will include notification to the appropriate jurisdiction as well as the tank owners.
- **Municipal Wastewater Effluent**—Environment Canada adopted a guideline instead of the originally proposed pollution prevention planning requirements as the instrument to manage the environmental risks from ammonia to better link to provincial management and development of a Canada-wide Strategy.

## 1.2 Administrative Agreements

*The Act allows the federal government to enter into administrative agreements with provincial and territorial governments as well as Aboriginal governments. The agreements usually cover activities such as inspections, enforcement, monitoring, and reporting, with each jurisdiction retaining its legal authorities.*



[www.ec.gc.ca/CEPARRegistry/agreements/Admin\\_Agree.cfm](http://www.ec.gc.ca/CEPARRegistry/agreements/Admin_Agree.cfm)

### 1.2.1 Canada–Saskatchewan Administrative Agreement

The Canada–Saskatchewan Administrative Agreement, in force since September 1994, is a work-sharing arrangement covering certain provincial legislation and seven CEPA 1999 regulations,



which include two regulations related to the pulp and paper sector, two regulations on ozone-depleting substances, and three regulations on polychlorinated biphenyls (PCBs). No prosecutions under these regulations were undertaken in 2004–05.

In this reporting period,

- Provincial authorities received reports of 18 releases of electrical fluids that could have contained PCBs. The province concluded that corrective actions were taken, including the immediate cleanup of the spills, and that none of the spills contained PCBs at levels over the prescribed limit (50 parts per million).
- Saskatchewan Environment continued to promote the use of the TIP line for environmental offences in 2004–05. Fifty-three tips were received in total, none of which involved CEPA 1999.
- The only mill subject to the *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations* was found to be in compliance.
- Environment Canada conducted 26 field inspections under the *Ozone-depleting Substances Regulations, 1998*, focusing primarily on industries that use methyl bromide. No violations were detected.
- Environment Canada did not conduct inspections under the *Storage of PCB Material Regulations*. Saskatchewan Environment conducted one inspection under the provincial *PCB Storage Regulations* (40 facilities are regulated by these Regulations), and no violations were detected.



[www.mb.ec.gc.ca/pollution/e00s63.en.html](http://www.mb.ec.gc.ca/pollution/e00s63.en.html)

### 1.2.2 Canada–Quebec Pulp and Paper Administrative Agreement

The third Agreement Between the Government of Quebec and the Government of Canada Regarding the Implementation in Quebec of the Federal Regulations Pertaining to the Pulp and Paper Sector (Canada–Quebec Agreement) came into effect on September 16, 2003. The Agreement was retroactive to April 1, 2000, and terminated on March 31, 2005. The Agreement was managed by a joint committee made up of three representatives appointed by Quebec and three appointed by Canada. The Quebec government provided the Secretariat responsibilities.

Environment Canada is going through the process of renewing the agreement. It expires in March 2007.

Under the agreement, as the principal point of contact for the pulp and paper sector in the province, Quebec receives both federally and provincially required reports. Quebec then transmits to Canada the data it collects with respect to the following three federal regulations:

- *Pulp and Paper Effluent Regulations* under the *Fisheries Act*;
- *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations* under CEPA 1999; and
- *Pulp and Paper Mill Defoamer and Wood Chip Regulations* under CEPA 1999.

The joint committee met five times in 2004–05. Discussions focused on the compliance record of each mill in Quebec. No particular or serious problems were identified with respect to compliance with the requirements of the two regulations under CEPA 1999. The information exchange mechanism was reviewed, and improvements were made. The joint committee recommended renewing the agreement for two years, the time needed to allow for the necessary discussions to develop the next agreement.



[www.ec.gc.ca/CEPARRegistry/agreements/Admin\\_Agree.cfm](http://www.ec.gc.ca/CEPARRegistry/agreements/Admin_Agree.cfm)

## 1.3 Equivalency Agreements

*The Act allows the Government of Canada to enter into Equivalency Agreements where provincial or territorial environmental legislation has provisions that are equivalent to the CEPA 1999 provisions. The purpose of these agreements is to eliminate the duplication of environmental regulations where equivalent regulatory standards (including similar measurement and testing procedures and penalties and enforcement programs) and similar provision for citizens to request investigations are available in provincial or territorial environmental legislation. This objective is in line with the Smart Regulation Initiative, which is a government-wide initiative to improve the Government of Canada's regulatory performance (please see the link below for more information on the Initiative).*



[www.regulation.gc.ca/default.asp?Language=E&Page=smartregint](http://www.regulation.gc.ca/default.asp?Language=E&Page=smartregint)

*The federal government has the responsibility to report annually to Parliament on the administration of Equivalency Agreements.*



### 1.3.1 Canada–Alberta Equivalency Agreement

In December 1994, an Agreement on the Equivalency of Federal and Alberta Regulations for the Control of Toxic Substances in Alberta came into effect. As a result of the Agreement, the following CEPA 1999 regulations no longer apply in Alberta:

- *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations* (all sections);
- *Pulp and Paper Mill Defoamer and Wood Chip Regulations* (Sections 4(1), 6(2), 6(3)(b), 7, and 9);
- *Secondary Lead Smelter Release Regulations* (all sections); and
- *Vinyl Chloride Release Regulations, 1992* (all sections).

The regulated industries are not required to submit reports to Environment Canada. Instead, Alberta Environment identifies instances of non-compliance to Environment Canada. In 2004–05, all four pulp and paper mills complied with the chlorinated dioxins and furans emission limits set out in the regulations. There were no reports of non-compliance at the two vinyl chloride plants in Alberta. Currently, there are no lead smelters in Alberta.

The Canada–Alberta Equivalency Agreement is currently under review.



[www.ec.gc.ca/CEPARRegistry/agreements/Eqv\\_Agree.cfm](http://www.ec.gc.ca/CEPARRegistry/agreements/Eqv_Agree.cfm)

## 1.4 Related Federal/Provincial/ Territorial Agreements

### 1.4.1 Canada–Ontario Agreement Respecting the Great Lakes Basin Ecosystem

Under subsection 9 (1), the Minister of the Environment may negotiate agreements with respect to the administration of the Act. The Canada–Ontario Agreement Respecting the Great Lakes Basin Ecosystem is an important administrative mechanism through which the Governments of Canada and Ontario plan and coordinate actions to restore, protect, and conserve the Great Lakes basin ecosystem.

The Great Lakes Sustainability Fund was announced in 2000 as a component of the Great Lakes Program's Great Lakes Basin 2020 Action Plan. Activities undertaken under this plan will fulfil Canada's commitments under the 2002 Canada–Ontario Agreement Respecting the Great Lakes Basin Ecosystem, as well as the 1972 Canada–United States Great Lakes Water Quality Agreement. More specifically, these actions will reduce the amount of pollution that enters the basin. Actions taken in 2004–05 include:

- implementation of a project in partnership with Eco-Superior in Thunder Bay to encourage stewardship and recycling of items containing mercury at the household, industrial, and municipal levels in communities on the North Shore of Lake Superior;
- assessment of the status of contaminated sites and the development of contaminated sediment management strategies for the Detroit River, St. Lawrence River (Cornwall), Niagara River (Lyon's Creek), Hamilton Harbour, Peninsula Harbour, Thunder Bay Harbour (Cascades), St. Mary's River, St. Clair River, and Bay of Quinte Great Lakes Areas of Concern (depending on the location, the sediments contain polycyclic aromatic hydrocarbons [PAHs], PCBs, or mercury);
- successful remediation of contaminated sediment containing a mixture of PAHs, pentachlorophenol, and dioxins and furans from the Northern Wood Preservers Site in Thunder Bay;
- the following projects, which support the efforts to identify management options for municipal wastewater effluent, including the reduction of ammonia from municipal wastewater treatment plant effluents:
  - implementation of projects, in cooperation with municipalities, to investigate and develop enhanced technologies for the removal of ammonia from municipal wastewater treatment plant effluents; and
  - transferred information on techniques and technologies to improve water quality by distributing guidance manuals on sewage treatment plant optimization and combined sewer overflow treatment technologies to municipalities, engineering consultants, and staff within Environment Canada.



[www.on.ec.gc.ca/greatlakes](http://www.on.ec.gc.ca/greatlakes)

## 1.4.2 Canada-wide Standards

Developed under the Canadian Council of Ministers of the Environment (CCME) Harmonization Accord and Sub-agreement on Environmental Standards, Canada-wide Standards are designed to provide a high level of environmental quality and consistency in environmental management across the country. While the standards are developed by the CCME, the Minister of the Environment uses section 9 of CEPA 1999, related to administrative agreements, to enter into federal commitments to meet the Canada-wide Standards.

Priority substances for Canada-wide Standards include mercury, dioxins and furans, benzene, particulate matter, ground-level ozone, and petroleum hydrocarbons in soil. During the reporting period, there were 12 Canada-wide Standards in place addressing these substances from the perspective of various sectors. All participating federal, provincial, and territorial ministers have committed to being accountable to the public and each other by developing implementation plans to achieve the targets set out in the standards. Considerable information on the status of the Canada-wide Standards can be found on the CCME's website.



[www.ccme.ca/ourwork/environment.html?category\\_id=108](http://www.ccme.ca/ourwork/environment.html?category_id=108)

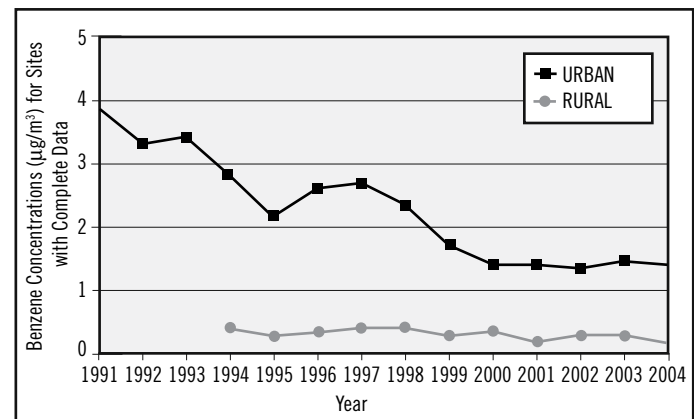
### 1.4.2.1 Benzene

Benzene is a non-threshold carcinogen—a substance for which there is considered to be some probability of harmful effects on human health at any level of exposure. In June 2000, a phased approach to benzene reductions was endorsed by the federal government and all provinces and territories, except Quebec. Phase 1 called for a 30% reduction in total benzene emissions from five targeted sectors (from 1995 emission inventory levels) by the end of 2000. Phase 2 called for a further 6-kilotonne reduction in emissions (approximately 10%) by 2010. The five targeted sectors are petroleum distribution, petroleum refining, transportation, chemical manufacturing, and steel manufacturing.

While reduction activities are ongoing, actions to date have resulted in all sectors meeting or exceeding their targets, with a corresponding lowering of benzene concentrations in ambient air. Through the National Air Pollution Surveillance network, data are collected on ambient air levels of a variety of toxics at rural, suburban, city centre, and industrial sites. This effort is carried

out in cooperation with provincial and municipal environmental agencies. In 2004, there were 51 active sampling sites where benzene measurements were taken. Thirteen sites were in rural locations, and the other 38 sites were located in 18 different cities across Canada. As shown in Figure 1, urban benzene concentrations decreased by 65% between 1990 and 2000, with essentially no further change between 2000 and 2004. Rural benzene concentrations decreased by 50% between 1994 and 2004.

Figure 1: Average Urban Benzene Concentrations from 51 Active Sampling Sites Across Canada



### 1.4.2.2 Dioxins and Furans

On January 24, 2004, the CCME—with the exception of Quebec—signed the Canada-wide Standard for Conical Waste Combustion of Municipal Waste. Unique to Newfoundland and Labrador, the burning of municipal waste in conical waste combustors results in an estimated annual release of 27% of the national total of dioxin and furan emissions to the atmosphere. As of June 30, 2003, there were 41 conical waste combustors still operating in Newfoundland and Labrador.

As emission controls are not a feasible option for reducing releases of dioxins and furans from conical waste combustors, the standard proposes to phase out the operation of conical waste combustors in Newfoundland and Labrador by 2008 and prevent the operation of new conical waste combustors anywhere in Canada. The phase-out strategy will also result in reduced mercury emissions from these combustors.

### 1.4.2.3 Mercury

Canada-wide Standards were endorsed by CCME for mercury emissions (base metal smelting and waste incineration) in 2000 and for mercury-containing lamps and dental amalgam waste in 2001. Timelines for achieving the Canada-wide Standard targets are 2008 (base metal smelting), 2003–06 (waste incineration), 2010 (mercury-containing lamps), and 2005 (dental amalgam waste).

For mercury-containing lamps, industry has surpassed the 2005 target of a 70% reduction by 2005 (73.5% by mid-2005) and is expected to achieve the 80% reduction target by 2010. As a complementary activity to the Canada-wide Standard, Environment Canada is working with federal departments to encourage life cycle management of mercury-containing products, particularly fluorescent lamps. A guidance manual for federal facilities has been developed, and promotion is under way.

For dental amalgam waste, the primary tool for national implementation is the Memorandum of Understanding between Environment Canada and the Canadian Dental Association. The Canadian Dental Association worked with the federal government and various provinces in 2004 and 2005 to promote attainment of the Canada-wide Standard by December 31, 2005. An evaluation of the impact of their efforts will be reported on in the 2005–06 CEPA 1999 annual report.

**Since 1997, the Ontario Centre for Environmental Technology Advancement, under a licence agreement with Environment Canada, has been delivering Canada's Environmental Technology Verification program. The Environmental Technology Verification program is a voluntary initiative that promotes the commercialization of new environmental technologies through the independent third-party verification of the technology proponent's performance claims. These verifications assure clients and users of high technical credibility and performance standards. Through Environmental Technology Verification Canada, a new procedure was developed to test equipment that removes mercury from dental amalgam waste prior to sewer discharge. This provides a Canadian methodology equivalent to the ISO 11143 method that is used in Europe.**

For waste incineration, Environment Canada is working with federal departments that own or operate non-hazardous waste incinerators to ensure that the targets in the Canada-wide Standard are achieved. Efforts to reduce mercury emissions will be implemented through the adoption of the Mercury-containing Product Stewardship Manual for Federal Facilities. Information is currently being gathered on mercury emissions at federally owned hazardous waste incineration facilities. This includes verification of federally owned hazardous waste incinerators and collection of information pertaining to mercury emissions.

For base metal smelting, Environment Canada works through the Base Metals Environmental Multi-stakeholder Advisory Group to monitor the progress of that sector towards achievement of the standard. During 2004–05, all facilities, with the exception of one, met the Canada-wide Standard. In addition, on September 25, 2004, a Proposed Notice Requiring the Preparation and Implementation of Pollution Prevention Plans in respect to Specified Toxic Substances Released from Base Metals Smelters and Refineries and Zinc Plants was published. A draft Environmental Code of Practice for Base Metals Smelters and Refineries, dated June 2004, was also published. Both include the Canada-wide Standard for Mercury Emissions among the factors to consider.



[www.ec.gc.ca/MERCURY/MM/EN/mm-cws.cfm](http://www.ec.gc.ca/MERCURY/MM/EN/mm-cws.cfm)

### 1.4.2.4 Particulate Matter and Ozone

Under the PM and Ozone agreement, the federal government was responsible to develop an implementation plan that among other things would contribute to:

- Reducing the transboundary flow into Canada of PM, Ozone and their precursor pollutants.
- The reduction in emissions from transportation.
- The reduction in emissions from commercial and consumer products including residential wood burning appliances and solvent-containing products.
- Continuous improvement and keeping clean -areas-clean strategies for federally-owned lands and facilities.
- Health and environmental science, monitoring and outreach.

The Quebec Region co-chaired the Intergovernmental Working Group on Residential Wood Combustion. The group asked two multistakeholder technical subcommittees to develop a model regulation on residential woodburning appliances, a model

municipal bylaw, and an education program. The Working Group submitted its final report (achievements and recommendations) in December 2004. The initial joint actions set out in the report for residential wood heating were completed, and a five-year action plan was developed during this reporting period.

In 2004–05, Health Canada:

- developed and provided health effect updates for the health risk assessments supporting the Canada-wide Standards; and
- continued the development of the Air Quality Benefits Assessment Tool and developed new estimates of relative risk for particulate matter and ozone, as well as new estimates for the economic valuation of adverse effects.

Science commitments under the Joint Initial Actions for the Canada-wide Standards were completed in March 2005 at a Stakeholder Smog Science Workshop, organized by Environment Canada's Meteorological Service. The workshop involved science updates by federal and provincial government departments and an outline of Environment Canada's proposed science activities leading to a new smog science assessment to support the 2010 standard review.

#### 1.4.2.5 Petroleum Hydrocarbons

The Canada-wide Standard for petroleum hydrocarbons in soil is undergoing its first five-year review. Information regarding the implementation of the Canada-wide Standard continues to be collected in anticipation of the next requirement to report to Ministers in 2008. Although analysis of data for 2004–05 has not yet been completed, it is expected that there will have been an increase in the application of the Canada-wide Standard during the assessment or remediation of sites with petroleum hydrocarbon contamination, beyond the 50% estimated for 2003–04.



[www.ccme.ca/ourwork/soil.html?category\\_id=43](http://www.ccme.ca/ourwork/soil.html?category_id=43)

### 1.4.3 Canada-wide Strategy for the Management of Wastewater Effluents

Environment Canada recognizes the key role that provinces and territories play in the management of the municipal wastewater sector and is working with these jurisdictions and other stakeholders through the CCME. In November 2003, the CCME

agreed to develop a Canada-wide Strategy for the management of municipal wastewater effluents. The strategy, to be completed by December 2006, will include:

- a harmonized regulatory framework;
- coordinated science and research; and
- an environmental risk management model.

Environment Canada intends to develop a regulation under the *Fisheries Act* as its principal instrument to contribute to the implementation of the Canada-wide Strategy. The regulation will include national standards and be applied in a harmonized regulatory framework with the provinces and territories. The goal is to ensure that the release of wastewater effluent does not pose unacceptable risks to human and ecosystem health or fishery resources.

### 1.4.4 National Air Pollution Surveillance Program

Environment Canada and provincial and territorial Deputy Ministers signed the National Air Pollution Surveillance Program Memorandum of Understanding on December 17, 2004. The purpose of the agreement is to define the roles and responsibilities of the program participants. It essentially formalizes and makes transparent the successful collaborative operating arrangements that have evolved over the past three decades.



<http://canadagazette.gc.ca/part1/2004/20040131/html/supp1-e.html>

## 2 Public Participation (Part 2)

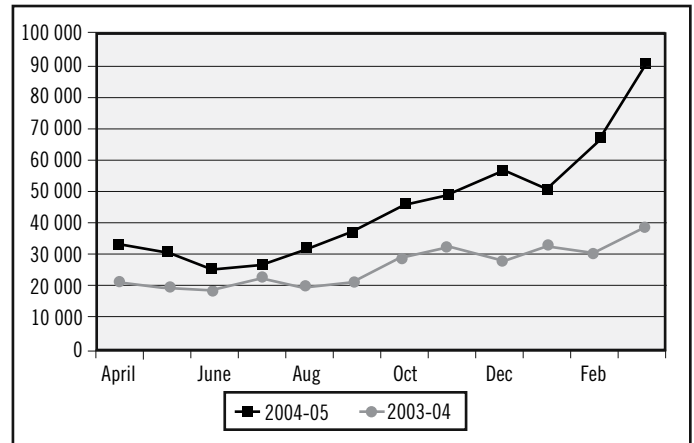
Public participation in matters related to CEPA 1999 is an integral part of the success of the Act. Part 2 outlines participation requirements under the Act, such as the establishment of an environmental registry, whistleblower protection, and the right to seek damages.

### 2.1 CEPA Environmental Registry

The CEPA Environmental Registry was launched on Environment Canada's website with the proclamation of CEPA 1999 on March 31, 2000. Since that time, ongoing efforts have been made to increase the Registry's reliability and user-friendliness. The content and structure of the Registry continue to evolve as new documents are added and as improvements are identified by users. To date, the usage reports have indicated that the information found on the Registry is useful not only to the public, but also to the department itself. The Registry continues to expand in order to serve Canadians better and now encompasses thousands of CEPA-related documents and references. It has become a primary source of environmental information for the public and private sectors, both nationally and internationally, and promotes greater public participation in key departmental priorities.

Since the launch of the CEPA Environmental Registry, usage has continued to follow an upward trend. By February 2005, the average was almost 90 000 visits per month. This represented a significant increase over the 38 000 visits per month averaged in 2003. It is believed that the "spike" that appears in the final quarter of 2004–05, shown in Figure 2, may be attributed, in part, to the improvements that staff have made to the Government of Canada Core Subject Thesaurus of keywords that search engines use to index a website such as the Registry.

Figure 2: Number of Environmental Registry Users



[www.ec.gc.ca/CEPARRegistry](http://www.ec.gc.ca/CEPARRegistry)

### 2.2 Public Consultations

During 2004–05, 13 formal Notices and Orders made under CEPA 1999 were published in the *Canada Gazette*, the official newspaper of the Government of Canada. Further supplementing the posting of these initiatives in the *Canada Gazette* during 2004–05, 12 environmental and health protection initiatives were posted on the CEPA Environmental Registry for stakeholder and public input (see Table 1). Some initiatives are also posted on various Environment Canada websites.



[www.ec.gc.ca/CEPARRegistry/participation/](http://www.ec.gc.ca/CEPARRegistry/participation/)

Table 1: CEPA 1999 Public Participation Initiatives for 2004–05 Reported in the CEPA Registry

Risk Management
• <i>Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations</i>
• <i>Prohibition of Certain Toxic Substances Regulations, 2005</i>
• <i>Regulations Amending the Vinyl Chloride Release Regulations, 1992</i>
• <i>Regulations Amending the Ozone-depleting Substances Regulations, 1998</i>
• <i>Off-Road Compression-Ignition Engine Emission Regulations</i>
• <i>Regulations Amending the Sulphur in Diesel Fuel Regulations</i>
• <i>Chromium Electroplating, Chromium Anodizing and Reverse Etching Regulations</i>
• Risk Management Strategy for Pentachlorobenzene and Tetrachlorobenzenes
• Guidelines for the Reduction of Ethylene Oxide Releases from Sterilization Applications
• Proposed Addition of Tetramethyl Lead, Tetraethyl Lead, and Ethyl Parathion to the Prior Informed Consent Procedures of the Rotterdam Convention
• Adding Substances to the List of Toxic Substances
• Proposed Pollution Prevention Plans in Respect of Specified Toxic Substances Released from Base Metals Smelters and Refineries and Zinc Plants
• Reducing Emissions of Greenhouse Gases from Off-Road Vehicles and Equipment
• Scoping the Issues: Preparation for the Parliamentary Review of CEPA 1999
• Developing a Proposed Process for the Review of the Canada–United States Great Lakes Water Quality Agreement
• Canada's Draft National Implementation Plan under the Stockholm Convention on Persistent Organic Pollutants
• Review of the Canada-wide Standard for Petroleum Hydrocarbons in Soil
Risk Assessment
• Screening Assessment of Specific Polybrominated Diphenyl Ethers (PBDEs)
• Approach Documents for the Ecological Categorization of Organometallics, Polymers, and UVCBs (Substances of Unknown and Variable Composition, Complex Reaction Products, or Biological Materials) on the Domestic Substances List
• Publication of Screening Assessment of Perfluorooctane Sulfonate (PFOS) and its Salts and Precursors
• <i>Regulations Repealing the New Substances Notification Regulations</i>
• <i>Regulations Amending the New Substances Fees Regulations</i>
• <i>New Substances Notification Regulations (Organisms)</i>
• <i>New Substances Notification Regulations (Chemicals and Polymers)</i>
CEPA 1999 Review
• The CEPA Review link on the CEPA Environmental Registry is a comprehensive source of public information about departmental activities related to the Parliamentary Review of CEPA 1999. See Section 11.2 for results of the consultation.



### 3 Information Gathering, Objectives, Guidelines, and Codes of Practice (Part 3)

Part 3 authorizes the Minister of the Environment to:

- establish environmental monitoring systems;
- collect and publish data on environmental quality in Canada;
- conduct research and studies on pollution control and environmental contamination;
- formulate plans for pollution prevention and the control and abatement of pollution; and
- publish information on pollution prevention, pertinent information on all aspects of environmental quality, and a periodic report on the state of the Canadian environment.

This Part also authorizes the Minister of Health to:

- collect, process, correlate, and publish on a periodic basis data from any research or studies conducted relating to the role of substances in illnesses or in health problems; and
- distribute available information to inform the public about the effects of substances on human health.

#### 3.1 Environmental Quality Monitoring

*Delivering environmental results depends, in part, on Environment Canada and Health Canada:*

- *having the information needed to determine whether or not programs and tools are having their intended effect of improving environmental quality and of reducing human exposure to harmful substances in the environment with subsequent health benefits; and*
- *providing the public, including industry, with information related to environmental quality and trends that might prompt it to change its behaviour.*

*In Canada, air and water quality monitoring is carried out through partnerships among provincial, territorial, and federal governments, municipalities, universities, air and water associations, environmental groups, and volunteers.*



[www.ec.gc.ca/CEPARRegistry/SandT/Monitoring.cfm](http://www.ec.gc.ca/CEPARRegistry/SandT/Monitoring.cfm)

#### 3.1.1 National Air Pollution Surveillance Network

The National Air Pollution Surveillance network is a joint federal, provincial, territorial, and municipal network, established in 1969. It is primarily an urban network, with nearly 300 air monitoring stations in 177 communities. In total, almost 840 instruments, including continuous analyzers, particulate monitors, and samplers, are used to provide air quality measurements on toxic substances such as PAHs and dioxins and furans, as well as heavy metals such as arsenic, lead, and mercury. Over the years, the network has produced one of the largest and most geographically diverse databases of pollutants in Canada.

Beginning in 2002, Health Canada has collaborated with Environment Canada to measure metals in airborne particulate matter. Accomplishments in 2004–05 included the development of analytical method and interlaboratory comparisons between the Environmental Health Sciences Bureau (Health Canada) and the Environmental Technology Centre (Environment Canada) for quality assurance. A valuable outcome of this work was the assurance of consistency between Health Canada's measurements of airborne metals in indoor environments and those of the National Air Pollution Surveillance network.



[www.etc-cte.ec.gc.ca/naps/naps\\_summary\\_e.html](http://www.etc-cte.ec.gc.ca/naps/naps_summary_e.html)

#### 3.1.2 Canadian Air and Precipitation Monitoring Network

The Canadian Air and Precipitation Monitoring Network is a rural air quality monitoring network, which has been taking measurements since 1978. There are currently 29 measurement sites in Canada, located in remote and relatively pristine areas. One site in the United States and another in Canada ensure compatibility of measurement methods between the Canadian and U.S. networks.



In 2004–05, the network continued to support air quality measurements by:

- providing the background information required for Environment Canada's environmental prediction and air quality forecasts;
- exchanging data under the Canada–United States Air Quality Agreement Ozone Annex obligations (see Section 7.7.1); and
- providing data to the Aerometric Information Retrieval System database for near-real-time reporting of ozone levels and particulate matter in Canada and the United States.

Data have also been collected at selected sites on a wide range of other pollutants, including substances that were found to meet the criteria of section 64 of CEPA 1999, such as particulate sulphate, gaseous ammonia, nitrate, gaseous sulphur dioxide, and nitric acid. In excess of 25 000 samples of all types were analyzed in 2004–05 in support of Canadian environmental research initiatives.



[www.msc-smc.ec.gc.ca/natchem/particles/n\\_capmon\\_e.html](http://www.msc-smc.ec.gc.ca/natchem/particles/n_capmon_e.html)

### 3.1.3 Arctic Monitoring and Assessment Programme

Environment Canada continued its research activities on spatial and temporal trends of persistent organic pollutants (POPs) as well as heavy metals in the Canadian Arctic. These activities have contributed to Environment Canada's improved identification of the sources, pathways, and fates of these chemicals and effectiveness of its management actions in addressing these substances. Data that are collected and published under the Northern Contaminants Program, led by Indian and Northern Affairs Canada and the international Arctic Monitoring and Assessment Programme (AMAP), on human health impacts of long-range transport of pollutants into the Arctic show that bioaccumulation of some POPs in the traditional marine mammal diet of our Inuit peoples can exceed human health guidelines for dietary intake. From this information, AMAP had been asked by the Arctic Council of Ministers to prepare another assessment of Arctic contaminants within five years with a greater focus on human health. The AMAP Human Health Assessment Group, co-led by Canada (Health Canada) and Denmark, has agreed to undertake a third contaminant assessment in the circumpolar Arctic, including special reference to mercury, as requested by the AMAP Working Group and Arctic Council of Ministers.



[www.amap.no](http://www.amap.no)

### 3.1.4 Global Atmospheric Passive Sampling Study

The Global Atmospheric Passive Sampling Study is a global network for monitoring chemicals in the environment using simple sampling devices that do not require electricity. This one-year pilot study was initiated in December 2004 at more than 50 sites around the world on all continents and is a collaborative effort managed by Environment Canada scientists working with a team of international researchers. Results from the study will contribute to Canada's obligations under the Stockholm Convention on Persistent Organic Pollutants under the United Nations Environment Programme and the United Nations Economic Commission for Europe's POPs Protocol.

### 3.1.5 North American Commission for Environmental Cooperation

Health Canada is leading a trinational (Mexico, United States, Canada) maternal blood contaminant monitoring project under the Commission for Environmental Cooperation. Staff from Health Canada, the U.S. Centers for Disease Control and Prevention, and the Mexican National Institute of Public Health have designed common sampling protocols, dietary questionnaire summaries, and analytical methods to ensure comparability of data. Sampling of maternal blood should allow for the first trinational comparison of contaminants such as mercury, lead, cadmium, PCBs, dichlorodiphenyltrichloroethane (DDT), and hexachlorobenzene (HCB). A trinational report and peer-reviewed papers will be produced based on this research.

### 3.1.6 Northern Contaminants Program

Mercury monitoring has continued over northern Canada. Almost 10 years of measurements show that the gas-phase elemental mercury concentrations at Alert, Nunavut, have remained constant. These results are used to inform international initiatives such as the United Nations Environment Programme's Global Mercury Programme and the Heavy Metals Protocol of the Convention on Long-range Transboundary Air Pollution.

Under the Northern Contaminants Program's baseline air monitoring project, persistent, toxic, and bioaccumulative chemicals have been measured at various Canadian and Russian Arctic locations since 1992 to determine whether atmospheric concentrations and deposition of priority pollutants (such as

mercury, DDT, PCBs, and hexachlorocyclohexane [HCH]) in the Arctic are changing in response to various national and international initiatives, such as the Stockholm Convention on Persistent Organic Pollutants and the United Nations Economic Commission for Europe's POPs and Heavy Metals Protocols of the Convention on Long-range Transboundary Air Pollution. Long-term monitoring data obtained from Alert show that levels of chemicals eliminated or restricted under one or both of these international agreements (e.g., PCBs, DDT, toxaphene, chlordane, and HCH) are generally declining in Arctic air. The role of the atmospheric circulation pattern between the south and the Arctic in the spring was investigated and was shown to be a controlling factor for the varying concentrations in POPs observed during seasonal changes.

In 2004–05, a special issue of the journal *The Science of the Total Environment*, entitled "Sources, Occurrence Trends and Pathways of Contaminants in the Arctic," was published. This special issue contains 13 peer-reviewed papers dealing with mercury and POPs in the non-living parts of the environment, which include all the physical elements of an organism's existence, especially the intersecting roles of the sun and solar energy, weather and climate, soil, and water. A forthcoming special issue deals with contaminants in fish, wildlife, and humans. Environment Canada scientists made a substantial contribution to and played a leadership role in both publications. These publications were used as the basis for the contaminant information given to Northerners and international partners such as AMAP and were used to satisfy Canada's obligations under international agreements such as the Stockholm Convention on Persistent Organic Pollutants and the United Nations Economic Commission for Europe's Convention on Long-range Transboundary Air Pollution.

### 3.1.7 Water Quality Monitoring

The completion of a comprehensive report on elements and recommendations for a Canada-wide framework on water quality monitoring, as well as a successful CCME Water Quality Index workshop, supported Environment Canada's commitment to better link and expand water quality monitoring networks nationally through the development of a Canada-wide framework. The Canadian Water Quality Data Referencing Network was developed to respond to the need for enhanced information access by obtaining and providing web-based information on water quality monitoring activities within the provincial, territorial, and federal governments. In 2004–05, translation efforts were under way to provide web-based access to the network.

As part of its plan to build capacity in water quality monitoring networks, Environment Canada held a national water quality workshop early in 2005, which brought together representatives from provinces, territories, federal departments, and water quality organizations. The workshop resulted in a constructive dialogue towards nationally consistent monitoring to support reporting on water quality at the national level using the CCME Water Quality Index.

Environment Canada, in partnership with Statistics Canada, Health Canada, provinces, and territories, began implementation of the national Freshwater Quality Indicator program under the Canadian Environmental Sustainability Indicators initiative. The program includes a nationwide water quality monitoring network expansion to support the data requirements of annual reporting on freshwater quality. The first Freshwater Quality Indicator report, released in December 2005, uses existing data from federal, provincial, and territorial water quality monitoring networks.

### 3.1.8 Ecological Monitoring and Assessment Network

The Ecological Monitoring and Assessment Network provides information from various national and regional monitoring programs, more than 80 long-term integrated ecosystem monitoring sites, and a diversity of ecological monitoring initiatives conducted by numerous collaborators at all levels of government, as well as non-governmental organizations, community groups, academia, and volunteers. The network extends Environment Canada's capacity to collect, access, integrate, assess, and deliver sound information on ecosystem conditions and trends. Notable results in 2004–05 included:

- finalization of the Ontario Benthic Biomonitoring Network's benthic monitoring protocol and the development of an electronic platform for the exchange and management of benthic (bottom-feeding) invertebrate (animals without a backbone, such as mayflies, freshwater shrimps, stoneflies, caddis flies, and worms) data, in partnership with the Ontario Ministry of the Environment and the National Water Research Institute;
- implementation of a standardized set of recommended ecosystem monitoring protocols in over 200 monitoring stations across Canada, with an additional 32 monitoring plots added in 2004–05;
- addition of 80 new partners and associates to the network, which now tops over 460 individuals and organizations;

- training over 130 individuals to use the network's standardized monitoring protocols;
- completion of an inventory of protocols suitable for community-based monitoring;
- delivery of a special session on the theme "Linking Science to Decision-Making at Community and Landscape Scales" at the international Consortium for Advancing Monitoring of Ecosystem Sustainability in the Americas Monitoring Science and Technology Symposium ([www.eman-rese.ca/eman/reports/publications/intro.html](http://www.eman-rese.ca/eman/reports/publications/intro.html));
- completion of a survey of ecological monitoring activities within the Atlantic Coastal Action Program, which compiled information on monitoring programs, data dissemination and management, and the effectiveness of data delivery, as well as its impacts on policy- and decision-making; and
- participating in and sharing innovative approaches to enhancing the effectiveness of ecological monitoring, and developing improved links to two U.S. monitoring network initiatives: the Long Term Ecological Research Network Program Review and the design of the new National Ecological Observatory Network.



[www.eman-rese.ca/eman/](http://www.eman-rese.ca/eman/)

### 3.1.9 Framework for National Northern Strategy

On December 14, 2004, the Prime Minister and Territorial First Ministers released a draft framework for the first-ever jointly developed Northern Strategy. The framework included a draft vision for the North, along with suggested principles to guide the development of the Strategy and set possible goals and objectives.

Several monitoring programs will support the Strategy. In 2004–05, four air quality monitoring stations, through the National Air Pollution Surveillance network, were deployed in the North. Yellowknife has two monitoring sites that are equipped to sample for ozone, sulphur dioxide, nitrogen oxides, carbon monoxide, particulate matter less than or equal to 2.5 ( $PM_{2.5}$ ) and 10 microns ( $PM_{10}$ ), and total suspended particulates. The other two stations are located in the Yukon and Nunavut. The Yukon station is set up to monitor for ozone, nitrogen oxides, carbon monoxide, and  $PM_{2.5}$ . The Nunavut station, located in downtown Iqaluit, allows for the collection of coarse particulate matter samples. Nunavut has plans to include additional stations and monitoring of fine particulate matter.

In addition, the Northwest Territories have made plans to expand the air monitoring network to address the proposed Mackenzie Gas Project (natural gas pipeline), diamond mines, diesel power generation, hospital biomedical waste incinerators, and overall community air quality.

The Ecological Monitoring and Assessment Network improves understanding of ecological change in northern Canada through promoting coordination and communication of the results of long-term ecological monitoring. The network also contributes to the understanding of issues such as POPs and heavy metals, climate change, environmental predictions, and changes to fresh water. The data collected will be used to support the Northern Strategy and its goals.

Other programs that monitor the North include:

- Air quality monitoring at Alert under the World Meteorological Organization's Global Atmosphere Watch network—Alert (latitude 82°N, longitude 63°W) is the northernmost observatory in the Global Atmosphere Watch network of stations that has been tracking the chemistry of the atmosphere on a global basis. Some measurements include carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, chlorofluorocarbons (CFCs), carbon monoxide, ozone, peroxyacetyl nitrate, radon, mercury, and ultraviolet (UV) radiation.
- The Canadian Air and Precipitation Monitoring Network (see Section 3.1.2)—The network is planning to upgrade its website to acquire continuous ozone and  $PM_{2.5}$  data for air quality forecasts.



[www.msc.ec.gc.ca/iadn/](http://www.msc.ec.gc.ca/iadn/)

### 3.1.10 Integrated Atmospheric Deposition Network

The Integrated Atmospheric Deposition Network is a Canada–United States network that monitors concentrations of persistent, bioaccumulative, and toxic pollutants in the air and precipitation near the Great Lakes. In 2004–05, the network measured the concentrations of PCBs, organochlorine pesticides, PAHs, and trace metals in the atmosphere at stations located on the shores of all of the Great Lakes. The results show that atmospheric deposition of most toxic chemicals and banned compounds is generally decreasing following in-basin emission control

of these substances. In addition, data indicate that future reductions of toxic chemical levels in the water will be directly related to decreasing concentrations of these compounds in the atmosphere.

A loadings report covering the period 1999–2000 was published in 2004. Improvements to the loadings model included lakewide averaged values for precipitation rates and wind speeds as well as updated physicochemical properties for PCBs.

PCBs continued their trend of volatilizing (the process by which PCBs in surface waters become airborne) out of the Great Lakes, emphasizing the link between lake water and air levels or concentrations. Loadings of combustion and industrial by-products such as PAHs and trace metals have remained constant over time.



[www.msc.ec.gc.ca/iadn/](http://www.msc.ec.gc.ca/iadn/)

### 3.1.11 Great Lakes and Regional Environmental Quality Monitoring and Surveillance

Ambient environmental quality monitoring programs are carried out in Lakes Superior, Huron, Erie, and Ontario, as well as in the St. Clair/Detroit corridor and the Niagara and St. Lawrence rivers. Water and sediment monitoring for nutrients, organic contaminants, and trace metals is conducted to assess progress towards specified goals for environmental improvement, identify problems and emerging issues, and aid in planning and decision-making. While long-term trends indicate declining concentrations of most contaminants, some chemicals exceed water and sediment quality guidelines, and fish consumption advisories continue throughout the Great Lakes.

As part of the ongoing effort to delineate potential sources of toxic contaminants in the Great Lakes, bottom sediment sampling is conducted at the mouths of several hundred tributaries/watercourses to the Great Lakes. Sampling is being conducted on a rotational cycle: Lake Erie (2001), Lake Ontario (2002, 2003), Lake Huron (2004), and Lake Superior (2005). Substances analyzed include the organochlorine pesticides, industrial by-products (e.g., mirex, octachlorostyrene), PCBs, PAHs, and metals. Results are compared with existing CCME Canadian Environmental Quality Guidelines and provincial

sediment quality guidelines and combined with other water quality, fisheries, and benthic information using a weight-of-evidence approach to prioritize any subsequent trackdown efforts.

The year 2004 marked the 30th year of the Great Lakes Herring Gull Egg Contaminants Monitoring Program. It is the longest-running annual wildlife contaminants monitoring program in the world. Eggs are analyzed for approximately 100 compounds, including PBDEs, PCBs, dioxins, and mercury. Contaminants may be up to one million times more concentrated than they are in water. Since the early 1970s, concentrations of most major contaminants in gull eggs have been reduced by up to 95%, in response to various initiatives that have curbed or reduced the release of pollutants into the environment.



[www.on.ec.gc.ca/wildlife/publications-e.html](http://www.on.ec.gc.ca/wildlife/publications-e.html)

In 2004–05, reports were released for the tributary trackdown work in Lake Ontario and Lake Erie. Results showed that federal and/or provincial sediment quality guidelines were exceeded for PCBs, PAHs, and metals in individual tributaries.



[www.on.ec.gc.ca/monitoring/water-quality/](http://www.on.ec.gc.ca/monitoring/water-quality/)

### 3.1.12 Systematic Measurement of Stratospheric Ozone and UV

The Canadian Brewer spectrophotometer observation network consists of nine stations, three of which are in the Arctic. The Brewer instruments measure total column ozone by comparing the intensities of five UV-B wavelengths in order to better correct for the influence of absorbers other than ozone. The Brewers also monitor the nitrogen dioxide column at several sites and make spectrally resolved UV-B measurements at all Canadian sites.

In 2004–05, some 300 ozonesondes, which are instrument packages carried aloft by balloons, were launched throughout the year from six locations in Canada, including three in the Arctic. Ozonesondes provide direct measurements of ozone concentrations at different altitudes in the atmosphere. The long-term trends in average tropospheric ozone concentrations over remote sites in northern Canada are similar to corresponding lower stratospheric trends, and annual average tropospheric

ozone values (including surface values) are correlated with lower stratospheric ozone amounts. This suggests that ozone levels in the troposphere in northern Canada are controlled by stratospheric ozone in ways that are not yet well understood.

Previous analyses of ozone trends over Canada using data from ozonesondes have shown strong downward trends in tropospheric and stratospheric ozone concentrations. Over the longer term (1980–2001), ozone levels in both the troposphere (where it is generally regarded as a pollutant) and the stratosphere (where it blocks harmful UV-B) have declined. However, when only the data for 1991–2001 are considered, the trends are positive, even in the lower stratosphere. When the time series are examined, it is evident that ozone has rebounded to some degree at all levels below about 20 kilometres. It has been demonstrated that this rebound is probably a result of small changes in the atmospheric circulation, rather than a recovery of the ozone layer from depletion caused by CFCs.

AEROCAN is a sunphotometer and sky-scanning radiometer network that is part of the **AErosol RObotic NETwork** (AERONET), a federated group of networks for observing aerosol optical properties globally. These observations can be used to help understand how air pollution events (e.g., smog) affect aerosol optical properties. (Aerosols are tiny particles in the 0.001–100 µm range suspended in the atmosphere and can be solids such as smoke and dust or liquids such as haze droplets. Either naturally occurring or produced by human activities, aerosols have an impact on respiratory health and global climate.) AEROCAN is a collaborative effort between the University of Sherbrooke, the Canada Centre for Remote Sensing, and the Meteorological Service of Canada. The present network consists of 14 sites, with another 2 being added in fiscal year 2005–06. As part of the Border Air Quality Initiative, the data obtained at these sites will be used for the processing of real-time aerosol optical depths, which will be assimilated into an air quality forecast model.

## 3.2 Research

*Scientific research is used to:*

- *evaluate the impact of toxic substances and other substances of concern on the environment and human health;*

- *determine the extent of exposure to contaminants;*
- *guide risk assessments;*
- *develop preventive and control measures by identifying pollution prevention and technology solutions; and*
- *provide specialized sampling and analytical techniques used in compliance promotion and enforcement.*

*Environment Canada and Health Canada scientists published hundreds of articles, reports, and papers during this reporting period. The following examples illustrate the types and range of research effort undertaken in 2004–05.*

### 3.2.1 Air

Examples of air research conducted under CEPA 1999 in 2004–05 include:

Detecting changes in the atmosphere's composition

- The Middle Atmosphere Nitrogen Trend Assessment field campaign was carried out to study the changing chemical balance of the stratosphere. A series of high-altitude balloon campaigns measured stratospheric trace gases, which included ozone profiles obtained from a number of ozonesondes, along with additional ground-based instruments, which provided ozone and nitrogen dioxide total columns and vertical profiles. [Research results: Data collected during the field campaign will help define future studies (on stratospheric ozone) and validate instrumentation.]
- The statistical relationship between springtime and summertime ozone over middle and polar latitudes was analyzed. [Research results: It was demonstrated that about 39% of summertime ozone levels decline over southern mid-latitudes and about 15% of summertime ozone levels decline over northern mid-latitudes. These effects can be attributed to polar ozone depletion in spring.]

Profiling chemical characterization

- Health Canada researchers completed a study of metals and airborne particulate matter in indoor and outdoor air of 10 urban and 10 rural homes in the city of Ottawa, which quantified the public's exposure to these substances. [Research results: Results from this study indicated that the indoor air concentrations were lower than outdoor air concentrations for most elements (unlike settled dust). A separate study investigated the sources and potential hazards of mutagenic compounds (e.g., PAHs) in settled house dust and the excess lifetime carcinogenic risk that can be attributed to pre-school exposures to settled house dust.]



Understanding the impact of POPs and heavy metals on ecosystems

- Under the Border Air Quality Strategy, Health Canada undertook health and environmental monitoring activities in the Windsor/Detroit area and initiated the development of sampling and analytical protocols for metals and airborne particulate matter in indoor residential environments, to address data gaps associated with childhood exposures to metals through ingestion and inhalation of settled dust and airborne particles.
- Health Canada scientists collaborated with the United Kingdom's Health and Safety Laboratory to develop a proficiency testing program to support a draft European standard for metals found in ambient air (lead, arsenic, nickel, and cadmium).

Understanding the adverse impacts of existing toxic substances (particularly ecosystem impacts)

- The development and use of quantitative methods for assessment of the impacts of air pollution by further development of the Air Quality Benefits Assessment Tool and the underlying risk and monetization estimates.
- The development of a method to determine the impact of biodiesel on air quality and subsequent impacts on public health, using the model developed for ethanol.
- The use of a Buoyancy-Corrected Gravimetric Analysis System to improve the accuracy of mass measurements of airborne particulate matter. [Research results: Health Canada filed worldwide patents for the invention—the facility housing this technological invention became fully operational in 2004 and was used to analyze over 3000 samples collected under the Border Air Quality Strategy.]

Understanding the relative contribution of the numerous sources of pollution

- In the Georgia Basin – Puget Sound area, Health Canada is conducting research to develop cohorts to evaluate health outcomes and exposure assessment tools. These will be linked to produce estimates of exposures to various air pollutants for each individual using validated exposure models that incorporate specific pollution sources. Models will allow assessment of the impact of these exposures on various health outcomes and the impact of alternative air quality management strategies on health outcomes. They will also allow evaluation of the impact of specific emissions sources on air quality and resulting health effects.
- Global modelling of transport and transformation has been carried out to quantify the contributions of mercury emissions from various continents to Canada and the rest of North America. [Research results: The information is being used in international agreements to reduce mercury emissions.]

- Estimation methods for determining atmospheric deposition of acidifying substances have been improved. [Research results: These were employed to determine to what extent critical loads are being exceeded in terrestrial and aquatic ecosystems and, hence, what further acid gas emission controls will be needed in Canada and the United States.]
- The 2004 Canadian Acid Deposition Science Assessment report updated information on environmental effects of emissions of sulphur and nitrogen oxides (both on Schedule 1 of CEPA 1999), in the form of data on critical loads and current exceedances of critical loads in consideration of damage to forest soils and aquatic ecosystems. [Research results: This work provides insight into the adequacy of current pollution abatement plans and the extent of further reductions necessary to achieve environmental goals.]

Understanding why air quality is changing from

- The use of biodiesel fuels.
- The use of wood stoves as heat sources in a residential neighbourhood of Montreal. [Research results: The principal cause of the reduction of air quality in the residential neighbourhood compared with central Montreal was found to be the use of wood stoves by the residents.]

How to address air quality issues

- Exhaust emission measurements were conducted on different mobile source types operating on biodiesel fuels under “real-world” conditions. [Research results: These data from marine vessels, off-road equipment, and urban buses provided both Environment Canada and Natural Resources Canada with information in support of policy development, such as the use of renewable fuels under the Climate Change Action Plan.]
- Collaborative research and development programs with industry supported the development and optimization of new aftermarket emissions control technologies for both on-road heavy-duty vehicles and off-road construction equipment. [Research results: The focus of the work was to reduce nitrogen oxide emissions from diesel engines using exhaust gas recirculation and selective catalytic reduction for both on-road heavy-duty vehicles and off-road construction equipment.]

### 3.2.2 Contaminated Sites

Examples of research in 2004–05 include:

Understanding the effect on human health from exposure to

- Mixtures of metals based on metal contaminants found at Canadian contaminated sites. [Research results: Although the study is not yet completed, the preliminary results indicate no serious impact on reproduction or growth of the test animals.]

- Complex mixtures of PAHs in contaminated soils. [Research results: Comparisons of synthetic mixtures containing priority PAHs in amounts that correspond to those found at selected contaminated sites indicate that mutagenic effects, and presumably corresponding carcinogenic effects, of PAHs are cumulative. However, the total cumulative hazard attributable to priority PAHs in the mixture may be substantially less than that determined using standard risk assessment procedures that assume total risk is the sum of individual risks associated with each detected priority PAH. For this reason, site management decisions based on standard screening-level risk assessments may be conservative. Ongoing research will validate these initial findings.]

#### Understanding the effect on soil quality from

- Flame retardant compounds PBDEs and tetrabromobisphenol A, and their degradation products, in surficial sediment samples spanning sites across Lake Erie.

#### Identifying and addressing the problem using

- A new soil toxicity method that includes earthworm survival, avoidance behaviour, and reproduction testing options, which was published in support of the federal facilities' contaminated sites program.
- Thermally enhanced bioremediation of petroleum hydrocarbons by combining bioremediation and underground thermal energy storage.
- Naturally generated organic acids to leach heavy metals from contaminated soil.

### 3.2.3 Water Quality

Examples of research in 2004–05 include:

#### Understanding the effect of pollution on water quality

- The fate and persistence of the pesticide DDT (listed on Schedule 1 of CEPA 1999) in the subsurface at Point Pelee National Park were assessed. [Research results: Past use of this substance for pest control in the former orchards and recreational areas has resulted in the contamination of soil, which still contains the pesticide at concentrations far above soil quality guidelines, and increased mortality of various species. Contaminated groundwater may represent a pathway to exposure of humans through the park's water supply wells and the aquatic ecosystem via groundwater discharge to the marsh. The results showed that the contamination of groundwater by DDT does not present a threat to humans or wildlife.]
- More than 500 groundwater samples from various federal government departments, the provinces, and other agencies, as well as samples of ambient groundwater from Canadian military bases and from agricultural districts, were analyzed. [Research results: Health Canada has developed a drinking water guidance value for perchlorate in response to a request from the Department of National Defence.

Health Canada subsequently received the results of this survey, which does not raise concerns regarding perchlorate levels in drinking water supplies. However, Health Canada will continue to monitor evolving science on this issue. Perchlorate concentrations in drinking water below 6 micrograms per litre are considered acceptable.]

#### Improving water quality through the use of

- A new method to isolate, identify, and quantify PBDEs in municipal wastewater effluent. [Research results: In support of CEPA 1999 regulations for persistent, bioaccumulative, and toxic substances, a reference method has been developed and validated for the measurement of hexachlorobutadiene (HCBD), HCB, pentachlorobenzene, and the three tetrachlorobenzenes in chlorinated solvents.]

#### Understanding the effect of pollution on health

- Sixteen different composite samples of wastewater effluent from seafood processing plants were collected at 13 sites over the daily plant production period. The effluent samples were submitted to a wide variety of laboratory tests to demonstrate the capacity of the effluent to cause adverse effects on a wide variety of organisms (bacteria, sea urchins, and fish). The adverse effects of the tests included inhibition of cellular activity, inhibition of growth, inhibition of fertilization, and mortality. Furthermore, the tests on fish looked at both the acute and chronic potential of the effluent to cause adverse effects.
- The capacity of beluga whales to metabolize PBDEs and PCBs was compared. This research examined the possible role of metabolism in the toxicological risks of organohalogen exposures by examining the immunochemical and catalytic characterization of Phase I and II enzymes in liver, organohalogens and metabolites in liver, and *in vitro* metabolism using an assay technique that looks at the liver tissue fractions that contain viable Phase I and II enzymes.

### 3.2.4 Ecosystem Initiatives

#### 3.2.4.1 Atlantic Coastal Action Program

The Atlantic Coastal Action Program is a community-based program that includes a network of 14 ecosystem-based organizations across the four Atlantic provinces. Since the program began in 1991, these groups have undertaken hundreds of projects involving diverse partners and thousands of volunteers. Science and monitoring projects have supported informed decision-making, linking scientists with communities and science with other forms of information.



In 2004–05, an airshed project in the Pictou region of Nova Scotia provided a better understanding of the sources, fate, and potential effects of pollution in the area by:

- monitoring the water quality and effects on aquatic invertebrates exposed to agricultural runoff from Prince Edward Island potato fields (the effectiveness of buffer zones in reducing the contaminant content of runoff was determined); and
- conducting atmospheric ozone profiles on Sable Island, environmental and sensitivity mapping of the Miramichi Estuary, and road salt loadings in a St. John's urban watershed.



<http://atlantic-web1.ns.ec.gc.ca/community/acap/default.asp?lang=En&n=B85A3121-11&referer=sitemap>

### 3.2.4.2 St. Lawrence Action Plan, Vision 2000

The St. Lawrence Action Plan has entered its fourth phase of implementation, which comprises three objectives: protecting the ecosystem, protecting the health of communities, and improving access to the St. Lawrence River.

Activities under the plan in 2004–05 that related to substances on Schedule 1 included:

- review of sediment quality criteria; and
- remediation of contaminated sediments along the river.

A monitoring committee involving Environment Canada and the Quebec Ministry of Sustainable Development, Environment and Parks was established in the fall of 2003 to oversee the review of the chemical sediment quality criteria currently used in Quebec. It tabled its final report in Parliament in January 2005. As a result, the criteria published in 1992 will be replaced by new sediment quality evaluation criteria based on the approach developed by the CCME for Canadian guidelines.

The proposal to securely contain 16 000 cubic metres of highly contaminated sediments in the St. Louis River, a tributary of the St. Lawrence River, was approved by the Quebec government in March 2005. The preparatory work began in 2005.



[www.slv2000.qc.ca/index\\_a.htm](http://www.slv2000.qc.ca/index_a.htm)

A report was published on the monitoring of the Great Blue Heron along the St. Lawrence River. The level of contamination in the St. Lawrence River was generally below the levels associated with toxicological effects in the Great Blue Heron. Globally, the health status of the St. Lawrence Great Blue Heron population was judged to be sufficient to maintain the population. However, plasma retinol (the main form of the vitamin A molecule) concentrations were found to be lower when concentrations of PCBs and organochlorines were higher. A lower retinol concentration may impair growth and development of heron fledglings.

### 3.2.4.3 Great Lakes

Examples of research in 2004–05 include:

Understanding the impacts on water quality from

- Several substances on Schedule 1 of CEPA 1999, including hormone-disrupting substances and flame retardants, as well as other emerging chemicals of concern, such as pharmaceuticals, veterinary drugs, and personal care products.
- Chlorinated and brominated phenolics (e.g., the anti-microbial agent triclosan and hydroxylated PCB metabolites) and hydroxylated PBDEs (apparent metabolites of PBDE flame retardants). These substances were found in the blood plasma of 13 species of benthic (bottom-feeding) and pelagic (non-bottom-feeding) fish from the Detroit River system. Many of these pollutants have the potential to disrupt the endocrine systems, particularly the thyroid hormone system, in exposed organisms. Work is under way to determine the effects of the substances found to be present.



[www.on.ec.gc.ca/water/greatlakes/action-plan-e.html](http://www.on.ec.gc.ca/water/greatlakes/action-plan-e.html)



[www.on.ec.gc.ca/wildlife/publications-e.html](http://www.on.ec.gc.ca/wildlife/publications-e.html)

### 3.2.4.4 Georgia Basin Action Plan

The multiagency Georgia Basin Action Plan (2003–08), which includes several areas in Canada and Puget Sound in the state of Washington, was announced on April 2, 2003.

Priorities for research and monitoring needs pertaining to 20 substances of concern in the Georgia Basin were identified. Recommendations are currently being finalized in conjunction with other levels of government for future work to address these priorities. Fourteen of the 20 priority substances are also on the List of Toxic Substances under CEPA 1999 or are proposed for addition to the list. They include nonylphenol and its ethoxylates, PAHs, PCBs, DDT, HCB, polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), ammonia (dissolved in water), and metals such as cadmium, chromium, mercury, and nickel.

An emissions inventory and preliminary health risk assessment of over 200 air toxics were undertaken. The results will be used to inform decision-makers in the Lower Fraser Valley on the risk to human health from air toxics and to address air emissions.

Examples of research activities in 2004–05 include identifying the effect that emerging chemicals (atrazine and galaxolide) have on the environment and the toxicogenomic effects on salmonids and amphibian early life stages when exposed to municipal wastewater effluents and effluents containing select pharmaceuticals and personal care products.



[www.pyr.ec.gc.ca/GeorgiaBasin/](http://www.pyr.ec.gc.ca/GeorgiaBasin/)

### 3.2.4.5 Northern Ecosystem Initiative

The Northern Ecosystem Initiative supports research activities to enhance the health and sustainability of communities and ecosystems across Canada's North.

Examples of research in 2004–05 include:

- The impacts from contaminant exposure (organochlorines, PCBs, PBDEs, mercury, and selenium) on the physiology, condition, and development (focusing on variables related to endocrine and immune function and oxidative stress) in the Arctic marine bioindicator species, the Glaucous Gull (the study is to be conducted from 2004 to 2007).
- The linkage between climate change and mercury levels in Arctic lakes (sediment) and fish (arctic char).
- Detecting the changes in soil contaminated by PCBs and fuel in Hopedale, Labrador.



[www.pnr-rpn.ec.gc.ca/nature/ecosystems/nei-ien/dh00s00.en.html](http://www.pnr-rpn.ec.gc.ca/nature/ecosystems/nei-ien/dh00s00.en.html)

### 3.2.5 Hormone-Disrupting Substances

Examples of research in 2004–05 include:

Understanding the potential impacts on human health from the exposure to:

- Mixtures of contaminants (PCBs, DDT, dichlorodiphenyldichloroethylene [DDE], PCDDs, and PCDFs). [Research results: The effects of this mixture and other mixtures (organochlorine pesticides, methylmercury, and PCBs) were compared following both *in utero* and postnatal exposure in rodents. (In the latter investigation, indicators of hormone disruption and other effects were selected for their potential to reveal long-term adverse health consequences.)]
- A commercial PBDE mixture. [Research results: The results indicate that exposure of avian neuronal cells to this mixture resulted in the alteration of genes associated with key hormonal (such as the thyroid hormone) and neurotransmitter pathways (such as the cholinergic system), with potential impacts on organism development, mobility, bioenergetics, and homeostasis.]
- Chlorinated and brominated phenolic and methoxylated pollutants in the blood plasma of 13 species of benthic (bottom-feeding) and pelagic (non-bottom-feeding) fish from the Detroit River system. [Research results: Chlorinated phenolics (e.g., the anti-microbial agent triclosan and hydroxylated PCB metabolites) and hydroxylated PBDEs (apparent metabolites of some flame retardants) were found in the blood plasma of all fish examined.]

### 3.2.6 Technology Development

Examples of research in 2004–05 include:

Reducing the health and safety impacts of environmental threats by using

- Advanced wastewater treatment systems (pilot-scale) to remove endocrine disrupting compounds such as nonylphenol and polybrominated flame retardants found in municipal effluents. The results will guide future wastewater technology development.
- Microwave-Assisted Processes™ technologies (large-scale applications) to reduce energy use, solvent use, and greenhouse gas emissions in industrial processing, such as those found in the commodity food oils industry and manufacturing operations—ongoing work included substituting n-butane for hexanes, thereby adding significant clean air co-benefits to the greenhouse gas reductions.

- Microwaves for chemical synthesis to reduce energy use in the order of 95% when taking into account the overall energy production cycle (solvent production, synthesis, purification, solvent removal).
- After-treatment reduction technology for nitrogen oxides to determine the potential for emissions reductions from the marine propulsion engines.
- The digestion of municipal sludges with potato wastes as a low-cost and sustainable source of hydrogen from organic waste materials, which could reduce the reliance on fossil fuels.
- A low-cost technology to improve the economics of recovering energy from biogases recovered from landfills and from the digestion of municipal sludges and manure. [Research results: Removal of hydrogen sulphide from biogas.]

### 3.2.7 Substances that Meet the Criteria of Section 64 and Other Substances of Concern

Research in 2004–05 included efforts to understand the health effects from:

- The releases of HCB from green pigments in consumer products into the environment. [Research results: Results obtained will be considered when identifying whether further preventive or control actions are required.]
- The consumption of fish and mammals (containing mercury, other metals, POPs, and potential candidate POPs) commonly consumed by indigenous peoples with a focus on the causal factors for differences in levels between life forms and locations, and the temporal trends.
- The exposure of fish-eating wildlife (mink, otter) to environmentally realistic dietary concentrations of methylmercury. [Research results: Exposure was found to be associated with significant neurochemical alterations, at tissue mercury concentrations lower than currently accepted no-effect levels. Neurochemical approaches may generate novel biomarkers of mercury exposure and preclinical effects in wildlife.]

### 3.2.8 Pharmaceuticals in the Environment

In 2004–05, work under CEPA 1999 included the development of analytical methods related to acidic pharmaceuticals, personal care products, and neutral drugs in sewage. A number of these drugs have been found in municipal wastewater influents and effluents and in natural waters. Research continued on the efficiency of treatment of pharmaceuticals and personal care

products by municipal wastewater treatment plants, on their occurrence in the Canadian environment, and on their effects on aquatic life forms.

Other research studies conducted in 2004–05 included:

- Effects of pharmaceuticals on microbial community structure;
- Effects of acidic pharmaceutical substances on a benthic invertebrate;
- Neutral pharmaceuticals in the aquatic environment;
- Long-term fish exposures to pharmaceutical compounds; and
- Pharmaceutical metabolism in fish.

### 3.2.9 Wildlife

Research in 2004–05 included efforts to identify the health impacts from:

- Dioxins on gene expression (e.g., altered fatty acid biosynthesis, effects on thyroid hormone receptors) in cultured chicken liver cells. [Research results: This research is expected to increase knowledge about the complex toxicological effects of dioxins, furans, and PCBs in wildlife and humans.]
- POPs and new potential pollutants such as brominated flame retardants and perfluorinated acids and metals. [Research results: Results from the multiyear study include the spatial and temporal trends, tissue distribution, and relationships to immune, endocrine, and physiological health biomarkers such as POPs in the tissues of polar bears collected in circumpolar Arctic regions.]
- PCBs, organochlorine pesticides, and mercury. [Research results: Seabird eggs were collected along the Atlantic coast as part of an ongoing program to monitor long-term temporal and spatial trends of contaminants in the marine environment. Contaminant trends in seabird eggs provide the best available indicator to assess the success of efforts to manage toxic chemicals in the marine environment of Atlantic Canada. Results will be published in 2006.]
- Certain dioxins, furans, and PCBs. [Research results: Significant relationships have been found between some organochlorine contaminants and biochemical markers in the livers of a northern bird species (fulmars) breeding in the Canadian High Arctic. This suggests that concentrations of some contaminants found in these birds are high enough to induce enzymes that may inhibit or interfere with normal biochemical activity. Research continues to elucidate the scope of the interaction.]
- Mercury in birds across northeastern North America. [Research results: Factors affecting high exposure were studied. While some geographic areas with high exposure were associated with high hydrological and biogeochemical

factors, areas of high exposure in Ontario, Quebec, and Nova Scotia were associated with emission point sources and acid precipitation. This research also documented adverse effects of mercury on loon reproduction and behaviour.]

- PBDEs—flame retardants. [Research results: Temporal, spatial, and interspecific trends were determined retrospectively in eggs of marine and freshwater bird species (Great Blue Heron, Double-crested Cormorant, Osprey, and Leach's Storm-Petrel) collected from the province of British Columbia and stored in the National Specimen Bank of the Canadian Wildlife Service at the National Wildlife Research Centre in Ottawa. PBDEs increased exponentially with a doubling time of 5.7 years in eggs of cormorants and herons in the period 1979–2002. Extrapolation of mammalian toxicological information and dearth of avian effects data point to the need for studies to assess the toxicological significance of these PBDE residues in birds.]
- Nine trace elements—zinc, copper, mercury, selenium, lead, manganese, cadmium, aluminum, and arsenic. [Research results: Trends in levels of metals in the diet, feathers, and feces of the American Dipper from the Chilliwack watershed in British Columbia were examined to determine differences between the resident population and altitudinal migrants. Most metals detected were within the range of a tolerable daily intake, except for selenium, aluminum, and zinc. Mercury was only a concern for dippers with high fish diets. Mass balance models demonstrated how shifts in diet and breeding location within a watershed can result in changes in exposure that may be of toxicological significance.]
- PCBs, DDE, mercury, and cadmium. [Research results: Environment Canada continued to monitor and investigate persistent contaminants in seabirds and marine food chains. Recent data revealed high concentrations of contaminants in endangered albatross species that winter on the Pacific coast. Concentrations were strongly related to trophic level, increasing with increasing trophic level and body mass, and low concentrations of organochlorine pesticides were detected in all samples. A more comprehensive study may determine temporal and spatial variation in trophic level and contaminant exposure.]

### 3.3 Pollution Prevention Demonstration Projects

*There are numerous programs across the country that are intended to demonstrate that pollution prevention practices can be cost-effective.*

#### 3.3.1 Pacific and Yukon Region

##### Switch Out BC

The Switch Out BC Program is designed to reduce uncontrolled discharges of mercury to the environment from end-of-life vehicles. The program works with auto recyclers to promote and coordinate mercury switch recovery and build partnerships with government and industry to support and fund the collection and sustainable disposal of the switches. Of key interest are mercury switches used to control under-hood and trunk convenience lighting in automobiles. The program received in-kind support from the Automotive Recyclers Association and the BC Automotive Recyclers.

##### Reducing Greenhouse Gas Emissions

The Commercial Chemicals Division of Environment Canada participated in the Beyond One-Tonne pilot project, designed to reduce greenhouse gas emissions from Government of Canada operations under the Kyoto Plan for Canada. Beyond One-Tonne encourages employees to reduce greenhouse gas emissions at work and through their commute to work, by assessing emissions and arriving at site-specific plans to reduce them. The assessment found that the division emitted 106.8 tonnes of greenhouse gases (or carbon dioxide equivalents) between July 2003 and 2004. Respecting individual actions, staff pledged to reduce their carbon dioxide equivalent emissions by 7.3% by April 2006. In addition, addressing primarily Environment Canada staff in downtown Vancouver, implementation of the Green Commuting Action Plan resulted in increased car/van pooling, cycling, and other forms of active transportation and transit use, resulting in reductions in greenhouse gases and criteria air contaminants from vehicle emissions.

##### Reducing Emissions from Paint Stripping

Environment Canada contributed partial funding to CFB Esquimalt, Department of National Defence, to replace a paint stripping process and associated equipment used on the base in order to reduce pollution from air emissions. The previous process used dichloromethane, which is listed as a toxic substance on Schedule 1 of CEPA 1999. The new paint stripping process uses a less harmful solvent.

##### Reducing Emissions from Auto Industry

Environment Canada and the British Columbia Ministry of Water, Land and Air Protection helped fund efforts by the Burnside Gorge Community Association to educate the automotive industry sector in the Rock Bay watershed about adopting best management practices that can be used to reduce levels of

contaminants in stormwater runoff from automotive businesses. Rock Bay was one of the most polluted water bodies in Victoria and is currently being remediated.

### 3.3.2 Prairie and Northern Region

#### Green Team/One-Tonne Challenge

The Green Team/One-Tonne Challenge\* activities continued in 2004–05. Activities in the region aim to raise awareness and emphasize the co-benefits of reducing greenhouse gas emissions in terms of saving money and increasing fitness levels. Results from this activity include:

- launching in-reach initiatives in Winnipeg, Edmonton, Calgary, Regina, Saskatoon, and Iqaluit;
- developing an “Options” paper for the Regional Management Team to align Green Teams with the One-Tonne Challenge;
- designing an internal in-reach One-Tonne Challenge webpage; and
- conducting an online survey to determine topics and information that would be most helpful to encourage the reduction of greenhouse gas emissions.

\* The One-Tonne Challenge asked Canadians to reduce their annual greenhouse gas emissions by 1 tonne ([www.climatechange.gc.ca/onetonne/english/index.asp](http://www.climatechange.gc.ca/onetonne/english/index.asp)).

#### The North

Through departmental programs like Weather Watchers (individual Canadians who submit information on weather status and trends), the One-Tonne Challenge, and EcoAction (the program that funds projects that protect, rehabilitate, or enhance the natural environment and builds the capacity of communities to sustain these activities into the future), Environment Canada works directly with Northerners to encourage them to become more aware of their environment and take action on climate change and other environmental priorities. In addition to such efforts, Environment Canada has undertaken new relationships with local governments and Aboriginal organizations across the North to build understanding and action to address environmental issues.

### 3.3.3 Ontario Region

#### Business Water Quality Program

A partnership with the Regional Municipality of Waterloo, Environment Canada, and the Ontario Ministry of the Environment led to development of the Business Water Quality Program, which provides technical assistance and financial incentives to promote

eco-efficiency practices in small and medium-sized enterprises (SMEs) to prevent spills to groundwater, surface water, and sewers. Launched in June 2001, the Business Water Quality Program provides financial assistance to regional businesses to share the cost of a professional facility review and assessment and implementation of best management practices. The facility review and assessment provide an inventory of chemical substances, identify risk areas and potential for spills, review pollution prevention plans, and identify opportunities to implement best management practices.

Increasing SME awareness of water protection issues and the region's Water Resource Protection Strategy are other key objectives of the program. Through intensive marketing and face-to-face interactions with businesses, awareness of spill prevention has increased within the local business community. In addition, employees gain skills and knowledge to enhance their job performance when Business Water Quality Program participants implement recommended training programs. Program results and successes up to mid-2005 include:

- 46 facilities from 21 business sectors requested proposals to participate;
- 31 facility reviews and assessments completed or in progress;
- total business investment: \$200 000;
- total Business Water Quality Program grant support committed to businesses: \$176 500; and
- over 160 pollution prevention opportunities identified.

#### Border Air Quality Program Pilot

Under the Canada–United States Border Air Quality Strategy, the Business Air Quality Program Pilot focuses on reducing air emissions from small to medium-sized industrial manufacturing facilities in Southwest Ontario. The goal of the Border Air Quality Program Pilot is to motivate industrial SMEs to improve their environmental performance and economic competitiveness through material substitution and process improvements. The objective is to reduce key criteria air pollutants, including nitrogen oxides, sulphur dioxide, particulate matter, and volatile organic compounds.

In order to develop the work plan for this pilot, an analysis was conducted to characterize reported air emissions by the industrial SME manufacturing base in the Southwest Ontario airshed. This provided information on a county-wide and major urban centre basis and permitted the identification of “high-risk” industrial sectors to target, including an estimate of the number of SME manufacturing locations in each sector.



Environment Canada contributes a front-end subsidy of 50% of pollution prevention audit costs, to a maximum of \$5000 per facility. The participating SMEs are responsible for the remainder of the audit costs. This pilot is being coordinated with Natural Resources Canada's existing Industrial Energy Audit Incentive to capture air quality co-benefits that are currently not being quantified. Emission reductions for this pilot cannot be quantified at this time, but will be available as SMEs complete the program.

### The Toronto Region Sustainability Program

This program aims to improve the environmental performance of small- to medium-sized manufacturing facilities in areas of pollution prevention and sustainable development. Specific objectives include encouraging businesses to take action to reduce smog precursors, reduce or eliminate the use of toxics, and move to zero generation of toxic wastes. The program is a collaborative multistakeholder effort, in partnership with the Toronto and Region Conservation Authority, and is being delivered through the Ontario Centre for Environmental Technology Advancement, addressing reductions in toxics listed in both the Canada–Ontario Agreement on the Great Lakes and the Great Lakes Binational Toxics Strategy. Annual pollution prevention results and savings from the 33 businesses that have completed the pollution prevention assessments through the program include:

- volatile organic compounds: 522 tonnes;
- metals: 2.2 tonnes;
- process wastes: 1300 tonnes;
- toxics: 32 tonnes;
- water: 241 000 tonnes;
- greenhouse gases: 1600 tonnes;
- particulate matter: 2.5 tonnes;
- ozone-depleting substances: 45 kilograms; and
- annual cost savings (total): \$2 300 000.

### 3.3.4 Quebec Region

#### Enviroclub<sup>OM</sup>

Enviroclub<sup>OM</sup> is a Quebec organization that encourages small- and medium-sized manufacturing enterprises to voluntarily reduce harmful emissions as well as their dependency on natural resources, while increasing their competitiveness. Three new

clubs were established in 2004–05, in Beauce, Montreal, and Montréalégie. The projects carried out have resulted in savings to the participating facilities of \$1 million. Environmental reductions for the year included:

- 242 000 litres of gasoline and propane;
- 730 000 cubic metres of natural gas;
- 470 000 cubic metres of water;
- 127 tonnes of chemicals;
- 1900 tonnes of greenhouse gases (carbon dioxide equivalent);
- 76 tonnes of hazardous wastes; and
- 290 tonnes of other wastes.



[www.enviroclub.ca](http://www.enviroclub.ca)

### Code of Practice for the Reduction of Dichloromethane Emissions from the Use of Dichloromethane-Based Paint Strippers in Commercial Furniture Refinishing and Other Stripping Applications

In order to promote the use of the recommended practices in the code of practice for the reduction of dichloromethane emissions from the use of dichloromethane-based paint strippers in commercial furniture refinishing and other stripping applications, Environment Canada, Quebec Region, partnered with the Quebec School of Furniture and Woodworking in order to develop a one-day course focused specifically on this code.

### 3.3.5 Atlantic Region

#### Metal Finishers

Environment Canada, Natural Resources Canada, Action Plan 2000 on Climate Change, the Atlantic Canada Opportunities Agency, and the Canadian Association of Metal Finishers partnered to deliver a program of education and pollution prevention auditing to the 24 confirmed metal finishers in the Atlantic Region. Six facilities were given detailed audits, with another five volunteering for a less intensive audit. A formal follow-up is planned for the fall of 2005, but initial communications indicate that two facilities are making changes already. The facilities generally scored low on issues where training/education of staff was important to good environmental performance, and education is seen as essential to improve results on these issues.

## Demonstration Projects

A report on the CEPA Pollution Prevention Demonstration Fund was completed in 2005. The five-year program, which began in 1999 and ended in March 2004, was designed to promote and implement pollution prevention in management activities and production processes across industry, government departments, and communities. The program completed 119 regional pollution prevention projects. Both clients and partners appreciated the leadership and expertise that came from working with Environment Canada on these projects. While the main goal was to act as a catalyst for pollution prevention concepts and conduct pilot projects, several individual projects tracked benefits:

- 18% of projects focused on product substitution;
- 75% focused on awareness and actions to achieve efficiencies;
- 25% used policy development as the preferred pollution prevention approach;
- 14% explicitly included on-site reuse/recycling; and
- one or more of the other regions adopted 20% of original projects.

It is anticipated that these projects will result in future actions, significantly advancing the state of pollution prevention in the target areas, or a broader application under other initiatives.

## Workshop with Hospital Administrators

Environment Canada conducted a workshop with regional hospital administrators, focusing on reducing overall use of toxics, with an emphasis on mercury. Part of the session also focused on green procurement and how to use that as a means of reducing toxics, energy use, etc.

## Nova Scotia Eco-Efficiency Business Assistance Program

The Nova Scotia Eco-Efficiency Business Assistance Program finished its 16-month pilot phase with 15 SMEs undergoing pollution prevention assessments by qualified consultants, resulting in appropriate pollution prevention recommendations. The program paid 75% of the assessment cost, up to a maximum of \$6000, with the company paying the remainder. For the 15 companies, reports estimated potential annual savings of:

- 103 000 gigajoules of energy;
- 7370 tonnes of greenhouse gases;
- 20 000 cubic metres of water and wastewater;
- 3000 tonnes of solid waste;
- 2.3 tonnes of other toxics; and
- annual cost savings (total): \$1 115 000.

## Federal Motor Vehicle Fleet Environmental Workshop

In March 2005, Environment Canada hosted a federal Motor Vehicle Fleet Environmental Workshop to encourage federal operations to reduce emissions within their vehicle fleets through purchasing appropriate vehicles, anti-idling policies, and driver training. Twelve federal departments attended, and representatives of the Government of Nova Scotia and the Halifax Regional Municipality attended as guests.

## 3.4 Objectives, Guidelines, and Codes of Practice

*Subsection 54(1) of the Act requires the Minister of the Environment to issue environmental quality objectives, environmental quality guidelines, release guidelines, and codes of practice. These instruments must relate to:*

- the environment;
- pollution prevention or the recycling, reusing, treating, storing, or disposing of substances or reducing the releases of substances into the environment;
- works, undertakings, or activities that affect or may affect the environment; or
- the conservation of natural resources and sustainable development.

*Subsection 55(1) requires the Minister of Health to issue objectives, guidelines, and codes of practice with respect to the elements of the environment that may affect the life and health of the people of Canada.*

### 3.4.1 Environmental Quality Objectives

*Environmental quality objectives specify goals or purposes for pollution prevention or environmental control, including goals or purposes stated in quantitative or qualitative terms.*

In 2004, Health Canada published a document entitled "From Source to Tap: Guidance on the Multi-Barrier Approach to Safe Drinking Water." This technical guidance document shows how to apply the concept of the multi-barrier approach to Canadian water supplies from source to tap. The multi-barrier approach is an integrated system of procedures, processes, and tools that collectively prevent or reduce the contamination of drinking water from source to tap in order to reduce risks to public health (e.g., preventing the entry of contaminants into source water in the first place and subsequently treating the source water, including



disinfection, before safely distributing it to consumers). It also provides language and tools for communicating with decision-makers and consumers. In addition, the document gives decision-makers at the municipal, provincial/territorial, and federal levels a structure for integrating health and environmental quality objectives, for collaborating and sharing information, and for setting objectives, goals, and priorities.

### 3.4.2 Environmental Quality Guidelines

*Environmental quality guidelines specify recommendations in quantitative or qualitative terms to support and maintain particular uses of the environment.*

In 2004–05, five Canadian Environmental Quality Guidelines, developed under the CCME, were finalized, and 19 others were under development (see Table 2). Revisions were ongoing to the protocols used to develop Canadian Water Quality Guidelines for the protection of aquatic life and Canadian Soil Quality Guidelines for the protection of environmental and human health. Work was initiated on a new protocol for the development of source water guidelines. The Sediment Quality Index, a suite of sediment quality guidelines, serves as a communication tool for the management of contaminated sediment.

 [www.ccme.ca/publications/ceqg\\_rcqe.html](http://www.ccme.ca/publications/ceqg_rcqe.html)

 [www.ec.gc.ca/ceqg-rcqe](http://www.ec.gc.ca/ceqg-rcqe)

### 3.4.3 Drinking Water Quality Guidelines

*Drinking water quality guidelines are established by the Federal–Provincial–Territorial Committee on Drinking Water and published by the Minister of Health. They establish maximum acceptable concentrations of contaminants in drinking water.*

In 2004–05, the Federal–Provincial–Territorial Committee on Drinking Water continued its development of Guidelines for Canadian Drinking Water Quality. Table 3 lists the status of guidelines. A number of other guidelines are at various stages of completion, and they include haloacetic acids, methyl tertiary butyl ether, radiological contaminants, haloacetonitriles, and corrosion control.

The publication vehicle for the Guidelines for Canadian Drinking Water Quality is through the Health Canada website. Health Canada regularly publishes updates of the summary of guidelines.

 [www.healthcanada.gc.ca/waterquality](http://www.healthcanada.gc.ca/waterquality)

 [www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc\\_sup-appui/sum\\_guide-res\\_recom/index\\_e.html](http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/sum_guide-res_recom/index_e.html)

A complete list of guidelines under development will be added to the first referenced website address in the near future to fulfil one of Health Canada’s commitments to the Commissioner of the Environment and Sustainable Development’s observations noted in Chapter 4 of the 2005 report.

Table 2: Canadian Environmental Quality Guidelines from April 2004 to March 2005

Recommendation	Published	In Progress
Water	Canadian guidance framework for the management of phosphorus in freshwater systems	alcohol ethoxylates*; aluminum; biocriteria framework; diisopropanol-amine*; guidance for the deposition of organic matter/feed from aquaculture operations; marine eutrophication guidance framework; nickel; pesticides (dimethenamid, imidacloprid, permethrin); phosphorus ecoregion guidelines; sulfolane*; uranium; aquatic life protocol revisions; source water guideline protocol
Sediment	N/A	sediment quality index
Soil	benzene**; ethylbenzene; toluene; xylene	carcinogenic polycyclic aromatic hydrocarbons**; diisopropanolamine*; propylene glycol; sulfolane*; uranium; trichloroethylene; protocol revisions
Tissue	N/A	N/A

\* In partnership with industry

\*\* On Schedule 1 under CEPA 1999

Table 3: Guidelines for Canadian Drinking Water Quality from March 2004 to April 2005

Guideline	Status as of mid-2005
Arsenic	approved for consultation*
Trihalomethanes	approved for consultation*
Bromodichloromethane	approved for consultation*
Chlorate/chlorite	submitted for approval for consultation*
Turbidity	final approval**
Enteric viruses	final approval**
Trichloroethylene	submitted for final approval*

\* Approvals are provided by the Federal–Provincial–Territorial Committee on Drinking Water

\*\* Final approvals are received from the Federal–Provincial–Territorial Committee on Health and the Environment

### 3.4.4 Release Guidelines

Environment Canada is taking important steps to help improve the state of wastewater management in Canada. Environment Canada's vision is to ensure that, across the country, the release of wastewater effluents does not pose unacceptable risks to human and ecosystem health and fishery resources. In working towards this vision, recent legislative actions have been taken to address pollutants in wastewater, such as ammonia dissolved in water, inorganic chloramines, and chlorinated wastewater effluents. On December 4, 2004, Environment Canada published the CEPA Guideline for the Release of Ammonia Dissolved in Water Found in Wastewater Effluents. The guideline is aimed at owners of wastewater systems discharging 5000 cubic metres or more of effluent per day to surface water. The guideline includes standards for both acute and chronic toxicity caused by ammonia.



<http://canadagazette.gc.ca/part1/2004/20041204/html/notice-e.html#i2>

The Proposed Guidelines for the Reduction of Ethylene Oxide Releases from Sterilization Applications were published on April 3, 2004. The proposed guidelines recommend that health care facilities and commercial facilities that use ethylene oxide for sterilization purposes install an emission control system to reduce releases of ethylene oxide to the ambient air, thereby reducing exposure of the Canadian population.



<http://canadagazette.gc.ca/part1/2004/20040403/html/notice-e.html#i2>

### 3.4.5 Codes of Practice

*Codes of practice are instruments respecting pollution prevention or specifying procedures, practices, or release limits for environmental control relating to works, undertakings, and activities during any phase of their development and operation.*

On April 3, 2004, the Minister published the final Code of Practice for the Environmental Management of Road Salts. The code is designed to help municipalities and other road authorities better manage their use of road salts in a way that reduces harm to the environment while maintaining road safety. It recommends that road authorities develop salt management plans and implement best management practices.



[www.ec.gc.ca/CEPARRegistry/guidelines/Codes.cfm](http://www.ec.gc.ca/CEPARRegistry/guidelines/Codes.cfm)

## 3.5 State of the Environment Reporting

*State of the environment reports and environmental indicators provide Canadians with timely and accurate information and knowledge about current environmental issues and foster the use of science and data in policy- and decision-making. Indicators, reports, data, and tools are housed at or referenced through Environment Canada's State of the Environment Infobase. This site also includes resources for reporting and indicator practitioners.*



[www.ec.gc.ca/soer-ree/English](http://www.ec.gc.ca/soer-ree/English)

### 3.5.1 Environmental Indicators

Environment Canada collaborated with federal departments and agencies, other levels of government, and stakeholders to develop environmental indicators in support of decision-making on priority environmental issues, policies, and actions. Actions in 2004–05 include the following:

- Environment Canada, together with its partners Statistics Canada and Health Canada, worked to complete the first annual report on the Competitiveness and Environmental Sustainability Indicators, for release in December 2005. These three indicators, on air quality, water quality, and greenhouse gas emissions, are part of those recommended by the National Round Table for the Environment and the Economy. As part of this initiative, the second CCME National Water Quality Index Workshop was held in February 2005, to communicate progress, seek advice, and promote a consensus towards nationally consistent data generation and reporting on water quality.
- Environment Canada also initiated work in collaboration with federal partners to update Canada's Environmental Signals. Since 2001, these national environmental indicators track human activities and their impacts, the state and quality of Canada's environment, and some actions taken to respond to pressing environmental issues. The updated indicators will discuss observed status and trends in the context of sustained use of our resources and ecosystems and of the health and well-being of Canadians. Environmental Signals are becoming a significant source of integrated data and information to foster understanding and support decision-making on environmental sustainability.

### 3.5.2 Regional Reports

During 2004–05, Environment Canada also contributed to the advancement and completion of state of the environment reports for several ecosystems in Canada:

- The Mackenzie River Basin Board, a federal–provincial–First Nations cooperative forum, released its first state of the aquatic ecosystem report in 2004, entitled *Mackenzie River Basin State of the Aquatic Ecosystem Report, 2003*. Created to inform about and advocate for the maintenance of the ecological integrity of the Mackenzie River watershed, the Board aims at improving water quality, ensuring sufficient water quantity, sustaining in-stream water uses, ensuring healthy, abundant, and diverse aquatic species and habitat, and ensuring human health and safety.
- Environment Canada and provincial partners completed a pilot study and assessment of the application of the CCME Water Quality Index to selected water bodies in Newfoundland and Labrador, New Brunswick, Prince Edward Island, and Nova Scotia ([www.ccme.ca/assets/pdf/awi\\_en\\_posting.pdf](http://www.ccme.ca/assets/pdf/awi_en_posting.pdf)).

- Environment Canada also collaborated with local groups to produce a national synthesis of the state of freshwater ecosystems in selected Canadian watersheds, based on existing regional and local state of the environment reports. Slated for release in 2005, the report will focus on the range of environmental issues covered in the source documents and identify gaps in coverage.
- Progress was made towards continued, periodic reporting on Environment Canada's ecosystem initiatives, including Georgia Basin in British Columbia, the Great Lakes in central Canada, and the Bay of Fundy on the east coast. For example, the State of the Lakes Ecosystem Conference 2004 was held in Canada from October 6 to 8, 2004, and focused on using existing indicators to assess the state of the Great Lakes ecosystem components with an emphasis on physical integrity. Building on the conference, a State of the Great Lakes report is scheduled for release in 2005 to provide decision-makers with accurate and meaningful environmental information for managing risks to Great Lakes ecosystem health.

### 3.5.3 Environmental Indicators and State of the Environment Reporting Strategy

In response to the challenge of managing and sharing knowledge creatively to better serve Canadians, Environment Canada began work during 2004–05 on a report entitled *Environmental Indicators and State of the Environment Reporting Strategy, 2004–2009: Environment Canada*. Several key documents were prepared to support the strategy, including:

- a background report, which synthesizes current trends, status, and perceptions in environmental indicators and state of the environment reporting in Canada and internationally; and
- a synthesis of indicator and reporting initiatives at all government levels in Canada, and selected international initiatives, along with a preliminary compendium of indicators.



[www.ec.gc.ca/soer-ree](http://www.ec.gc.ca/soer-ree)

## 3.6 Gathering and Reporting of Pollution Information

### 3.6.1 National Pollutant Release Inventory

The National Pollutant Release Inventory (NPRI) provides Canadians with access to information on the releases and transfers of key pollutants from industrial facilities in their communities. Public access to the NPRI can motivate industry to prevent and reduce pollutant releases. The NPRI also

helps the Government of Canada track progress in pollution prevention, evaluate releases and transfers of substances of concern, and identify priorities for risk management.

The NPRI tracks releases to air, water, and land; quantities sent to disposal and recycling; and pollution prevention activities for 323 pollutants, such as mercury, dioxins and furans, HCB, PAHs, and criteria air contaminants (common air pollutants such as sulphur dioxide, particulate matter, and nitrogen oxides that affect our health and contribute to air pollution problems such as smog).

During 2004, 8173 facilities reported to the NPRI for the 2003 reporting year, an increase of 3643 reporting facilities (80%) compared with the previous year. This increase was largely due to the removal of the reporting exemption for oil and gas installations.

The One Window to National Environmental Reporting System (OWNERS) was launched in March 2005. OWNERS is a secure online reporting tool being used by Environment Canada, provincial and municipal governments, and private sector organizations to collect environmental data from industry. Over time, OWNERS will be able to consolidate many environmental reporting requirements into a single, online, and integrated reporting platform, decreasing the reporting burden for Canadian industry while improving compliance with environmental regulations and increasing the quality of reported data, the timeliness of their collection and publication, and their usefulness for environmental decision-making by governments, industry, and the public alike.



[www.ec.gc.ca/pdb/NPRI](http://www.ec.gc.ca/pdb/NPRI)

### 3.6.2 Compilation of National Emission Inventories for Key Air Pollutants

Comprehensive emission inventories were compiled by Environment Canada during 2004 (and are compiled on an annual basis) for key air pollutants that contribute to environmental effects such as smog, acid rain, and poor visibility. These inventories are used to track the progress of current emission reduction strategies for various pollution sources, including industrial activities, residential fuel combustion, transportation vehicles, forest fires, and road dust. In addition, they are used to identify priorities for future pollution prevention actions and to support the negotiation and implementation of domestic environmental programs and international agreements.



[www.ec.gc.ca/pdb/cac/](http://www.ec.gc.ca/pdb/cac/)



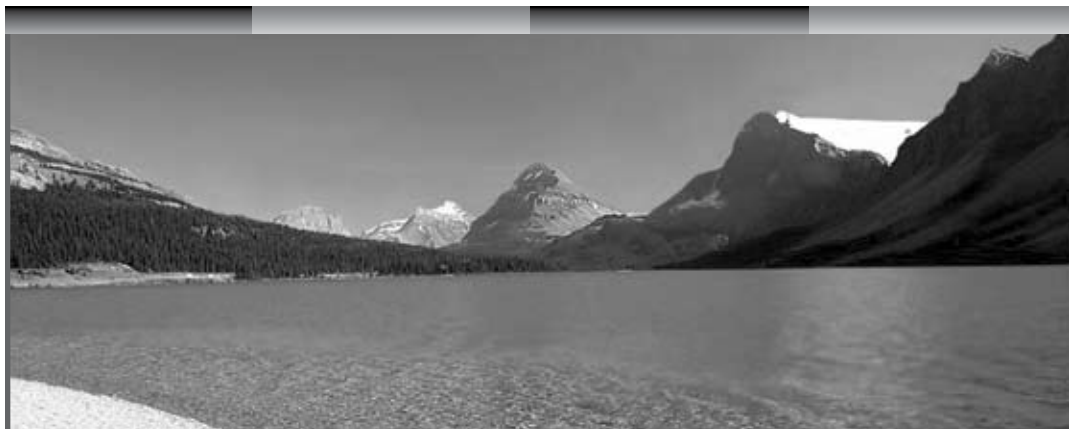
[www.ec.gc.ca/pdb/ghg/ghg\\_home\\_e.cfm](http://www.ec.gc.ca/pdb/ghg/ghg_home_e.cfm)

### 3.6.3 Personal Care Products and Pharmaceuticals

Personal care products and pharmaceuticals are regulated under the *Food and Drugs Act*. Health Canada's Environmental Impact Initiative studies the potential effect of these products on the Canadian environment and human health. Additional information on this initiative can be accessed at:



[www.healthcanada.gc.ca/eii](http://www.healthcanada.gc.ca/eii)



## 4 Pollution Prevention (Part 4)

The Act allows the Minister to publish a Pollution Prevention Planning Notice requiring any person described in the Notice to prepare and implement a pollution prevention plan in respect of a substance or group of substances specified on the List of Toxic Substances in Schedule 1. The Minister may also require pollution prevention plans from Canadian sources of international air and water pollution for substances not on the List of Toxic Substances, with the approval of the Governor in Council and if the government responsible for the area in which the pollution source is located cannot or will not take action.

CEPA 1999 enables the establishment of a national pollution prevention information clearinghouse to facilitate the collection, exchange, and distribution of information about pollution prevention. Authority is also provided to create an awards program to recognize significant achievements in the area of pollution prevention.

### 4.1 Pollution Prevention Planning Requirements

In 2004–05, three Pollution Prevention Planning Notices were finalized, and one was proposed:

- **Inorganic Chloramines and Chlorinated Wastewater Effluents**—The final Notice, published on December 4, 2004, applies to owners of wastewater systems where the effluent release to surface water is greater than or equal to 5000 cubic metres per day and where the concentration of total residual chlorine exceeds 0.02 milligrams per litre. The risk management objective is to achieve and maintain a concentration of total residual chlorine that is less than or equal to 0.02 milligrams per litre or non-acutely lethal to fish in the effluent released to surface water by December 15, 2009. Approximately 95 facilities across the country are expected to be subject to the requirements in the Notice.
- **Nonylphenol and its Ethoxylates Used in the Wet Processing Textile Industry and Effluents from Textile Mills that Use Wet Processing**—The final Notice, published on December 4, 2004, targets persons involved in textile wet processing activities who discharge their effluents produced during wet processing to off-site wastewater treatment facilities

and who have had a daily effluent discharge greater than 30 cubic metres at least once between 1999 and 2003. The Notice targets approximately 150 textile mills. The risk management objective is to reduce the use of nonylphenol and its ethoxylates by 97% and to reduce the toxicity of textile mill effluents.

- **Nonylphenol and its Ethoxylates Contained in Products**—The final Notice, published on December 4, 2004, outlines the requirements for manufacturers and importers of soap and cleaning products, processing aids used in textile wet processing, and pulp and paper processing aids containing nonylphenol and its ethoxylates to prepare and implement pollution prevention plans. The requirements target persons who purchase a total of 2000 kilograms or more annually of these substances used for the manufacturing of products or contained in imported products for any year occurring between January 1, 2003, and December 31, 2012. The risk management objective is to reduce the total use of these substances in products manufactured in or imported into Canada by 50% from 1998 levels by 2007 and by 95% from 1998 levels by 2010. The Notice targets approximately 200 manufacturers and importers.
- **Specified Toxic Substances Released from Base Metals Smelters and Refineries and Zinc Plants**—A proposed Notice, published on December 4, 2004, will require implementation of a pollution prevention plan in respect of specified toxic substances that are released from base metals smelters and refineries and zinc plants. The toxic substances addressed by this notice include particulate matter containing metals that is released in emissions from copper smelters or refineries, or both; particulate matter containing metals that is released in emissions from zinc plants; sulphur dioxide; PM<sub>10</sub>; lead; mercury; inorganic arsenic compounds; inorganic cadmium compounds; oxidic, sulphidic, and soluble inorganic nickel compounds; PCDDs; and PCDFs. Eleven facilities engaged in the smelting or refining of base metals are expected to be subject to the Notice.

### 4.2 Pollution Prevention Awards

Environment Canada participates in the CCME Pollution Prevention Awards Program, which recognizes organizations that have shown leadership and innovation in pollution prevention. There were seven awards and four honourable mentions presented at the CCME awards ceremony, recognizing achievements in 2004:



- **Small Business Award**—Clean Choice Printers, McDonalds Corners, Ontario. Clean Choice Printers, a unique home-based printing business, incorporated risography, a direct transfer process that is water-based and uses non-toxic ink, into its total printing system, thereby reducing its ecological footprint by 90%.
  - **Small Business Honourable Mention**—Trimac Transportation, Oakville Washrack Cleaning Facility, Port Colborne, Ontario. This bulk trucking company eliminated the use of solvents in its exterior cleaning process by using a soluble media blasting technique with baking soda. The technique eliminates over 24 tonnes of methylene chloride per year. The return of investment was only two and half months, as the cost to treat the pollutants would have added \$162 000 per year to in-plant measures.
  - **Medium Business Award**—Roxul Inc., Milton, Ontario. Roxul Inc., a manufacturer of mineral wool insulation products, adopted a progressive environmental management system including a two-stage recycling facility, which includes innovative fines recycling to reduce solid waste, air emissions, and transportation of raw material and waste; a reduction/elimination program for binder resins; and an energy reduction program to reduce process and auxiliary energy consumption.
  - **Medium Business Honourable Mention**—Louisiana Pacific Canada Ltd.—Oriented Strandboard Plant, Swan River, Manitoba. The Swan River manufacturing plant reduced dryer system emissions, improved raw material usage efficiency, and reduced net annual costs. The plant realized a 77% reduction in nitrogen oxide emissions from installing drying system pollution control equipment and additional reductions in particulate matter, volatile organic compound, and nitrogen oxide emissions from closing its wood waste incinerator. Net greenhouse gas emissions were also reduced by 3488 tonnes of carbon dioxide per year.
  - **Medium Business Honourable Mention**—Zep Manufacturing Company of Canada, Edmonton, Alberta. Zep Manufacturing initiated activities to eliminate or significantly reduce nonylphenol and its ethoxylates contained in hundreds of manufactured and imported cleaning and sanitation products. Zep achieved a 96.7% reduction of these substances by 2002. As of June 2002, more than 98.5% of products were free of nonylphenol and its ethoxylates.
  - **Large Business Award**—New Flyer Industries, Winnipeg, Manitoba. In an effort to minimize environmental impacts from and reduce worker exposures to volatile organic compounds, New Flyer Industries, a transit bus manufacturer, identified activities that involved using high content products such as flooring installation and surface coating operations. A 70.29% reduction in volatile organic compounds was achieved through product substitution and installation of a high-efficiency gunwash solvent recovery still.
- Since 2002, New Flyer's reduction initiatives in Winnipeg have reduced the total volatile organic compounds generated for every bus unit built by 41.7%.
- **Organization/Institution/Group Award**—Clean Air Strategic Alliance, Edmonton, Alberta. This non-profit multistakeholder association developed a solution gas management framework, which relied on a voluntary pollution prevention approach, supported by regulations. Since implementation of the framework, solution gas flaring has been reduced by 70% from the 1996 baseline and solution gas venting has been reduced by 38% since 2000. In 2003, 95.3% of solution gas was conserved or used in another manner.
  - **Organization/Institution/Group Award**—Partners for a Green Hill, Ottawa, Ontario. Pollution prevention initiatives established by four partner organizations on Parliament Hill reduced pollution in the workplace by establishing freshwater saving measures, diverting wastewater from the municipal sewer system, reducing paper waste, and eliminating hazardous cleaning products. A pilot project for composting paper towels in washrooms, started in 2002, has resulted in thousands of kilograms of paper towels diverted from landfill.
  - **Organization/Institution/Group Honourable Mention**—Ontario Centre for Environment Technology Advancement, Mississauga, Ontario. This centre developed the Toronto Region Sustainability Program, which provides pollution prevention technical assistance to small to medium-sized manufacturers. The program has improved participating manufacturers' environmental performance by reducing smog precursors, toxics, sewer discharges, process wastes, and water consumption, while increasing cost savings.
  - **Innovations Award**—Sani-Terre Inc., Normandin, Quebec. Sani-Terre developed an innovative mobile ecological wash unit for heavy equipment, which allows heavy equipment to be directly washed on site, increasing water efficiency and cost savings. The unit is also equipped with a patented carpet system allowing water retrieval, a pumping and used water treatment system allowing retrieval and separation of contaminants, such as petroleum hydrocarbons and heavy metals, and a water reuse system.
  - **Greenhouse Gases Reduction Award**—Hamilton Community Energy, Hamilton, Ontario. Hamilton Community Energy's heating project delivers efficient thermal energy in the form of hot water to 13 downtown buildings. An efficient gas-fired combined heat and power plant produces 3.5 megawatts of electricity using a low nitrogen oxide reciprocating engine, with the exhaust heat being recovered and converted to hot water. The initiative contributes to improving local air quality, reduces greenhouse gases, and results in energy reductions and savings.



[www.ccme.ca/initiatives/pollution.html?category\\_id=19#90](http://www.ccme.ca/initiatives/pollution.html?category_id=19#90)

### 4.3 Canadian Pollution Prevention Information Clearinghouse

The Canadian Pollution Prevention Information Clearinghouse, an online comprehensive resource on pollution prevention, has undergone a complete redesign. Highlights of the redesign include enhanced database searching capabilities, improved record display, and the creation of the three new supporting sections.

The accessibility of the over 1400 records in the Canadian Pollution Prevention Information Clearinghouse database has been improved. The website now indicates how a specific

resource promotes pollution prevention and the type of audience for which the resource is useful. Three new sections—Business, Government, and Citizens and Society—were created so that Canadians from all segments of society can be introduced to pollution prevention, become informed about environmental legislation at all levels of government, and learn about getting involved in practising pollution prevention.



[www.ec.gc.ca/cppic](http://www.ec.gc.ca/cppic)





## 5 Controlling Toxic Substances (Part 5)

CEPA 1999 includes specific requirements for the assessment and management of substances currently existing in commerce or being released to the environment in Canada and substances that are new to Canada.

A substance meets the criteria of section 64 if it is entering or may enter the environment in a quantity or concentration or under conditions that:

- have or may have an immediate or long-term harmful effect on the environment or its biological diversity;
- constitute or may constitute a danger to the environment on which life depends; or
- constitute or may constitute a danger in Canada to human life or health.

Determining whether a substance meets these criteria and requires management is a function of the substance's physical, chemical, and biological properties, the nature and extent of current or possible releases, and the potential for the substance to affect the environment or human health.

Part 5 of the Act sets specific timelines for taking preventive or control action to manage the risks posed by substances recommended for addition to Schedule 1, including virtual elimination from the environment for substances meeting certain criteria. CEPA 1999 allows for the setting of conditions and prohibitions on new substances. Part 5 also provides for the development of regulations and interim orders as well as the management of exports of substances.

### 5.1 Existing Substances

#### 5.1.1 Risk Assessment

*Environment Canada and Health Canada, through the Existing Substances Program, jointly identify, prioritize, and assess the risks resulting from exposure to existing substances. Existing substances are those listed on the Domestic Substances List and include substances that were in Canadian commerce or used for manufacturing purposes or manufactured in or imported into Canada in a quantity of 100 kilograms or more in any calendar year between January 1, 1984, and December 31, 1986.*

*Candidate substances for risk assessment are identified through seven main mechanisms under CEPA 1999:*

- *industry information;*
- *categorization of the Domestic Substances List;*
- *provincial or international decisions;*
- *public nominations;*
- *new substances notifications;*
- *emerging science and monitoring; and*
- *international assessment or data collection.*

*These seven mechanisms allow Environment Canada and Health Canada to provide a scientifically rigorous, open, and transparent process for identifying and prioritizing candidate substances for their assessment for potential risks within Canada.*

#### 5.1.1.1 Categorization and Screening of the Domestic Substances List

During 2004–05, government scientists continued to collect and review information on all 23 000 substances on the Domestic Substances List to identify which of these substances may need additional action.

#### **Categorization**

The categorization exercise is an enormous undertaking—it has not been attempted by any other government in the world. And yet, all nations face the same challenge. That is why the Government of Canada seeks input from other nations and is freely sharing the information that this exercise generates so that many countries can contribute in the effort to protect our global environment and our collective health from the adverse effects of pollutants.

With the help of many institutions and organizations, the Government of Canada is generating a substantial body of research and robust scientific tools that will assist in future chemical assessments and risk management decisions. The categorization exercise under CEPA 1999 is providing a wealth of additional scientific benefits that will advance our understanding of substances around the world.

Environment Canada and Health Canada have been engaging stakeholders such as industry, environmental groups, and the public, soliciting input for categorization decisions and approaches. Industries play an important role by sharing the information that they have on the chemicals they use and by being innovative in finding ways to manage those chemicals identified as hazardous. Research institutes and universities in Canada and around the world are also involved by filling information gaps and developing tools for efficient assessments of these chemicals. The environmental community is monitoring the process and lending its own experts to the consultation process.

Results under the categorization exercise in 2004–05 include the following:

- At the end of the reporting period, Environment Canada had collected, generated, and reviewed available information and produced preliminary categorization decisions for 19 700 substances on the Domestic Substances List. During the reporting period, interested parties were invited to submit information to help improve or refine information before the final categorization decisions are issued in September 2006.
- Health Canada refined the approach for the initial categorization of organic substances on the Domestic Substances List for “inherent toxicity to humans” by considering 1352 organic substances and 642 inorganic substances.
- Health Canada developed simple and complex exposure assessment and hazard identification tools for use in the identification, prioritization, and screening health assessment of existing substances.
- Health Canada released a draft maximal list of about 1900 substances warranting further consideration in categorization and screening health assessment, based upon the criteria of greatest potential for human exposure and inherently toxic to humans. These substances were identified through application of simple exposure assessment and hazard identification tools for some and more complex tools for others. A subgroup of 275 of these substances was identified as having high hazard and the greatest potential for exposure and would likely be high priorities for subsequent screening health risk assessments. Information on both the exposure potential and hazard of the substances on this draft maximal list will also contribute to the prioritization of these existing substances for subsequent screening health assessment.



[www.hc-sc.gc.ca/ewh-semt/contaminants/existsub/categor/max-list/index\\_e.html](http://www.hc-sc.gc.ca/ewh-semt/contaminants/existsub/categor/max-list/index_e.html)

- Environment Canada throughout the year issues a quarterly CD-ROM that contains:
  - background material on the progress of ecological categorization;
  - a Guidance Manual for the Categorization of all Substances on Canada’s Domestic Substances List;
  - category approaches for decisions on data-poor substances;
  - spreadsheets containing information on the 23 000 substances on the Domestic Substances List and the preliminary categorization decisions;
- Robust Study Summaries of laboratory studies pivotal to categorization decisions; and
- information submitted by stakeholders to improve categorization decisions.

### Screening Assessments

Environment Canada and Health Canada conducted several screening assessments and refined their screening assessment approaches and processes. Progress on screening assessments during 2004–05 included:

- development of a framework for conducting screening health assessments;
- finalization of draft screening health assessments for public comment on a number of chemicals [2,2'-methylenebis[6-(1,1-dimethylethyl)-4-methylphenol]; 2-methyl-4,6-dinitrophenol; biphenyl; ethylbenzene; quinoline; 1,1-dichloroethylene; ethylene dibromide; hexachloroethane; and 4,4'-methylenebis(2-chlorobenzeneamine)];
- completion of a draft environmental and health screening assessment of PBDEs (a notice was published on May 8, 2004, proposing to add seven of these substances to the List of Toxic Substances with the goal of virtual elimination of three of them);
- completion of a draft ecological and health screening assessment of PFOS, its salts, and its precursors that contain the  $C_8F_{17}SO_2$  or  $C_8F_{17}SO_3$  moiety (a notice was published on October 2, 2004, proposing to add PFOS, its salts, and its precursors to the List of Toxic Substances and that consideration be given to the implementation of virtual elimination for PFOS and its salts);

- continuing assessments of 20 substances, including those representing categories or classes of related chemicals as well as a variety of persistent, bioaccumulative substances or substances that pose greatest potential for human exposure; and
- an ongoing ecological screening assessment on tetrabromobisphenol A and two derivative compounds, ethoxylated tetrabromobisphenol A and tetrabromobisphenol A allyl ether, which are brominated flame retardants used in electronic and communications equipment, building materials, and automobiles.

#### 5.1.1.2 Decisions of Other Jurisdictions

Environment Canada completed an evaluation of the procedures for the exchange of information with Organisation for Economic Co-operation and Development (OECD) countries for substances that are prohibited or substantially restricted for environmental or health reasons. Following this evaluation, a proposed approach for the exchange of information with OECD jurisdictions was drafted and published for a 60-day public comment period in March 2005.



[www.ec.gc.ca/substances/ese/eng/sect75.cfm](http://www.ec.gc.ca/substances/ese/eng/sect75.cfm)

#### 5.1.1.3 First Priority Substances List

Under the 1988 *Canadian Environmental Protection Act*, 44 substances were assessed under the first Priority Substances List program. Of the 44 substances, 27 substances were found to meet the requirements of section 11 (CEPA 1988), and 10 were found not to. There has been insufficient information to conclude on the remaining substances.

In 2004–05, the Minister published final decisions for a number of substances (see Table 4), including:

- 1,2-dichlorobenzene, 1,4-dichlorobenzene, and trichlorobenzenes: the Ministers decided to take no further action at this time under CEPA 1999 in respect to the substances, as they were not considered to meet the criteria in section 64 of CEPA 1999; and
- pentachlorobenzene and tetrachlorobenzenes: the Ministers concluded that these substances met the criteria in section 64 and have proposed to add these substances to the List of Toxic Substances in Schedule 1 of CEPA 1999—these substances were also to be considered as candidates for virtual elimination.

Following up on assessments published in 2003–04, the Ministers proposed to take no further action in respect to bis (2-chloroethyl) ether and 3,5-dimethylaniline, as these were not listed on the Domestic Substances List and are therefore “new substances” and subject to the requirements of the *New Substances Notification Regulations*. Under these regulations, if a person wishes to import or manufacture any of these substances and files a notification with Environment Canada, an assessment will be initiated by Environment Canada and Health Canada to decide if and how the substance will be managed.



[www.ec.gc.ca/CEPARRegistry/subs\\_list/PSL1.cfm](http://www.ec.gc.ca/CEPARRegistry/subs_list/PSL1.cfm)

#### 5.1.1.4 Second Priority Substances List

As of March 31, 2005, final conclusions had been reached for 23 of the 25 substances on the second Priority Substances List, which was published in 1995.

During 2004–05, assessments concluded that 2-butoxyethanol and 2-methoxyethanol meet the criteria set out under section 64, and they were added to Schedule 1 (see Table 5).

Health Canada’s work on aluminum salts and ethylene glycol in 2004–05 included the following:

- Health Canada met with industrial stakeholders to discuss the status of the suspended assessment of aluminum salts and conducted external peer reviews of two industry-submitted draft protocols for studies designed to assess the neurotoxicity of aluminum citrate in rats. Health Canada also organized an expert committee that made further recommendations for modifications to the protocols and participated in meetings of Canadian and European industrial stakeholders to discuss the applicability of the protocols for European regulatory requirements. Work was also initiated on a joint funding arrangement with the U.S. National Institute of Environmental Health Sciences for the conduct of a study of the oral bioavailability and distribution to the central nervous system of aluminum citrate in rats by the University of Kentucky.
- Health Canada was updated on the progress of a study sponsored by the American Chemistry Council on the progression of renal lesions in male rats following exposure to ethylene glycol.



[www.ec.gc.ca/CEPARRegistry/subs\\_list/PSL2.cfm](http://www.ec.gc.ca/CEPARRegistry/subs_list/PSL2.cfm)

[www.ec.gc.ca/substances/ese/eng/psap/psl2.cfm](http://www.ec.gc.ca/substances/ese/eng/psap/psl2.cfm)

### 5.1.1.5 The Addition of Substances to Schedule 1 of CEPA 1999

When a substance is assessed and determined to meet the criteria of section 64, one of the measures that the Ministers may propose is its addition to the List of Toxic Substances in Schedule 1 of CEPA 1999. CEPA 1999 gives the federal government the authority to make regulations or require the preparation of pollution prevention plans or environmental emergency plans for substances on Schedule 1.

Table 6 shows activity in 2004–05 to add various substances to Schedule 1.

### 5.1.1.6 Information Gathering

CEPA 1999 provides several authorities to require any person to provide or generate data for the purposes of assessing a substance or for deciding whether or how to control a substance. In 2004–05, information-gathering notices were published for:

- methyl bromide;
- perfluoroalkyl and fluoroalkyl substances; and
- PFOS, its salts, and its precursors.

[www.ec.gc.ca/Ceparegistry/notices](http://www.ec.gc.ca/Ceparegistry/notices)

Table 4: Status of First Priority Substances List Assessments during 2004–05

Status	Substances
Recommended for addition to Schedule 1 and candidates for virtual elimination	Pentachlorobenzene Tetrachlorobenzenes
No further action recommended	1,2-Dichlorobenzene 1,4-Dichlorobenzene Trichlorobenzenes Bis (2-chloroethyl) ether (proposed) 3,5-Dimethylaniline (proposed)
Ongoing follow-up assessments	Aniline Chlorinated paraffins Used crankcase oils

Table 5: Status of Second Priority Substances List Assessments during 2004–05

Status	Substances
Recommended for addition to Schedule 1	2-Butoxyethanol 2-Methoxyethanol
No further action recommended	Releases of radionuclides from nuclear facilities (impact on non-human biota)
Not meeting the criteria under section 64	Butylbenzylphthalate Carbon disulfide Chloroform N,N-Dimethylformamide Phenol

As part of the release of a draft maximal list by Health Canada of almost 1900 substances identified from the health-related components of categorization, the department invited the submission of information relevant to priority setting for the health-related components of categorization under CEPA 1999 (see [www.hc-sc.gc.ca/ewh-semt/contaminants/existsub/index\\_e.html](http://www.hc-sc.gc.ca/ewh-semt/contaminants/existsub/index_e.html)).

The release of this draft maximal list during 2004–05 was intended to provide an opportunity for interested parties to submit data to justify reducing the number of substances on the final list to be considered for screening assessment under the Act. Health Canada invited stakeholders to provide information on the identity, use, or toxicity of any of the substances included on the draft maximal list.

Table 6: Substances Added to or being Considered for Addition to the List of Toxic Substances (Schedule 1) in 2004–05

Substance	Proposed Order adding to Schedule 1 – date	Final Order adding to Schedule 1 – date	Sectors/sources involved
2-Methoxyethanol and 2-butoxyethanol	October 25, 2003	March 9, 2005	<p>2-Methoxyethanol is not commercially produced in Canada but is imported for limited use mainly as an industrial coating, as a chemical intermediate, and in military applications.</p> <p>2-Butoxyethanol is not commercially produced in Canada but is imported for use mainly as a solvent for formulations in paints and coatings, inks, and cleaning products. It is also used to a much lesser extent as an additive to hydraulic fluids and in the chemical processing for plasticizers and other compounds.</p>
Dichlorodiphenyltrichloroethane (DDT), which has the molecular formula $C_{14}H_9Cl_5$	April 3, 2004	March 9, 2005	<p>DDT was first registered as a pesticide in the 1940s, and although it was never manufactured in Canada, it was widely used in pest control products until the 1960s. In response to increasing environmental and safety concerns, most Canadian uses of DDT were phased out by the mid-1970s, and registration of all uses of DDT was discontinued in 1985, with the understanding that existing stocks would be sold, used, or disposed of by December 31, 1990. Since then, the sale or use of DDT in Canada is a violation of the <i>Pest Control Products Act</i>.</p> <p>An Environment Canada review of DDT's physical and chemical properties, environmental fate, and toxicity concluded that DDT should be virtually eliminated from the environment.</p>
Tetrachlorobenzenes and pentachlorobenzene	April 24, 2004		<p>Tetrachlorobenzenes and pentachlorobenzene are not produced or used in their pure form in Canada. They may be formed and released to the environment as a result of municipal solid waste and hazardous waste incineration and barrel burning of household waste, dielectric fluids, pesticides, wood preservative chemicals, magnesium production, and other potential minor sources.</p>

## 5.1.2 Risk Management

*Preventive or control instruments for each toxic substance or group of toxic substances are developed through the Toxics Management Process. Management actions are developed in a way that ensures that industry and public stakeholders are properly consulted and that the obligations to protect the environment and human health set out in CEPA 1999 are met. The cornerstone of the Toxics Management Process is the development of Risk Management Strategies. A Risk Management Strategy describes how the risks to human health and the environment from a substance will be addressed using a range of measures to control any aspect of the substance's life cycle. Examples of preventive or control instruments under the Act include regulations under Part 5, guidelines and codes of practice under Part 3, pollution prevention plans under Part 4, and environmental emergency plans under Part 8. Measures can also be taken under other federal acts or provincial, territorial, or Aboriginal legislation. Voluntary measures, such as Environmental Performance Agreements, may also be used.*

Appendix A contains a list of the risk management measures proposed or finalized in 2004–05.

### 5.1.2.1 Virtual Elimination

Provisions under CEPA 1999 support the virtual elimination of the release of substances recommended for addition to Schedule 1 that are persistent, bioaccumulative, present in the environment primarily as a result of human activity, and not naturally occurring.

Under the Act, the Ministers of the Environment and Health are required to establish a Virtual Elimination List for substances that meet the above criteria. For each substance added to the list, the Ministers must specify a level of quantification, which is the lowest concentration at which that substance can be measured using sensitive but routine sampling and analytical methods. The Ministers also must prescribe through regulation a limit on the quantity or concentration of the substance that may be released into the environment (known as the release limit). In addition to the Ministerial regulation authority, the substance may also be controlled by regulations or instruments under the Act approved by the Governor in Council and by other risk management tools.

HCBd is the first substance the Ministers have proposed (August 16, 2003) for addition to the Virtual Elimination List. In response to comments received from stakeholders regarding the level of quantification proposed for HCBd, Environment Canada conducted an interlaboratory study to confirm the method used to determine the level of quantification for the substance. The study, which required several months to complete, determined that the measurement of HCBd at the proposed level of quantification is achievable by other commercial and government laboratories using the same analytical method as that used by Environment Canada.

### 5.1.2.2 Regulations

In 2004–05, the government published four final regulations under Part 5 of CEPA 1999:

- **Regulations Amending the Ozone-depleting Substances Regulations, 1998** (finalized December 29, 2004)—The regulations include a system of consumption allowances for hydrochlorofluorocarbons. The amendments will help stakeholders adapt to the 35% reduction in hydrochlorofluorocarbon consumption without compromising Canada's international commitments under the Montreal Protocol.
- **Prohibition of Certain Toxic Substances Regulations, 2005** (registered on February 15, 2005; proposed on April 3, 2004, under *Total, Partial or Conditional Prohibition of Certain Toxic Substances Regulations*)—These regulations prohibit the manufacture, use, sale, offer for sale, and import of certain toxic substances. Amendments restructured and replaced the *Prohibition of Certain Toxic Substances Regulations, 2003*. In addition to providing more targeted regulatory controls and facilitating the addition of new substances, the new regulations:
  - identify prohibitions for three additional toxic substances (HCBd, N-nitrosodimethylamine [NDMA], and DDT);
  - introduce new notification, reporting, and record-keeping requirements;
  - create a permit system for granting temporary exemptions to prohibitions, where it is identified that a transition period will be required to find or implement alternatives;
  - more tightly associate the limit established for the incidental presence of certain substances to products or mixtures where their presence has been detected and control decisions have been made; and
  - assist Canada in meeting its international obligations under the Stockholm Convention on Persistent Organic Pollutants.



- **The Off-Road Compression-Ignition Engine Emission Regulations** (published February 23, 2005)—The regulations address emissions from a wide range of new off-road diesel engines powering industrial, forestry, agricultural, construction, and mining equipment and will apply to engines of the 2006 and later model years.
- **Regulations Amending the Benzene in Gasoline Regulations** (Miscellaneous Program) (finalized December 1, 2004)—The regulations correct inconsistencies between French and English versions of the regulations.

In 2004–05, three proposed regulations were published for comment:

- **Chromium Electroplating, Chromium Anodizing and Reverse Etching Regulations** (proposed November 6, 2004)—The purpose of the proposed regulations is to protect the environment and the health of Canadians by reducing air emissions of hexavalent chromium compounds from facilities using chromic acid in their chromium electroplating, chromium anodizing, or reverse etching operations.
- **Regulations Amending the Vinyl Chloride Release Regulations, 1992** (proposed April 3, 2004)—The proposed regulations are mostly of an administrative nature; they clarify the current regulations and achieve consistency between the English and French versions of the regulations.
- **Regulations Amending the Sulphur in Diesel Fuel Regulations** (proposed October 2, 2004)—The purpose of the proposed regulations is to reduce harmful emissions from diesel-powered engines and equipment used in off-road, rail, and marine applications. The regulations will establish limits for sulphur levels in diesel fuel produced, imported, or sold for these uses.



[www.ec.gc.ca/CEPARRegistry/regulations](http://www.ec.gc.ca/CEPARRegistry/regulations)

### 5.1.2.3 Extended Producer Responsibility and Stewardship

Extended producer responsibility is an excellent example of how innovative risk management measures are being developed as a result of the work performed under the Toxics Management Process. The concept of extended producer responsibility urges manufacturers to recover and manage their products in an environmentally sound manner when consumers are finished using them. It has already been used to target a broad and growing range of post-consumer products in Canada, including used oil, scrap tires, refrigerants, paints, and pesticides. In March 2004, Environment Canada co-hosted Canada's Third National Workshop on Extended Producer Responsibility and an OECD Experts Workshop on Evaluating the Costs and Benefits

of Extended Producer Responsibility. Environment Canada also remains engaged in activities with provinces, territories, industry, and other stakeholders to help foster regional and national approaches that require extended producer responsibility for electronic devices, including computers and televisions.

### 5.1.2.4 Memorandum of Understanding

In 2003, a Memorandum of Understanding was signed between Environment Canada and the Canadian Nuclear Safety Commission, which lays out principles and protocols on matters of mutual interest respecting the environment.

In December 2004, an Annex to the Memorandum of Understanding was developed to manage the risk to the environment associated with radionuclides. Following a Priority Substances List assessment, releases of uranium and uranium compounds contained in effluent from uranium mines and mills were found to meet the criteria of section 64 of CEPA 1999. Under the *Nuclear Safety and Control Act*, the Commission has the mandate to ensure that the operation of nuclear facilities, such as uranium mines and mills, does not pose unreasonable risks to the environment. The *Nuclear Safety and Control Act* provides a broad range of regulatory powers respecting environmental protection. Recognizing the mandate of the Commission and to avoid regulatory duplication, the Ministers of the Environment and Health have recommended that they take no further action with respect to radionuclides at this time under CEPA 1999. The Annex to the Memorandum of Understanding sets out a cooperative process to develop risk management measures under the *Nuclear Safety and Control Act*.



[www.ec.gc.ca/Toxics/docs/substances/RN/EN/mou.cfm](http://www.ec.gc.ca/Toxics/docs/substances/RN/EN/mou.cfm)

## 5.2 New Substances

*Substances that are not on the Domestic Substances List are considered to be new to Canada. A new substance cannot be manufactured or imported until:*

- *the Minister has been notified prior to manufacturing or importation of the substance;*
- *relevant information needed for an assessment of its potential toxicity has been provided by the notifier; and*
- *the period for assessing the information (as set out in regulations) has expired.*

When the assessment process identifies a new substance that may pose a risk to human health or the environment, the Act empowers the Minister of the Environment to intervene by designing a risk management process, placing restrictions on the substance, or prohibiting the substance from import or manufacture in Canada.

When the Ministers of the Environment and Health suspect that a significant new activity in relation to a new substance that had been previously assessed and found not to be toxic may result in the substance becoming toxic, they can issue a Significant New Activity Notice to ensure that adequate additional information is provided by the notifier or any other proponent who wishes to manufacture, import, or use the substance for activities not specified by the notice. The additional information allows Environment Canada and

Health Canada to assess the potential environmental and human health risks associated with the new activities.

CEPA 1999 requirements apply to new substances (chemicals and polymers) that are manufactured or imported unless other applicable Acts provide for notice and assessment and are specifically identified on Schedule 2 of the Act.

### 5.2.1 Risk Assessment of New Substances

During 2004–05, 794 new substance notifications were received pursuant to the *New Substances Notification Regulations*. Environment Canada received 689 notifications for substances regulated under CEPA 1999, and Health Canada received 105 notifications for products regulated under the *Food and Drugs Act*.

Table 7: Notices of Ministerial Conditions and Prohibitions Issued during 2004–05

Substance	Conditions/prohibitions	Canada Gazette publication date*
1,1'-(1,2-Ethanediy)bis[pentabromobenzene]	Import the substance for use only as a flame retardant additive in wire and cable coatings for the telecommunications, electrical, power, and automotive industries	October 2, 2004
Indanedioxa	Import or manufacture the substance for use only as a fragrance ingredient	September 4, 2004
Perfluoroalkylhydroxyaminoazetidinium polymer	Importation or manufacture of the substance is prohibited	February 7, 2005
Stannane, tetrabutyl	Import the substance for use only as a component of stabilizers for rigid poly(vinyl chloride)	March 19, 2005
Stannane, tetraoctyl	Import the substance for use only as a component of stabilizers for rigid poly(vinyl chloride)	March 19, 2005
Stannane, chlorotrioctyl	Import the substance for use only as a component of stabilizers for rigid poly(vinyl chloride)	March 19, 2005
Phosphoric acid, mixed polyoxyalkylene aryl and alkyl esters	Import the substance for use only as a component of a petroleum gelling agent formulation, intended only for use in fracturing and testing of oil and gas wells and associated pipelines	February 26, 2005
2-Propenoic acid, 2-methyl-, hexadecyl ester, polymers with 2-hydroxyethyl methacrylate, gamma-omega-perfluoro-C10-16-alkyl acrylate and stearyl methacrylate	Import or manufacture of the substance is prohibited	July 19, 2004
Hexane, 1,6-diisocyanato-, homopolymer, reaction products with alpha-fluoro-omega-2-hydroxyethylpoly(difluoromethylene), alkylbranched alcohols and 1-alkanol	Import or manufacture of the substance is prohibited	July 19, 2004
2-Propenoic acid, 2-methyl-, 2-methylpropyl ester, polymer with butyl 2-propenoate and unsaturated anhydride, perfluoroalkyl esters, tert-Bu benzenecarboperoxoate-initiated	Import or manufacture of the substance is prohibited	July 19, 2004

\* The publication date informs when the Ministerial Condition and Prohibitions took effect.

## 5.2.2 Risk Management of New Substances

### 5.2.2.1 Notifications

Of the total 794 notifications received, Environment Canada issued 6 conditions, 4 prohibitions, and 10 Significant New Activity Notices (see Tables 7 and 8).



[www.ec.gc.ca/substances/nsb/eng/pub\\_e.htm](http://www.ec.gc.ca/substances/nsb/eng/pub_e.htm)

### 5.2.2.2 Regulations Regarding New Substances

On October 30, 2004, four proposed regulations or regulatory amendments were published in *Canada Gazette*, Part I:

- **New Substances Notification Regulations (Chemicals and Polymers)** (proposed October 30, 2004)—The proposed regulations are the culmination of extensive stakeholder consultation on the chemicals and polymers portion of the existing *New Substances Notification Regulations* and the New Substances Program. The proposed regulations implement consensus-based recommendations from the new substances notification multistakeholder consultative process. This process used the experience of stakeholders to suggest improvement to the effectiveness and efficiency of the new substances notification and assessment process for chemicals and polymers, while maintaining high standards for the protection of the environment and human health.

Table 8: Significant New Activity Notices Published during 2004–05

Substance	Significant new activity	Canada Gazette publication date*
1,2-Benzenedicarboxylic acid, di-C6-10-alkyl esters (SNAN 13 283)	Any new activity other than importing it for use as a plasticizer in polyurethane adhesives for automotive glass bonding	October 2, 2004
Benzeneacetic acid, $\alpha$ -oxo-, 2-(2-hydroxyethoxy) ethyl ester (SNAN 13 029)	Any new activity other than using it as a component of a photoinitiator for use in industrially applied radiation cured coatings	October 9, 2004
Benzeneacetic acid, $\alpha$ -oxo-, oxydi-2-1-ethanediy ester (SNAN 13 028)	Any new activity other than using it as a component of a photoinitiator for use in industrially applied radiation cured coatings	October 9, 2004
Siloxanes and silicones, 3-[(2-aminoethyl)amino]-2-methylpropyl Me, di-Me, reaction products with N,N,N-trimethyloxiranemethanaminium chloride (SNAN EAU-135)	Any use in personal care products at final concentrations greater than 4%	November 13, 2004
Octanethioic acid, S-[3-(triethoxysilyl)propyl] ester (SNAN 13 247)	Any new activity other than manufacturing, importing, using, or distributing it exclusively as a raw material in industrial operations in the manufacture of cured rubber articles	November 27, 2004
Acetamide, N-[5-[bis(2-methoxyethyl)amino]-2-[(5-nitro-2,1-benzisothiazol-3-yl) azo]phenyl]-, (SNAN 9396)	Any new activity other than using it for the dyeing of polyester and modified polyester using batch dyeing techniques	December 18, 2004
Oxirane, methyl-, polymer with oxirane, monoalkyl ether, (SNAN 13 475)	Any use as a component in personal care products	January 8, 2005
Quaternary amide, polymer with 2-propenoic acid, sodium salt, reaction products with disodium (disulfite) (SNAN 12 881)	Any new activity other than importing it or manufacturing it for use in industrial, commercial, or consumer general purpose cleaners or detergents	September 25, 2004
Oxirane, methyl-, polymer with oxirane, monoalkyl ether (SNAN 13 476)	Any new activity other than use as a component in personal care products	January 8, 2005
Isooctadecanoic acid, reaction products with tetraethylene-pentamine, compounds with di-Bu phosphonate-2,2'-dithiobis[ethanol]alkyl substituted alcohol reaction products, 2,2'-iminobis[ethanol], [N-[3-(C16-18-alkyloxy)propyl]] derivatives and 4(or 5)-methyl-1H-benzotriazol, (SNAN 13 424)	Any new activity other than importing it for use in power transmission fluids	February 26, 2005

\* As of this date, the Significant New Activity Notice will only allow importation, manufacture, and use of the substance for the activities proposed in the table.

- **New Substances Notification Regulations (Organisms)** (proposed October 30, 2004)—The purpose of the proposed regulations is to implement part of a new regulatory structure for new substances notification under CEPA 1999. The proposed regulatory structure carves out the provisions related to organisms from the provisions related to chemicals and polymers in the existing *New Substances Notification Regulations*.
- **Regulations Repealing the New Substances Notification Regulations** (proposed October 30, 2004)—These regulations would repeal the existing regulations, which would be replaced with the above-noted, proposed regulations for chemicals and polymers and organisms.
- **Regulations Amending the New Substances Fees Regulations** (proposed October 30, 2004)—The proposed regulations are necessary to harmonize the *New Substances Fees Regulations* with the proposed *New Substances Notification Regulations (Chemicals and Polymers)*. The pre-publication was followed by a 75-day public review period during which five sets of written comments were received: four submissions from industry and industry associations and one from an environmental group. The proposed regulations received wide support and positive feedback.



[www.ec.gc.ca/CEPARRegistry/regulations/](http://www.ec.gc.ca/CEPARRegistry/regulations/)

Health Canada continued its activities to develop and establish an Environmental Assessment Regulatory Framework for new substances in products regulated under the *Food and Drugs Act*. These activities included progress towards the development of an Options Analysis Paper and a path forward that included a public release of the paper in 2005–06 and consultations with stakeholders on the options outlined in the paper.



[www.hc-sc.gc.ca/ewh-semt/contaminants/person/impact/list/index\\_e.html](http://www.hc-sc.gc.ca/ewh-semt/contaminants/person/impact/list/index_e.html)

## 5.2.3 Additions to the Domestic Substances List

Substances listed under the *Food and Drugs Act* are eligible to be added to the Domestic Substances List provided that the Minister of the Environment is satisfied that these substances, between 1984 and 1986, were manufactured in or imported into Canada by a person in a quantity of not less than 100 kilograms in any one calendar year or used in Canadian commerce or used for commercial manufacturing purposes in Canada.

During the reporting period, 121 substances were added to the Domestic Substances List.

## 5.2.4 International Actions

In 2004–05, a strategic plan relating to international regulatory and scientific cooperation was completed. In this strategy, Canada will work with other countries to find common ways of doing business that will improve decision-making about new chemicals and polymers in Canada and internationally while continuing to protect human health and the environment.

### 5.2.4.1 Four Corners Arrangement

The Four Corners Arrangement was revised in November 2003 and signed in January 2004 by Environment Canada, Health Canada, the U.S. Environmental Protection Agency, the American Chemistry Council, and the Industry Coordinating Group from Canada. The overall objective of the revised arrangement is to work towards achieving efficiency of resources for all parties for the introduction of new substances to the North American marketplace, by avoiding duplication of efforts associated with assessments through enhanced information and work sharing, without compromising the protection of human health and the environment. Four notifications were received under the Four Corners Arrangement in 2004–05.

### 5.2.4.2 Canada–Australia Arrangement

The Cooperative Arrangement on New Industrial Chemicals among the National Industrial Chemicals Notification and Assessment Scheme of Australia, Environment Canada, and Health Canada allows both the sharing of information on new industrial chemicals and the potential alignment of national new industrial chemicals schemes. The arrangement has been renewed and continues to support information exchange in technical, regulatory, and policy areas. Canada has been recognized under the foreign schemes provision of the Australian legislation as a competent authority in new substances.

In 2004–05, 18 notification requests were received under the arrangement. Canada and Australia continue to work on comparing assessment approaches and methodologies for chemicals and polymers.

### 5.2.4.3 New Chemicals Task Force

The OECD New Chemicals Task Force was established to improve information and work sharing associated with notification and assessment of new industrial chemicals.

A Steering Group was formed to lead the implementation of the pilot phase of the Parallel Process, which involves sharing hazard assessments between jurisdictions. The pilot phase is expected to be finalized by the end of 2006. Representatives of the Steering Group include Australia, Canada (Chair), Japan, the United States, and the Business and Industry Advisory Committee. The Steering Group met in March 2005 and presented the outcome of this meeting at the New Chemicals Task Force meeting in April 2005. The Steering Group identified the following tasks:

- development of a hazard assessment template;
- application of Robust Study Summary templates; and
- addressing elements of the Predetermined Set of Information, which would be based on the OECD's Minimum Pre-Marketing Set of Data for new chemicals.

During 2004–05, the New Substances Program also worked with the OECD and the U.S. Environmental Protection Agency, to advance the Mutual Acceptance of Notifications initiative. The duplication of efforts and differences in national notifications and assessment schemes were the motivating factors for the emergence of this initiative. The main objectives of this initiative are to:

- reduce the burden and costs for governments and industry;
- improve efficiency; and
- increase collaboration expertise in order to harmonize assessment approaches among the member countries.

#### 5.2.4.4 Good Laboratory Practice

The OECD's principles of good laboratory practice set out managerial concepts covering the organization of test facilities and the conditions under which pre-clinical safety studies are executed. Their purpose is to ensure the generation of high-quality and reliable test data (*in vitro* and *in vivo*) related to the safety of chemicals and preparations in the framework of the Mutual Acceptance of Data.

In 2004–05, work on the New Substance Notification Good Laboratory Practice compliance monitoring program included:

- providing technical advice during the revision of good laboratory practice aspects of the *New Substances Notification Regulations*;
- representing Environment Canada on the OECD's Steering and Working Groups on Good Laboratory Practices; and
- providing information on data quality to new substances evaluators.

The revised regulations will require that biotic studies be good laboratory practice-compliant and that all other studies be consistent with the principles of good laboratory practice.



[www.etc-cte.ec.gc.ca/organization/spd\\_e.html](http://www.etc-cte.ec.gc.ca/organization/spd_e.html)

## 5.3 Export of Substances

*The authorities in the Act allow the Minister to establish an Export Control List containing substances whose export is controlled because their manufacture, import, or use in Canada is prohibited or severely restricted or because Canada has agreed, through an international agreement, such as the Rotterdam Convention, to control their export. The authorities also allow the Minister to make regulations in relation to substances specified on the Export Control List.*

### 5.3.1 Export Control List

The *Export Control List Notification Regulations* require exporters to provide notice to the Minister of the Environment of the proposed export of substances on the Export Control List and to submit annual reports. In 2004–05, 13 notifications of export were received, and no additional substances were added to the Export Control List.

### 5.3.2 Rotterdam Convention

Canada implements the provisions of the Rotterdam Convention (Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade) through the *Export of Substances Under the Rotterdam Convention Regulations*. The main purpose of the regulations is to ensure that chemicals and pesticides subject to the Prior Informed Consent (PIC) procedure are not exported to Parties to the Convention, unless the importing Party has provided its "prior informed consent" to the shipment. Canada has also undertaken to ensure that Canadian exporters respect any conditions imposed on the importation of these substances.

Consultations on the proposed addition of tetraethyl lead, tetramethyl lead, and chrysotile asbestos to the PIC procedure were conducted in 2004–05.



[www.ec.gc.ca/international/multilat/rotterdam\\_e.htm](http://www.ec.gc.ca/international/multilat/rotterdam_e.htm)



## 6 Animate Products of Biotechnology (Part 6)

The Act establishes an assessment process for living organisms that are new animate products of biotechnology that mirrors provisions in Part 5 of CEPA 1999 respecting new substances that are chemicals or polymers. Animate products of biotechnology may pose several potential risks to the environment, including possible impacts on natural biodiversity. They may introduce toxins, interfere with naturally occurring plants and animals, and harm natural genetic diversity.

Living organisms that are not on the Domestic Substances List are considered to be new. These cannot be used, manufactured, or imported until:

- the Minister has been notified;
- relevant information needed for an assessment has been provided by the applicant; and
- the period for assessing the information has expired.

When the assessment process identifies a living organism that may pose a risk to human health or the environment, the Act empowers the Minister of the Environment to intervene by implementing a risk management process, placing restrictions on the organism, or prohibiting the organism from import or manufacture in Canada.

When the Ministers of the Environment and Health suspect that a significant new activity in relation to a living organism that had been previously assessed and found not to be toxic may result in the organism becoming toxic, they may issue a Significant New Activity Notice to ensure that adequate additional information is provided by the notifier or any other proponent who wishes to manufacture, import, or use the organism for activities not specified by the notice. The additional information allows Environment Canada and Health Canada to assess the potential environmental and human health risks associated with the new activities.

CEPA 1999 requirements apply to new living organisms that are manufactured or imported unless other applicable Acts provide for notice and assessment and are specifically identified on Schedule 4 of the Act.

### 6.1 Risk Assessment and Management

In 2004–05, the New Substances Program received three new substance notifications and no significant new activity notifications. Two notifications were rejected, and one was completed. There were no risk management measures taken. One Significant New Activity Notice was issued (see Table 9).

### 6.2 International Actions

#### 6.2.1 Working Group on Harmonization of Regulatory Oversight in Biotechnology

This working group under the OECD ensures that environmental, human health, and safety aspects of products of biotechnology are properly evaluated while avoiding non-tariff trade barriers to these products. The working group met in June 2004 and February 2005 to discuss areas where members can work together to develop consensus documents on bacteria, fungi, crop plants, environmental assessment parameters, and risk assessment of transgenic fish.





Table 9: Significant New Activity Notices Published during 2004–05

Organism	Significant new activity	Canada Gazette publication date*
Fungus <i>Fusarium</i> species strain CK 46-8	any activity other than the <ul style="list-style-type: none"> <li data-bbox="407 331 1216 428">(a) use of the living organism within a contained facility, the latter as defined in subsection 2(1) of the <i>New Substances Notification Regulations</i>, in the production of a metabolite to be used as starting material for the production of a veterinary drug;</li> <li data-bbox="407 428 1216 495">(b) filtration through 0.2 micron filters of all gaseous wastes and disinfection of the filters to destroy 99.999% of the living organism;</li> <li data-bbox="407 495 1216 562">(c) disinfection of all liquid and solid wastes to destroy 99.999% of the living organism prior to transport and incineration of these wastes, as set out in paragraphs (d) and (e);</li> <li data-bbox="407 562 1216 659">(d) transportation of all disinfected liquid and solid wastes to the incineration facility using a conveyance, as defined in section 216 of the Act, constructed or equipped to contain leaks, spills, or other such releases during transport; or</li> <li data-bbox="407 659 1216 756">(e) incineration of all disinfected liquid and solid wastes, at no less than 900°C, by a facility authorized by the laws, regulations, and other requirements of the jurisdiction where the incineration will take place.</li> </ul>	April 10, 2005

\* As of this date, the Significant New Activity Notice will only allow importation, manufacture, and use of the substance for the activities proposed in the table.



## 7 Controlling Pollution and Managing Waste (Part 7)

Part 7 provides the Minister with authorities to deal with various substances that have the potential to harm the environment or human health.

### 7.1 Nutrients

*Nutrients promote the growth of aquatic vegetation. Nutrients such as nitrogen and phosphorus can result in excessive aquatic plant growth, depletion of oxygen, and deleterious changes in abundance and diversity of aquatic organisms. This “eutrophication” process poses a serious threat to the biodiversity and health of coastal waters in Canada as well as freshwater systems. CEPA 1999 provides the authority to regulate nutrients in cleaning products and water conditioners that degrade or have a negative impact on an aquatic ecosystem.*

In 2004–05, the Great Lakes Sustainability Fund, a component of the Great Lakes Program, was used by various agencies and proponents to deliver agricultural non-point source pollution reduction programs to reduce the amount of nutrients (phosphorus and nitrogen), solids, and bacteria entering watercourses. In working with agricultural producers in a Niagara River Area of Concern, eight water quality projects were implemented, reducing the amount of manure entering surface water and groundwater systems by 3081 cubic metres annually. Four conservation tillage projects were initiated to control soil erosion and improve surface water quality in a St. Lawrence River Area of Concern. This resulted in conservation practices being applied on over 600 hectares of farmland.



[www.on.ec.gc.ca/press/glsf\\_projects\\_2004-05\\_e.html](http://www.on.ec.gc.ca/press/glsf_projects_2004-05_e.html)

The Fund was also used to demonstrate cost-effective, innovative processes for enhancing the removal of nutrients from municipal wastewater treatment plant effluents. These projects led to the upgrading of three primary sewage treatment plants in the Great Lakes Areas of Concern.



[www.ec.gc.ca/ceqg-rcqe/English/whatsnew/default.cfm#sbs](http://www.ec.gc.ca/ceqg-rcqe/English/whatsnew/default.cfm#sbs)

### 7.2 Protection of the Marine Environment from Land-Based Sources of Pollution

*The Act provides authorities to issue non-regulatory objectives, guidelines, and codes of practice to help implement Canada’s National Programme of Action for the Protection of the Marine Environment from Land-based Activities. These provisions are intended to supplement the authorities that exist in other federal, provincial, territorial, and Aboriginal government laws.*

#### 7.2.1 National Programme of Action

In 1995, Canada, together with over 100 maritime nations, adopted the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities. This international, non-legally binding agreement calls on countries to develop national and regional programs of action to protect human health and prevent, reduce, and control land-based activities that threaten the health, productivity, and biodiversity of marine and coastal environments and associated freshwater systems. Canada was the first country to release a National Programme of Action in June 2000. Canada’s National Programme of Action focuses on addressing problems under the broad themes of contaminants and physical alteration and destruction of habitat. The Programme has identified national and regional problems, priorities, goals and objectives, strategies and actions, and next steps for protection from marine pollution.

Activities during 2004–05 include the following:

- Canada released a report, entitled “Protecting Canada’s Coastal and Marine Environment,” at the H2O Global Partnership Conference in Cairns, Australia (May 2004). The report provides an overview of local, provincial, territorial, and national programs, policies, and legislative measures to control land-based sources of contaminants and reduce habitat alteration and destruction. In addition, at the conference, Canada delivered a presentation on its experience and lessons learned in implementing its program.
- Environment Canada’s Atlantic Region released an “Atlantic National Programme of Action Team Status Report—January 2005,” which describes progress made under its Action Plan 2002–06 on activities related to nutrients, sewage, and habitat destruction.

- Regions continue to evaluate microbial source tracking techniques for identifying the origins of fecal coliform contamination in water and shellfish harvesting areas.



[www.npa-pan.ca](http://www.npa-pan.ca)

## 7.2.2 Regional Programme of Action for the Arctic

In 1998, Canada and seven other circumpolar nations of the Arctic Council developed a Regional Programme of Action for the Protection of the Marine Environment from Land-based Activities to address marine pollution issues in the Arctic.

During 2004–05, much of the focus of the Arctic Council's Working Group on Protection of the Arctic Marine Environment was centred on the development of the Arctic Council's Arctic Marine Strategic Plan. The plan was endorsed by Arctic Ministers in November 2004 and is intended to facilitate a more coordinated and integrated approach for all working groups to address the challenges of the Arctic coastal and marine environment. Canada and Iceland served as lead countries for a working group guiding the development of the strategic plan.

The Arctic Marine Strategic Plan sets out elements that recognize the importance of continued implementation of the Regional Programme of Action for the Protection of the Marine Environment from Land-based Activities. In the reporting period, Canada called upon Arctic countries to consider broadening the Regional Programme of Action to address other source categories. The plan also encouraged continued technical cooperation for the Russian Federation's activities aimed at protecting the Arctic marine environment from priority pollution sources.



[www.pame.is/](http://www.pame.is/)

## 7.3 Disposal at Sea

*The Act includes provisions to prohibit the disposal of wastes and other matter at sea within Canadian jurisdiction, and by Canadian ships in international waters, unless the disposal is done under a permit issued by the Minister. A permit for disposal at sea will be approved only for six substances and only if it is the environmentally preferable and practical option. Incineration at sea is banned except under emergency situations. CEPA 1999 provides additional controls on disposal at sea, including:*

- a ban on the export of a substance for disposal at sea;*
- an assessment framework for reviewing permit applications, based on the precautionary principle, which must be followed (Schedule 6); and*
- a legal obligation for Environment Canada to monitor disposal sites.*

*There is also a legal obligation under the Canadian Environmental Assessment Act to conduct environmental assessments prior to issuing permits.*

### 7.3.1 Disposal at Sea Permits

In 2004–05, 83 permits were issued for the disposal of 3.44 million tonnes of waste and other matter (see Tables 10 and 11). Most of this waste was dredged material removed from harbours and waterways to keep them safe for navigation. The number of permits issued has remained relatively stable since 1995. The quantities permitted were lower than in 2003–04 but still remain well within the range seen since the introduction of monitoring fees. Historically, the quantity permitted has been greater than the actual quantity disposed of at sea (often by 30–50%). However, with the monitoring fee for dredged material and inert, inorganic geological matter in place since 1999, the quantities permitted now more closely reflect the actual disposed quantities.

Table 10: Quantities Permitted (in tonnes) and Permits Issued in Canada in 2004–05

Material	Quantity permitted (tonnes)	Permits issued	Percentage of quantity	Percentage of permits
Dredged material	2 476 500*	34	72	41
Geological matter	899 600*	5	26	6
Fisheries waste	60 850	42	2	51
Vessels	561	1	0	1
Organic	200	1	0	1
<b>Total</b>	<b>3 437 711</b>	<b>83</b>	<b>100</b>	<b>100</b>

\* Dredged material and geological matter were converted to tonnes using an assumed density of 1.3 tonnes per cubic metre.

Table 11: Quantities Permitted (in tonnes) and Permits Issued by Region in 2004–05

Material	Atlantic		Quebec		Pacific and Yukon		Prairie and Northern	
	Quantity permitted (tonnes)	Permits issued	Quantity permitted (tonnes)	Permits issued	Quantity permitted (tonnes)	Permits issued	Quantity permitted (tonnes)	Permits issued
Dredged material*	937 300	12	76 700	10	1 475 500	15	0	0
Geological matter*	0	0	0	0	899 600	5	0	0
Fisheries waste	58 450	39	2 400	3	0	0	0	0
Vessels	0	0	0	0	561	1	0	0
Organic	0	0	0	0	0	0	200	1
<b>Total</b>	<b>995 750</b>	<b>51</b>	<b>79 100</b>	<b>13</b>	<b>2 375 661</b>	<b>21</b>	<b>200</b>	<b>1</b>

\* Dredged material and geological matter were converted to tonnes using an assumed density of 1.3 tonnes per cubic metre. Data accurate as of June 14, 2005.

### 7.3.2 Monitoring Program

As required by CEPA 1999, disposal sites are monitored to verify that permit conditions were met and that scientific assumptions made during the permit review and site selection process were correct and sufficient to protect the environment.

In 2004–05, field monitoring was conducted at 17 ocean disposal sites:

- six disposal sites in the Quebec Region (L'Anse-à-Brillant, Port-Daniel-Est, Sainte-Thérèse-de-Gaspé, Saint-Godfroi, Gascons, and Bonaventure in Gaspésie);
- one site in the Prairie and Northern Region (Churchill Harbour, Manitoba);
- six disposal sites in the Pacific and Yukon Region (Thormanby Island, Five Fingers, Porlier Pass, Comox, Victoria, and Point Grey in British Columbia); and
- four disposal sites in the Atlantic Region (Strait of Canso, Nova Scotia; Miramichi and Black Point, New Brunswick; and Mosquito Cove, Newfoundland and Labrador).

Further details can be found in the *Compendium of Monitoring Activities at Ocean Disposal Sites*, which is sent to permittees and submitted to the International Maritime Organization annually.



[www.ec.gc.ca/seadisposal/reports/index\\_e.htm#Compend](http://www.ec.gc.ca/seadisposal/reports/index_e.htm#Compend)

### 7.3.3 Regulations

In 2004–05, a Regulatory Impact Analysis and a Strategic Environmental Assessment were conducted on proposed amendments to the *Disposal at Sea Regulations*. These regulatory amendments would clarify the boundaries between the sea and

fresh water for four major estuaries across Canada, including the Fraser River Delta, the Mackenzie River estuary, the Bras D'Or Lakes, and the Miramichi River estuary, for the purposes of application of the disposal at sea controls. These amendments will make the boundaries of the application of the law clear for those areas and thus improve the department's ability to administer and enforce within those areas. Regulations are expected to come into force during 2005–06.

Further analysis was also done on permit fees under these regulations, which are governed by the *Financial Administration Act*. Regulatory and other options may be pursued in 2005–06 following consultations with the broader stakeholder community.

### 7.3.4 Standards Development

Environment Canada participated in studies to improve the toxicity assay using echinoderms (i.e., sea stars and sea urchins), which is used to assess the quality of sediments proposed for disposal at sea and used during disposal site monitoring. This multiyear project is aimed at improving sediment porewater extraction techniques, investigating the suitability and sensitivity of several echinoderm test species, and developing an assay that uses the embryo development endpoint in a sediment contact test for use by Canada's Disposal at Sea Program.

Other activities related to standard development include an assessment of PCBs in sediment and the publication of a guidance document on the collection of west coast amphipods for toxicity testing.

### 7.3.5 London Convention and Protocol on Disposal at Sea

Environment Canada's Disposal at Sea Program enables Canada to fulfil its international obligations on the prevention of marine pollution from ocean dumping. Canada has been a Party to the London Convention, which requires it to control disposal of waste at sea, monitor disposal sites, and report to the Office of the London Convention since 1976. Canada is one of the few countries credited with consistent reporting.

During 2004–05:

- Canada chaired the annual Consultative Meeting of Parties in 2004. In 2000, Canada acceded to the 1996 Protocol to the London Convention, which is a more stringent treaty limiting the type of material that can be considered for ocean disposal. The Protocol also asks Parties to implement the precautionary approach, the polluter pay principle, and a comprehensive assessment and monitoring process that compares disposal options and looks for reduction and reuse of wastes. It is expected that this new Protocol will enter into force in 2006. In 2004–05, Canada actively promoted its entry into force at both the Meeting of the Scientific Group and the Consultative Meeting of Parties.
- Canada contributed to a workshop on “Marine Pollution Prevention and Environmental Management in Ports in Southern and Eastern Africa.” Canada provided training presentations and support for a number of African delegates to attend. A CD-ROM of the proceedings is available at [www.londonconvention.org/](http://www.londonconvention.org/).
- Canada completed, in partnership with Germany and with the assistance of a correspondence group from six other countries, “Guidelines for the Sampling and Analysis of Dredged Material for Disposal at Sea.” This work was completed and approved a year ahead of the original November 2005 target date. It will be published by the International Maritime Organization and will provide countries with a design and implementation guide on how to sample and analyze sediment to ensure that only clean dredge material is approved for open water disposal.
- Canada completed, with the Republic of Korea, a module of the London Convention international training sets on waste assessment, which will provide educational material to countries wanting to accede to the Protocol. Canada also drafted a second module of this training set. This training set will provide the basis upon which countries can develop credible permit assessment and monitoring procedures for their disposal at sea programs.

At the Consultative Meeting of Parties, Canada continued work on developing compliance procedures and mechanisms for the 1996 Protocol. The procedures will help to ensure the effectiveness of the Protocol when it enters into force. The sequestration of carbon

dioxide in marine geological structures such as depleted oil and gas wells and saline aquifers was identified as an issue that would require further exploration.

## 7.4 Fuels

*CEPA 1999 provides authorities for a performance-based approach to fuel standards and allows for a range of fuel characteristics to be regulated to reduce emissions. These regulations may distinguish between different sources of fuels or the place or time of use of the fuel. There are also provisions for regulations to establish a “national fuels mark,” a trademark that could be used to promote a national standard for fuels where certain characteristics may be desirable.*

### 7.4.1 Regulations

The proposed *Regulations Amending the Sulphur in Diesel Fuel Regulations* were published on October 2, 2004. The regulations will establish limits for sulphur in diesel fuel for use in off-road, rail, and marine applications.



[www.ec.gc.ca/CEPARRegistry/regulations/](http://www.ec.gc.ca/CEPARRegistry/regulations/)

## 7.5 Vehicle, Engine, and Equipment Emissions

*Under the Act, the Minister has the authority to set emission standards for on-road vehicles and engines. CEPA 1999 also includes authority to set emission standards for off-road vehicles and engines, such as those found in lawn mowers, construction equipment, hand-held equipment, and recreational vehicles.*

### 7.5.1 Regulations

The *On-Road Vehicle and Engine Emission Regulations* came into effect on January 1, 2004, establishing emission standards for on-road vehicles and heavy-duty engines of the 2004 and subsequent model years. The *Off-Road Small Spark-Ignition Engine Emission Regulations* came into effect on January 1, 2005, introducing emission standards for 2005 and later model year engines typically found in lawn and garden equipment and in light industrial and logging machines. The *Off-Road Compression-Ignition Engine Emission Regulations* were published on February 23, 2005, and came into effect on January 1, 2006, establishing emission



standards for diesel engines typically found in construction, agricultural, forestry, and mining equipment for the 2006 and later model years.

Environment Canada continued to make progress on the development of new emission standards for specific categories of vehicles and engines, consistent with the policy set out in the Federal Agenda on Cleaner Vehicles, Engines and Fuels. Discussion documents were made available to initiate early consultations with stakeholders on the development of proposed emission regulations for marine spark-ignition engines and off-road recreational vehicles (August 2004) and on amendments to the *On-Road Vehicle and Engine Emission Regulations* to maintain alignment with updated standards for motorcycles (September 2004).



[www.ec.gc.ca/CEPARRegistry/regulations/](http://www.ec.gc.ca/CEPARRegistry/regulations/)

## 7.5.2 Vehicle Inspection Clinics

Environment Canada, together with over 50 partners, holds “LET’S DRIVE GREEN” clinics across Canada each summer, where motorists can have checkups on their vehicles’ tailpipe emissions and tire pressures. The goal of the program is to educate and engage the driving public on transportation-related air pollution and climate change issues. In 2004, approximately 7000 vehicles were tested at 43 locations.



[www.ec.gc.ca/transport/clinics.htm](http://www.ec.gc.ca/transport/clinics.htm)

## 7.5.3 Bus Retrofit Program

Environment Canada contributed funding to the Canadian Urban Transit Association to retrofit 239 urban transit buses in 15 municipalities across Canada with diesel oxidation catalysts. In addition, separate projects resulted in the installation of catalysts on 32 urban transit buses in Sarnia and Windsor and on 30 school buses in the Fraser Valley Regional District. Diesel oxidation catalysts are installed to provide a cost-efficient manner of reducing smog-forming emissions for in-use heavy-duty vehicles.

## 7.5.4 Scrappage Programs

Environment Canada provides financial support to seven voluntary scrappage programs across Canada. These programs, managed by local environmental organizations, offer incentives to accelerate the permanent retirement of older in-use vehicles,

which typically pollute significantly more than current automobile models. The incentives include transit passes and rebates towards the purchase of a new vehicle, a bicycle, or hiking shoes. Approximately 5500 vehicles have been scrapped since Environment Canada’s first involvement in these programs in 2001.



[www.ec.gc.ca/cleanair-airpur/Sustainable\\_Transportation/Vehicle\\_Scrappage\\_Program-WSF8711200-1\\_En.htm](http://www.ec.gc.ca/cleanair-airpur/Sustainable_Transportation/Vehicle_Scrappage_Program-WSF8711200-1_En.htm)

## 7.5.5 Emissions Testing

Environment Canada’s Engine and Confirmatory Testing Program assesses whether cars and trucks and off-road and on-road vehicles and engines from the manufacturers meet their prescribed emissions certification standards. In 2004–05, 235 tests on 51 light-duty vehicles and trucks were performed to assess emissions conformity to the standards. There were also 24 tests on six off-road small spark-ignition engines and 6 tests on two off-road compression-ignition engines. During this period, Environment Canada established the capability to conduct loaded exhaust emission tests on high-speed, low-horsepower engines, such as those found in garden trimmers and chainsaws. The department continues to build capacity in order to respond to the various regulations that are part of the Federal Agenda on Cleaner Vehicles, Engines and Fuels and under the authority of CEPA 1999.

## 7.6 Control of Movement of Hazardous Waste and Hazardous Recyclable Material and of Prescribed Non-Hazardous Waste for Final Disposal

*The Minister has the authority to regulate the export and import of hazardous waste, including hazardous recyclable materials. The Act also provides authorities to regulate the export and import of prescribed non-hazardous waste for final disposal; to require exporters of hazardous wastes destined for final disposal to submit export reduction plans; and to set criteria that the Minister may consider in refusing to issue an export, import, or transit permit if the waste or recyclable material will not be managed in a manner that will protect the environment and human health. The Act requires the Minister to publish notification requiring information on exports, imports, and transits of hazardous waste and hazardous recyclable material.*



### 7.6.1 Exports and Imports of Hazardous Wastes

During the 2004 calendar year, more than 8700 notices were processed for proposed imports, exports, and transits of hazardous wastes and hazardous recyclable materials, representing over 21 000 waste streams. The waste streams for which notices were received exhibited a variety of hazardous properties, including flammability (for compressed gases) and acute toxicity to aquatic organisms (from environmentally hazardous materials). The hazardous waste streams came from a variety of sources, which included various industrial activities, such as the leftovers from oil refining, the manufacturing of chemicals, and metal processing. During the same period, over 43 600 manifests were approved for tracking individual shipments.

In 2004, Canadian transboundary movements of hazardous waste and hazardous recyclable material totalled 724 493 tonnes, a decrease of slightly over 14 000 tonnes from the 2003 total. Canadian imports totalled 416 136 tonnes, down 1% from the approximately 417 368 tonnes reported in 2003. Exports decreased as well, by 4%, from 321 294 tonnes in 2003 to 308 357 tonnes in 2004. See Figure 3 for trends and Table 12 for quantities imported and exported.

Based on the annual 2004 statistics for international transboundary movements, nearly 99% of Canadian imports came from the United States, with the remainder coming from Europe as hazardous recyclable material destined for metal recovery operations. Shipments for recycling, which reduce reliance on primary resources and benefit Canadian industry, represented more than half of all imports. Batteries, metal-bearing waste, and manufacturing residues consist of the majority of imports of hazardous recyclable material into Canada. Other hazardous waste imports included liquors from metallurgical processes and residues from oil refining destined for disposal operations.

Imports of hazardous waste for recycling were shipped to five provinces, with Ontario and Quebec continuing to receive the vast majority of all imports into Canada and with small quantities imported into British Columbia, Alberta, and New Brunswick. It is a similar story for imports of hazardous waste for final disposal, with most destined for Ontario and Quebec and with small quantities imported into British Columbia and Alberta.



[www.ec.gc.ca/tmb/resilog/eng/resinews.htm](http://www.ec.gc.ca/tmb/resilog/eng/resinews.htm)

Figure 3: Imports and Exports of Hazardous Wastes, 1999–2004

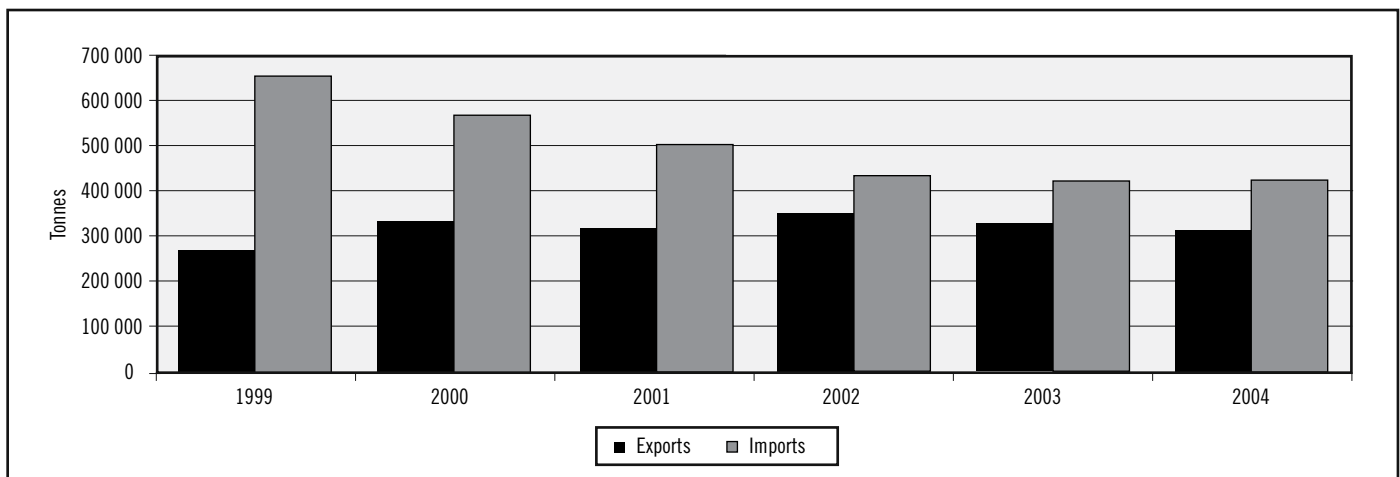


Table 12: Hazardous Waste Management in Canada, 1999–2004

	Imports (tonnes)						Exports (tonnes)					
	1999	2000	2001	2002	2003	2004	1999	2000	2001	2002	2003	2004
Recycling	269 067	281 458	237 069	193 318	189 110	200 097	205 962	236 338	237 872	238 597	205 356	187 986
Total imports	662 893	560 032	499 758	423 067	417 368	416 136	267 931	323 370	313 361	340 261	321 294	308 357

## 7.6.2 Regulations

The proposed *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* were published on March 20, 2004, for a 60-day public comment period. Comments received were taken into consideration in finalizing the regulations, which came into force on November 1, 2005. The regulations provide the Minister with the authorities to protect Canada's environment and the health of Canadians from the risks posed by the transboundary movement of hazardous wastes and hazardous recyclable materials through exports from and imports into Canada. They also help Canada meet its international commitment under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, the OECD Decision of Council Concerning the Control of Transboundary Movements of Waste Destined for Recovery Operations, and the Canada–United States Agreement Concerning the Transboundary Movement of Hazardous Waste. The regulations replace the *Export and Import of Hazardous Wastes Regulations* adopted in 1992.



[www.ec.gc.ca/CEPARRegistry/regulations/](http://www.ec.gc.ca/CEPARRegistry/regulations/)

## 7.7 International Air Agreement

*The Minister has the authority to address Canadian sources of pollution that contribute to air pollution in another country or violate an international agreement binding on Canada. Before using the powers in this Part, the Minister must first consult with the provincial, territorial, or Aboriginal government responsible for the area in which the pollution source is located. This consultation will determine if that government is willing or able to address the problem. The Minister may take the following action to reduce or prevent the pollution: seek Governor in Council approval to require pollution prevention planning from the source(s); recommend regulations to the Governor in Council; or issue an interim order (for emergency situations).*

Although no actions were taken under these provisions in 2004–05, the next sections describe results from several international agreements respecting air pollution.

### 7.7.1 Canada–United States Air Quality Agreement

Canada and the United States continued to meet their commitments pursuant to the Air Quality Agreement to reduce emissions of several CEPA toxics, including sulphur dioxide, nitrogen oxides, and volatile organic compounds. In 2004–05, the governments of Canada and the United States completed a joint science assessment report on particulate matter. This report represents the first Canada–United States science assessment of an air pollution issue and provides the scientific foundation to support the development of future joint strategies to help target smog and smog-forming pollutants. This assessment will provide scientific knowledge required to determine whether to negotiate a new annex to the Air Quality Agreement to address transboundary particulate matter.

Canada and the United States announced a Border Air Quality Strategy in 2003. This initiative will increase Canada–United States cooperation to reduce cross-border air pollution by undertaking three major pilot projects. Activities under this strategy included:

- identifying measures to reduce air emissions and address transboundary air pollution in southwestern British Columbia and northwestern Washington state;
- exploring the development of a coordinated airshed management approach for southeastern Michigan and southwestern Ontario; and
- exploring the feasibility of emissions trading for nitrogen oxides and sulphur dioxide emissions caps and cross-border trading.

The joint projects are being completed in cooperation with provincial, state, and other stakeholders. These projects are expected to serve as a foundation for developing new strategies to improve air quality and address transboundary air pollution of concern to Canadians and Americans.



[www.ec.gc.ca/cleanair-airpur/Canada-\\_United\\_States-WS105E2511-1\\_En.htm](http://www.ec.gc.ca/cleanair-airpur/Canada-_United_States-WS105E2511-1_En.htm)



[www.ec.gc.ca/etad/default.asp?lang=En&n=9ECF8CF3-1](http://www.ec.gc.ca/etad/default.asp?lang=En&n=9ECF8CF3-1)

### 7.7.2 Stockholm Convention on Persistent Organic Pollutants

The Stockholm Convention on Persistent Organic Pollutants was entered into force on May 17, 2004. The Convention seeks the elimination or restriction of the production and use of all intentionally produced POPs. As well, this Convention aims to minimize and, where feasible, eliminate the releases of unintentionally produced POPs, including such CEPA toxics as dioxins and furans and HCB. Under the Convention, stockpiles of these chemicals must be managed and disposed of in a safe, efficient, and environmentally sound manner.

In 2004–05, Canada developed its draft National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants, based on consultations with provinces/territories and stakeholders. The draft Plan includes a draft National Action Plan on unintentional POPs—dioxins, furans, HCB, and co-planar PCBs. A focused stakeholder consultation session on the draft of both Plans was held in February 2005 in Ottawa. The draft National Implementation Plan was made available on the Environment Canada CEPA Registry website for stakeholder and public comment in March 2005.

In October 2004, the *General technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants (POPs)* and the *Technical guidelines for the environmentally sound management of wastes consisting of, containing or contaminated with polychlorinated biphenyls (PCBs), polychlorinated terphenyls (PCTs) or polybrominated biphenyls (PBBs)*, developed under Environment Canada's leadership, were adopted by the Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. The key elements of these Basel Guidelines include provisional definitions of low POP content, the levels of destruction and irreversible transformation, and environmentally sound technologies to destroy wastes containing POPs, including PCBs.



[www.pops.int](http://www.pops.int)

### 7.7.3 United Nations Economic Commission for Europe Convention on Long-range Transboundary Air Pollution

Parties to this 25-year-old Convention include Canada, the United States, and many European countries. The Convention aims to cut emissions of substances of concern, including CEPA toxics such as sulphur dioxide, nitrogen oxides, particulate matter, and mercury, from industrial sources (iron and steel industry, non-ferrous metals industry), combustion processes (power generation, road transport), and waste incineration. It sets limits for emissions from stationary sources and suggests best available technologies, such as special filters, scrubbers, or mercury-free processes, to achieve these limits.

In 2004–05, a review of the Heavy Metals Protocol was initiated that will inform Parties and others of the sufficiency and effectiveness of the Protocol in achieving its objectives. A plan for the review was approved and a task force established to complete the work. The expert committee reviewing chemicals for the Protocol on Persistent Organic Pollutants completed its review of two potential new candidates and continued its work in reviewing the sufficiency and effectiveness of the Protocol. Also, work was initiated on the particulate matter issue, and a working group was established to focus on the hemispheric transport of air pollutants.



[www.unece.org/env/lrtap/welcome.html](http://www.unece.org/env/lrtap/welcome.html)

### 7.7.4 United Nations Environment Programme's Mercury Programme

The long-term objective of the Mercury Programme is to facilitate national, regional, and global actions to reduce and eliminate anthropogenic uses and releases of mercury and mercury compounds, thereby significantly reducing the global adverse impacts on health and the environment from these toxic compounds. Canada contributes financial resources and technical expertise to the program and is engaged in a range of domestic, bilateral, and regional activities that support its goals of identifying populations at risk from mercury exposure, minimizing exposure through outreach, and reducing anthropogenic mercury emissions and releases.

In February 2005, the countries involved in the United Nations Environment Programme initiative decided to continue the global mercury programme. The current workplan for the program has some new activities, including the establishment of partnerships as one approach to reducing risks from mercury to human health and the environment. Partnership areas in which countries have expressed interest include coal-fired power generation, artisanal gold mining, mercury inventories, mercury-containing products, and the mercury cell chlor-alkali sector.



[www.chem.unep.ch/mercury/](http://www.chem.unep.ch/mercury/)

## 7.8 International Water

### 7.8.1 Biennial Report on Great Lakes Water Quality

The Great Lakes Water Quality Agreement, created by Canada and the United States in 1972 to restore and protect the largest body of surface fresh water on the planet, provides an example to the world of how two countries can forge a commitment to restore the integrity of shared bodies of water. The Agreement's stated purpose is to restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes basin ecosystem.

The Agreement requires the International Joint Commission to assess progress and assist both governments in achieving this commendable goal. The U.S. and Canadian governments, the Parties to the Agreement, must perform a comprehensive review of the Agreement after every third biennial report from the Commission. The Twelfth Biennial Report (published in September 2004) marks the beginning of the next required review process.

The report indicates that the Parties have made progress in developing and implementing best management practices to accommodate the growing pressure of human development in the basin. Knowledge of the potential impacts of climate change on the Great Lakes is improving, and results indicate that many toxic chemical releases have declined over the past decades. Research

has been coordinated to understand Lake Erie's changing dynamics, including the disappearance of some fish food organisms but the resurgence of others, the invasion of aquatic species, and increases in algae to nuisance levels.

Chemical contamination continues to endanger human health and restricts the number of fish that can safely be eaten. Several adverse health effects associated with exposure to methyl mercury, a highly toxic substance, have been identified in human and animal studies. In the Great Lakes basin, people are exposed to methyl mercury almost exclusively by eating fish.

The very real threats discussed in the report have caused the International Joint Commission to urge that the governments of Canada and the United States take a precautionary approach to better face future threats and address current needs in order to enhance and protect the global treasure that is the Great Lakes.

The report can be found at [www.ijc.org/php/publications/html/12br/english/report/index.html](http://www.ijc.org/php/publications/html/12br/english/report/index.html).

### 7.8.2 United Nations Global Environment Monitoring System (GEMS) Water Programme

International water science continues to be a priority for Environment Canada. For this reason, Environment Canada hosts the United Nations GEMS/Water Programme at the National Water Research Institute. The National Water Research Institute ensures that the Programme's mandate of global water quality monitoring and assessment is carried out in ways that meet the water quality information needs of global assessments, reporting, and decision-making. Interagency linkages and collaborations continue with United Nations agencies on guidelines and indicators development, on measuring achievement of the Millennium Development Goals, and on other intergovernmental commitments.

Over the past year, more than 16 developing countries have begun participating in database and monitoring activities. GEMS/Water launched GEMStat, an online searchable database, completed its fifth laboratory performance study, and published newsletters, a new Analytical Methods guide, and the *State of the*

*Global Network and Annual Report.* Several training and capacity-building initiatives were carried out for Iraq and East Asia as well as with activities led by the United Nations Educational, Scientific and Cultural Organization.



[www.gemswater.org](http://www.gemswater.org)



[www.gemstat.org](http://www.gemstat.org)





## 8 Environmental Emergencies (Part 8)

CEPA 1999 authorizes the Governor in Council to require environmental emergency plans for substances that affect or may affect human health or the environment as a result of an environmental emergency. It allows the Governor in Council to establish regulations respecting emergency prevention, preparedness, response, and recovery for the uncontrolled, unplanned, or accidental releases of a substance that has been identified as posing potential harm to the environment or to human health. Part 8 also provides authorities to issue guidelines and codes of practice. In addition, it establishes a regime that makes the person who owns or controls the substance liable for restoring the damaged environment and for the costs and expenses incurred in responding to an environmental emergency.

### 8.1 Environmental Emergency Plans

In 2004–05, Environment Canada responded to numerous requests for information on the requirement to develop environmental emergency plans. Questions centred on the development of accidental release scenarios and other mandatory elements of environmental emergency plans as dictated by sections 4(2) and (3) of the *Environmental Emergency Regulations*. The department developed the model plans for both propane and anhydrous ammonia and made them available to small-sized facilities to further support environmental emergency plan development.

The environmental emergency plans website, completed in November 2003, includes copies of these plans along with a common issues section and online notice filing and search capabilities. During the 2004–05 fiscal year, it was decided to restrict public online access to “basic” information about registered facilities (e.g., company names and addresses). However, public safety authorities are provided full access to the data, including substances and their quantities, once they are registered with Environment Canada.

### 8.2 Regulations

The objective of the *Environmental Emergency Regulations* is to enhance the protection of the environment and human health in environmental emergency situations by promoting prevention and ensuring preparedness, response, and recovery. Persons who own or manage one of the 174 flammable and other hazardous substances specified in Schedule 1 of the regulations at or above the specified thresholds in containers with capacity at or above the same thresholds must provide the required information on the substance quantities and container sizes. Companies meeting both criteria must prepare and implement environmental emergency plans. If either the quantity or container criterion is met, regulatees are required to submit only a Notice of Identification of Substance and Place.

During fiscal year 2004–05, an additional 818 facilities filed Notices of Identification of Substance and Place (Notice #1), for a total of 3200 facilities. While 95% of these Notices are for the 20 most commonly reported substances, 97 of the 174 substances on the list have been reported at least once. The five most commonly reported substances addressed by the *Environmental Emergency Regulations* are propane, anhydrous ammonia, chlorine, n-pentane, and gasoline. In addition, about 1700 facilities have filed notices indicating that they have prepared the required environmental emergency plans.

Work also began on proposed amendments to the regulations. Those substances considered to meet the criteria of section 64 or recommended for addition to CEPA 1999’s List of Toxic Substances that were not initially included in the regulations along with other substances of concern are being evaluated for possible addition to the regulations. Other proposed revisions will include clarifying certain requirements and limiting notification and reporting requirements.

Other key deliverables for 2004–05 include:

- development and approval of a three-year compliance strategy for the *Environmental Emergency Regulations*;
- placement of advertisements in sectoral and industry trade magazines; and
- ongoing provision of information to selected sectors to help promote compliance.

[www.ec.gc.ca/CEPARRegistry/regulations/](http://www.ec.gc.ca/CEPARRegistry/regulations/)

## 9 Government Operations and Federal and Aboriginal Lands (Part 9)

CEPA 1999 gives the Minister the authority to establish objectives, guidelines, and codes of practice for the federal house, and the Minister may recommend regulations on the federal house to the Governor in Council.

Part 9 of CEPA 1999 provides the authority to regulate departments, boards, and agencies of the Government of Canada, federal works and undertakings, federal land, Aboriginal land, persons on that land and other persons insofar as their activities involve that land, and Crown corporations. It also requires the Minister to establish objectives, guidelines, and codes of practice for the purpose of carrying out the Minister's duties and functions under this Part related to the quality of the environment.

### 9.1 Regulations

In 2004–05, consultations continued with provincial and territorial governments, industry, and other government departments on the proposed *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*. The proposed regulations will replace the existing *Federal Registration of Storage Tank Systems for Petroleum Products and Allied Petroleum Products on Federal Lands or Aboriginal Lands Regulations* and will provide a more comprehensive framework to effectively prevent soil and groundwater contamination from storage tank systems. The proposed regulations will include requirements for suppliers of petroleum products, removal of leaking systems, spill reporting, and emergency planning.



## 10 Compliance Including Enforcement (Part 10)

CEPA 1999 provides enforcement officers with a wide range of powers to enforce the Act, including the powers of a peace officer.

These officers can carry out inspections to verify compliance with the Act; conduct investigations of suspected violations; enter premises, open containers, examine contents, and take samples; conduct tests and measurements; obtain access to information (including data stored on computers); stop and detain conveyances; enter, search, seize, and detain items related to the enforcement of the Act; secure inspection warrants to enter and inspect premises that are locked and/or abandoned or where entry has been refused; seek search warrants; and arrest offenders.

Officers responsible for responding to environmental emergencies have limited enforcement powers. They can receive notifications of and written reports on environmental emergency incidents, access the site of an environmental emergency, and conduct inspections. They can also give direction to take remedial or preventive measures and collect relevant information regarding the emergency. Relevant information can include examining substances, collecting samples, and preserving other physical evidence.

CEPA analysts can enter premises when accompanied by an enforcement officer. They can exercise the following inspection powers: open containers, examine contents and take samples, conduct tests and measurements, and secure access to information. Although CEPA analysts have no authority to issue warnings, directions, tickets, or orders, they may be called as expert witnesses for the purpose of securing an injunction or conducting prosecutions.

The Act provides a wide range of responses to alleged violations, including warnings, directions, tickets, prohibition orders, recall orders, detention orders for ships, injunctions to stop or prevent a violation, prosecutions, Environmental Protection Alternative Measures, and Environmental Protection Compliance Orders. Enforcement activities include measures to compel compliance without resorting to formal court action and measures to compel compliance through court action.

### 10.1 Designations

In 2004–05, the total number of designated CEPA enforcement officers was 105, including 6 officers from the Emergencies Program. In addition, there are 31 officers within the department whose main responsibility is to respond to environmental emergencies and who have limited enforcement powers.

### 10.2 Training

In 2004–05, basic enforcement training was delivered to 27 enforcement officers who received designation under CEPA 1999 and the *Fisheries Act*. Environment Canada delivered the eight-week training program in partnership with a law enforcement training facility. Based on this delivery model, Environment Canada developed a three-year redesign and delivery plan and contracted with a law enforcement training facility to provide the required services.

In addition, Environment Canada completed a new online course on the *Solvent Degreasing Regulations* followed by a classroom portion. It also developed a design plan for a seminar, an online course, and a classroom portion for the revised *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations*.

### 10.3 Reinforcing the Compliance Continuum

In 2004–05, Environment Canada took steps to reinforce the linkages among the complementary segments of the “compliance continuum,” which includes compliance promotion, enforcement, and compliance monitoring. A compliance assurance function was developed in order, in the longer term, to conduct research and evaluation on regulatory activities using a life cycle approach. In the shorter term, the intent is to provide functional guidance so that the department makes better priority-setting, targeting, and resource allocation decisions relating to compliance promotion and enforcement activities. Activities in 2004–05 involved standardizing and reconciling data on organizations subject to regulations under CEPA 1999 and developing software tools for storing, manipulating, and displaying related data.

An important component of the compliance assurance function is the development of performance management software for use by officials to enhance compliance efforts. Performance measures help the department to focus on those tools that best support the achievement of environmental results. To this end, test projects to measure the performance of compliance promotion and enforcement activities continue to be implemented. One example is the CEPA Track initiative led by the Prairie and Northern Region. As part of this project, a performance measurement document was prepared for the *Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations*. This project aims to measure the effectiveness of our compliance program in terms of success of compliance promotion and enforcement activities in securing compliance with the regulations. Other test projects are being developed for the *Environmental Emergency Regulations* and the Pollution Prevention Planning Notice for Dichloromethane. Lessons learned from these projects will demonstrate practical means of measuring performance within the compliance continuum.

## 10.4 Compliance Promotion

Compliance promotion activities are designed to help those subject to CEPA 1999 understand and achieve compliance with the law. In 2004–05, several new approaches to compliance promotion were initiated. Some examples follow:

- The Prairie and Northern Region conducted information sessions aimed at the “federal house.” These included officials responsible for environmental programs and compliance within federal departments and agencies. Sessions included general information on the Act and its related control instruments. Sessions were held in each of the three Prairie provinces and were attended by over 250 people.
- In January 2005, the Ontario Region hosted a multistakeholder Compliance Promotion Workshop. Approximately 200 participants attended from over 10 industrial sectors from Ontario, Nova Scotia, Alberta, Quebec, and the United States. The workshop included sessions on the *Fisheries Act*, section 36(3), and CEPA 1999 and its related control instruments. Examples of sessions included *New Substances Notification Regulations*, Domestic Substances List Categorization and Screening Program, Pollution Prevention Planning Notices for Inorganic Chloramines and Chlorinated Wastewater Effluents, Nonylphenol and its Ethoxylates in Textile Mills, Nonylphenol and its Ethoxylates in Products, Guideline for the Release of Ammonia Dissolved in Water Found in Wastewater Effluents, and Waste Regulations.
- The Quebec Region organized a federal seminar on environmental compliance. The objective of this biannual

activity is to provide environmental managers in federal departments and agencies with the information and tools they need to achieve compliance with the laws and regulations to which they are subject. The first seminar took place in February 2005 and dealt with obligations regarding federal environmental management with respect to Part 9 of CEPA 1999 and its regulations, the *Fisheries Act*, and the *Canadian Environmental Assessment Act*.

- The Atlantic Region participated in the enforcement exercise targeting aquaculture operations. This exercise included participants from other federal departments and provincial jurisdictions. The exercise has led to broader cooperation within the various regulatory agencies and may lead to additional innovative compliance promotion opportunities.
- The Pacific and Yukon Region partnered with the BC Water and Waste Association to deliver two half-day workshops on the Pollution Prevention Planning Notice for Inorganic Chloramines and Chlorinated Wastewater Effluents and the Guideline for the Release of Ammonia Dissolved in Water Found in Wastewater Effluents. Approximately 40 participants attended the workshops, including wastewater treatment plant operators, equipment suppliers, municipal engineering consultants, and municipal/regional district administrative staff.
- Environment Canada continued to develop a national compliance promotion information system, which is designed to track and report on compliance promotion activities carried out by compliance promotion officers across the department.
- The Prairie and Northern Region completed an analysis to determine if mailing compliance promotion material was an efficient and effective method of communicating to a regulated community. It was determined that a significant number of returns were from a sector of industry that has a history of frequent changes to ownership, company name, and address. The analysis, detailed in the Section 200 Project Review Report, identified that the turnover/change rates of industry sector mail lists will determine the expected return rates for other mailouts.

In addition, numerous compliance promotion activities were delivered for individual control instruments under CEPA 1999. Some examples follow:

- **Notice Requiring the Preparation and Implementation of Pollution Prevention Plans for Inorganic Chloramines and Chlorinated Wastewater Effluents and Guideline for the Release of Ammonia Dissolved in Water Found in Wastewater Effluents**—All Environment Canada regions, including the National Capital Region, developed compliance promotion materials. Workshops, meetings, and information sessions were held across Canada after publication of the instruments in December 2004. Information packages were sent out to 1200 stakeholders.



- **Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations**—All regions participated in compliance promotion activities, including mailing out reminders to nearly 3000 regulatees to submit 2004 annual reports by April 30, 2005; holding information sessions across the country; answering queries regarding the reporting requirements; and providing support to Enforcement Officers on the first round of inspection activities on these regulations. The Prairie and Northern Region prepared a performance measurement document (CEPA Track) to track rates of compliance over time. Data will be available in 2005–06.
- **Federal Halocarbon Regulations, 2003**—Collectively, the Prairie and Northern Region, Pacific and Yukon Region, and Quebec Region delivered seven information sessions. Fact sheets tailored to service contractors working in the heating, refrigeration, and air-conditioning industry and the fire-extinguishing equipment industry were developed in the Pacific and Yukon Region and Quebec Region.
- **Environmental Emergency Regulations**—Collectively, nine information sessions were delivered in the Pacific and Yukon Region and Prairie and Northern Region. Several sessions were held in conjunction with NPRI information sessions. The Quebec Region held approximately 30 information meetings across Quebec for specific associations, such as the Canadian Chemical Producers Association, the Quebec Association of Fertilizer Manufacturers, the Quebec Business Council on the Environment, and others. The Quebec Region made a sustained effort with the municipalities in order to ensure compliance with the regulations. The compliance rate in that region was about 85% at the end of April 2005. The department is currently analyzing environmental emergency reporting trends to more effectively target and deliver future compliance promotion.
- **Sulphur in Gasoline Regulations**—All regions sent a reminder letter to the regulated community in order to notify them of the entry into force of the new standard of 30 parts per million for sulphur in gasoline as of January 1, 2005.
- **Textile Industry Pollution Prevention Plans**—The Quebec Region held two information sessions for textile factories in Quebec. Close to 40 participants from about 30 different factories participated in these sessions. The Quebec Region developed a Guide to Technical Resources in order to help the factories prepare and implement pollution prevention plans.
- **Road Salts Code of Practice**—Activities to promote compliance included two meetings of the Road Salt Working Group, workshops in Montreal and Toronto, a presentation to the Ontario Good Road Association, and a promotional booth at the Transportation Association of Canada Congress.

In addition, promotional materials such as success stories, brochures, promotional posters and postcards, and a Code of Practice Implementation Guide were prepared and distributed.

- **Code of Practice for the Safe Handling, Use and Storage of Dichloromethane-based Paint Strippers in Commercial Furniture Refinishing and Other Stripping Applications**—An information note highlighting the existence of this code of practice was sent to the thousand regulators working in the industry.

## 10.5 Inspections

Each year, Environment Canada prepares a national inspection plan that describes the inspection activities that will be carried out that fiscal year for CEPA 1999 and for the pollution prevention provisions of the *Fisheries Act*. To maximize the effectiveness of these activities, priority may be given to specific regulations. In 2004–05, priority regulations were identified on the basis of Environment Canada's Compliance and Enforcement Policy and included factors such as the risk to the environment and human health, compliance rates, new and amended regulations, nature of the regulatory provisions, operational complexity and capacity, and domestic and international commitments and obligations. The number of inspections carried out under the plan is supplemented by a large number of inspections resulting from response to spills, complaints, intelligence, or other information.

In 2004–05, the national inspection plan identified the following as national priorities:

- *Gasoline Regulations*;
- *Fuels Information Regulation, No. 1*;
- *Sulphur in Diesel Fuel Regulations*;
- *Sulphur in Gasoline Regulations*;
- *Benzene in Gasoline Regulations*;
- *Export and Import of Hazardous Wastes Regulations*;
- *Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations*;
- *Metal Mining Effluent Regulations* under the *Fisheries Act*; and
- General Prohibition Provisions under the *Fisheries Act* (section 36(3)).

In addition, a number of regulations were identified as regional inspection priorities. The priority placed on regulations in each region was influenced by a number of factors, including geography, demographic factors, and provincial and territorial environmental sensitivities.



Table 13: Enforcement Statistics for 2004–05

	Total inspections	On-site inspections	Off-site inspections	Investigations	Written warnings	Directions	Tickets	EPCO	Charges	EPAM	Prosecutions	Convictions
CEPA 1999	5274	2547	2727	43	1162	2	20	100	23	4	13	1
Benzene in Gasoline	209	72	137	–	1	–	1	–	–	–	–	–
CEPA 1999 – Section(s)**	963	344	619	31	128	–	–	5	8	–	5	–
Chlor-Alkali Mercury Release	5	1	4	–	–	2	–	–	–	–	–	–
Chlorobiphenyls	82	74	8	–	–	–	–	–	–	–	–	–
Contaminated Fuel	5	5	–	–	–	–	–	–	–	–	–	–
Diesel Fuel	14	8	6	–	1	–	–	–	–	–	–	–
Disposal at Sea	119	83	36	2	1	–	–	1	–	–	–	–
Environmental Emergency	355	64	291	1	102	–	–	4	–	–	–	–
Export and Import of Hazardous Wastes	772	565	207	17	42	–	–	–	2	–	2	–
Export Control List Notification	–	–	–	–	–	–	–	–	–	–	–	–
Export of Substances under the Rotterdam Convention	–	–	–	–	–	–	–	–	–	–	–	–
Federal Halocarbon, 2003	256	136	120	1	125	–	–	–	–	–	–	–
Federal Halocarbons	14	7	7	–	3	–	–	–	–	–	–	–
Federal Registration of Storage Tank Systems for Petroleum Products and Allied Petroleum Products on Federal Lands or Aboriginal Lands	7	5	2	–	–	–	–	–	–	–	–	–
Fuels Information, No. 1	200	29	171	–	6	–	9	–	–	–	–	–
Gasoline	30	11	19	–	6	–	–	–	–	–	–	–
Gasoline and Gasoline Blend Dispensing Flow Rates	–	–	–	–	–	–	–	–	–	–	–	–
Glycol Guideline	5	4	1	–	–	–	–	–	–	–	–	–
Interprovincial Movement of Hazardous Waste	58	56	2	1	–	–	–	–	–	–	–	–
National Pollutant Release Inventory	508	73	435	–	198	–	–	2	–	–	–	–
New Substances Notification	86	77	9	2	–	–	–	–	–	–	–	–
New Substances Notification – Biotechnology	30	20	10	5	–	–	–	–	–	–	–	–
Ocean Dumping, 1988	2	1	1	–	–	–	–	–	–	–	–	–
Ozone-depleting Substances, 1998	235	156	79	6	5	–	3	–	13	4	8	1
PCB Waste Export	4	3	1	–	–	–	–	–	–	–	–	–
PCB Waste Export, 1996	5	5	–	7	–	–	–	–	–	–	–	–
Phosphorus Concentration	5	5	–	–	–	–	–	–	–	–	–	–
Prohibition of Certain Toxic Substances	–	–	–	–	–	–	–	–	–	–	–	–
Pulp and Paper Mill Defoamer and Wood Chip	86	12	74	–	2	–	–	–	–	–	–	–
Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans	160	18	142	–	–	–	–	–	–	–	–	–
Secondary Lead Smelter Release	4	3	1	–	–	–	–	–	–	–	–	–
Solvent Degreasing	1	1	–	–	–	–	–	–	–	–	–	–
Storage of PCB Materials	277	147	130	3	54	–	7	–	–	–	–	–
Sulphur in Diesel Fuel	186	58	128	1	11	–	–	–	–	–	–	–
Sulphur in Gasoline	135	69	66	1	2	–	–	–	–	–	–	–
Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements)	446	434	12	4	475	–	7	88	–	–	–	–
Vinyl Chloride Release, 1992	10	1	9	1	–	–	–	–	–	–	–	–

EPCO = Environmental Protection Compliance Order, EPAM = Environmental Protection Alternative Measure

\*\* These numbers include activities that are undertaken pursuant to enforceable provisions in CEPA 1999 rather than enforceable provisions found within CEPA 1999 regulations.

**Additional statistics:**

- There were three referrals to a municipal government department.
- Out of the 43 investigations started in 2004–05, 9 ended in 2004–05 and 34 are still ongoing. In addition, there were 48 investigations that started before 2004–05: 29 were completed in 2004–05 and 19 are still ongoing.

**Explanatory notes:**

- The number of inspections relates to the number of regulatees inspected for compliance under each of the applicable regulations.
- Investigations are tabulated by number of investigation files. An investigation file may include activities relating to legislation and may include one or more regulations. Therefore, the total number of investigations shown by regulation does not add up to the total at the legislation level.
- All measures (except for Prosecutions and Environmental Protection Alternative Measures) are tabulated at the section level of a regulation. For example, if the outcome of an inspection is the issuance of a written warning that relates to three sections of a given regulation, the number of written warnings is 3.
- The number of prosecutions is represented by the number of regulatees that were prosecuted by charged date, regardless of the number of regulations involved.
- The number of Environmental Protection Alternative Measures is represented by the number of regulatees who signed Environmental Protection Alternative Measures by the charged date, regardless of the number of regulations involved.

## 10.6 Investigations

Enforcement officers appointed under CEPA 1999 carry out two categories of enforcement activity: inspections and investigations. The purpose of an inspection is to verify compliance with CEPA 1999 and its regulations. An investigation involves gathering, from a variety of sources, evidence and information relevant to an alleged violation. Any response to an alleged violation will be taken in accordance with the Compliance and Enforcement Policy for CEPA 1999.



[www.ec.gc.ca/CEPARRegistry/documents/policies/candepolicy/toc.cfm](http://www.ec.gc.ca/CEPARRegistry/documents/policies/candepolicy/toc.cfm)

Table 13 is a tabulation of inspections, investigations, and some of the more commonly used responses to violations for the reporting period of 2004–05.

## 10.7 Environmental Protection Compliance Orders

An Environmental Protection Compliance Order can be issued to prevent a violation from occurring; to stop or correct one that is occurring or continuing over a period of time; or to correct an omission where one is occurring under CEPA 1999 or one of its regulations.

As part of the Environmental Protection Compliance Order process, a Notice of Intent to issue an Environmental Protection Compliance Order is sent to the regulatee, along with a draft copy of the Environmental Protection Compliance Order. After receiving the Notice of Intent, the regulatee has the opportunity to make written or oral representations to the enforcement officer issuing the Environmental Protection Compliance Order. The enforcement officer will then consider the information provided in these representations and may choose to issue the Environmental Protection Compliance Order as is, modify it, or not issue it at all. There have been a few files for which the company involved provided information during representations that brought them into compliance or showed that they were now in compliance with CEPA 1999, and therefore the issuance of the Environmental Protection Compliance Order was deemed to be no longer necessary.

In 2004–05, 100 Environmental Protection Compliance Orders were issued, 88 to dry cleaners for violations of the *Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirement) Regulations* and the remaining 12 for violating various other regulations.

## 10.8 Environmental Protection Alternative Measures

Environmental Protection Alternative Measures allow for a negotiated return to compliance without a court trial. In order to participate in an Environmental Protection Alternative Measures program, there are a number of conditions that must be met. These conditions are as follows:

- Charges for the offence(s) must be laid.
- The Crown prosecutor must be satisfied that the environment and human life and health will be protected if the Environmental Protection Alternative Measure is used.
- The accused's compliance history makes it likely that he or she will abide by the Environmental Protection Alternative Measure and return to compliance.

Also taken into account before the negotiation of an Environmental Protection Alternative Measures agreement are the accounts of the accused after the alleged violation occurred. Did the accused take any corrective action after the violation or preventive measures to ensure that the alleged offence(s) does not occur again? Was the accused cooperative, or did he or she try to conceal information?

In entering the Environmental Protection Alternative Measures program, the accused is not required to plead guilty to the alleged offence, but he or she must accept responsibility. Once the Environmental Protection Alternative Measure is negotiated, it is filed with the courts and becomes a public document. Once the conditions of the Environmental Protection Alternative Measure are fulfilled, the courts will dismiss the charges against the accused. If the accused fails to comply with the Environmental Protection Alternative Measure, this is in itself an offence under CEPA 1999, and prosecution for failure to comply will be undertaken.

In 2004–05, an Environmental Protection Alternative Measures agreement was negotiated between Environment Canada and a Quebec company. The company had been charged with contraventions of the *Ozone-depleting Substances Regulations* for the import, sale, and offering for sale of products containing CFCs. The company entered into the agreement, rather than proceed with court action. As part of the agreement, the company was required to modify existing procedures to prevent future contraventions of the regulations, publish the details of the event in a trade publication, and pay \$100 000 to the Environmental Damages Fund.

## 10.9 Prosecutions and Court Cases

The main prosecutions in 2004–05 included a British Columbia company that was fined \$5000 (\$500 fine and \$4500 contribution to the Environmental Damages Fund) after being convicted under subsection 185(1) of CEPA 1999 for unlawfully importing hazardous waste into Canada. For information on the Fund, visit the website at <http://atlantic-web1.ns.ec.gc.ca/edf/default.asp?lang=En&n=C5BAD261-1>.

## 10.10 International Action

Enforcement-related activities are carried out under various international agreements and organizations. Key international activities in 2004–05 follow:

- **International Network for Environmental Compliance and Enforcement**—The network of more than 100 countries held its seventh annual conference in Marrakech, Morocco. Environment Canada's Enforcement Branch participated in the panels and workshops and supported the Marrakech Statement: Making Law Work for People, Environment, and Sustainable Development.
- **North American Agreement on Environmental Cooperation**—The Enforcement Working Group under the Commission for Environmental Cooperation provides a forum to help member countries (Mexico, United States, and Canada) work together on projects and initiatives that encourage trilateral environmental enforcement collaboration. In 2004, meetings focused on providing assistance and harmonizing the approaches of all three member states through the development of a learning e-tool under the auspices of the Border Training Project.
- **Canada–Chile Agreement on Environmental Cooperation**—In the fall of 2004, Canada set up a workshop for visiting Chilean environmental officials in order to provide information on enforcement tools and processes as well as environmental legislation.



## 11 Miscellaneous Matters (Part 11)

The Act sets out general authorities or conditions for disclosure of information, general regulation-making provisions, regulations regarding cost recovery, use of economic instruments (deposit/refund systems and tradable unit systems), requirements governing publication of various CEPA 1999 instruments, boards of review, and review of the Act by Parliament every five years.

### 11.1 Economic Instruments

There were no new economic instruments introduced under CEPA 1999 during 2004–05.

### 11.2 CEPA Review

*CEPA 1999 stipulates that a Parliamentary Committee must review the provisions and operations of the Act every five years after it comes into force. The Parliamentary Committee will conduct a review of the Act beginning sometime after March 31, 2005. The Committee will have up to one year to complete the review from the time it is initiated, but may be granted an extension. Their recommendations will then be provided to Parliament, and the government will have 120 days to respond. The drafting and consultations on any required revisions to the Act will follow.*

In order to prepare for the parliamentary review, a number of activities were undertaken by Environment Canada and Health Canada during 2004–05 to identify issues of potential interest regarding the legislative framework of CEPA 1999, hear the views about CEPA 1999 by relevant health and environment sector stakeholders and other governments, and evaluate the progress made on CEPA 1999 implementation to date.

As a first step in the process to prepare for the parliamentary review, Environment Canada and Health Canada conducted an internal analysis of the departments' experience over the last four years of implementing CEPA 1999. This assessment included consideration of the issues and views that were brought to the departments' attention by various stakeholders and government officials during these last four years. The departments also analyzed their perspectives on how environmental management and the related protection of human health in Canada need to evolve. This led to

the preparation of a consultation document entitled *Scoping the Issues: Preparation for the Parliamentary Review of CEPA 1999*.

This consultation document was developed as background for a series of planned workshops and was also posted on the CEPA Registry to allow for a separate written consultation process. The public stakeholder workshops were held in late January and early February 2005 in six cities across Canada (Halifax, Montreal, Toronto, Edmonton, Yellowknife, and Vancouver).



[www.ec.gc.ca/CEPAREgistry/review/](http://www.ec.gc.ca/CEPAREgistry/review/)

Existing mechanisms were then used to engage interested parties, such as federal departments, provincial and territorial governments, and Aboriginal groups. For example, a subcommittee of the CCME is the primary mechanism being used for identifying provincial/territorial issues with respect to CEPA 1999. Regular updates on activities were also provided to the CEPA 1999 National Advisory Committee.

Given the number of external stakeholders that were expected to take an interest in the review process and the complexity of the issues, a multistakeholder advisory committee was established to help guide the departments in developing useful background documents for the discussion process and in preparing for public workshops. The advisory committee included representatives of environmental and health non-governmental organizations, industry, labour, other federal departments, provincial governments, and Aboriginal organizations.

Over 1500 organizations, associations, networks, groups, and individuals with an interest in CEPA 1999 were directly contacted about the public engagement opportunities and were given information on how to get involved. These participants were affiliated with a broad cross-section of interests, including all levels of government, Aboriginal groups, industry, business, the natural resource sectors (e.g., farming, fisheries, and forestry), environmental non-governmental organizations (ENGOs), labour, public health and consumer groups, and individual members of the Canadian public.

Participation ranged from 44 in Halifax to a high of 141 in Toronto for the sessions (see Table 14).

In general, stakeholders indicated that CEPA 1999 should not undergo major changes at this time. Rather, the emphasis was placed on how the departments implement the Act. However, it was proposed that a small number of amendments may need to be considered to address specific concerns. The scoping document and a summary report of the workshops are available on the CEPA 1999 Review website located on the CEPA Environmental Registry.



[www.ec.gc.ca/CEPARRegistry](http://www.ec.gc.ca/CEPARRegistry)

Thirty-two detailed submissions were received from a wide range of interest groups and organizations, including academia, First Nations, municipalities, non-governmental organizations, and industry (Table 15).

In addition to this public engagement process, independent departmental evaluations of the implementation of the Act were initiated. These evaluations have provided an important

complement to the issues identified internally and by stakeholders. Among other things, the evaluations have considered whether:

- mandatory obligations are being met and progress is being made in realizing the Act's intended outcomes;
- issues and programs are being managed in an effective and cost-efficient manner;
- progress is being measured and reported, defensible priorities have been established, and performance measurement data and priority setting are being used in decision-making; and
- appropriate staff and resources are in place.

The Environment Canada evaluation was posted on the CEPA Registry at [www.ec.gc.ca/CEPARRegistry/review/CR\\_docs/form\\_eval/toc.cfm](http://www.ec.gc.ca/CEPARRegistry/review/CR_docs/form_eval/toc.cfm).

Based on these preparatory activities, Environment Canada and Health Canada are expected to provide information on the issues that the departments believe would benefit from consideration during the review.



[www.ec.gc.ca/CEPARRegistry/review/](http://www.ec.gc.ca/CEPARRegistry/review/)

Table 14: Public Participation during the Cross-Canada Workshops

Sector	Halifax	Toronto	Montreal	Edmonton	Yellowknife	Vancouver
Aboriginal	0	1	3	2	2	4
Agriculture	0	3	2	3	0	1
ENGOS	9	20	10	13	3	15
Federal	6	7	7	6	5	9
Health	3	13	2	2	1	0
Industry	4	27	17	19	6	30
Media	0	1	0	0	0	0
Municipal	2	18	3	3	1	5
Other	0	7	3	0	0	0
Prov. / Terr.	1	4	2	8	5	12
Research	0	3	0	0	0	0
University	2	0	0	1	0	1

Table 15: Scoping Paper Comments from the Public\*

Organizations	Total of comments received
Academia	3
First Nations	1
Municipalities	4
ENGOS	13
Industry	11
<b>Total</b>	<b>32</b>

\* These comments were received electronically



## Appendix A: Management Measures Proposed or Finalized in 2004–05

Management tool	Status
<b>REGULATIONS</b>	
<i>Chromium Electroplating, Chromium Anodizing and Reverse Etching Regulations</i>	Proposed November 6, 2004
<i>New Substances Notification Regulations (Chemicals and Polymers)</i>	Proposed October 30, 2004
<i>New Substances Notification Regulations (Organisms)</i>	Proposed October 30, 2004
<i>Off-Road Compression-Ignition Engine Emission Regulations</i>	Finalized February 23, 2005
<i>Prohibition of Certain Toxic Substances Regulations, 2005</i>	Finalized February 15, 2005
<i>Regulation Repealing the New Substances Notification Regulations</i>	Proposed October 30, 2004
<i>Regulations Amending the Benzene in Gasoline Regulations (Miscellaneous Program)</i>	Finalized December 1, 2004
<i>Regulations Amending the New Substances Fees Regulations</i>	Proposed October 30, 2004
<i>Regulations Amending the Ozone-depleting Substances Regulations, 1998</i>	Finalized December 29, 2004
<i>Regulations Amending the Sulphur in Diesel Fuel Regulations</i>	Proposed October 30, 2004
<i>Regulations Amending the Vinyl Chloride Release Regulations, 1992</i>	Proposed April 3, 2004
<b>POLLUTION PREVENTION PLANS</b>	
Inorganic Chloramines and Chlorinated Wastewater Effluents	Finalized December 4, 2004
Nonylphenol and its Ethoxylates in Textile Mills	Finalized December 4, 2004
Nonylphenol and its Ethoxylates in Products	Finalized December 4, 2004
Specified Toxic Substances Released from Base Metals Smelters and Refineries and Zinc Plants	Proposed December 4, 2004
<b>CODES OF PRACTICE</b>	
Environmental Management of Road Salts	Finalized April 3, 2004
<b>GUIDELINES</b>	
Release of Ammonia Dissolved in Water Found in Wastewater Effluents	Finalized December 4, 2004
Ethylene Oxide in Sterilization Guideline	Proposed April 3, 2004
<b>MEMORANDA OF UNDERSTANDING</b>	
National Air Pollution Surveillance Program Memorandum of Understanding	Signed December 7, 2004
Annex added to the 2003 Memorandum of Understanding between Environment Canada and the Canadian Nuclear Safety Commission	Signed December 2004
<b>ADMINISTRATIVE AGREEMENTS</b>	
Memorandum of Understanding on the Canada-wide National Air Pollution Surveillance Program	Signed January 31, 2004

## Appendix B: Contacts

Further information on CEPA 1999 and related activities can be found online at:

- CEPA Environmental Registry website ([www.ec.gc.ca/CEPARRegistry](http://www.ec.gc.ca/CEPARRegistry));
- Environment Canada's Green Lane™ ([www.ec.gc.ca](http://www.ec.gc.ca)); and
- Health Canada's website ([www.hc-sc.gc.ca](http://www.hc-sc.gc.ca)).

Departmental publications are available from the departmental library or the nearest regional library. Many departmental publications are also available online at [www.ec.gc.ca/publications](http://www.ec.gc.ca/publications) or through Environment Canada's Inquiry Centre:

### **Inquiry Centre**

70 Crémazie St.  
Gatineau, Quebec  
K1A 0H3

Telephone: (819) 997-2800 or 1-800-668-6767

Fax: (819) 994-1412

TTY: (819) 994-0736 (Teletype for the hearing impaired)

E-mail: [enviroinfo@ec.gc.ca](mailto:enviroinfo@ec.gc.ca)

The following communications contacts are also available to provide additional information:

### **Environment Canada**

Media Relations

Toll-free within Canada: 1-888-908-8008

Outside Canada: 1-819-934-8008

E-mail: [mediarelations2@ec.gc.ca](mailto:mediarelations2@ec.gc.ca)

### **Health Canada**

A.L. 0900C2

Ottawa, Ontario

K1A 0K9

Telephone: (613) 957-2991

Fax: (613) 941-5366

TTY: 1-800-267-1245

E-mail: [info@hc-sc.gc.ca](mailto:info@hc-sc.gc.ca)



## List of Acronyms

AMAP	Arctic Monitoring and Assessment Programme
CCME	Canadian Council of Ministers of the Environment
CEPA 1999	<i>Canadian Environmental Protection Act, 1999</i>
CFB	Canadian Forces Base
CFCs	chlorofluorocarbons
DDE	dichlorodiphenyldichloroethylene
DDT	p,p'-dichlorodiphenyltrichloroethane
ENGO	environmental non-governmental organization
EPAM	Environmental Performance Alternative Measure
EPCO	Environmental Performance Compliance Order
GEMS	Global Environment Monitoring System
HCB	hexachlorobenzene
HCBD	hexachlorobutadiene
HCH	hexachlorocyclohexane
ISO	International Organization for Standardization
NDMA	N-nitrosodimethylamine
NPRI	National Pollutant Release Inventory
OECD	Organisation for Economic Co-operation and Development
OWNERS	One Window to National Environmental Reporting System
PAHs	polycyclic aromatic hydrocarbons
PBDEs	polybrominated diphenyl ethers
PCBs	polychlorinated biphenyls
PCDDs	polychlorinated dibenzo-p-dioxins
PCDFs	polychlorinated dibenzofurans
PFOS	perfluorooctane sulfonate
PIC	Prior Informed Consent
PM <sub>2.5</sub>	particulate matter less than or equal to 2.5 microns
PM <sub>10</sub>	particulate matter less than or equal to 10 microns
POPs	persistent organic pollutants
SMEs	small and medium-sized enterprises
UV	ultraviolet
UVCBs	substances of unknown and variable composition, complex reaction products, or biological materials

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