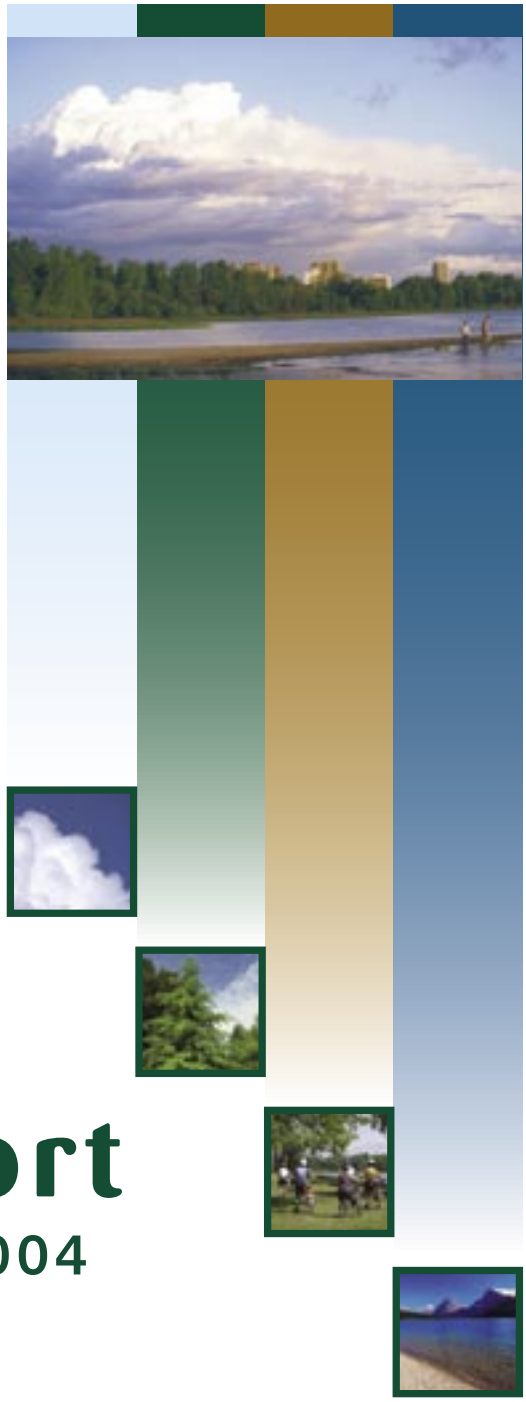
Environment Canada Environnement Canada

CEPA 1999

Canadian Environmental Protection Act, 1999



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Minister's Message

I am pleased to provide Canadians with the Government of Canada's annual report on the administration of the *Canadian Environmental Protection Act, 1999* (CEPA 1999) for the reporting period April 2003 to March 2004. The goals of the Act, which came into force on March 31, 2000, are to contribute to sustainable development through pollution prevention and to protect the environment, human life and human health from the risks associated with pollution. With the close collaboration of my colleague, the Honourable Ujjal Dosanjh, Minister of Health, we are committed to fulfilling our obligations under CEPA 1999.

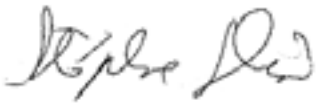
In 2003–04, we made significant progress towards categorizing the 23 000 existing substances on the Domestic Substances List; categorization of more than 11 000 substances existing in Canadian commerce was completed, and preliminary decisions were released to the public. We continued to protect the Canadian public and environment from the possible risks associated with the introduction of new substances to the Canadian market by conducting more than 800 assessments. We also performed research and conducted monitoring activities to support informed decision-making, numerous examples of which are provided in this report.

The authorities in CEPA 1999 allow the government to select from a wide range of innovative options to manage environmental and human health risks, while providing Canadians with the flexibility to support healthy economies. In 2003–04, we strengthened our management of toxic substances by proposing, amending or finalizing 13 regulations, 5 pollution prevention plans, 1 environmental performance agreement, 1 Canada-wide standard, 2 codes of practice and 2 water quality guidelines. A proposal to place the first substance on the Virtual Elimination List was published. Accomplishments in managing other sources of pollution, such as hazardous waste and waste disposed of at sea, are also included in this report.

In keeping with CEPA 1999's national goal of pollution prevention, hundreds of projects with other governments, industry and universities were undertaken to address the release of pollution into our environment. We highlight several of the results derived from these initiatives in this year's report.

The report contains achievements under international agreements, such as the Ozone Annex to the Canada – United States Air Quality Agreement. Under this annex, action on cleaner fuels, cleaner emissions from vehicles as well as new source emissions arising from the use of small spark-ignition engines (such as lawn mowers), light-duty industrial machines (such as pressure washers) and light-duty logging machines (such as chainsaws) is now leading to cleaner air for Canadians.

For further information on actions being taken under CEPA 1999 and to find ways to become part of the solution, I encourage all Canadians to consult the CEPA Environmental Registry on Environment Canada's website at www.ec.gc.ca/CEPARegistry.



The Honourable Stéphane Dion, P.C., M.P.
Minister of the Environment

Foreword

This annual report provides an overview of the key results achieved under the *Canadian Environmental Protection Act, 1999* (CEPA 1999) for the period April 1, 2003, to March 31, 2004.

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, as well as the research conducted by Environment Canada and Health Canada. 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 key results achieved under that Part.

CEPA 1999 also requires reporting on specific sections of the Act as follows:

- ***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 2003–04. There were no other committees established under paragraph 7(1)(a) of CEPA 1999 in 2003–04.
- ***Administration of the Act under administrative agreements*** — Section 1.2 of this report describes the activities under the administrative agreements during 2003–04.
- ***Administration of agreements respecting equivalent provisions*** — Section 1.3 of this report describes the activities under the Canada–Alberta Equivalency Agreement during 2003–04.
- ***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. This impressive body of work appeared in books and scientific journals that are available in libraries and from the publishers. 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 2003–04.
- ***Administration of the international air pollution provisions*** — Although there were no activities under these provisions (Division 6 of Part 7) of CEPA 1999 during 2003–04, Section 7.6 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 2003–04.

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1 Administration (Part 1)

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 Environment and Health, 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.

1.1 National Advisory Committee

To carry out its duties in 2003–04, the Committee held two face-to-face meetings and five conference calls. Some of the federal initiatives brought to the Committee for discussion included:

- development of management options for addressing the environmental risk posed by used crankcase oils;
- public response to the proposed Notice on pollution prevention plans for ammonia and inorganic chloramines released through municipal wastewater effluents;
- risk management instrument for road salts;
- broad policy issues associated with waste management;
- future direction of the Working Group on Air Quality Objectives and Guidelines;
- risk management of ethylene oxide used in the sterilization sector; and
- toxics management strategy for base metals smelting and refining sector.

The Committee's involvement varies with the nature of the issue and relative priority for each jurisdiction. For example, in the case of the used crankcase oils, strong engagement and specific input from the Committee encouraged Environment Canada to consider recognizing existing provincial and territorial programs rather than taking action under CEPA 1999. Comments and advice received from the Committee were also instrumental in shaping the final CEPA instrument for managing ammonia dissolved in water, inorganic chloramines and chlorinated wastewater effluents.

The Committee also received continuous updates and comments on the progress of other activities under the Act, including:

- CEPA 1999 five-year Parliamentary Review;
- Federal Agenda to Reduce Emissions of Volatile Organic Compounds from Consumer and Commercial Products;
- initiatives under the Federal Agenda on Vehicles, Engines and Fuels;
- federal hazardous waste regulatory initiatives as well as federal regulations on polychlorinated biphenyls;
- *Export and Import of Hazardous Waste Regulations*;
- *Regulations Amending the Vinyl Chloride Release Regulations, 1992*;
- *Ozone-depleting Substances Regulations, 1998*;
- *New Substances Notification Regulations*;
- development of regulations to control releases of hexavalent chromium compounds from chromium electroplating, chromium anodizing or reverse etching operations; and
- the proposal to repeal the existing *Registration of Storage Tank Systems for Petroleum Products and Allied Petroleum Products on Federal Lands and Aboriginal Lands Regulations* and replace them with an improved regulation, developed under Part 9 of CEPA 1999.

www.ec.gc.ca/CEPARegistry/gene_info/nac.cfm

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/CEPARegistry/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 on polychlorinated biphenyls (PCBs). No prosecutions under these regulations were undertaken in 2003–04. In this reporting period,

- provincial authorities received reports of 30 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 50 parts per million;
- Saskatchewan Environment continued to promote the use of the TIP line for environmental offences in 2003–04 — a total of nine tips were forwarded to Environment Canada for follow-up action;
- the one 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*, which included analyzing 16 aerosol products for ozone-depleting substances – no violations were detected; and
- Environment Canada conducted three inspections under the *Storage of PCB Material Regulations,* and no violations were detected.

www.mb.ec.gc.ca/pollution/e00s63.en.html

1.2.2 Canada–Quebec Pulp and Paper Administrative Agreement

The third Canada–Quebec Pulp and Paper Administrative Agreement came into effect on September 16, 2003. The Agreement is retroactive to April 1, 2000, and will terminate March 31, 2005. The Agreement identifies Quebec as the principal contact for receiving data from the pulp and paper sector and information required pursuant to the *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations*, the *Pulp and Paper Mill Defoamer and Wood Chip Regulations* made under CEPA 1999 and the *Pulp and Paper Effluent Regulations* made under the *Fisheries Act.*

The Agreement describes the procedures for cooperation between Quebec and Canada regarding the implementation in Quebec of the federal regulations identified in the Agreement. The Agreement is managed by a joint committee, which is made up of three representatives appointed by Quebec and three by Canada. The Quebec government provides the Secretariat responsibilities.

The Committee met four times in 2003–04. Discussions focused on information exchange concerning the respective compliance records of mills in Quebec. No particular or significant problems were identified with respect to compliance with the requirements of the two regulations taken under CEPA 1999. In terms of improvements, modifications to procedures and delays concerning data transmission between both parties were suggested, which led to a revised information exchange mechanism to be completed during the year 2004–05. Discussions were also initiated to define the terms and conditions for a future agreement.

www.ec.gc.ca/CEPARegistry/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 (as determined by 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. The federal government, however, 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 Chips Regulations* (Sections 4(1), 6(2), 6(3)(b), 7 and 9);

- *Secondary Lead Smelter Release Regulations* (all sections); and
- *Vinyl Chloride Release Regulations* (all sections).

In 2003–04, all four pulp and paper mills complied with the chlorinated dioxins and furans emission limits set out in the regulations. One of the two vinyl chloride plants had one emission incident in 2003–04. It is still under investigation by Alberta Environment, and an enforcement response is pending. Currently, there are no lead smelters in Alberta and therefore no compliance issues to address or report under the *Secondary Lead Smelter Release Regulations*. Environment Canada also began the process of renegotiating the Canada–Alberta Equivalency Agreement.

www.ec.gc.ca/CEPARegistry/agreements/Eqv_Agree.cfm

1.4 Related Federal/Provincial/ Territorial Agreements

1.4.1 Canada-wide Standards

Developed under the Canadian Council of Ministers of the Environment Harmonization Accord and Sub-agreement on Environmental Standards, Canada-wide Standards (CWSs) 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 Council, the Minister of the Environment uses section 9 of CEPA 1999, related to administrative agreements, to enter into federal commitments to meet the CWSs.

Priority substances for CWSs include mercury, dioxins and furans, benzene, particulate matter, ground-level ozone and petroleum hydrocarbons in soil. There are now 12 CWSs in place addressing these six substances from the perspective of various sectors. The 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.

www.ccme.ca/initiatives/standards.html

1.4.1.1 Benzene

Phase II of the Benzene CWS calls for existing facilities addressed under Phase I to further reduce benzene emissions by 6 kilotonnes from the 30% reduction target and for this reduction to be realized by 2010. Data from the National Air Pollution Surveillance Network show that the Phase II target had almost been reached in 2001, which was well ahead of schedule. In 2003–04, Environment Canada continued to monitor urban areas where ambient concentrations of benzene were found to have decreased by 65% between 1990 and 2002, with a small increase from 2002 to 2003 (the first increase since 1997).

1.4.1.2 Dioxin and Furans

The proposed CWS for Conical Waste Combustion of Municipal Waste was published on January 24, 2004 (see Appendix A). 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.

Because 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.

In 2003–04, Environment Canada

- participated in the review of the CWS for Dioxins and Furans from Coastal Power Boilers Burning Salt-laden Wood;
- provided technical advice for the review of the CWS for Dioxins and Furans from Iron Sintering Plants and the development of advice for a pollution prevention strategy;
- led the review of the CWS for Dioxins and Furans from Steel Manufacturing Electric Arc Furnaces and the development of advice for a pollution prevention strategy;
- promoted sound management practices aimed at minimizing the formation and release of dioxins and furans through the CEPA 1999 Environmental Codes of Practice for Integrated Steel Mills;
- identified 17 federal non-hazardous waste incinerators that remain in operation, each burning less than 26 tonnes per year — more data are being collected to evaluate the best management approaches and alternative methods of disposal; and
- started amending the *Federal Mobile PCB Treatment and Destruction Regulations* to ensure harmonization with the Waste Incineration CWS for Dioxins and Furans.

1.4.1.3 Mercury

The deadlines to reach the targets set out in the CWSs for Mercury from Dental Amalgam Waste, Emissions from Base Metal Smelting and Incineration and Mercury-Containing Lamps are 2005, 2006, 2008 and 2010, respectively.

In 2003–04, Environment Canada

- held consultations with federal departments that own/operate incinerators to initiate pollution prevention protocols to prevent the incineration of mercury and mercury-containing devices — Environmental Performance Agreements with federal departments that own/operate non-hazardous units are planned;
- developed a manual for federal facility management of mercury-containing products, including lamps, outlining appropriate inventory and stewardship practices; and
- implemented a project in partnership with the Niagara Region to encourage mercury-containing lamp stewardship and recycling at the municipal level.

1.4.1.4 Particulate Matter and Ozone

In 2003–04, Environment Canada

- updated the current environmental and health science data relevant to conducting a review of the existing Standards in 2005;
- co-chaired the Intergovernmental Working Group on Residential Wood Combustion and two multistakeholder technical subcommittees to develop a model regulation for residential woodburning appliances, model municipal by-laws and an education program;
- released the *2003 Progress Report on Particulate Matter and Ozone*, which highlights progress made on the federal government's commitments in the Interim Plan 2001, such as the regulatory requirements for cleaner emissions from the use of vehicles, fuels and small engines, the installation of more air quality monitoring stations and the tracking of more smog pollutants;
- released the Federal Agenda on the Reduction of Emissions of Volatile Organic Compounds from Consumer and Commercial Products (www.ec.gc.ca/Ceparegistry/documents/notices/g1-13813_n3.pdf); and
- continued to enhance capabilities and knowledge in the area of chemical and physical characterization of particulate matter emissions and particle precursor emissions from mobile sources. This knowledge and information are used to support emissions inventory development and ambient air quality modelling activities. These air quality modelling activities are one tool used to evaluate the potential effects of policy or program choices. In some instances, our results have found that emissions of particle precursors (gases emitted at the source that contribute to particle formation in the atmosphere) can be higher than direct particle emissions from the source.

In 2003–04, Health Canada

- developed and provided health effects updates for the health risk assessments supporting Canada-wide Standards for Particulate Matter and Ozone; and
- provided presentations on the health effects of particulate matter and ozone to a number of sector- and industry-specific fora in support of the Canada-wide Standards in general and for multipollutant emission reduction strategies and sector-specific initiatives.

In 2003–04, Health Canada and Environment Canada participated in the Joint Action Implementation Coordinating Committee to finalize the deliverables for the Joint Initial Actions agreed to by Ministers, including multipollutant emission reduction strategies for a number of major industrial sectors (electric power generation, iron and steel, base metals smelting, pulp and paper, lumber and allied wood products and concrete batch mix and asphalt mix plants) in Canada and guidance documents that elaborate on information, methodologies, criteria and procedures related to reporting on achievement under the CWS.

1.4.1.5 Petroleum Hydrocarbons

Information obtained from federal departments during the 2003–04 reporting period indicates that the CWS was applied during either the assessment or remediation at approximately 50% of the sites with petroleum hydrocarbon contamination. In 2003–04, Environment Canada produced:

- the federal implementation plan, effective April 1, 2003;
- the Federal User Guide, a workshop based on the user guide, and web-based training (still in progress); and
- the proposal to repeal the existing *Registration of Storage Tank Systems for Petroleum Products and Allied Petroleum Products on Federal Lands and Aboriginal Lands Regulations* and replace them with an improved regulation, developed under Part 9 of CEPA 1999 – the proposed regulation is designed to prevent releases of petroleum hydrocarbons to the soil, water and subsurface environment.

During the reporting period, Environment Canada participated with the Canadian Association for Environment Analytical Laboratories to validate the CWS Tier 1 reference analytical method. As well, a CEPA 1999 guideline was being considered as a mechanism to address the activities of other federal house members (i.e. Crown corporations and federal works and undertakings).

1.4.2 National Air Pollution Surveillance Program

In the 2003–04 reporting period, Environment Canada finalized the Agreement Respecting the National Air Pollution Surveillance Program Memorandum of Understanding with provincial and territorial governments, with the exception of Nunavut. The program (see Section 3.1.1 for results) has been in existence since 1969 and has operated without a formal agreement. The purpose of the agreement is to define the roles and responsibilities of the program participants and essentially enshrines the successful and collaborative operating arrangements that have evolved over the past three decades.

http://canadagazette.gc.ca/partI/2004/20040131/html/supp1-e.html

2 Public Participation (Part 2)

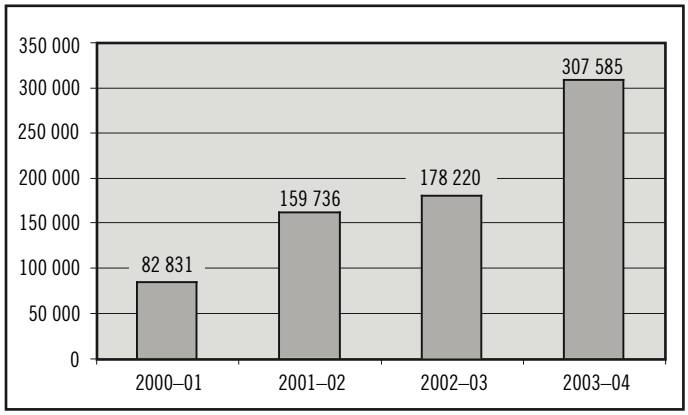
Public participation in matters related to CEPA 1999 is an integral part of the success of the Act. Part 2 outlines participation requirements under the Act, such as the establishment of an environmental registry, whistleblower protection and the right to seek damages.

2.1 Environmental Registry

Since the launch of the Environmental Registry on March 31, 2000, Environment Canada has made efforts to increase the Registry's reliability and user friendliness. In 2003–04, the database structure was updated to a more robust operating system to accommodate growth and facilitate use. As well, the search function was improved, and various sections were refined in response to user input. The content and structure of the Registry continue to evolve as new documents are added and improvements implemented. Registry users are invited to comment and make suggestions on an ongoing basis.

As part of Environment Canada's efforts to improve information services to Canadians, web access and inquiries about the Registry have been monitored and evaluated. To date, the usage reports suggest that the information found on the Registry is useful not only to the public, but to the Department itself. In its fourth year of operation, the Registry's trend for increased utilization continued, with more site usage than ever before. The total number of visits per month nearly doubled from April 2003 to March 2004, and there was an overall increase of 77% more visitors for this fiscal year than the previous year.

Figure 1 : Number of Environmental Registry Users



In comparison with the previous fiscal year, the CEPA Registry office received twice as many requests for information from the public, industry, students and Environment Canada employees, underlining the importance of the information-gathering process as well as reinforcing the Registry's role as a key instrument in meeting the commitment under CEPA 1999 to public participation.

www.ec.gc.ca/CEPARegistry

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

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/CEPARegistry/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 289 air monitoring stations in 177 communities. In total, almost 800 continuous analyzers and samplers are used to provide air quality measurements on such CEPA toxics as polycyclic aromatic hydrocarbons 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.

In 2003–04, 107 continuous analyzers/samplers were provided to the provinces and territories to replace aging monitors and supplement existing ones. A public website, which includes an interactive mapping application for viewing and plotting historical trend data for designated National Air Pollution Surveillance Network sites, as well as provincial/territorial and other sites, was launched.

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 non-urban air quality monitoring network, which has been taking measurements since 1978. There are currently 26 measurement sites in Canada located in remote and relatively pristine areas. One site in the United States ensures compatibility of measurement methods with the Canadian network.

In 2003–04, the network continued to support ozone measurements by providing the background information required for Environment Canada's environmental prediction and air quality forecasts and exchanging data under the Canada – United States Air Quality Agreement Ozone Annex (see Section 7.6.1).

Data have also been collected at selected sites on a wide range of other pollutants, including CEPA toxics such as particulate sulphate, ammonium, nitrate, gaseous sulphur dioxide and nitric acid. One additional measurement site was added in the last year. In excess of 25 000 samples of all types were analyzed in 2003–04 in support of Canadian environmental research initiatives.

www.msc-smc.ec.gc.ca/natchem/particles/n_capmon_e.html

3.1.3 Arctic Monitoring and Assessment Programme

Environment Canada conducted research on spatial and temporal trends of persistent organic pollutants as well as heavy metals in the Canadian circumpolar Arctic. These studies have improved Environment Canada's understanding of the sources, pathways and fates of these chemicals. Environment Canada prepared final reports on Greenland diet samples and temporal trends studies and co-authored papers on contaminants in Greenland. Synopsis reports were also prepared for the Northern Contaminants Program (NCP) on temporal trends of contaminants in seals, arctic char and sediments. Papers were written to discuss spatial trends of metals in seals and spatial/temporal trends of polychlorinated biphenyls in beluga whales. Human monitoring data collected and published under the NCP and the international Arctic Monitoring and Assessment Programme (AMAP) have allowed Health Canada to show that long-range transport of pollutants into the Arctic has increased human exposure through the traditional marine mammal diet of our Inuit peoples to unacceptable levels. As a follow-up to this, AMAP has been asked by the Arctic Council ministers to prepare another assessment of Arctic contaminants within five years with a greater focus on human health.

www.amap.no

3.1.4 Canadian Atmospheric Mercury Measurement Network

The standard operating procedures at the Canadian Atmospheric Mercury Measurement Network (CAMNet) were improved to better detect both particulate and reactive gaseous mercury. This enhancement will help provide a greater understanding of mercury trends and processes in the environment.

A global mercury model continued to be developed to better understand the cycling of mercury and its behaviour in the atmosphere with an increasing emphasis on regional input. The model referred to as Global/Regional Atmospheric Heavy Metals (GRAHM) is useful in identifying the global distribution of mercury emissions and its impact on Canadian air quality.

3.1.5 Water Quality Monitoring

The commitment to better link and expand water quality monitoring networks nationally through the development of a Canada-wide framework on water quality monitoring was addressed by the completion of a comprehensive report on elements and recommendations for such a framework, as well as a successful Canadian Council of Ministers of the Environment Water Quality Index workshop. In 2003, Environment Canada developed the Canadian Water Quality Data Referencing Network, which responds 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. The network was tested and verified by federal, provincial and territorial partners in 2003. Translation efforts are under way to provide web-based access to the network in 2004–05.

3.1.6 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 enhances Environment Canada's capacity to collect, access, integrate, manage, interpret, apply and deliver sound data and information on ecosystem changes and the presence of CEPA toxics such as mercury. Notable results in 2003–04 included:

- implementation of a standardized set of ecosystem monitoring protocols in over 200 monitoring stations across Canada, with an additional 17 monitoring plots added in 2003–04;
- expansion of the network to include 380 partners and associates across Canada – over 140 individuals were trained to use the network's standardized monitoring protocols; and
- the engagement of 3856 new citizen scientists through NatureWatch, a suite of community-based monitoring programs that provides over 18 000 observations on ecosystem health throughout Canada.

www.eman-rese.ca/eman/

3.1.7 Integrated Atmospheric Deposition Network

The Integrated Atmospheric Deposition Network (IADN) 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 2003–04, the network measured the concentrations of polychlorinated biphenyls, several organochlorine pesticides, several polycyclic aromatic hydrocarbons and trace metals in the atmosphere at several stations located on the shores of all of the Great Lakes. The results show that the lakes are sensitive to atmospheric deposition of toxic chemicals and that concentrations of these compounds are generally decreasing. In addition, data indicate that future reductions in toxic chemical levels in the water will be directly related to decreasing concentrations of these compounds in the atmosphere.

Based on recommendations from an international peer review conducted in 2002 and stakeholder comments, a third Implementation Plan (IP3) for the IADN has been prepared and endorsed by the Binational Executive Committee to cover operation of the network for the years 2005 – 2010. Target activities under IP3 include additional assessment of urban atmospheric inputs to the lakes; expansion of the analyte list; improvements to the loadings calculation, including collaboration with modellers; and improved outreach to the media and data users.

www.epa.gov/glnpo/fund/projects/99projects/integrated.html

3.2 Research

Scientific research is used to evaluate the impact of substances 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 illustrates the types and range of research effort undertaken in 2003–04.

www.ec.gc.ca/CEPARegistry/SandT/Research.cfm

3.2.1 Air

Examples of research results produced in 2003–04 include:

- Measurement and emissions data on various formulations of bio-diesel were compiled to help decision-makers ensure that new fuels will meet existing and proposed regulatory requirements.
- Emissions data from diesel locomotives were obtained during field-testing of different fuels and aftermarket emission control technologies. The data will allow North American railroads to develop strategies to reduce emissions.
- A program was initiated to investigate and develop sampling methodologies to determine the efficiency of control devices treating the releases of ethylene oxide from sterilization facilities. This will support the guideline for the reduction of ethylene oxide from sterilization applications.
- Continuing research and development in the Canadian Arctic to further improve the understanding of persistent organic pollutants (POPs) involved the use of passive air sampling devices. The devices are designed for use under Arctic conditions to measure the long-range transport of POPs. The passive air samplers were used in trend analyses in the Arctic, which revealed a link between climate fluctuations and POP distribution in North America.
- Three classes of POPs considered part of the emerging chemicals of interest for future controls – brominated flame retardants (e.g. PBDEs), fluorinated surfactants (e.g. PFOS precursors) and polychlorinated naphthalenes (PCNs) – were studied. Analytical methods have been developed for measuring PBDEs and PFOS precursor compounds in air and used to identify a large indoor/outdoor air gradient.
- Research and development work to predict the behaviour and distribution of chemicals in the environment revealed that PBDEs are more likely to shift from air to other media such as soil, vegetation and aerosol organic matter. Cold temperatures further lower the concentration of PBDEs in air. This new information will enhance the capability to predict the long-range transport, bioavailability and persistence of these chemicals.
- Health Canada and Environment Canada have initiated a series of innovative population exposure evaluations to characterize the spatial variability of ambient air pollutants in Windsor, Ontario. The passive spatial monitoring of nitrogen dioxide, sulphur dioxide and volatile organic compounds (VOCs) during each of the four seasons was completed and involved approximately 60 monitors throughout Windsor and the airshed, many of which have been attached to hydro poles. Results from these and other spatial studies will be used to facilitate health research under the Border Air Quality Strategy.

3.2.2 Contaminated Sites

Examples of research results produced in 2003–04 include:

- Microbial identification and population dynamics in the remediation of contaminated wetlands were assessed using DNA techniques. This information can be used for improving remediation methods and for the regulation of biological products used for bioremediation.
- Continual monitoring of the sand-capped contaminated sediment in the north part of Hamilton Harbour has shown no upward migration of heavy metals, polycyclic aromatic hydrocarbons or polychlorinated biphenyls to date, suggesting that the sand-capping approach may be a viable option for managing contaminated sites.
- New biological testing reference methods were designed to assess the toxicity of contaminants in order to determine the useability of the treated soils.

3.2.3 Hormone-Disrupting Substances

Examples of research results achieved in 2003–04 include:

- A bioindicator was developed and used to determine the level of exposure of fish to estrogens in the Great Lakes "areas of concern." This indicator of fish health has now been used across Canada. Evidence of endocrine disruption in wild fish populations was confirmed in some areas of concern. Results from these studies will be used to identify appropriate management options.
- New methods or improved existing methods were developed for the determination of acidic and neutral pharmaceuticals and personal-care products in sewage samples. The analytical methods developed are essential to Environment Canada as well as outside agencies for the study of the occurrence and fate of these compounds in the environment. A database of pharmaceuticals and personal-care products in sewage and sludge samples was also generated, which can be used to develop future guidelines regarding wastewater quality.
- The presence of estrogens in the St. Lawrence and Ottawa rivers and their effects on male reproduction in two fish species – the spottail shiner and the walleye – were determined. Physiological consequences associated with exposure to low levels of estrogenic compounds under field conditions include reduced sperm count, reduced sperm mobility, intersex in males and delayed maturation of females.
- The response of fish to contaminants in effluents was evaluated. Using the knowledge gained from the evaluation, bioassays were developed that will identify reproductive changes and ultimately assist in predicting fish responses to effluent mixtures. Results support the proposed use of the life cycle tests as the definitive laboratory fish bioassay for hormone-disrupting compounds and effluents that may affect fish growth, development and reproduction.
- Ongoing research examined the neurodevelopmental toxicity of a mixture of persistent pollutants that are characteristic contaminants of the diet of northern peoples and whether such toxicity is mediated by their disruption of thyroid hormone action.
- Laboratory studies are under way to evaluate developmental neurotoxicity of polybrominated diphenyl ethers. Results will be used to identify hazards associated with exposure *in utero* and during lactation.

3.2.4 Technology Development

Examples of research results achieved in 2003–04 include:

- Pilot-scale advanced wastewater treatment systems were commissioned to investigate removal mechanisms for several toxic pollutants found in municipal effluents. These projects will lead to a better understanding of these compounds and will guide future wastewater technology development.
- Large-scale applications of Microwave-Assisted Processes™ were investigated for their application in reducing energy use, solvent use and greenhouse gas emissions in industrial processing, such as those found in the commodity food oils industry and manufacturing operations. Results obtained indicated that microwave-assisted synthesis applications can lead to energy-use reductions in the order of 95% when taking into account the overall energy production cycle (solvent production, synthesis, purification, solvent removal).
- Laboratory tests were performed to investigate the possibility of producing and recovering hydrogen gas during the initial phase of the anaerobic digestion process at municipal wastewater treatment plants. This process would offer a low-cost and sustainable technology for producing hydrogen from waste material, which could reduce the reliance on fossil fuels.
- A collaborative test program with industry was undertaken to develop selective catalytic reduction control technology to reduce nitrogen oxide emissions from urban bus engines.
- Passive air samplers were developed by Environment Canada scientists to assess air concentrations of persistent organic pollutants (POPs) at regional, continental and global scales. This technology puts Canada in a leading position for addressing the monitoring and research obligations outlined in the Stockholm Convention on POPs under the United Nations Environment Programme.
- A mobile laboratory known as the Canadian Regional and Urban Investigation System for Environmental Research (CRUISER) was developed to measure airborne pollutants. The vehicle is one of the most sophisticated mobile laboratories in the world and is equipped with some of the world's most advanced air quality measurement instrumentation. The CRUISER will take measurements as part of the Border Air Quality Strategy to gain further insight into areas sharing common air quality problems in Canada and the United States.

3.2.5 Toxic Substances

Examples of research results achieved in 2003–04 include:

- Experiments to forecast particulate matter levels in real-time were undertaken. Models were also used to test and refine the CWS Guidance Document on Achievement Determination, which was based on emission scenarios for Ontario, Quebec and the United States.
- Investigation of the removal of nonylphenol and other anthropogenic contaminants from industrial and municipal sewage effluents contributed to the risk management of nonylphenol and its ethoxylates.
- Research on mercury levels in fish in lakes in the Northwest Territories and along the Mackenzie River has shown that elevated mercury levels in fish are related to old fish and small lakes. The management implication of these results suggests that increased fishing effort may be a viable strategy for reducing mercury levels in the average fish by reducing mean fish age and improving growth rates.
- In March 2003, a workshop was held at Environment Canada in cooperation with Agriculture and Agri-Food Canada to discuss the current state of science on atmospheric ammonia and initiate cooperative research efforts on emissions, monitoring and modelling of gaseous ammonia as a factor to be considered in the risk management of particulate matter.
- Measurements of hexachlorobutadiene released mainly from disposal following industrial uses (e.g. heat transfer liquid, hydraulic fluid, solvent) were taken from seven incinerators – four municipal solid waste incinerators (Sydney, Charlottetown, Peel and Burnaby) and three hazardous waste incinerators (St. Ambroise, Mercier and Corunna). The data were used to assess the efficiency of the incinerators and compare the releases with National Pollutant Release Inventory testing estimates submitted by reporters.
- Emissions of 2-butoxyethanol, used mainly as a solvent for formulations in paints and coatings, inks and cleaning products and to a lesser extent as an additive to hydraulic fluids and in the chemical processing for plasticizers and other compounds, were measured from 30 consumer products. The results will support the risk management of this substance.
- Screening studies were conducted to identify some of the pathways and to determine the releases of hexachlorobenzene (HCB) from polymer resins used in solenoid valve casings into the environment. These data were also utilized by Health Canada to assess the impact of HCB releases in the workplace.

3.2.6 Wildlife

Examples of research results conducted in 2003–04 include:

- Mercury contamination in the Arctic was determined using eggs of seabirds (thick-billed murre, northern fulmar and black-tailed kittiwake) as indicators. Mercury in eggs collected in 2003 showed that levels continue to increase since the program began in 1975. Results were reported to the Northern Contaminants Program, Arctic Monitoring and Assessment Programme, the United Nations Economic Commission for Europe and the United Nations Environment Programme.
- The levels of lead in hatch-year ducks in Canada have decreased substantially since the implementation of the *Non-Toxic Shot Amendments to the Wildlife Area Regulations and Migratory Birds Regulations,* suggesting that the Regulations have had their intended effects.
- Studies using rodents provided evidence that exposure to polybrominated diphenyl ethers (PBDEs) may lead to behavioural disturbances, disruptions in normal thyroid hormone activity and liver effects (PBDEs are used primarily as a flame retardant in a wide variety of consumer goods, such as hairdryers, televisions, computers, furniture upholstery and cushioning).

3.2.7 Ecosystem Initiatives

3.2.7.1 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. Examples of research conducted in 2003–04 include:

- Remedial action work focused on improving the methodology used to quantify environmental concentrations of creosote, which is used in Canada as a heavy-duty wood preservative for railway ties, bridge timbers, pilings and large-sized lumber and is composed of hundreds of compounds, the largest group being the polycyclic aromatic hydrocarbons. Assessment of creosote contamination migrating from Marsh Creek into Saint John Harbour indicated high variability in water-borne concentrations of creosote, which led to an additional six creosote passive recovery devices being installed and tested.

- An analysis of mercury in water and sediments and heavy metals, dioxins and furans in sediments and fish conducted in the Madawaska River showed a few samples with elevated levels of metals. Follow-up tests are planned.
- In partnership with Environment Canada, the Bedeque Bay Environmental Management Association has been involved in a three-year project to monitor water quality and toxicity of agricultural runoff from potato fields in Prince Edward Island to determine the effectiveness of buffer zones in reducing the content of contaminants such as ammonia nitrates in runoff. The results of the study indicated that a 10-metre buffer is effective at reducing pesticide concentrations but less effective in reducing the toxicity of the runoff.

atlantic-web1.ns.ec.gc.ca/community/acap/defaultasp?lang=En&n=B85A3121-11&referer=sitemap

3.2.7.2 St. Lawrence Action Plan, Vision 2000

Phase III of the St. Lawrence Vision 2000 Action Plan started in 1998 and ended in March 2003. Phase III had three main objectives: to protect ecosystem health; to protect human health; and to involve communities along the St. Lawrence River in restoring the uses of the river and making the river more accessible. A new 2004–2009 Canada–Quebec agreement on the St. Lawrence should be signed soon. Examples of research conducted in 2003–04 include:

- Knowledge acquired on the toxicity of municipal effluents led to the identification of promising courses of action to promote the reduction of industrial pollution at source, particularly by small and medium-sized enterprises connected to municipal wastewater treatment plants.
- A project was initiated to review the existing sediment quality criteria. The data accumulated over the last 10 years are being taken into account, as well as the measurement of background levels in the St. Lawrence and recent data on the toxicity of clays in the Champlain Sea.
- Environment Canada helped to complete the development of restoration plans to secure 16 000 cubic metres of extremely contaminated sediments in the mouth of the St. Louis River – a tributary of the St. Lawrence River – and over 40 000 cubic metres of sediments contaminated with hydrocarbons and metals from a bay at the Port of Montreal (sector 103).

www.slv2000.qc.ca/index_a.htm

3.2.7.3 Great Lakes

Great Lakes 2000 was formally launched in 1989 as the Great Lakes Action Plan to fulfill Canada's commitments under the 1972 Canada – U.S. Great Lakes Water Quality Agreement to protect and sustain the world's largest freshwater ecosystem. Activities for improving the environment focus on restoring degraded areas, reducing and preventing pollution and protecting human and ecosystem health. Examples of research conducted in 2003–04 include:

- A number of studies by Canada and Ontario are under way to investigate the occurrence and fate of several CEPA toxics, which includes hormone-disrupting substances and fire retardants, as well as other emerging chemicals of concern, such as pharmaceuticals and veterinary drugs.
- Environment Canada has initiated studies to evaluate the effects of toxic chemicals and effluents on thyroid and retinoid function and is also reassessing Great Lakes fish health to determine if there is evidence of biological effects from hormone disruption.

www.on.ec.gc.ca/water/greatlakes/action-plan-e.html

3.2.7.4 Georgia Basin Action Plan

The federal–provincial Georgia Basin Action Plan (2003–2008), was announced on April 2, 2003, and is a renewal of the Georgia Basin Ecosystem Initiative (1998–2003). Examples of research conducted in 2003–04 include:

- A research and monitoring plan for 20 substances of priority concern in the Georgia Basin was developed with implementation of the priority research and monitoring areas to be undertaken over the next four years.
- An emissions inventory of over 200 hazardous air pollutants was under way in order to develop a list of priority air pollutants for decision-makers in the Lower Fraser Valley to address emissions.
- Studies were conducted on the effects on salmonid and amphibian early life stages from exposure to effluents from a Vancouver area wastewater treatment plant, which included hormone-disrupting substances and galaxlolide, a common fragrance found in many soaps and shampoos. The effects of this exposure to galaxlolide continue to be studied.

www.pyr.ec.gc.ca/GeorgiaBasin/

3.2.7.5 Northern Ecosystem Initiative

In October 2003, Environment Canada announced a five-year contribution of $10 million to improve environmental decision-making in Canada's North. This funding renewed the Northern Ecosystem Initiative program which supports research activities to enhance the health and sustainability of communities and ecosystems across Canada's North. Examples of research conducted in 2003–04 include:

- An investigation of linkages between mercury levels in Arctic ecosystems and climate warming was undertaken. Initial results suggest that there is a linkage supporting the assumption that one consequence of the warming predicted for the Arctic is the potential for increased mobilization and bioavailability of heavy metals such as mercury. It was also found that forest fires may play a role in the fractionation of stable isotopes of mercury and thus help explain measured increases in northern lakes.
- The development of a web-based Metadata Inventory for Labrador provides a central location for information on past and current contaminants projects. As well, work began on developing a cooperative approach for setting future priorities for research, monitoring and assessment of contaminants in Labrador (www.lcwg.ca).

www.pnr-rpn.ec.gc.ca/nature/ecosystems/nei-ien/dh00s00en.html

3.3 Guidelines and Codes of Practice

3.3.1 Environmental Quality Objectives

In 2003, a document entitled *Guidance on the Site-Specific Application of Water Quality Guidelines in Canada: Procedures for Deriving Numerical Water Quality Objectives* was published. This report provides scientific and technical guidance on the development of site-specific water quality objectives and discusses their role in the management of Canada's water resources.

3.3.2 Environmental Quality Guidelines

In 2003–04, two Canadian Environmental Quality Guidelines, developed under the Canadian Council of Ministers of the Environment, were finalized, and 20 others were under development (see Table 1). The Sediment Quality Index is expected to provide for consistent reporting on sediment quality based on a suite of sediment quality guidelines.

www.ec.gc.ca/ceqg-rcqe

Table 1: Canadian Environmental Quality Guidelines from March 2003 to April 2004

Guideline	Published	In progress
Water	Mercury** (inorganic and methyl); methyl tertiary butyl ether	alcohol ethoxylates*; aluminum; dimethenamid; diisopropanolamine*; guidance framework for the management of phosphorus in freshwater systems; imidacloprid; marine eutrophication guidance framework; permethrin; phosphorus ecoregion guidelines for Ontario; sulfolane*; uranium
Sediment	N/A	sediment quality index
Soil	N/A	benzene**; carcinogenic polycyclic aromatic hydrocarbons**; diisopropanolamine*; ethylbenzene; propylene glycol; sulfolane*; toluene; uranium; xylenes
Tissue	N/A	N/A

* In partnership with industry
** Toxic under CEPA 1999

3.3.3 Drinking Water Quality Guidelines

In 2003–04, Guidelines for Canadian Drinking Water Quality continued to be developed by the Federal–Provincial–Territorial Committee on Drinking Water. Guidelines for trichloroethylene and for enteric viruses were approved for public consultation, while work is ongoing for other guidelines, including arsenic, trihalomethanes, bromodichloromethane, chlorite/chlorate, haloacetic acids and corrosion control.

3.3.4 Release Guidelines

Guidelines for the reduction of volatile organic compound (VOC) emissions in the wood furniture manufacturing sector were developed under the authority of the Canadian Council of Ministers of the Environment in January 2004. The overall goal of these guidelines is to achieve a maximum reduction of VOC emissions from the wood furniture manufacturing sector in Canada while conforming to the principle of best available technologies economically achievable. These guidelines are meant to provide a basis for provincial and regional governments in developing management instruments to achieve their own specific VOC emission reduction objectives.

www.ccme.ca/publications/index.html#178

3.3.5 Codes of Practice

Two codes of practice were finalized (see Appendix A):

- *Code of Practice for the Reduction of Dichloromethane Emissions from the Use of Paint Strippers in Commercial Furniture Refinishing and Other Stripping Applications* — The code of practice, published on April 16, 2003, provides guidance for commercial paint stripping operations regarding actions that can serve to reduce emissions and use of dichloromethane.

www.ec.gc.ca/CEPARegistry/guidelines/Codes.cfm

- *Code of Practice for the Environmental Management of Road Salts* — Published on April 3, 2004, 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/ozone/DOCs/SandS/RAC/EN/cop/index.cfm

3.4 State of the Environment Reporting

State of the environment reports and environmental indicators provide Canadians with timely and accurate information, in a non-technical manner, about current environmental issues and foster the use of science in policy- and decision-making. Indicators, reports, data and tools are housed at or referenced through Environment Canada's State of the Environment Infobase.

www.ec.gc.ca/soer-ree/English/default.cfm

3.4.1 Environmental Indicators

In 2003–04, Environment Canada published two indicator reports:

- *Environmental Signals: Canada's National Environmental Indicator Series 2003* — This report depicts trends in the environment through the use of 55 environmental indicators, organized under four themes: ecological life-support systems; human health and well-being; natural resources sustainability; and human activities (www.ec.gc.ca/soer-ree/English/Indicator_series/default.cfm).
- *Environmental Signals: Headline Indicators 2003* — This report highlights a set of 12 key indicators that are aimed at providing a broad overview of trends in Canada's environment in areas that are important to Canadians, such as toxic substances, air quality, solid waste and recycling and wastewater treatment (www.ec.gc.ca/soer-ree/English/headlines/toc.cfm).

3.4.2 Regional Reports

Environmental indicator and state of the environment reports were also released or completed for several ecosystems in Canada during 2003–04:

- *Georgia Basin Ecosystem Initiative: a 5-Year Perspective* — This report provides updates on the four key goals of the initiative: supporting sustainable communities; achieving clean air; conserving and protecting habitats and species; and achieving clean water (www.pyr.ec.gc.ca/georgiabasin/reports/5_year_perspective/summary_e.htm). In April 2003, Environment Canada supported the renewal of the Georgia Basin Ecosystem Initiative, to be renamed the Georgia Basin Action Plan (www.pyr.ec.gc.ca/georgiabasin/index_e.htm).
- *State of the Great Lakes 2003* — This fifth biennial report issued by the governments of Canada and the United States assesses the environmental status of each Great Lake, the St. Lawrence River, and the St. Clair – Detroit River Ecosystem and provides assessments on 43 indicators (binational.net/sogl2003/index.html).

- *St. Lawrence Vision 2000 Five-Year Report 1998–2003* — This report describes the extensive results achieved in each of the areas of action in Phase III of the program, including monitoring, sustainable shipping and almost 100 technology transfer and development projects (www.slv2000.qc.ca).

3.4.3 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 is preparing a report entitled *Environmental Indicators and State of the Environment Reporting Strategy, 2004–2009: Environment Canada*. Throughout 2003, there were internal and public consultations on the strategy. Two supporting documents were drafted: *Current Status, Trends, and Perceptions regarding Environmental Indicators and State of the Environment Reporting in Canada* and *Environmental Indicators and State of the Environment Reporting: An Overview for Canada.*

3.4.4 Canadian Sustainability Indicators Network

Environment Canada is leading the development of the Canadian Sustainability Indicators Network. This network is facilitating the exchange of knowledge and information on activities and best practices for the development and delivery of indicators and reporting among federal departments, provinces, regions, communities and non-governmental organizations. A national meeting was held in Halifax, Nova Scotia, in November 2003, under the theme of "mixing strategic thinking and knowledge sharing." Several virtual learning workshops have been held over the Internet, bringing together practitioners from across Canada.

www.csin-rcid.ca/main_e.htm

3.5 Information Gathering

3.5.1 National Pollutant Release Inventory

The National Pollutant Release Inventory (NPRI) provides Canadians with access to pollutant release and management information from companies located in their communities. The NPRI tracks releases to air, water and land, transfers to disposal facilities and recycling and pollution prevention activities for over 300 pollutants, such as mercury, dioxins and furans, hexachlorobenzene and polycyclic aromatic hydrocarbons.

Changes made in 2003 for the 2004 reporting year include the addition of carbonyl sulphide and phosphorus (total) to the inventory and changes to the listings for nonylphenols and octylphenols. As of 2003, reporting is also required on the releases of individual volatile organic compound species from a list of 60 selected compounds. In addition, the reporting exemptions were modified so that releases from oil and gas wells are now subject to reporting.

A web-based "toolbox" and a guidance document were made available in 2003 to improve assistance to facilities on the reporting process. These tools highlight important changes to reporting, explain the reporting requirements and provide methods for estimating releases.

www.ec.gc.ca/NPRI

3.5.2 Greenhouse Gas Reporting

As a significant step towards meeting international obligations and domestic climate change objectives, Environment Canada instituted the first phase of mandatory reporting of greenhouse gas emissions. On March 13, 2004, an information-gathering notice was issued, requiring major emitters of greenhouse gases to report emissions of greenhouse gases for 2004 by June 1, 2005. Facilities emitting an amount greater than or equal to 100 kilotonnes of carbon dioxide equivalent in 2004 are required to report. Statistics Canada is the data collection agency, while the Greenhouse Gas Division of Environment Canada will be responsible for addressing enquiries of a technical nature. This first phase lays the foundation for the development of a harmonized and efficient "single-window" mandatory reporting system for greenhouse gas emissions in Canada. The information collected on greenhouse gas emissions will be published and accessible by Canadians.

www.ec.gc.ca/pdb/ghg/ghg_home_e.cfm

4 Pollution Prevention (Part 4)

The Act allows the Minister to require any person 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. Pollution prevention planning is a systematic and comprehensive method of identifying options to minimize or avoid the creation of pollutants or waste. The Minister may also develop and publish guidelines and model pollution prevention plans.

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 Plans

In 2003–04, pollution prevention planning notices were published (see Appendix A) for the following toxic substances:

- *Acrylonitrile* — The final notice, published on May 24, 2003, addresses synthetic rubber manufacturing facilities. The risk management objective is to reduce the releases of acrylonitrile from this sector to the lowest achievable levels. One facility is expected to be subject to the notice.
- *Dichloromethane* — This final notice, published on November 29, 2003, targets releases from five sectors: aircraft paint stripping, flexible polyurethane foam blowing, pharmaceutical and chemical intermediates, adhesive formulations and industrial cleaning. The objective is to reduce releases of dichloromethane by 85% from 1995 base year levels by January 1, 2007. Approximately 80 facilities will be subject to the notice.
- *Ammonia Dissolved in Water, Inorganic Chloramines and Chlorinated Wastewater Effluents* — The proposed notice, published on June 7, 2003, targeted releases from wastewater collection and treatment systems. On the basis of available information, it was estimated that 168 wastewater systems would be subject to the two notices.
- *Textile Mill Effluent and Nonylphenol and Its Ethoxylates in Textile Mills* — The proposed notice, published on June 7, 2003, targets nonylphenol and its ethoxylates used in the wet processing textile industry and effluents from textile mills that use wet processing. Approximately 150 textile mills will be subject to the notice. The risk management objective is to reduce the use of these substances by 97% and to reduce the toxicity of textile mill effluents.
- *Nonylphenol and Its Ethoxylates Contained in Products* — This proposed notice, published on November 29, 2003, addresses approximately 200 manufacturers and importers of soap, cleaning products and processing aids used in textile wet processing and pulp and paper, as well as persons who acquire these substances. The risk management objective is to reduce levels of these substances in products.

4.2 Pollution Prevention Awards

Environment Canada participates in the Canadian Council of Ministers of the Environment (CCME) Pollution Prevention Awards Program, which recognizes organizations that have shown leadership and innovation in pollution prevention. There were six awards and two honourable mentions presented at the 2004 CCME Awards ceremony:

- Small Business Award and Greenhouse Gases Reduction Award – **Beach Solar Laundromat**, Toronto, Ontario, for having replaced inefficient heaters and air conditioners, installed energy-saving devices, switched fuels and changed processes to reduce gas and electricity costs by 30% per load, and reduced emissions of carbon dioxide by 23 000 kilograms in the first year.
- Small Business Award – **Warrens Imaging and Dryography**, Toronto, Ontario, for using a comprehensive pollution prevention planning process to conserve 21 000 gallons of water annually, eliminate water-borne pollutants, save energy, reduce volatile organic compound emissions and reduce solid waste disposal.
- Medium Business Honourable Mention – **Plains Marketing Canada**, L.P., Calgary, Alberta, for having captured marketable gases formerly lost to the air; installed floating roofs on tanks to reduce odours; removed, repaired and lined underground storage tanks to reduce leaks; and built a land farm to treat and conserve soil.
- Large Business Award – **Alcoa Aluminerie de Deschambault**, Deschambault-Grondines, Quebec, for having increased its aluminum production while reducing fluoride emissions.
- Institution Award – **The Hospital for Sick Children**, Toronto, Ontario, for having eliminated 2.5 kilograms mercury and 1 700 000 kilograms of carbon dioxide, recycled diverted solid waste from landfills, conserved 1 434 000 kilowatt-hours of energy per year, conserved 67 000 cubic metres of water per year and improved worker health and safety.

- Innovations Award – **Eco-Efficiency Centre**, Dartmouth, Nova Scotia, for having assisted companies to divert 1569 tons of solid waste from landfill and 25 265 gallons of liquid waste (including toxics) from sewers, conserve 3 million gallons of water and reduce fuel oil consumption by $36 000.
- Greenhouse Gases Reduction Honourable Mention – **Winnipeg Health Sciences Centre**, Winnipeg, Manitoba, for having trained staff, replaced equipment and fixtures and improved maintenance and operating procedures to achieve energy savings. The project will realize 95% of planned savings in 2006.

www.ccme.ca/initiatives/pollution.html?category_id=19#90

4.3 Canadian Pollution Prevention Clearinghouse

The clearinghouse provides access to over 1700 pollution prevention references, including technical reports, guides, regulations, training materials and success stories. In 2003–04, 175 new references were added to the database in over 20 of the listed industry sectors, and 200 existing references were updated to reflect the most current available information. In addition, work has been initiated to revise and enhance the website, to support the growing interest and desire to access information on pollution prevention.

www.ec.gc.ca/cppic

4.4 Extended Producer Responsibility and Stewardship

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 2003–04, Environment Canada co-hosted Canada's 3rd National Workshop on Extended Producer Responsibility and an Organisation for Economic Co-operation and Development's 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.

www.ec.gc.ca/epr

4.5 Regional Pollution Prevention Results

There are numerous outreach programs across the country that are intended to educate Canadians about pollution prevention and enable them to implement pollution prevention practices at work and in their everyday lives. Examples of regional pollution prevention actions are listed in the following sections.

4.5.1 Atlantic Region

- *Regional Pollution Prevention Demonstration Fund* — This program involved the development of 119 pollution prevention projects across industry and government. Six projects were funded: New Brunswick Business Incentive Program; Camp Green Canada – Clean Marine; Training for Dry Cleaners; Mercury Avoidance at Federal Facilities; Seafood Processing Waste Management; and Mercury Pollution Prevention Plans at Hospitals.
- *Substance Use Survey* — A survey of small and medium-sized businesses in Dartmouth, Nova Scotia, found that 40% were using CEPA 1999 toxic substances or substances on the National Pollutant Release Inventory. Subsequent follow-up showed that all of the businesses were now more aware of their chemical usage and over half indicated that they were actively seeking ways to reduce usage or find a less toxic substitute.
- *Camp Green – Clean Marine* — As a result of the 2003 Camp Green – Clean Marine Marina Survey, a "Promote Green Boating" pamphlet (including a map) was developed, and 20 000 copies were distributed to regional marinas during annual safety visits by the Canadian Coast Guard in the summer of 2003. The map has been considered very useful and has been reproduced in several other boating publications (www.campgreencanada.ca).

4.5.2 Quebec Region

- *Enviroclub*[om] — Enviroclub, which operates in Quebec, encourages small and medium-sized manufacturing enterprises to voluntarily reduce their pollution emissions and dependency on natural resources, while increasing their competitiveness. Four new clubs were established in 2003–04 (in the Estrie, Montérégie and Saguenay–

Lac-Saint-Jean regions and in Portneuf) involving 52 facilities. Economic savings for the year were $4 million. Environmental reductions for the year included:

- 23 kilotonnes of greenhouse gases (carbon dioxide equivalent)
- 11 500 litres of volatile organic compounds
- 220 tonnes of hazardous wastes
- 2 million cubic metres of natural gas
- 200 000 litres of gasoline and propane
- 200 000 cubic metres of water
- 100 000 cubic metres of wood

www.enviroclub.ca

4.5.3 Ontario Region

- *Screen Printers EPA* — An Environmental Performance Agreement was signed between Environment Canada and the Specialty Screen Printers in February 2004 to reduce volatile organic carbon emissions. Five companies signed up and immediately started to implement best environmental management practices. Baseline information collected already indicates costs savings. Ten more companies have indicated their intentions of participating.
- *The Toronto Region Sustainability Program (TRSP)* is an action- and results-oriented program to advance the environmental performance of small- to medium-sized enterprises (SMEs) and manufacturing facilities in Toronto in areas of pollution prevention and sustainable development. Specific objectives include encouraging SMEs to take action to reduce smog precursors, to reduce or eliminate the use of toxics and to move to zero generation of toxic wastes. TRSP is a collaborative multistakeholder program addressing reductions in toxics listed in both the Canada Ontario Agreement and the Great Lakes Bi-National Toxics Strategy. Annual pollution prevention results and savings from the 28 SMEs that have completed the pollution prevention assessments through the program include:
  - volatile organic compounds: 412 tonnes
  - metals: 2.2 tonnes
  - process wastes: 1200 tonnes
  - toxics: 32 tonnes
  - water: 22 200 tonnes
  - greenhouse gases: 1500 tonnes
  - particulate matter (PM_{10}): 2.5 tonnes
  - ozone-depleting substances: 45 kilograms
  - average cost savings (per SME): $64 285
- *Ontario Snow Resorts P2 Task Force* was established to serve as a forum for an information exchange on best practices, identification of pollution prevention (P2) opportunities and the development of partnerships for pilot projects and innovative technologies at Ontario ski resorts. The task force began development of a best management practices manual for ski resort operators (based on the Sustainable Slopes Program). As well, a training session on energy conservation was held for ski resort operators in April 2004. A fall seminar series will be initiated in 2004 to train operators on best management practices (i.e. energy, water, purchasing).

4.5.4 Prairie and Northern Region

- *Ground Source Heat Pump System* — Funding was acquired for Part I of a geothermal retrofit to serve heating and cooling requirements in six buildings at the Last Mountain Lake National Wildlife Area. It will replace propane forced air furnaces in four buildings, resulting in an estimated annual reduction of 15 339 kilograms of carbon dioxide or equivalent.
- *Energy Retrofit* — An old operations building and a hydrogen generation building in Resolute Bay, Nunavut, were retrofitted. Although the used area in the building increased, energy use was still reduced by 2000 litres of diesel fuel and 10 000 kilowatt-hours annually.
- *Outreach Activities* — Initiatives in 2003–04 included the hosting of a Green Fair in Canada Place, Edmonton, where government departments showcased environment initiatives and held lunch-time speaker series; volunteer tree planting; and river valley cleanup events.

4.5.5 Pacific and Yukon Region

- *Green Commuting Action Plan* — Addressing primarily Environment Canada staff in downtown Vancouver, implementation of the program resulted in increased car/van pooling and ride sharing by staff, resulting in reductions in greenhouse gases and criteria air contaminants from vehicle emissions.
- *Cleaners, Toxins and the Ecosystem Workshops* — In partnership with the Labour Environmental Alliance Society, Environment Canada raised awareness of the presence of toxics such as dichloromethane, toluene and tetrachloroethylene as well as endocrine disrupting chemicals such as ethoxylated nonylphenols and dibutyl phthalates in the home and workplace and communicated strategies to eliminate them and/or substitute them with non-toxic alternatives (www.leas.ca/Cleaners_desc.htm).

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.

Determining a substance to be "toxic" under CEPA 1999 is a function of its release or possible release into the environment, the resulting concentrations in environmental media and its inherent toxicity. Section 64 of CEPA 1999 defines a substance as "toxic" 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.

Part 5 sets specific timelines for taking preventive or control action to manage the risks posed by toxic substances, 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

The three key risk assessment processes conducted under CEPA 1999 are:

- *categorization and screening of the Domestic Substances List;*
- *assessment of the Priority Substances List; and*
- *review of other jurisdictions' decisions.*

Other assessments may be triggered by information provided by other programs, industry and scientific research. CEPA 1999 also allows for the creation of a Virtual Elimination List and information gathering.

5.1.1.1 Categorization and Screening of the Domestic Substances List

The Domestic Substances List includes substances that were in Canadian commerce, between January 1, 1984, and December 31, 1986, or used for manufacturing purposes, or manufactured in or imported into Canada in a quantity of 100 kilograms or more in any calendar year. Currently, there are approximately 23 000 substances on the Domestic Substances List. These substances are referred to as "existing substances." Substances not on the Domestic Substances List are considered to be "new substances" and are subject to the New Substances Program (see Section 5.2).

Results on categorizing substances on the Domestic Substances List include:

- *Categorization Decisions by Environment Canada* — The department collected and reviewed available information and produced preliminary categorization decisions for 10 648 organic and 984 inorganic substances on the Domestic Substances List. During the reporting period, interested parties were invited to submit information to help improve or refine these preliminary categorization decisions.
- *Categorization for Inherent Toxicity to Humans* — 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.
- *Environment Canada Guidance Manual for the Categorization of Organic and Inorganic Substances on Canada's Domestic Substances List* — Published in September 2003 for public comment, this document provides the rationale and guidance that Environment Canada uses to categorize organic substances, inorganic substances and organic metal salts against the criteria of persistence, bioaccumulation and potential and inherent toxicity to non-human organisms.
- *Health Canada Proposal for Priority Setting for Existing Substances on the Domestic Substances List under CEPA 1999: Greatest Potential for Human Exposure* — Released for public comment on January 16, 2004, this document outlines the approach for the initial categorization of the 23 000 substances on the Domestic Substances List for their greatest potential for human exposure (www.hc-sc.gc.ca/hecs-sesc/exsd/pdf/greatest_potential_human_exposure.pdf).

www.ec.gc.ca/substances/ese/eng/dsl/dslprog.cfm

www.hc-sc.gc.ca/hecs-sesc/exsd/index.htm

Environment Canada and Health Canada conducted various screening assessments and refined their screening assessment approaches and processes. Progress with the screening assessments included:

- the continuing assessments of 25 substances, including those representing categories or classes of related chemicals, as well as a variety of persistent, bioaccumulative substances, or substances that pose great potential for human exposure;
- the completion of the first environmental and health screening assessment of polybrominated diphenyl ethers (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);
- the commencement of a second screening assessment on tetrabromobisphenol A and two derivative compounds, ethoxylated tetrabromobisphenol A and tetrabromobisphenol A allyl ether;
- Health Canada's review of the basis for decisions of other jurisdictions to prohibit or restrict 16 substances for health reasons identified in preparation for implementation of Section 75 of CEPA 1999; and
- internal reviews of draft screening health assessments on the following compounds (perfluorooctanoic acid and its salts; quinoline; biphenyl; 2-methyl-4,6-dinitrophenol; 2,2'-methylenebis[6-(1,1-dimethylethyl)-4-methylphenol]; 1,1-dichloroethylene; ethylene dibromide; hexachloroethane; 4,4'-methylenebis[2-chloro-benzenamine]; acetone; hydrogen sulfide; ethylbenzene; tetrabromobisphenol A and derivatives) by senior staff members of the Existing Substances Division of Health Canada, and externally (quinoline; biphenyl; ethylene dibromide; 2-methyl-4,6-dinitrophenol; 4,4'-methylenebis[2-chloro-benzenamine]; 2,2'-methylenebis[6-(1,1-dimethylethyl)-4-methylphenol]) by outside experts.

www.ec.gc.ca/substances/ese/eng/dsl/dslprog.cfm

5.1.1.2 First Priority Substances List

Updates were completed on six Priority Substances List compounds (aniline, bis(2-chloroethyl) ether, 3,5-dimethylaniline, di-*n*-octyl phthalate, non-pesticidal organotin compounds, 1,1,2,2-tetrachloroethane) for which data were considered insufficient to conclude whether they were "toxic" under Paragraph 11(c) of the 1988 *Canadian Environmental Protection Act*. Environment Canada and Health Canada released one follow-up assessment report for public comment and published four final decisions for substances from the first Priority Substances List for which there was originally insufficient information to conclude whether they were "toxic" under the 1988 *Canadian Environmental Protection Act*. Used crankcase oils were proposed to be considered toxic under CEPA 1999, and four substances (styrene, tetrachloroethane, di-*n*-octyl phthalate, non-pesticidal organotin compounds) were found not to be toxic under CEPA 1999.

www.ec.gc.ca/substances/ese/eng/psap/PSL1_IIC.cfm

5.1.1.3 Second Priority Substances List

Results in 2003–04 include the following:

- Six substances were added to the List of Toxic Substances: ethylene oxide, formaldehyde, *N*-nitrosodimethylamine, hexachlorobutadiene, particulate matter containing metals that is released in emissions from copper smelters or refineries, or from both, and particulate matter containing metals that is released in emissions from zinc plants.
- Two substances were proposed to be added to the List of Toxic Substances: 2-butoxyethanol and 2-methoxyethanol.
- One substance was found not to be toxic: 2-ethoxyethanol.

Health Canada continued to work with an Expert Steering Committee to refine design parameters for a study on the neurological effects of aluminum. The department also held discussions with representatives of the primary aluminum industry in Canada on how the study should be carried out.

Health Canada worked with representatives of the American Chemistry Council to finalize the protocol for industry-sponsored studies to address uncertainty concerning the progression of renal lesions in male rats following exposure to ethylene glycol.

www.ec.gc.ca/substances/ese/eng/psap/final/main.cfm

5.1.1.4 List of Toxic Substances

When a substance is assessed and found to be CEPA toxic, it is added to the List of Toxic Substances in Schedule 1 of CEPA 1999. By adding substances to Schedule 1 of CEPA 1999, the federal government has the authority to take action, including making regulations or requiring the preparation of pollution prevention plans or environmental emergency plans.

Table 2: Substances Assessed and Added to the List of Toxic Substances (Schedule 1) in 2003–04 and Substances Being Considered for Addition to the List

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		2-Methoxyethanol is not commercially produced in Canada. 2-Methoxyethanol is imported for limited use mainly as an industrial coating, as a chemical intermediate and for military applications. 2-Butoxyethanol is not commercially produced in Canada, but it 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.
Ethylene oxide	April 27, 2002	June 4, 2003	Used as a process reactant and as a sterilizer of health care materials and heat-sensitive products.
Formaldehyde	April 27, 2002	June 4, 2003	Automotive and other fuel combustion, industrial on-site sources and natural sources (including forest fires).
Gaseous ammonia	July 27, 2002	June 2, 2003	Natural sources include waste product of animal, fish and microbial mechanisms, whereas anthropogenic sources include industry and agriculture.
Hexachlorobutadiene	June 1, 2002	August 13, 2003	No industrial or commercial uses in Canada. It is released as a by-product and contaminant from various industries.
Nitric oxide and nitrogen dioxide	July 27, 2002	June 12, 2003	The main anthropogenic sources are from combustion in transportation, industry and the electric power generating sector. The natural sources are mainly forest fires, lightning and soil microbial activity.
N-Nitrosodimethylamine	April 27, 2002	June 4, 2003	There are no industrial or commercial uses of this substance in Canada; it is released as a by-product and contaminant from various industries and municipal wastewater treatment plants. Major releases have been from the manufacture of pesticides, rubber tires, alkylamines and dye manufacture.
Ozone	July 27, 2002	June 12, 2003	Ozone is produced in the atmosphere from precursors, primarily nitrogen oxides and volatile organic compounds. These precursor gases are emitted from combustion processes often associated with industry and the transportation sector and from various commercial and industrial processes and solvent use.
Particulate matter containing metals that is released in emissions from copper smelters or refineries, or from both	November 2, 2002	August 13, 2003	Copper smelters and refineries.

Table 2 : Substances Assessed and Added to the List of Toxic Substances (Schedule 1) in 2003–04 and Substances Being Considered for Addition to the List *(cont'd)*

Substance	Proposed Order adding to Schedule 1 – date	Final Order adding to Schedule 1 – date	Sectors/sources involved
Particulate matter containing metals that is released in emissions from zinc plants	November 2, 2002	August 13, 2003	Zinc plant operations.
Sulphur dioxide	July 27, 2002	June 2, 2003	Sulphur dioxide is the main precursor that contributes to the formation of fine particulate matter in the summer months in eastern Canada. Emissions occur from copper and zinc smelters and refineries.
Tetrachlorobenzenes and pentachlorobenzene	April 24, 2004		Not produced or used in their pure form in Canada. They may be formed and released to the environment as a result of waste incineration and barrel burning of household waste, dielectric fluids, pesticides and municipal solid waste. Possible sources of release may include dielectric polychlorinated biphenyl material still in use, some pesticides and a wood preservation chemical.
Used crankcase oils	June 21, 2003		New information on exposure and effects from leakage of waste crankcase oil (WCO) from the crankcases of vehicles was found in the literature. Studies on roadway runoff provide a link between release of WCO from vehicles and effects on benthic organisms, which also include changes in the biodiversity of sediment fauna. Various components of WCO are listed on the List of Toxic Substances (Schedule 1), including arsenic and its compounds, benzene, cadmium, chromium and its compounds, acidic, sulfidic and soluble inorganic nickel, polycyclic aromatic hydrocarbons and lead.
Volatile organic compounds as listed in the Order	July 27, 2002	June 12, 2003	Anthropogenic sources include combustion and evaporation processes associated with transportation, the industrial sector, applications of surface coatings (e.g. paints), general solvent use and other miscellaneous sources.

5.1.1.5 Information Gathering

CEPA 1999 provides several authorities to request any person to provide or generate data for the purpose of assessing whether a substance is toxic or capable of becoming toxic or for assessing whether to control, or the manner in which to control, a substance. In 2003–04, information-gathering notices were published for five substances in order to assess whether to control them and/or the manner in which to control them:

- methyl bromide (February 14, 2004);
- hexachlorobutadiene in certain chlorinated substances (May 24, 2003);
- submitting samples for the determination of hexachlorobutadiene in certain chlorinated substances (May 24, 2003);
- certain halons (June 21, 2003); and
- dichloromethane (methylene chloride) (February 28, 2004).

www.ec.gc.ca/Ceparegistry/notices

5.1.2 Risk Management

CEPA 1999 requires that preventive or control actions be established to manage the risks posed by substances assessed as toxic under the Act within strict legislated timelines. Risk management tools that are substance specific, apply to groups of substances or apply to sector(s) are developed through the Toxics Management Process. Central to the process are the development and implementation of a risk management strategy that communicates what will be done to prevent or control the uses or releases from the sources/sectors of the toxic substance. Under this process, Environment Canada and Health Canada ensure that risk management instruments are developed in a way that provide efficient and effective consultations with industry and public stakeholders and that the obligations to protect the environment and human health set out in CEPA 1999 are met.

A variety of risk management measures are available to risk managers to reduce risk associated with the use and/or release of toxic substances. These risk management measures may be used to control any aspect of the substance's life cycle – from the design and development stage to its manufacture, use, storage, transport and ultimate disposal. They include instruments that are developed pursuant to a specific provision in CEPA 1999, such as regulations, pollution prevention plans, guidelines and codes of practice, and those that are developed outside of CEPA 1999 such as environmental performance agreements (referred to as tools). Under certain conditions, risk management actions can also be applied through other federal acts or provincial and territorial legislation.

Appendix A contains a list of the risk management measures proposed or finalized in 2003–04.

5.1.2.1 Regulations

In 2003–04, four final regulations (see Appendix A) were published under Part 5 of CEPA 1999 related to existing substances:

- *Prohibition of Certain Toxic Substances Regulations, 2003* (April 9, 2003) — The regulations feature a schedule listing toxic substances subject to prohibition for manufacture, use, sale, offer for sale and import. The amendments include the addition of two substances to the Schedule in the regulations (benzidine and its salt (benzidine dihydrochloride) and hexachlorobenzene) and the application of conditions on one of them (hexachlorobenzene).
- *Regulations Amending the Benzene in Gasoline Regulations* (October 8, 2003) — The amendments are of a minor technical nature and do not alter the intent of the regulations.
- *Regulations Amending the Sulphur in Gasoline Regulations* (October 8, 2003) — The regulations limit the level of sulphur in gasoline to an average of 150 parts per million and further reduce the limit to 30 parts per million starting in 2005. The amendments provide for a more accurate measurement of sulphur at low levels. At the same time, a number of other minor changes were made to update the regulations, clarify some provisions and make the regulations more consistent with other federal fuels regulations.
- *Solvent Degreasing Regulations* (August 13, 2003) — These regulations will implement a three-year freeze in the consumption of trichloroethylene and tetrachloroethylene, followed by a 65% reduction in consumption for the following years. The regulations will apply to persons involved in degreasing operations (vapour and cold degreasing) who use more than 1000 kilograms of these solvents during a calendar year.

In 2003–04, two proposed regulations were published:

- *Regulations Amending the Benzene in Gasoline Regulations (Miscellaneous Program)* (November 22, 2003) — The regulations correct inconsistencies between French and English versions of the regulations.
- *Virtual Elimination List Regulations* (August 16, 2003) — Environment Canada proposed the addition of the first substance to the Virtual Elimination List: hexachlorobutadiene with a 0.06 nanogram per millilitre level of quantification in a chlorinated solvent. Hexachlorobutadiene is incidentally present in certain chlorinated solvents and chemicals such as ferric chloride and may be released to the environment upon their use. Other possible releases could be from hazardous landfill leachates and hazardous waste incineration.

www.ec.gc.ca/CEPARegistry/regulations

5.1.2.2 Environmental Performance Agreements

An environmental performance agreement is a voluntary agreement negotiated among parties to achieve specified environmental results. While it is not considered an instrument under CEPA 1999, it is an additional risk management tool that can be used to achieve environmental objectives for toxic substances and other substances of concern.

In 2003–04, one agreement was signed with the Specialty Graphic Imaging Association and participating facilities in Ontario (see Appendix A). Facilities participating in this agreement will

develop targets and timelines to achieve verifiable reductions in the use, generation and release of specified priority substances, develop and implement plans to minimize and eliminate volatile organic compounds using pollution prevention activities and best available technology that is economically achievable, and implement an environmental management system.

www.ec.gc.ca/epa-epe

5.2 New Substances

Substances that are not on the Domestic Substances List are considered to be new to Canada. These 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 Environment Canada to intervene by requiring a risk management measure, placing restrictions or prohibiting the substance from import or manufacture in Canada.

When Environment Canada and Health Canada 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, a ***Significant New Activity Notice*** *is issued to ensure that adequate additional information is provided to the Minister 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 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

During 2003–04, the New Substances Program (composed of Environment Canada and Health Canada officials) received 757 new substance notifications under CEPA 1999. Additionally, the *New Substances Notification Regulations* under CEPA 1999 currently apply to substances in products regulated under the *Food and Drugs Act,* which is administered by Health Canada. During 2003–04, Health Canada received 85 submissions for new substances under the *Food and Drugs Act,* of which 78 were accepted and 7 were withdrawn or rejected due to, among other reasons, the submission of incomplete applications.

5.2.2 Risk Management

Of the 757 substances assessed under the New Substances Program, Environment Canada issued 10 Significant New Activity Notices and 6 conditions related to some of these substances.

www.ec.gc.ca/substances/nsb/eng/pub_e.htm

5.2.3 Regulations

The revised *New Substances Notification Regulations* were published on June 18, 2003 (see Appendix A). These revisions to the chemicals and polymers portion of the regulations were based on the recommendations received during the public consultations (see Section 5.2.5) and are expected to improve and streamline the regulations while not compromising Environment Canada's and Health Canada's abilities to protect human health and the environment.

www.ec.gc.ca/CEPARegistry/regulations

5.2.4 Additions to the Domestic Substances List

Substances regulated under the *Food and Drugs Act* are eligible to be added to the Domestic Substances List provided that the Environment Minister 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.

Health Canada nominated 1226 substances listed in the *Food and Drugs Act* for addition to the Domestic Substances List. Of these 1226 substances:

- 2 were already on the Domestic Substances List;
- 623 were added to the Domestic Substances List on February 11, 2004 (these substances will now be subject to the categorization and screening program); and
- 601 submissions required further investigation and data collection by Health Canada.

Three hundred and fifty-five substances regulated under the *New Substances Notification Regulations* were also added to the Domestic Substances List between April 2003 and March 2004.

5.2.5 Consultation on the New Substances Program

Spanning two years, the consultations on the New Substances Program began in June 1999 and resulted in 76 recommendations to amend the *New Substances Notification Regulations* and the New Substances Program. In November 2003, Environment Canada and Health Canada reported on the progress in implementing the recommendations in the document *Consultations on the CEPA New Substances Notification Regulations and New Substances Program (Chemicals and Polymers Portion) – Report on Progress: Implementing the Consultation Recommendations for Period Ending October 2003.*

www.ec.gc.ca/substances/nsb/eng/consul_e.htm

5.2.6 International Actions

5.2.6.1 Four Corners Arrangement

The Four Corners Arrangement was revised in November 2003 and signed in January 2004 by Environment Canada, Health Canada, the United States Environmental Protection Agency, the American Chemical 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, while continuing to protect human health and the environment.

During 2003–04, four substances were submitted and reviewed under this Agreement. Two of these substances were recommended for addition to the Non-Domestic Substances List. The Non-Domestic Substances List contains those substances that, while new to Canada, are already in commerce in the United States. Substances on the Non-Domestic Substances List are still subject to notification requirements in Canada, but face less onerous information requirements under the *New Substances Notification Regulations*.

5.2.6.2 Canada Australia Arrangement

The Cooperative Arrangement 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 harmonizing of national new industrial chemicals schemes.

In 2003–04, 15 notification requests were processed under the Arrangement. Assessment reports on 10 substances were shared with Australia following requests by industry. Canada and Australia continued work on comparing assessment approaches and methodologies for six polymers and three chemicals. A draft report describing “lessons learned” for polymers was completed, and a similar report for chemicals was in progress.

5.2.6.3 New Chemicals Task Force

The Organisation for Economic Co-operation and Development (OECD) New Chemicals Task Force was established to manage a work program aimed at improving information and work sharing associated with notification and assessment of new industrial chemicals. A retrospective document in the area of bilateral/multilateral arrangements was prepared by Environment Canada and Health Canada and presented at the 7th Meeting of the Organisation’s Task Force on New Chemicals. This document was presented to senior officials for endorsement in November 2004.

5.2.6.4 Good Laboratory Practice

The OECD principles of good laboratory practice set out managerial concepts covering the organization of test facilities and the conditions under which preclinical 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 2003–04, work on the New Substance Notification Good Laboratory Practice compliance monitoring program included:

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

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 and/or use in Canada are prohibited or severely restricted or because Canada has accepted, 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 2003–04, eight notifications of export were received, and no additional substances were added to the Export Control List (Schedule 3).

www.ec.gc.ca/CEPARegistry/subs_list/ECLNRExLst2003.cfm

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 Environment Canada to intervene by either requiring a risk management measure placing restrictions or prohibiting the substance from import or manufacture in Canada.

When Environment Canada and Health Canada 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, a Significant New Activity Notice is issued to ensure that adequate additional information is provided to the Minister 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 and regulations provide for notice and assessment and are specifically identified on Schedule 4 of the Act.

6.1 Risk Assessment and Management

In 2003–04, the New Substances Program received eight new substance notifications and two Significant New Activity notifications. Significant New Activity Notices were published for three of these notifications.

6.2 International Actions

6.2.1 Cartagena Protocol on Biosafety to the Convention on Biological Diversity

The Protocol was signed by Canada in April 2001; however, it has yet to be ratified. It promotes the safe transfer, handling and use of living modified organisms that may have adverse effects on biodiversity, taking into account human health with a specific focus on transboundary movement.

The Protocol establishes a Biosafety Clearinghouse to facilitate the exchange of information and to assist Parties to implement the protocol. Although Canada is not a Party to the protocol and therefore under no legal obligation to provide information, Canada intends to do so to the fullest extent possible. A gap analysis has been done on Canada's current information holdings and the information requirements of the protocol. Efforts are under way to generate relevant information for the clearinghouse on the Canadian regulatory framework and regulatory decisions taken regarding living modified organisms.

6.2.2 Working Group on Harmonization of Regulatory Oversight in Biotechnology

This working group under the Organisation for Economic Co-operation and Development 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 for its 14th session in November 2003. Delegates, including Canada, provided updates

to member states on regulatory developments in their respective countries. Reports were also received describing progress made in the development of consensus documents (microorganisms and plants), on harmonization of molecular characterization information, on parameters for environmental risk/safety assessment (of plants) and on transgenic fish.

7 Controlling Pollution and Managing Waste (Part 7)

Part 7 provides the Minister with authorities to deal with substances that have not been assessed or designated toxic under CEPA 1999 but have the potential to harm the environment or human health.

7.1 Nutrients

Nutrients are defined as substances that promote the growth of aquatic vegetation. Inputs of nutrients in the form of nitrogen and phosphorus to aquatic ecosystems as a result of human activity 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 May 2003, Environment Canada completed a draft scoping assessment to evaluate the possibility of implementing a guidance framework on nutrient management for the nearshore marine environment – specifically, estuaries. Based on preliminary evaluation of data, the average nutrient concentrations were found to be higher on the west coast, but more extreme concentrations were found on the east coast. Work to develop the framework and address the gaps identified in the scoping assessment is expected to assist with management approaches, such as determination of critical load values or threshold loading amounts.

In October 2003, Environment Canada completed a guidance framework entitled *Canadian Guidance Framework for the Management of Phosphorus in Freshwater Systems*. Although phosphorus is not directly toxic in fresh waters, it does cause aesthetic impairments and can cause depletion of dissolved oxygen. The phosphorus framework offers a tiered approach where phosphorus concentrations should not exceed predefined "trigger ranges"; and phosphorus concentrations should not increase more than 50% over the reference levels.

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. It is an international, non-legally binding agreement that 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 (NPA) in June 2000.

Results from 2003–04 include:

- An inventory of existing pollution prevention and habitat protection guidelines was completed (the inventory will be published on the NPA website in 2004–05 and updated annually).
- A multistakeholder working group in New Brunswick published the guide *Best Management Practices: Marine Products Processing*, which describes pollution prevention approaches to dealing with raw product, water and effluents in order to reduce environmental impact caused by the discharge of effluents (www.glf.dfo-mpo.gc.ca/sci-sci/effluents/bmp-e.html).
- A website (NPA Youth Zone) was developed to inform young Canadians about the importance of the coastal and marine environment and about impacts on this environment from land-based activities. This online tool provides youth with information on contaminant and habitat-related issues. The website offers information on how youth can play a role in protecting the coastal and marine environment. Games on the website are interactive and teach youth in an informative, yet fun, manner (www.npa-pan.ca/youth).

- The Atlantic Region published the report *Management of Wastes from Atlantic Seafood Processing Operations*, which provides a better understanding of the waste discharges and the potential impacts to the environment from the over 800 seafood processing operations in the region (www.dal.ca/aczisc/nparpt.pdf).
- The Pacific Region completed a study on fish processing operations to enhance understanding of the effects of contaminants discharged to coastal waters.

www.npa-pan.ca

7.2.2 Regional Programme of Action for the Arctic

In response to the 1995 Global Programme of Action, 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 in 1998 to address marine pollution issues in the Arctic.

During 2003–04, Canada continued to promote the implementation of the program through its participation in the Arctic Council's Working Group on Protection of the Arctic Marine Environment. Agreement was reached to expand the program to better address land-based activities in the context of sustainable development through collaboration with the other Arctic Council Working Groups. A particular focus of the program is on regional cooperation and capacity building to address priority pollution sources in the Russian Federation. Of particular significance is the development of an Arctic Council Arctic Marine Strategic Plan that will provide a more coordinated and integrated approach to the management of the Arctic coastal and marine environment. The plan will be presented to Arctic Council Ministers for endorsement in November 2004.

www.pame.is/

7.3 Disposal at Sea

The Act includes provisions to prohibit the disposal of wastes 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 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;*
- *a list of six substances that may be considered for disposal at sea (Schedule 5);*
- *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.*

7.3.1 Disposal at Sea Permits

In 2003–04, 89 permits were issued in Canada for the disposal of 3.88 million tonnes of waste and other matter. Most of this was dredged material that was 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 2002–03 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 geological matter in place since 1999, the quantities permitted now more closely reflect the actual disposed quantities.

Table 3: Quantities Permitted (in tonnes) and Permits Issued in Canada in 2003–04

Material	Quantity permitted	Permits issued	Percentage of quantity	Percentage of Permits
Dredged material*	2 909 400*	40	75%	44%
Geological matter*	910 000*	3	23%	3%
Fisheries waste	64 025	46	2%	51%
Vessels	0	0	0%	0%
Organic	200	1	0%	1%
Total	**3 883 625**	**90**	**100%**	**100%**

* Dredged material and geological matter were converted to tonnes using an assumed density of 1.3 tonnes per cubic metre.
Data accurate as of July 15, 2004, but additional amendments are possible until March 31, 2005.

Table 4: Quantities Permitted (in tonnes) and Permits Issued by Region in 2003–04

Material	Atlantic		Quebec		Pacific and Yukon		Prairie and Northern	
	Quantity permitted	Permits issued	Quantity permitted	Permits issued	Quantity permitted	Permits issued	Quantity permitted	Permits issued
Dredged material*	1 547 000	12	72 800	10	1 289 600	18	0	0
Geological matter*	0	0	0	0	910 000	3	0	0
Fish waste	61 625	43	2 400	3	0	0	0	0
Vessels	0	0	0	0	0	0	0	0
Organic	0	0	0	0	0	0	200	1
Total	**1 608 625**	**55**	**75 200**	**13**	**2 199 600**	**21**	**200**	**1**

* Dredged material and geological matter were converted to tonnes using an assumed density of 1.3 tonnes per cubic metre.
Data accurate as of July 15, 2004, but additional amendments are possible until March 31, 2005.

7.3.2 Monitoring Program

As required by CEPA 1999, disposal sites are monitored in order 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 2003, field monitoring was conducted at 17 ocean disposal sites:

- five disposal sites in the Quebec Region (Pointe-Basse, Cap-aux-Meules, L'Île-d'Entrée, Millerand and Grosse-Île in the Magdalen Islands);
- 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
- five disposal sites in the Atlantic Region (Saint John, Miramichi, Yarmouth, Pubnico and Summerside).

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

7.3.3 Regulations

The proposed *Regulations Amending the Disposal at Sea Regulations (Miscellaneous Program)* were published on August 27, 2003 (see Appendix A). The amendments are of a technical nature and are expected to have a positive impact on the clarity of the regulations; they will have no impact on the obligations or intent of those regulations.

7.3.4 London Convention and Protocol on Disposal at Sea

Environment Canada's Disposal at Sea Program meets domestic waste management objectives and enables Canada to fulfill its international obligations on the prevention of marine pollution from ocean dumping. Canada has been a party to the London Convention since 1976, meeting its obligations to control disposal at sea, monitor disposal sites and report to the Office of the London Convention. Canada is one of the few countries credited with consistent reporting. Canada chaired the annual Consultative Meeting of Parties in 2003 and will do so in 2004. In 2000, Canada acceded to the 1996 Protocol to the London Convention, which is a more stringent treaty limiting even further 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 hoped that this new Protocol will enter into force in 2006. In 2003–04, Canada actively promoted the entry into force at both the Meeting of the Scientific Group and the Consultative Meeting of Parties.

Intersessionally, Canada and Germany began drafting, with the assistance of a correspondence group from six other countries, "Guidelines for the Sampling and Analysis of Dredged Material for Disposal at Sea." The target completion date for this work was set at November 2005 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 also worked with the Republic of Korea to draft a module of the LC international training sets on waste assessment, which will provide educational material to countries wanting to accede to the Protocol. 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, Canada continued to chair a working group developing compliance procedures and mechanisms for the 1996 Protocol. Canada has considered the compliance procedures to be an important vehicle to help ensure the effectiveness of the Protocol when it enters into force. There is considerable debate over the structure of the compliance group and who can trigger the compliance process. An interim report was generated: "Preparation for the Entry into Force of the 1996 Protocol: Development of Compliance Procedures and Mechanisms." Negotiations will continue in 2004. The Protocol requires the procedures to be established no later than two years after the entry into force of the Protocol.

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 final *Regulations Amending the Gasoline Regulations* were published on April 9, 2003 (see Appendix A). The regulations will allow an exemption, until January 1, 2008, with respect to gasoline for use in competition vehicles from the otherwise applicable restrictions on the concentration of lead in gasoline specified in the *Gasoline Regulations.*

www.ec.gc.ca/CEPARegistry/regulations/default.cfm

7.5 Vehicle, Engine and Equipment Emissions

Under the Act, the Minister has 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. There are also provisions for regulations to establish a "national emissions mark," a trademark that could be used to promote a national standard for vehicles, engines or equipment where certain characteristics may be desirable.

The *On-Road Vehicle and Emission Regulations* came into effect on January 1, 2004, requiring all cars and light-duty trucks in Canada to meet stringent Tier 2 emission standards.

The final *Off-Road Small Spark-Ignition Engine Emission Regulations* were published on November 19, 2003 (see Appendix A). The regulations establish emission standards for small spark-ignition engines, which are typically gasoline-fuelled engines found in lawn and garden machines (e.g. hedge trimmers, brush cutters, lawn mowers, garden tractors, snowblowers), in light-duty industrial machines (e.g. generator sets, welders, pressure washers) and in light-duty logging machines (e.g. chainsaws, log splitters, shredders).

7.5.1 "Let's Drive Green"

Environment Canada, together with partners, holds Let's Drive Green sessions across Canada each summer where motorists can have check-ups on their vehicles' tailpipe emissions, tire pressure and gas cap seal. In 2003, over 7000 vehicles were tested at 34 locations.

www.ec.gc.ca/transport/clinics.htm

7.5.2 Bus Inspection Program

During the summer of 2003, Environment Canada conducted a voluntary heavy-duty diesel smoke-testing program, which offered free smoke testing for urban transit bus and school bus fleets across Canada. While heavy-duty diesel vehicles make up only a small percentage of the Canadian transportation fleet, they produce about 30% of nitrogen oxides and about 19% of particulate matter emissions from the entire transportation sector. In total, 2325 buses from 27 transit and school bus fleets were tested.

7.5.3 Emissions Testing

Environment Canada's Engine and Confirmatory Testing Program assesses whether cars and trucks, off-road and on-road vehicles, engines and equipment meet their prescribed emissions certification standards. In 2003, 66 light-duty vehicles, involving numerous independent test sequences, 18 utility engines and two heavy-duty engines were tested to assess emissions conformity with standards.

7.6 International Air Pollution

The Minister has the authority to address Canadian sources of pollution that contribute to air pollution in another country or violate an international agreement that is binding on Canada. This section applies to the release of substances that may not have been determined to be toxic under Part 5, but nevertheless contribute to international air pollution.

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 2003–04, the following sections describe results from several international agreements respecting air pollution.

7.6.1 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 June 2004 in Quebec City, the Parties reviewed progress on the Ozone Annex implementation and, with stakeholders, discussed the emission

reductions expected and charted the ozone air quality levels that will serve as benchmarks for future reviews of progress to meet the ozone air quality standards in each country. In 2003–04, Parties to the Ozone Annex:

- helped to reduce the effects of transboundary air pollution on Canadians – the 2004 Progress Report on the Canada–U.S. Air Quality Agreement, for the first time, describes the progress on implementing the emission reduction measures committed to by Canada and the United States in the Ozone Annex; and
- implemented a Border Air Quality Strategy. This intiative 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 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. The implementation of the pilot projects fulfills a pledge made by the two countries in January 2003, under the Canada – United States Border Air Quality Strategy.

In addition, through this Strategy, Health Canada is collaborating with Environment Canada, U.S. researchers, non-governmental organizations and academic researchers to examine the effects of transboundary air pollution on human health, with a particular focus on vulnerable populations. Health Canada is involved in two major health research pilot projects: the *Great Lakes Basin Airshed Management Framework* in southwestern Ontario (focus on Windsor and Detroit) and the *Georgia Basin/Puget Sound International Airshed Strategy* in southwestern British Columbia. The studies were designed to address major knowledge gaps in the understanding of the health effects of air pollution in the airsheds. These health studies will contribute to the development of a transboundary strategy for coordinated airshed management and will support governments during future international negotiations on improving air quality.

www.ec.gc.ca/pdb/can_us/canus_links_e.cfm

7.6.2 Stockholm Convention on Persistent Organic Pollutants

The Stockholm Convention on Persistent Organic Pollutants entered into force on May 17, 2004. The Convention seeks the elimination or restriction of the production and use of all intentionally produced persistent organic pollutants (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 hexachlorobenzene. Under the Convention, stockpiles of these chemicals must be managed and disposed of in a safe, efficient and environmentally sound manner.

In 2003–04, Environment Canada completed guidelines on best available techniques for thermal metallurgical sectors and other sources of POPs. The Government of Canada conducted public consultations on developing a national implementation plan for the Convention. The plan will build on existing and planned domestic actions. Several current initiatives under CEPA 1999 will contribute directly to Canada's ability to meet its obligations, such as revisions to polychlorinated biphenyls and hazardous waste regulations and development of the Virtual Elimination List.

7.6.3 United Nations Economic Commission for Europe Convention on Long-Range Transport of Air Pollution

Parties to this 25-year-old Convention include Canada, the United States and many European countries. The Protocol 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.

To date, eight protocols have been negotiated, which deal with acid rain, smog, persistent organic pollutants (POPs) and heavy metals. Canada has ratified two sulphur protocols and one protocol on nitrogen oxides, which address acid rain, as well as

the protocols on POPs and heavy metals. Canada is meeting or exceeding its emission reduction obligations for sulphur and nitrogen oxides. Under the POPs protocol, Canada actively contributed to scheduled reassessments of substances and continues to prepare information on potential substances for future addition to the Protocol. Under the heavy metals protocol, Canada is committed to reducing its total annual emissions from major sources identified of each of cadmium, lead and mercury by at least 50% of 1990 levels by 2011. Data from 2002 indicate that Canada has already met this obligation.

www.unece.org/env/lrtap/welcome.html

7.6.4 United Nations Environment Programme 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.

www.chem.unep.ch/mercury/

7.7 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 enact regulations governing the export and import of hazardous waste, including hazardous recyclable materials. The Act also provides authorities to introduce regulations on the export and import of prescribed non-hazardous waste for final disposal; require exporters of hazardous wastes destined for final disposal to submit export reduction plans; and 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. Provisions that require the Minister to publish notification information for exports, imports and transits of hazardous waste and hazardous recyclable material are also included in CEPA 1999.

7.7.1 Exports and Imports of Hazardous Wastes

During the 2003 calendar year, more than 7000 notices were processed for proposed imports, exports and transits of hazardous wastes and hazardous recyclable materials representing over 30 000 waste streams. During the same period, over 43 600 manifests were processed for tracking individual shipments approved and permitted under CEPA 1999.

In 2003, Canadian transboundary movements of hazardous wastes and hazardous recyclable material totalled 738 662 tonnes, a decrease of nearly 25 000 tonnes from the 2002 yearly total. Canadian imports totalled 417 368 tonnes, down from the approximately 423 000 tonnes reported in 2002. Exports decreased as well by nearly 6% from 340 261 tonnes in 2002 to 321 294 tonnes in 2003.

Based on the annual 2003 statistics for transboundary movements, nearly 97% of Canadian imports came from the United States, with the remainder coming from Europe, as hazardous recyclable materials destined for metal recovery operations. Shipments for recycling, which reduce reliance on primary resources and benefit Canadian industry, represented more than half of all of the imports. Batteries, metal-bearing wastes 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 destined to five provinces, with Ontario and Quebec continuing to receive the vast majority of all imports into Canada. Nearly all imports of hazardous waste for final disposal were destined for Ontario and Quebec, with small quantities imported into British Columbia and Alberta.

www.ec.gc.ca/tmb/resilog/eng/resinews.htm

7.7.2 Regulations

The proposed *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations* were published on March 20, 2004 (see Appendix A). The regulations provide authorities to assist the Minister in protecting 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 and to implement Canada's international obligations. The proposed Regulations will revoke and replace the *Export and Import of Hazardous Wastes Regulations* adopted in 1992.

www.ec.gc.ca/CEPARegistry/regulations

Figure 2: Imports and Exports of Hazardous Wastes, 1991–2003

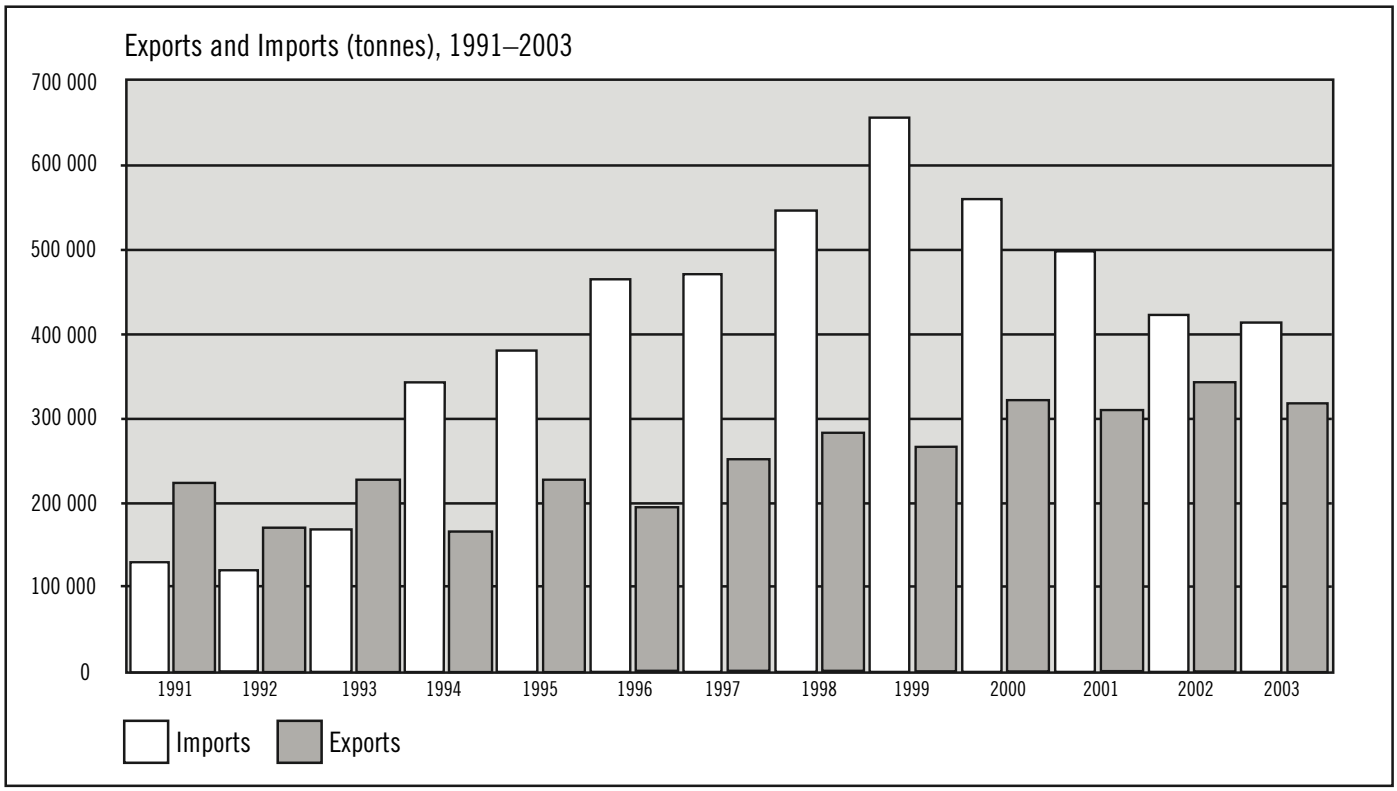


Table 5: Hazardous Waste Management in Canada

	Imports					Exports				
	1999	2000	2001	2002	2003	1999	2000	2001	2002	2003
Recycling (tonnes)	269 067	281 458	237 069	193 266	189 110	205 962	236 338	237 873	238 596	205 356
Total imports (tonnes)	662 893	560 032	499 758	423 067	417 368	267 931	323 370	313 362	340 261	321 294

8 Environmental Emergencies (Part 8)

CEPA 1999 provides authorities for the Minister to require environmental emergency plans for substances once the Ministers of Environment and Health have declared them toxic. It allows the Minister of the Environment 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 2003–04, Environment Canada developed the *Implementation Guidelines for Part 8 of CEPA 1999 — Environmental Emergency Plans*. These guidelines provide clarification and guidance to those who must comply with the new *Environmental Emergency Regulations*, establish the principles of environmental emergency planning under CEPA 1999 and outline Environment Canada's expectations with respect to the regulation and its implementation. In particular, the guidelines provide details for the prevention, preparedness, response and recovery components of environmental emergency plans as well as key references.

www.ec.gc.ca/Ceparegistry/documents/notices/g1-13736_n1.pdf

The environmental emergency plans website was completed in November 2003, including the online notice filing and search capabilities.

www.cepae2-lcpeue.ec.gc.ca

8.2 Regulations

The final *Environmental Emergency Regulations* were published on September 10, 2003 (see Appendix A) and came into force on November 18, 2003. The objective of the 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 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. If either the quantity or container criterion is met, regulatees must submit a notice of identification of substance and place. Companies meeting both criteria must prepare and implement environmental emergency plans.

In total, 2372 facilities have filed Notices of Identification of Substance and Place. Almost 90% of the notices received were for 20 of the 174 listed substances. From the information received, almost 1600 of these facilities will be required to prepare and implement environmental emergency plans. Accounting for the fact that many of the 2372 facilities had several substances on site, 3650 submissions were registered in the CEPA 1999 Environmental Emergency database.

Other key deliverables for 2003–04 include:

- over 50 information sessions held nationally to promote compliance;
- advertisements in farm journals and industry magazines; and
- information leaflets prepared in collaboration with propane and agri-retail associations.

www.ec.gc.ca/CEPARegistry/regulations

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

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. These entities are commonly referred to as the "federal house." 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

Final *Federal Halocarbon Regulations, 2003* were published on August 28, 2003 (see Appendix A). The regulations will achieve an orderly transition from the use of chlorofluorocarbons and halons to alternative substances and technologies. It is estimated that the Regulations will reduce the release of chlorofluorocarbons and halons by 1146 tonnes into the atmosphere between 2003 and 2014.

In September 2003, Environment Canada completed consultations on the proposal to repeal the *Federal Petroleum Products and Allied Petroleum Products Storage Tank Systems Regulations*. The Regulations will provide a more comprehensive framework to effectively prevent pollution from these storage tank systems. Thirty information or consultation sessions with stakeholders were conducted in 19 cities. Seventeen of these sessions involved Aboriginal peoples living in the Northwest Territories, Yukon, Nunavut, British Columbia, Alberta, Saskatchewan, Ontario, Quebec, Nova Scotia, New Brunswick and Newfoundland, and Labrador.

www.ec.gc.ca/CEPARegistry/regulations

Three issues of the "Virage" environmental newsletter on the greening of government were produced by the Quebec Region. The newsletter provides general information on the environment and, in particular, the regulations under CEPA 1999. In 2003–04, this newsletter was, among other things, used as a vehicle to convey information on ozone protection programs to federal departments and agencies.

www.qc.ec.gc.ca/dpe/Francais/dpe_main_fr.asp?prev_index_virage

10 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 and 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.

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 Alternative 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 2003–04, no additional persons were designated as enforcement officers under CEPA 1999. The total number of designated CEPA enforcement officers remained at 107.

10.2 Training

In 2003–04, the training design and delivery model was successfully applied to a number of new projects, including the preparation of the Basic Enforcement Training required for designation as enforcement officers. This process included the selection of a new training delivery supplier and redesign of the training module on sampling.

In addition, training was given on the *Ozone-depleting Substances Regulations* and the *Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations.*

10.3 Reinforcing the Compliance Continuum

In 2003–04, Environment Canada took steps to reinforce the linkages among the complementary segments of the "compliance continuum," which includes compliance promotion, compliance monitoring, compliance verification and enforcement. A compliance assurance function was developed in order to conduct research and evaluation and provide functional guidance so that the Department makes better priority-setting, targeting and resource allocation decisions relating to compliance promotion and enforcement activities.

An important component of the compliance assurance function is the development of performance management tools to reinforce compliance with CEPA 1999 and its regulations. Performance measures help the Department to focus on those tools that best support its compliance activities. In 2003–04, several pilot projects were implemented to measure the performance of compliance promotion and enforcement activities.

This approach will enhance Environment Canada's ability to develop priority-based, nationally coherent strategies and plans for compliance promotion and enforcement and to achieve greater consistency in environmental protection program implementation.

10.4 Compliance Promotion

Compliance promotion activities are designed to help those who are subject to CEPA 1999 understand and achieve compliance with the law. The following are some examples of compliance promotion activities conducted in 2003–04:

- *Solvent Degreasing Regulations* — All Environment Canada regional offices participated in compliance promotion activities that included mail-outs of a compliance guide, information sessions and plant visits at several regulated facilities.
- *Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations* — Compliance promotion workshops were held in every region to disseminate information on the regulatory requirements. In addition, copies of the proposed regulations, bulletins, guidance documents and fact sheets were distributed directly to several thousand regulatees across Canada. Compliance promotion materials, in English, French, Korean, Punjabi and Chinese, are posted at the new dry-cleaning website on the Green Lane: www.pyr.ec.gc.ca/dryclean/.
- *Federal Halocarbon Regulations* — The Pacific and Yukon Region coordinated five compliance promotion workshops throughout British Columbia. The Prairie and Northern Region organized and delivered information sessions in Whitehorse and Yellowknife, while the Ontario Region distributed newsletters and information packages to federal facilities and First Nations peoples. In the Quebec Region, seven information sessions were delivered. The revised version of the *Guide for the Implementation of a Halocarbon Recovery Program for Domestic Appliances* was published. This guide aims to help municipalities establish recovery programs for substances that deplete the ozone layer and halocarbon alternatives in an effort to protect the ozone layer.
- *New Substances Notification Regulations* — Collectively, the Atlantic Region and Pacific and Yukon Region conducted 13 information sessions and coordinated 5 compliance promotion workshops. An information booth was also set up at the Globe conference, the Organics Residuals Recycling conference and the BC Water and Waste Association trade show. Information packages on compliance were also sent out to stakeholders. Quebec stakeholders in the pulp and paper, painting and coverings industry were informed about the requirements of the *New Substances Notification Regulations*.
- *Environmental Emergency Regulations* — The Atlantic Region organized and delivered a Contingency Planning Workshop, which emphasized the new *Environmental Emergency Regulations*. Information sessions were set up to discuss the various requirements of the Regulations with representatives of the regulated community. The Quebec Region organized and delivered 14 workshops on these Regulations, which reached approximately 556 persons. In total, 4500 promotion letters were sent to inform regulatees in Quebec.

10.5 Inspections

Each year, a national inspection plan is developed that describes the inspection activities that will be carried out that fiscal year for CEPA 1999 and the *Fisheries Act*. To maximize the effectiveness of these activities, priority may be given to specific regulations. In 2003–04, 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 complaints, intelligence or other information.

In 2003–04, the national inspection plan identified the following CEPA 1999 regulations as national priorities:

- *New Substances Notification Regulations;*
- *Gasoline Regulations;*
- *Fuels Information Regulation, No. 1;*
- *Gasoline and Gasoline Blend Dispensing Flow Rate Regulations;*
- *Contaminated Fuels Regulations;*
- *Sulphur in Diesel Fuel Regulations;*
- *Sulphur in Gasoline Regulations;*
- *Benzene in Gasoline Regulations; and*
- *Export and Import of Hazardous Wastes Regulations.*

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.

10.6 Investigations

Enforcement officers appointed under CEPA 1999 carry out two categories of enforcement activity: inspection and investigation. 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 a suspected violation. Enforcement officers will examine every suspected violation of which they have knowledge. If, after the examination, they determine that there is insufficient evidence to prove the alleged violation or that the alleged violation did not, in fact, occur, they will take no further enforcement action. If they are able to substantiate that a violation took place and there is sufficient evidence to proceed, they will respond.

The responses available to deal with alleged violations of the CEPA 1999 and its regulations include warnings, directions, tickets, Ministerial Orders, environmental protection compliance orders, detention orders for ships, injunctions, prosecution, environmental protection alternative measures, court orders following conviction and civil suits by the Crown to recover costs.

Table 6 is a tabulation of inspections, investigations and some of the more commonly used responses to violations.

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.

In 2003–04, an Environmental Protection Compliance Order was issued to a company in British Columbia that was allegedly in violation of the *Ozone-Depleting Substances Regulations*. The company was ordered to stop the import, offering for sale and sale of a product known to contain hydrochlorofluorocarbons.

10.8 Prosecutions and Court Cases

Key prosecutions and court cases in 2003–04 included:

- A Newfoundland company was fined $1750 ($250 fine and $1500 contribution to the Environmental Damages Fund) after pleading guilty to a violation of subsection 125(1) of CEPA 1999 resulting from improper disposal of fish offal.
- An Ontario company was fined $7500 ($1000 per charge for six charges and a victim surcharge of $1500) after pleading guilty to six charges of violating the *Ozone-Depleting Substances Regulations* under CEPA 1999. The charges related to failure to declare imports for the 2001. This was the first time the *Contraventions Act* (ticketing) was used as an enforcement response by the Ontario Region.
- An Ontario company was fined $25 000 ($5000 fine and $20 000 to the Canadian Dermatology Association) after pleading guilty to charges of violating the *Ozone-Depleting Substances Regulations* under CEPA 1999. The charges were in relation to the illegal importation of substances known to contain hydrochlorofluorocarbons.
- An Ontario company was fined $25 000 payable to the Canadian Dermatological Association for violations of the *Ozone-Depleting Substances Regulations*, relating to the importation of products containing 1,1,1-trichloroethane. Upon the appeal of the penalty by the Crown, the appeal court reassessed the case and raised the amount of the penalty to $75 000.
- A Quebec company was fined $3500 after pleading guilty to charges under the *Export and Import of Hazardous Waste Regulations* in relation to the importation of hazardous waste without a permit.
- A company in British Columbia was fined $5000 ($500 fine and $4500 contribution to the Environmental Damages Fund) after pleading guilty to charges of violating section 185 of CEPA 1999. The charges were in relation to the illegal importation of a hazardous waste/hazardous recyclable material/prescribed non-hazardous waste.

10.9 International Action

Enforcement-related activities are carried out under various international agreements and organizations. Key international activities in 2003–04 include:

- *International Network for Environmental Compliance and Enforcement* — The network of more than 100 countries launched its Environmental Enforcement Indicators Project by forming an enforcement indicators expert working group, drafting a background paper and collaborating with the Organisation for Economic Co-operation and Development on a two-day enforcement workshop.

Table 6: Enforcement activities carried out under CEPA 1999 during 2003–04

	Total inspections	On-Site inspections	Off-Site inspections	Investi-gations*	Prose-cutions	Charges	Convic-tions	Contra-ventions	Directives	Written warnings
CEPA (1988 & 1999)	**4 413**	**2 334**	**2 079**	**32**	**8**	**8**	**14**	**1**	**8**	**672**
Benzene in Gasoline	182	86	96	0	0	0	0	0	0	3
CEPA 1999 - Section(s)**	584	418	166	12	3	3	8	0	0	106
Chlor-Alkali Mercury Release	4	1	3	0	0	0	0	0	0	0
Chlorobiphenyls	52	48	4	1	1	1	0	0	0	0
Contaminated Fuel	13	13	0	0	0	0	0	0	0	0
Diesel Fuel	12	3	9	0	0	0	0	0	0	1
Disposal at Sea	32	24	8	1	0	0	0	0	0	0
Environmental Emergency	3	1	2	0	0	0	0	0	0	0
Export and Import of Hazardous Wastes	854	589	265	6	0	0	0	0	0	53
Export Control List Notification	55	0	55	0	0	0	0	0	0	0
Export of Substances under the Rotterdam Convention	58	1	57	0	0	0	0	0	0	0
Federal Halocarbon, 2003	97	44	53	0	0	0	0	0	0	73
Federal Halocarbon	114	46	68	2	0	0	0	0	2	22
Federal Registration of Storage Tank Systems for Petroleum Products and Allied Petroleum Products on Federal Lands or Aboriginal Lands	10	9	1	0	0	0	0	0	0	0
Fuels Information, No. 1	143	52	91	0	0	0	0	0	0	4
Gasoline	49	47	2	0	0	0	0	0	0	1
Gasoline and Gasoline Blend Dispensing Flow Rates	5	5	0	0	0	0	0	0	0	0
Glycol	6	6	0	0	0	0	0	0	0	0
Interprovincial Movement of Hazardous Waste	42	11	31	3	0	0	0	0	0	0
National Pollutant Release Inventory	229	16	213	2	0	0	0	0	0	150
New Substances Notification	216	128	88	3	0	0	0	0	0	1
New Substances Notification – Biotechnology	201	105	96	4	0	0	0	0	0	2
Ocean Dumping, 1988	21	20	1	0	2	1	1	0	0	0
Ozone-Depleting Substances, 1998	387	304	83	4	5	3	5	0	0	84
PCB Waste Export	62	5	57	0	0	0	0	0	0	0
Prohibition of Certain Toxic Substances	6	1	5	0	0	0	0	0	0	0
Pulp and Paper Mill Defoamer and Wood Chip	96	17	79	0	0	0	0	0	0	1
Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans	195	23	172	0	0	0	0	0	1	7
Secondary Lead Smelter Release	13	13	0	0	0	0	0	0	0	0
Storage of PCB Materials	293	78	215	4	0	0	0	1	2	136
Sulphur in Diesel Fuel	205	93	112	1	0	0	0	0	3	8
Sulphur in Gasoline	125	86	39	0	0	0	0	0	0	1
Tetrachloroethylene	40	40	0	0	0	0	0	0	0	19
Vinyl Chloride Release, 1992	9	1	8	1	0	0	0	0	0	0

Table 6: Enforcement activities carried out under CEPA 1999 during 2003–04 *(cont'd)*

The statistics are tabulated as follows:

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 another legislation and may include one or more regulations. Therefore, the total number of investigations shown by regulation does not add to the total at the legislation level.

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

All measures (except for prosecutions) 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.

- *Interpol* — Interpol is an international police organization comprising 174 member states. Environment Canada's Enforcement Branch is a member of Interpol's Environmental Crimes Committee. In 2003, the Enforcement Branch contributed to the development of course curriculum for Interpol's Environmental Crimes Training Course. This course is designed to sensitize law enforcement officers to environmental crimes and educate them on how to appropriately respond to and investigate environmental crimes.
- *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) to work together on projects and initiatives that encourage trinational environmental enforcement collaboration. In 2003, meetings focused on fostering an interagency exchange of information, regional priority setting and enforcement and compliance strategies. A meeting between the Commission and its Joint Public Advisory Committee provided public input on enforcement activities.
- *United Nations Convention on the Law of the Sea* — Canada ratified this Convention in 2003. Enforcement staff continued to participate in meetings, working groups and discussions on the implementation of the Convention.
- *United Nations Environment Programme* — Environment Canada made use of funding provided by the Programme to provide training to Colombian environmental law enforcement officials and customs officers on detecting and investigating ozone-depleting substances smuggling operations.

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

In 2003, Environment Canada introduced the *Solvent Degreasing Regulations* under CEPA 1999. These regulations pertain to two solvents used in the degreasing process: trichloroethylene and tetrachloroethylene. The regulation is supported by a tradable unit system, which creates consumption units for each kilogram of solvent used. An allowance system will set limits on the quantities of the two solvents that could be used each year, based on historical uses of these substances by the users. Allowance holders will be able to retire their allowance or to transfer it to other users. Sellers and users of these solvents will be required to submit annual reports to Environment Canada.

Appendix A: Risk Management Measures Proposed or Finalized in 2003–04

Management tool	Status
REGULATIONS	
Part 5	
Regulations Amending the Sulphur in Gasoline Regulations	Finalized October 8, 2003
Regulations Amending the Benzene in Gasoline Regulations	Finalized October 8, 2003
Solvent Degreasing Regulations	Finalized August 13, 2003
Regulation Amending the New Substances Notification Regulations	Finalized June 18, 2003
Prohibition of Certain Toxic Substances Regulations, 2003	Finalized April 9, 2003
Regulations Amending the Benzene in Gasoline Regulations (Miscellaneous Program)	Proposed Nov 22, 2003
Virtual Elimination List Regulation (addition of Hexachlorobutadiene)	Proposed August 16, 2003
Part 7	
Regulation Amending the Gasoline Regulation	Finalized April 9, 2003
Off-Road Small Spark-Ignition Engine Emission Regulations	Finalized November 19, 2003
Regulations Amending the Disposal at Sea Regulations (Miscellaneous Program)	Finalized August 27, 2003
Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations	Proposed March 20, 2004
Part 8	
Environmental Emergency Regulations	Finalized Sept 10, 2003
Part 9	
Federal Halocarbon Regulations, 2003	Finalized August 27, 2003
POLLUTION PREVENTION PLANS	
Notice requiring the preparation and implementation of Pollution Prevention Plans in respect of Dichloromethane	Finalized November 29, 2003
Notice requiring the preparation and implementation of Pollution Prevention Plans in respect of Acrylonitrile	Finalized May 24, 2003
Notice requiring the preparation and implementation of Pollution Prevention Plans in respect of Ammonia Dissolved in Water, Inorganic Chloramines and Chlorinated Wastewater Effluents	Proposed June 7, 2003
Notice requiring the preparation and implementation of Pollution Prevention Plans in respect of Nonylphenol and Its Ethoxylates in Textile Mills	Proposed June 7, 2003
Notice requiring the preparation and implementation of Pollution Prevention Plans in respect of Nonylphenol and Its Ethoxylates contained in Products	Proposed Nov 29, 2003
CODES OF PRACTICE	
Reduction of Dichloromethane Emissions from the Use of Paint Strippers in Commercial Furniture Refinishing and Other Stripping Applications	Finalized April 16, 2003
Environmental Management of Road Salts	Proposed Sept 20, 2003 Finalized April 3, 2004
GUIDELINES	
Mercury (inorganic and methyl) Water Quality Guideline	Finalized July 18, 2003
Methyl Teriary Butyl Ether Water Quality Guideline	Finalized October 22, 2003
ENVIRONMENTAL PERFORMANCE AGREEMENTS	
Environmental Performance Agreement with Specialty Graphic Imaging Association and Participating Facilities In Ontario	Signed Jan 31, 2004
ADMINISTRATIVE AGREEMENTS	
Canada Wide Standard for Conical Waste Combustion of Municipal Waste	Proposed Jan 24, 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/CEPARegistry);
- Environment Canada's Green Lane™ (www.ec.gc.ca);
- Health Canada's Safe Environments Programme website (www.hc-sc.gc.ca/hecs-sesc/hecs/sep/index.htm); and
- Health Canada's Product Safety Programme website (www.hc-sc.gc.ca/hecs-sesc/psp/index.htm).

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

Inquiry Centre:
70 Crémazie St.
Gatineau, Quebec
K1A 0H3

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