

Canadian Environmental Protection Act, 1999

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Canadian Environmental Protection Act, 1999

CEPA Annual Report

April 2001 to March 2002



Message from the Minister

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 2001 to March 2002. The goal of the Act, which came into force on March 31, 2000, is to contribute to sustainable development through pollution prevention, and to protect the environment, human life and health from the risks associated with toxic substances, pollutants, and wastes. This reporting period's achievements underscore the value and effectiveness of CEPA 1999 in helping Environment Canada meet its environmental and human health commitments, and I am pleased to share these achievements with you.

In 2000-2001, the first year of implementing CEPA 1999, Environment Canada demonstrated early successes, such as international actions and the completion of a long-term agenda for cleaner vehicles and fuels. During that period, the Department's attention was focused on laying the foundation for the future, by putting in place the policies and guidelines that would enable us to access the full range of CEPA 1999 tools.

This second year of implementation, 2001-2002, clearly demonstrated that we are meeting our environmental protection goals, and that CEPA 1999 is a powerful law for use in the attainment of those goals. The report illustrates the progress we have made in meeting CEPA 1999's new requirements and timelines for assessing the risk of substances in Canada. Extensive research and monitoring studies continued to address departmental priorities, such as endocrine-disrupting substances and air quality. Environment Canada is well on its way to categorizing all 23 000 substances in Canadian commerce. In fact, this year we published ecological data for 12 000 of those substances.

The report highlights the many measures we have taken to manage toxic substances and other substances of concern. Some of CEPA 1999's new tools were used for the first time during this reporting period, including environmental protection alternative measures for enforcement. I am pleased to advise you that during the 2001-2002 reporting period, five regulations were proposed in the *Canada Gazette*, Part I; five were finalized and published in the *Canada Gazette*, Part II; and nine others were in earlier stages of development.

This report also emphasizes the importance of collaboration with other countries, all government jurisdictions, industry and non-governmental organizations. We have made significant progress toward meeting our commitments under the Ozone Annex to the Canada-United States Air Quality Agreement, and partnerships in the scientific community allow us to pool our resources and advance our research agenda. The federal government and the provinces have joined together in implementing Canada-wide Standards that will improve the quality of our air and protect Canadians from toxic substances. Through commitments made by industry, the implementation of voluntary approaches – such as environmental performance agreements as alternatives to regulation – will bring efficient and significant environmental results.

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 Web site, at www.ec.gc.ca/CEPARegistry.



The Honourable David Anderson, M.P., P.C.
Minister of the Environment

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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, 2001 to March 31, 2002.

The 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 in this report 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 makes specific mention of several provisions of the Act that need to be addressed in the report to Parliament as follows:

- **Activities of the CEPA 1999 National Advisory Committee (NAC) and of any committees established under paragraph 7(1)(a)** — Section 1.1 of this report highlights the activities of the NAC during 2001–02. There were no other committees established under paragraph 7(1)(a) of CEPA 1999 in 2001–02.
- **Administration of the Act under administrative agreements** — Section 1.2 of this report describes the activities under the administrative agreements during 2001–02.
- **Administration of agreements respecting equivalent provisions** — Section 1.3 of this report describes the activities under the Canada–Alberta Equivalency Agreement during 2001–02.
- **Administration of the international air pollution provisions** — Although there were no activities under these provisions (Division 6 of Part 7) of CEPA 1999 during 2001–02, 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 2001–02.
- **Research conducted under the authority of the Act** — During 2001–02, 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 3.3 of this report provides examples of the types of research initiatives under way and their key contributions in 2001–02.

1. Administration (Part 1)

1.1 National Advisory Committee (NAC)

The *Canadian Environmental Protection Act, 1999* (CEPA 1999) requires the Minister of Environment to establish a National Advisory Committee (NAC) composed of one representative for each of the federal Ministers of Environment and Health, representatives from each province and territory, and six representatives of Aboriginal governments drawn from across Canada.

Established for the purpose of enabling national, cooperative action and avoiding duplication in regulatory activity among governments, the duties of the NAC include:

- advising the Ministers of Environment and Health on proposed regulations for substances declared toxic;
- advising the Minister of the Environment on a cooperative, coordinated, intergovernmental approach for the management of toxic substances;
- advising the Minister of the Environment on proposed regulations regarding environmental emergencies;
- advising the Minister of the Environment on any other environmental matters that are of mutual interest to the Government of Canada and provincial, territorial, and Aboriginal governments; and
- enabling a full and open sharing of information between the federal, provincial, territorial, and Aboriginal governments on all matters related to the protection of the environment and the management of toxic substances.

In addition to the duties listed above, the NAC serves as the single window into provincial and territorial governments and representatives of Aboriginal governments on offers to consult on objectives, guidelines, and codes of practice.

To carry out its duties in 2001–02, the NAC held two face-to-face meetings, four conference calls, and one workshop. Some of the federal initiatives brought to the NAC for discussion included:

- the recommended addition of four substances in municipal wastewater effluent (ammonia dissolved in water, nonylphenol and its ethoxylates, textile mill effluents, and inorganic chloramines) to the List of Toxic Substances under CEPA 1999 and the development of risk management options for these substances as they relate to municipal wastewater effluent;
- the proposed *Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations*;
- the recommended addition of road salts to the List of Toxic Substances and the evaluation, selection, and development of management instruments to reduce the negative impacts of road salts on the environment;
- development of *Environmental Emergencies Regulations*, including the Risk Evaluation Framework and draft Data Gathering Guidelines that would guide regulation development;
- revision to the National Emission Guidelines for Thermal Electric Power Generation; and
- regulations for on-road vehicle and engine emissions.

The character, extent, and result of NAC involvement in such matters vary with the nature of the issue and relative priority for each jurisdiction. In the case of the *Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations*, strong engagement and specific input from the NAC resulted in changes to the regulatory text to allow for the use of other wastewater treatment systems that are equal or better in performance to activated carbon. Advice from the NAC also resulted in clarity regarding the use of third-party contracting and, in general, ensured that the federal regulations would complement existing provincial and territorial regulations. On the issues of municipal wastewater effluent and road salts, the NAC established working groups to assist Environment Canada in the development of risk management options.

In addition to providing advice and comments on the issues noted above, the NAC held a workshop in conjunction with the Environmental Planning and Protection Committee under the Canadian Council of Ministers of the Environment (CCME) to explore the links between these two fora.

The NAC also received continuous updates on the progress of other activities under the Act, including the development of proposed amendments to the polychlorinated biphenyl (PCB) regulations, the proposed *Sulphur in Diesel Fuel Regulations*, the National Pollutant Release Inventory (NPRI), and the categorization and screening of the Domestic Substances List (DSL).

**[www.ec.gc.ca/CEPARRegistry/
gene_info/nac.cfm](http://www.ec.gc.ca/CEPARRegistry/gene_info/nac.cfm)**

1.2 Administrative Agreements

The Act allows the federal government to enter into administrative agreements with provincial and territorial governments and contains provisions to allow for administrative agreements with Aboriginal governments as well as an Aboriginal people.

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

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 related to the pulp and paper sector, ozone-depleting substances, and polychlorinated biphenyls (PCBs). The agreement commits both governments to share information relating to the administration of their respective legislation to assist them in meeting statutory reporting obligations, on releases that violate the requirements of their respective legislation, and on enforcement activities including inspections and investigations.

There were no prosecutions under the regulations in 2001–02. Key results under the agreement in 2001–02 included:

- **Training** — Environment Canada trained five provincial spill dispatch operators, who were subsequently designated as CEPA 1999 enforcement officers for the purpose of CEPA 1999 spill reporting requirements. Environment Canada assisted the province with spill training for 26 provincial staff on the requirements under the administrative agreement.

- **Pulp and paper regulations** — Only one of two mills in the province is subject to the *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations*. Environment Canada and the province conducted a joint field inspection in March 2002. Inspections of these data showed compliance with the regulations. Pulp and paper mills in Saskatchewan do not use products listed in the *Pulp and Paper Mill Defoamer and Wood Chip Regulations*. In March 2002, Environment Canada and the province conducted a joint field inspection to confirm that no products listed in the regulations were being used.
- **Ozone-depleting substances regulations** — Environment Canada conducted 27 field inspections and 5 document inspections under these regulations in 2001–02, which included analyzing 29 aerosol products for ozone-depleting substances. No violations were detected. The province did not carry out any inspections in 2001–02.
- **PCB regulations** — Environment Canada conducted seven inspections under the *Chlorobiphenyls Regulations* and eight inspections under the *Storage of PCB Material Regulations*. Since Environment Canada conducted some PCB inspections at the potash mines, the province did not conduct any inspections in 2001–02. Provincial authorities received reports of 21 releases of electrical fluids that could potentially contain PCBs. It was confirmed that none of the spills contained PCBs at levels over 50 parts per million (ppm). The province concluded that corrective actions were taken, including the immediate cleanup of the spills.

Canada–Quebec Pulp and Paper

Administrative Agreement

Since 1994, Administrative Agreements have been in place between the province of Quebec and the Canadian government concerning the pulp and paper sector. The second agreement expired on March 31, 2000. Since that time, Environment Canada has been negotiating a renewed agreement.

The province provides a “single window” to collect data from the Quebec mills and gives this information to Environment Canada to apply its regulations. Each level of government retains full responsibility for verifying industry compliance with its respective regulatory requirements and for conducting inspections and investigations.

In 2001–02, Environment Canada studied 876 monthly or quarterly reports presented by manufacturing plants or municipalities (745 reports concerned the *Fisheries Act*, 131 reports concerned CEPA 1999). Environment Canada also produced monthly reports on compliance, and discussed problematic mills with Quebec. Federal enforcement officers conducted inspections at 3 plants, issued 13 warnings (11 under the *Fisheries Act* and 2 under CEPA 1999), and led 3 investigations on alleged infractions of the *Fisheries Act*.

Canada–Ontario Agreement Respecting the Great Lakes

In spring 2002, Environment Canada, together with seven other federal departments and three provincial ministries, signed the Canada–Ontario Agreement Respecting the Great Lakes Basin Ecosystem. The agreement sets out environmental priorities and specific goals and actions for the enhancement and preservation of the Basin’s ecosystem. Four annexes to the agreement focus on environmental priorities that will benefit from federal–provincial

cooperation and coordinated action, including the cleanup of the remaining Areas of Concern within the basin, the implementation of a series of binational lakewide management plans to address problems unique to each Great Lake, the virtual elimination and significant reduction of harmful pollutants within the basin, and improved monitoring and information management.

**[www.ec.gc.ca/CEPARRegistry/
agreements/Rel_Agree.cfm](http://www.ec.gc.ca/CEPARRegistry/agreements/Rel_Agree.cfm)**

Canada-wide Standards

Developed under the CCME Harmonization Accord, Canada-wide Standards represent political and accountable commitments by environment ministers (except Quebec) to address environmental protection and health risk issues. The Minister's authority to sign these agreements is found under section 9 of CEPA 1999; however, the agreements represent cooperation towards a common goal, rather than a delegation of authority under CEPA 1999. Many federal actions to achieve these commitments will be taken under CEPA 1999. New standards signed during 2001–02 include:

- ***Benzene (Phase II)*** — This standard, endorsed by CCME in September 2001, calls for a further 6-kilotonne reduction in national emissions to be achieved by 2010.
- ***Dioxins and Furans from Waste Incineration and Coastal Pulp and Paper Boilers*** — The standard, endorsed on May 1, 2001, will lead to a combined emission reduction of at least 80% from these two sources by 2006. Environment Canada worked on its implementation plan for federal incinerators, which will outline key actions to meet the standards for dioxins and furans, and mercury.

- ***Dioxins and Furans from Iron Sintering Plants and Steel Making Electric Arc Furnaces*** — These proposed Canada-Wide Standards (CWSs) were presented to CCME in September 2001. Environment Canada published the agreements on February 2, 2002, for a 60-day comment period. On a related area, in April 2001, a Multistakeholder Smelters Emissions Testing network was formed. Its mandate is to measure and characterize dioxins and furans and to share information on the emissions, testing, formation, prevention, and control of dioxins and furans from the base metals smelting sector. Seven of the eleven participating facilities have conducted emissions sampling for dioxins and furans, and the remaining facilities have committed to testing by the end of 2002.
- ***Mercury-containing Lamps*** — This standard, endorsed in September 2001, will reduce the mercury content of lamps by 80% by 2010, thereby lowering emissions from manufacturing, land-filling, incineration, and lamp breakage (currently 40 kilograms/year). An implementation plan is under development, and there are discussions within the federal government under the Federal Buildings Initiative.
- ***Mercury in Dental Amalgams*** — This standard, endorsed in September 2001, calls for a 95% reduction in environmental releases of dental amalgam waste by 2005. To implement the standard, Environment Canada and the Canadian Dental Association, which represents all dentists in Canada, entered into a Memorandum of Understanding (MOU) in March 2002. Environment Canada also secured commitments from other levels of government, educational institutions, and professional associations

in the Ontario Region to develop a training tool. This tool will help familiarize new and practising dentists, dental hygienists, and assistants on proper waste management of hazardous dental wastes, including waste dental amalgam. A first draft of the training tool is expected in December 2002. In the Atlantic Region, a project testing the feasibility of installing ISO-certified dental amalgam separators in provincial dental clinics was undertaken together with the province of Prince Edward Island. The project also identified opportunities for mercury reduction and developed an information fact sheet for dentists.

- ***Petroleum Hydrocarbons in Soil*** — This standard, endorsed in May 2001, provides consistent methods for the assessment and management of sites contaminated with petroleum hydrocarbons. A workshop was given in May 2001. A draft national analytical reference method for petroleum hydrocarbons in soil was published and work is underway on a multilaboratory study to validate the reference method.

Ministers have committed to being accountable to the public and each other by developing implementation plans to achieve the standards. Actions taken in 2001–02 on existing standards included the following:

- ***Benzene (Phase 1)*** — The standard called for a 30% reduction in emissions by 2000. In December 2001, a national summary of the Annual Progress Report was published. Based on reported data it is estimated that benzene emissions in Canada decreased by 39% between 1995 and 1999.
- ***Mercury Emissions from Base Metal Smelting and Incineration*** — These standards, signed in June 2000, will reduce emissions from the base metal

smelting sector by 800 kilograms/year by 2008 and from incinerators by over 70% by 2006. Existing smelters are expected to make a determined effort to meet this standard by 2008, coinciding with implementation of the federal Strategic Options Report. New facilities are required to achieve compliance immediately upon full-scale operation. A Base Metals Smelting Environmental Advisory Group, established in March 2002, will monitor progress towards achieving the standard for the base metal smelting sector.

- ***Particulate Matter (PM) and Ozone*** — The standards, signed in 2000, set ambient targets for particulate matter with aerodynamic diameter less than or equal to 2.5 microns (PM_{2.5}) and ozone to be achieved by 2010. In April 2001, the federal government released its Interim Plan 2001 on Particulate Matter and Ozone. It sets out a series of actions aimed at emission sources with the greatest negative impact on air quality, including transboundary pollution and the transportation and industrial sectors. Multi-pollutant Emission Reduction Analysis Foundation reports are being prepared for six sectors: iron and steel, base metal smelting, pulp and paper, lumber and allied wood, asphalt batch-mix, and concrete batch-mix. Two consultation workshops on the fossil fuel electric power generation (EPG) sector were held in January 2001, and November 2001. A Clean Air Workbook for the EPG sector, prepared under the guidance of multi-stakeholder peer groups, was the basis for discussion at the November workshop. In January 2002, Environment Canada initiated stakeholder consultations on proposed revisions to the *National Emission Guidelines for Thermal Electric Power Generation — New Sources*.

The updated guidelines will reflect current best-available technology. Environment Canada initiated consultations on a Federal Agenda for Reducing Emissions of Volatile Organic Compounds (VOCs) from Consumer and Commercial Products.

www.ec.gc.ca/CEPARRegistry/documents/glines/thermal/gl.cfm

1.3 Equivalency Agreements

The Act allows the use of equivalency agreements where, by Order in Council, a regulation under CEPA 1999 is declared to no longer apply in a province, a territory, or an area under the jurisdiction of an Aboriginal government that has equivalent requirements.

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. This agreement recognizes that several provincial regulations are “equivalent” to CEPA 1999 regulations. Thus, the CEPA 1999 regulations governing the pulp and paper sector, secondary lead smelter releases, and vinyl chloride releases no longer apply in Alberta. The regulated industries affected by this agreement include four kraft mills, one vinyl chloride plant, and one polyvinyl chloride plant. There are no secondary lead smelters currently operating in Alberta.

Under the agreement, the province shares inspection and compliance reports and other information with Environment Canada in order to meet federal reporting obligations. Alberta Environment reported that there were no violations of their regulations in 2001–02. All four kraft mills complied with their dioxin/furan effluent limit requirements, and there were no exceedances of vinyl chloride monomer emissions at the two regulated plants.

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

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. Related provisions are also covered such as “whistleblower protection,” allowing an individual who is at least 18 years of age and a resident of Canada to request an investigation of an alleged offence, and reiterating the common law and the Quebec Civil Code right to seek compensation through civil action for loss or damage as a result of an alleged violation of the Act or regulations.

2.1 CEPA 1999 Environmental Registry

The Act requires the establishment of an Environmental Registry to facilitate public access to information relating to the Act, such as proposed administrative and equivalency agreements, regulations, and Ministerial notices.

Since the launch of the Environmental Registry on March 31, 2000, ongoing efforts have been made to increase its reliability and user friendliness. The database structure was updated to a more robust operating system to accommodate growth and facilitate use, and the search function was refined. The content and structure of the Registry continue to evolve as new documents are added and improvements are identified and implemented. Registry users are invited, on an ongoing basis, to comment and make suggestions.

To date, statistics indicate that the information found on the Registry is used not only by the public, but by the department itself. In its second year of operation, the Registry has seen a twofold increase in site usage; there were twice as many users (approximately 160 000) and double the number of hits (approximately 6.5 million). At the end of March 2002, there were almost 15 000 visitors per month, averaging 480 hits per day.

The success of the Registry is the result of a team effort involving staff across Environment Canada and Health Canada. Since the launch, a network of headquarters and regional contacts has alerted the Registry office to relevant documents and public participation opportunities. This support has significantly increased the efficiency and timeliness of the information-gathering process.

www.ec.gc.ca/CEPARRegistry/

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

3.1 Monitoring Environmental Quality

Part 3 of CEPA 1999 sets out requirements to establish, operate, and maintain an environmental monitoring system. Refer to the CEPA 1999 Environmental Registry for more information on monitoring activities.

www.ec.gc.ca/CEPARRegistry/SandT/Monitoring.cfm

National Air Pollution Surveillance Network (NAPS)

Established in 1969, the NAPS is a joint federal, provincial, territorial, and municipal air monitoring network. In 2001–02, over \$3 million dollars was spent upgrading the network, primarily to meet the needs for monitoring and reporting on implementing the Canada-wide Standards for particulate matter (PM) and ozone.

Air quality data was collected, validated, and archived in the NAPS database for criteria pollutants, including sulphur dioxide, carbon monoxide, nitrogen dioxide, ozone, and total suspended particulate matter. Data were also collected on other pollutants, including particulate matter with aerodynamic diameter less than 10 microns (PM₁₀) and less than 2.5 microns (PM_{2.5}), particulate lead, particulate sulphate, nitric oxide, over 200 organic compounds, and over 70 metals and ions. The 2000 NAPS annual data report was completed and included data for the first time from volatile organic (VOC) samplers in support of the air toxics program under the Clean Air Agenda.

www.etcentre.org/NAPS/index_e.html

National Water Quality Monitoring

In May 2001, CCME Ministers committed to a three-year Action Plan on water that will link existing water quality monitoring networks to ensure Canadians have access to comprehensive information. The progress achieved in 2001–02 included the development of several inventories of water quality monitoring activities across Canada, including:

- a draft federal water quality monitoring inventory;
- a draft CCME federal-provincial-territorial water quality monitoring inventory;
- a draft inventory of community-based source water quality monitoring activities across Canada; and
- a draft inventory of federal source waters used for drinking water and recreation.

A departmental workshop was held in February 2002 with Environment Canada's water quality monitoring managers on a strategic plan for water quality monitoring in Environment Canada. Over 30 representatives from each region and relevant services participated in the workshop, which included presentations on regional and national programs, gaps and priorities, and discussions of key elements of a national water quality monitoring program.

Ecological Monitoring and Assessment Network

The Ecological Monitoring and Assessment Network, managed by Environment Canada, links the many groups and individuals involved in ecological monitoring in Canada to better detect, describe, and report ecosystem changes. Essential elements include 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, non-government organizations, and volunteers.

Notable results in 2001–02 include the continuing development and implementation of a standardized set of ecosystem monitoring protocols, collaborative development of a white paper and workshop towards a single approach to metadata-based distributed data management systems, and the coordinated reporting of ecosystem status and trends.

A key component of the program is NatureWatch — a suite of community-based monitoring programs implemented in cooperation with the Canadian Nature Federation. Almost 10 000 participants contribute their observations on indicators of ecosystem health from every province and territory, creating a clearer picture of the Canadian environment.

www.eman-rese.ca

3.2 Research on the Effect of Pollution on Environmental Quality

Part 3 requires the Minister to conduct research and studies. The Minister of Health is obliged to research the effects of substances on human health. Both Ministers

are also required to conduct and report on research on hormone-disrupting substances (HDSs). The Act also allows the Minister to collaborate with others on research and sponsor or assist research studies in relation to environmental quality, pollution prevention, environmental emergencies, or the control and abatement of pollution.

Environment Canada and Health Canada scientists have published hundreds of reports, papers, book chapters, articles, and manuscripts during 2001–02. The following sections provide examples of the types of research initiatives under way and their key results in 2001–02. Refer to the CEPA 1999 Environmental Registry and the Science and Technology Web sites for more information on research activities.

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

www.ec.gc.ca/scitech/index_e.htm

Water Quality

Examples of research activities addressing water quality in 2001–02 included:

- ***Perfluoroalkyl Substances in the Arctic*** — Small lakes from the high Arctic to industrialized temperate regions were sampled and analyzed, showing a trend of increased levels of perfluoroalkyl substances from the Arctic to industrialized areas as well as an increase in the HAA (haloacetic acid) concentrations. Research indicates that these substances are in surface waters and precipitation, distributed throughout the water columns of lakes that are adjacent to areas of high population in measurable concentrations, detected in precipitation collected at remote sites indicating long-range transport, and that industrial communities significantly contribute to higher concentrations (loadings) in adjacent water bodies.

- **Threats to Water Quality Workshop** — Led by the National Water Research Institute, a group of Canadian scientists compiled a list of 15 major issues (of which several are CEPA 1999-related issues to be managed) that are posing threats to sources of drinking water and aquatic ecosystem health. The workshop report describes each of these issues and identifies critical questions to be answered as well as the challenges that researchers and governments will face in trying to resolve them.
- **Perfluoroalkyl Substances in Humans** — Analysis of blood samples drawn from a small group of Canadians showed that perfluoroalkyl substances occurred in 100% of the sample population. The similarity of the data between Canada and the United States indicated a continental-wide exposure pattern to these substances.
- **Remediation of Abandoned Mines** — The National Water Research Institute is assessing the impact from the dispersion of metals, such as cadmium, lead, and mercury, through stream discharges from abandoned mining sites in Cape Breton. Major ecosystem and human health concerns have led to a focus on discharges from abandoned mining and storage sites for coal, including priority metal sources, transport and retention mechanisms, and fate from selected areas of concern. A remediation program by the Cape Breton Development Corporation is in progress.
- **Trends in Mercury Exposure in Wild Birds** — The National Wildlife Research Centre collected data on levels of mercury in eggs of various bird species in different parts of Canada, which provide unique information on temporal and geographical trends in mercury bioavailability. In some industrialized areas, levels of mercury in eggs of birds

Major Threats to Drinking Water and Aquatic Ecosystem Health

- *Persistent organic pollutants (POPs) and mercury*
- *Endocrine disrupting substances*
- *Nutrients — nitrogen and phosphorus*
- *Aquatic acidification*
- *Ecosystem effects of genetically-modified organisms*
- *Municipal wastewater effluents*
- *Industrial point source discharges*
- *Urban runoff*
- *Landfills and waste disposal*
- *Natural sources of trace element contaminants*

have demonstrated declining trends through time that mirror declining local or regional industrial emissions of mercury. However, in some other areas remote from industrial mercury contamination, opposite trends are observed. Together, this data suggests that, although mercury exposure in wildlife from traditional local point sources has declined, wildlife in some areas remote from point-source exposure are experiencing increasing mercury exposure.

- **Solar Detoxification of Groundwater** — This project, jointly funded by Environment Canada, Natural Resources Canada, and the federal Panel on Energy Research and Development, studied the application of solar energy for the treatment of groundwater contaminated as a result of oil and gas production processes. The tests were used to develop a model to predict contaminant destruction rates.
- **Development of Rapid Methods for Measurement of Nitrification Rates** — The Wastewater Technology Centre, in collaboration with an environmental consultant, developed a simple, quick,

and inexpensive methodology to determine nitrification rates. Nitrification is a biological process that converts ammonia (one of the principal causes of toxicity in wastewater effluents) into nitrate. Rapid methods for measuring nitrification rates will assist operators to optimize the removal of ammonia by allowing them to react more quickly to changing conditions in their treatment process.

Air Quality

Examples of research results on air quality in 2001–02 included:

- ***Precursor Contributions to Fine Particulate Matter*** — In support of actions to reduce smog, the report *2001 Precursor Contributions to Ambient Fine Particulate Matter in Canada* was published. It provides new knowledge of the atmospheric chemistry, the nature of the source emissions and the role of meteorology, and the long-range transport of these substances.
- ***Inventory and Ambient Air Data on PM*** — The third year of research was completed to determine the concentration, composition, and sources of airborne particles that are rich in or composed of carbon in Canada. Participants included the Environmental Technology Centre, Meteorological Service of Canada, Natural Resources Canada, Health Canada, and the National Research Council. The project is now applying the tools developed to generate the knowledge required to evaluate possible fuel and transportation standards or codes that may be needed to meet air quality objectives for PM in Canada.
- ***Measurement of Emissions from Landfill Gas Combustion*** — Work continued on evaluating the effectiveness of landfill gas combustors (flares, engines, and boilers) for the destruction of VOCs and

the potential formation of substances such as polycyclic aromatic hydrocarbons (PAHs) and dioxins and furans, which are on the List of Toxic Substances. Other pollutants include particulate matter (PM), hydrogen chloride, hydrogen fluoride, nitrogen oxides, sulphur dioxide, and carbon monoxide. To date, testing has been completed on three engines, one boiler, and one enclosed flare. This information is used to strengthen the estimation of releases of polluting gases to the atmosphere from landfills and related operations.

Biotechnology

Examples of research results relating to biotechnology included:

- ***New Genomics and Microbiology Laboratory*** — A new genomics and microbiology laboratory has been installed in the Wastewater Technology Centre in Burlington. This laboratory enhances Environment Canada's capacity in genomics research and will be used to track pathogens in Wastewater and Biosolids.
- ***Deoxyribonucleic Acid Microarray*** — The National Water Research Institute explored the application of microarray technology on deoxyribonucleic acid, commonly known as DNA, to identify pathogen and indicator species in microbial biotechnology products subject to the *New Substances Notification Regulations*. The design and testing of a prototype DNA microarray were completed in March 2002. A progress report on the development of DNA extraction methodologies and preliminary DNA microarray results on characterizing biotechnology products is currently under preparation.
- ***New Molecular Biology Laboratory*** — A molecular biology laboratory was installed at the National Water Research

Institute in Saskatoon to expand Environment Canada's capacity to investigate the potential ecological risks posed by commercial release of genetically modified organisms in the Canadian environment.

- **Genomics Laboratory** — Health Canada established a DNA microarray laboratory to study and validate toxicogenomic approaches for the assessment of the risk posed by environmental pollutants.
- **Microbial Taxonomy** — Research and technical expertise on CEPA related biotechnology products were used to advise evaluators with Health Canada and Environment Canada on the development of criteria for the Organisation for Economic Co-operation and Development (OECD) technical guidance document for microbial taxonomy and draft documents for establishing testing protocols of new substances (organisms). The latter involved participation in a multi-expert Micro Risk Panel (Canada–United States).
- **Microbiology Analysis** — Environment Canada Laboratory Committee decided to establish the Edmonton EC Laboratory as the centre of specialization for microbiological analysis in support of the New Substances Notification Regulation.

Hormone-disrupting Substances (HDS)

Examples of research activities addressing HDSs in 2001–02 included:

- **Toxic Substances Research Initiative** — Research on Hormone-disrupting Substances (HDSs) is one of the priorities of the Toxic Substances Research Initiative, a program that is jointly managed by Environment Canada and Health Canada. Examples of research projects under way in 2001–02 included the following:
 - reproductive toxicity induced by trichloroethylene in mice and in humans;

- human daily intake and mammalian immunotoxicity and reproductive toxicity of organotin;
- impact of HDSs on amphibian health in agricultural ecosystems;
- adverse reproductive effects of exposure to dioxin-like hormone disruptors;
- effects of orchard pesticides on terrestrial and aquatic wildlife;
- the effects of HDSs on seawater adaptability, growth and survival of salmon smolts;
- HDSs in municipal sewage sludge;
- detailed hormone assessments in wild fish and characterization of responsible HDSs;
- role of thyroid hormone function in the neurotoxic effects of developmental exposure to a mixture of Persistent Organic Pollutants (POPs) found in Canadian populations; and
- effects of exposure to a mixture of dioxins, furans and PCBs on estrogen metabolism, hepatic effects and mammary tumour development.

www.hc-sc.gc.ca/ehp/ehd/tsri/index.htm

- **National Water Research Institute** — The Institute continued to develop and apply methods for screening the effects of hormone-disrupting substances on aquatic ecosystems. Examples of activities in 2001–02 included the following:
 - development of enzyme-linked immunosorbent assays for trout and carp, which will provide tools to measure estrogenic effects in a variety of fish species that are important in the Great Lakes and other parts of Canada; and
 - assessment of responses in complex environmentally relevant effluents,

such as a bleached sulphite pulp and paper mill effluent that discharges to the Saint John River in New Brunswick, and a model-scale sewage effluent plant in Sault Ste. Marie.

www.ec.gc.ca/scitech/labs/nationalwaterresearchinstitute_e.htm

- **National Wildlife Research Centre** — The Centre developed a method to measure vitellogenin in avian blood plasma. Vitellogenin, an egg yolk protein normally produced in laying females, has been used as an indicator of exposure to environmental estrogens in fish when detected in male fish blood. Vitellogenin was detected in the blood of male herring gulls from the Detroit River but not in those collected from a reference site on Lake Huron, indicating that these birds may be exposed to estrogenic contaminants in their fish-based diet.

www.ec.gc.ca/scitech/labs/nationalwildliferesearchcentre_e.htm

- **Wastewater Technology Centre** — The Wastewater Technology Centre completed a study on hormone-disrupting substances in municipal effluents. The project determined the prevalence of hormone-disrupting substances in wastewater effluents and biosolids and found that nitrifying and underloaded wastewater treatment facilities could reduce the concentration of some of these compounds. Preliminary results indicate a 97% removal of HDSs in a nitrifying wastewater treatment plant compared with an 88% removal in a conventional wastewater treatment plant.

www.ec.gc.ca/scitech/labs/wastewatertechnologycentre_e.htm

3.3 Technology Development

Examples of research into technology development in 2001–02 included:

- **Microwave-Assisted Processes (MAP™) Green Technology** — Work continued on developing energy-efficient, clean, solvent-free alternatives for chemical synthesis. Pilot-scale demonstrations continued to apply the MAP™ technology for the extraction of canola oil. One new piece of equipment was used to assess the potential of substituting liquefied butane for hexane in the extraction of oilseeds. Another was used to optimize energy application and potentially further reduce greenhouse gas emissions during the processing stage of edible oil manufacturing.
- **Treatment of Stormwater and Combined Sewer Overflow** — This project is investigating pollution control measures for urban stormwater and combined storm sewer overflows, which are a major source of wet-weather pollution to surface water. Physical and chemical treatment generally consists of solid/liquid separation and disinfection; however, fine suspended material is not easily removed, may consume oxidizing agents, or produce undesirable by-products during disinfection. Preliminary results from the pilot study in Toronto show approximately 80% removal of total suspended solids by the addition of polymers, indicating that this may be a practical and cost-effective option.
- **Treatment Processes for the Removal of Ammonia from Municipal Wastewater Discharge** — The Wastewater Technology Centre produced a guidance report entitled *Treatment Processes for the Removal of Total Ammonia Nitrogen from Municipal Wastewater Discharge* to assist municipal wastewater treatment plant managers in selecting technologies for the removal of total ammonia nitrogen.

- ***Development and Evaluation of an Enhanced Soil Flushing Technology*** — This project is developing an enhanced *in situ* soil flushing process for the simultaneous removal of organic contaminants and heavy metals. Sites with the mixed contamination represent a significant group among contaminated sites and are often associated with fuel refineries and power generation plants. The cleaning solution increases the solubility of many organic contaminants, such as polycyclic aromatic hydrocarbons and solvents, making them easily removed from the soil. The cleaning agents are non-toxic, very inexpensive, and readily available.
- ***Heavy Oil and Orimulsion® Pumping*** — This project, funded jointly by Environment Canada and the Canadian Coast Guard, evaluated methods of pumping heavy oil once it has been collected in water in a spill situation. The testing occurred in January through February of 2002 using a modified oil spill skimmer pump. The results of the testing indicate that heavy oil or bitumen, such as recovered Orimulsion®, can be effectively pumped using an innovative pumping technique. Previous tests using conventional pumping equipment failed to move recovered Orimulsion®.

3.4 Objectives, Guidelines, and Codes of Practice

The Act requires that the Minister of the Environment issue objectives, guidelines, and codes of practice for preserving environmental quality of the environment. The Act also requires the Minister of Health to issue objectives, guidelines, and codes of practice with respect to the elements of the environment that may affect the life and health of the people of Canada.

Environmental Quality Objectives

Environment Canada has made progress in developing environmental quality objectives as performance measures for the aquatic environment. Development of an environmental quality objective framework is under way that will combine substance-specific Canadian Environmental Quality Guidelines, or other measures, with biological effects monitoring to give an integrated measure of the health of the aquatic receiving environment. This framework will assist federal risk managers, the public, and the regulated community in assessing progress towards improving and sustaining environmental quality.

Environment Canada, in conjunction with Health Canada, is addressing the issue of source water protection. This includes evaluating the use of Environmental Quality Objectives as a means for assessing public health risks from waters used for drinking water sources.

Environmental Quality Guidelines

In cooperation with the CCME, Environment Canada participates in the development of Canadian Environmental Quality Guidelines. These guidelines are widely used across federal, provincial, and territorial governments, and in over 45 countries, to assess the status and trends of environmental contamination in water bodies and to manage toxic substance risks in the environment. Guidelines are developed for all media (water, sediment, soil, and tissue) and resource uses, including protection of aquatic life, agricultural uses (irrigation and livestock watering), and land uses (agricultural, residential, commercial, and industrial).

Table 1 Canadian Environmental Quality Guidelines under Development in 2001–02

Guideline	Published	Work in progress
Water quality	ammonia	aluminum, mercury, nitrate, phosphorus, methyl tertiary-butyl ether, sulfolane, diisopropanolamine, inorganic fluorides* nonylphenol and its ethoxylates**
Sediment quality	dioxins and furans	nonylphenol and its ethoxylates*
Soil quality		uranium, sulfolane, diisopropanolamine, dioxins and furans**, selenium*, nonylphenol and its ethoxylates*, uranium, sulfolane, diisopropanolamine
Tissue quality	methylmercury, dioxins and furans	

* Approved in June 2002, and published in November 2002

** Approved in December 2001, and published in November 2002

In 2001–02, four new environmental quality guidelines were finalized, and sixteen others were under development for water, sediment, soil and tissue (see Table 1).

The development of a water quality index was also completed. This index is based on a suite of water quality guidelines and provides a consistent mechanism for reporting on the overall quality, or ranking, of a water body. A pilot project was also conducted in 2001–02, using nonylphenol and its ethoxylates as a test case, to examine how environmental quality guidelines can be used in the risk management of CEPA 1999 toxic substances.

www.ec.gc.ca/ceqg-rcqe

Environmental Choice Guidelines

The Environmental Choice^M Program is a collaborative effort between Environment Canada and TerraChoice Environmental Services Inc. The program is designed to support a continuing effort by Canadians to improve and maintain environmental quality by reducing the consumption of energy and materials, and by minimizing the negative impacts of pollution generated by the production, use and disposal of goods and services available to Canadians.

On December 8, 2001, Environment Canada published draft Guidelines on Renewable Low-Impact Electricity under the Environmental Choice^M Program. The draft guidelines aim to promote the use of renewable, more sustainable fuels, reduce air emissions and solid wastes, and reduce the impact on the environment from electricity-generating activities.

www.ec.gc.ca/CEPARRegistry/notices/noticetext.cfm?intNotice=151&intDocument=896

Codes of Practice

In 2001–02, three codes of practice were finalized or under way:

- ***Integrated Steel Mills and for Non-integrated Steel Mills*** — Codes of Practice for Integrated Steel Mills and for Non-integrated Steel Mills were published in December 2001. Implementation is under way.
- ***Dichloromethane-based Paint Strippers*** — Consultations were held on the development of a code of practice for the safe handling, use and storage of dichloromethane-based paint strippers in commercial furniture refinishing and other stripping applications.
www.ec.gc.ca/nopp/DOCS/consult/dcm/en/letter.cfm

- **Base Metal Smelters and Refineries** — A draft Code of Practice for Base Metal Smelters and Refineries was developed and discussed at a national workshop on the environmental performance of the base metal smelting sector on March 7–8, 2002.
www.ec.gc.ca/CEPARRegistry/guidelines/codes.cfm
- **Wood Preservation** — Code of Practice encompassing best design and operating practices for wood treating facilities in Canada was published in March 1999. The requirements outlined in these codes are now being implemented by all facilities across Canada under voluntary agreements. Full compliance with the codes will be achieved by 2005. Facilities which fail to meet implementation agreements following annual reviews of progress, will be captured under the Pollution Prevention provision of CEPA 1999.
www.ec.gc.ca/sop/wood-bois/index_e.htm
- **Tracking Key Environmental Issues** covers trends related to Environment Canada's priorities and explains where further research and data are needed.
- **Nutrients in the Canadian Environment** examines the release of nutrients in excessive amounts into the Canadian environment, the environmental and socioeconomic effects of these releases, and measures being undertaken to address the effects.
- **The State of Municipal Wastewater Effluents in Canada** highlights the status and trends of the release of municipal wastewater effluents in Canada, their effects on the environment and the health of Canadians, and actions being undertaken.
- **State of the Great Lakes 2001** is a joint effort of Environment Canada and the U.S. Environmental Protection Agency under the Great Lakes Water Quality Agreement.
- **The Vision for Federal State of the Environment Reporting in Canada** is a brochure that highlights the process for State of the Environment reporting by federal departments as part of their research and information responsibilities.

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

3.5 Reporting

The Act requires that the Minister publish a periodic report on the state of the Canadian environment and establish and publish a national inventory of releases of pollutants.

State of the Environment Reports

Periodic state of the environment reporting is done as part of the Vision for Federal State of Environment Reporting in Canada under the five natural resource departments. Environment Canada contributes reports as well as coordination and support for this work. Indicators, reports, data, and tools are housed or referenced through the State of Canada's Environment Infobase.

In 2001–02, four national State of the Environment reports and a brochure were released:

Environmental Indicator Reports

Environmental indicators are statistics or parameters that, tracked over time, provide information on trends in environmental changes, stresses causing them, how the ecosystem and its components are responding to these changes, and societal responses to prevent, reduce, or ameliorate these stresses. In 2001–02, Environment Canada released two indicator reports:

- **Urban Water Indicators: Municipal Water Use and Wastewater Treatment** examines trends in daily municipal water use in Canada, metered residential water use,

and the municipal population served by various levels of wastewater treatment.

- *Georgia Basin–Puget Sound Ecosystem Indicators Report*, prepared by Environment Canada, British Columbia, the United States, and the Puget Sound Water Quality Action Team, reports on the shared ecosystem of Georgia Basin/Puget Sound.
www.ec.gc.ca/soer-ree/English/Indicators/default.cfm

Environment Canada also contributed national environmental indicators to Treasury Board's Canada's Performance 2001 report. The indicators covered air quality, water quality, biodiversity, and toxic substances in the environment.

www.tbs-sct.gc.ca/report/govrev/01/cp-rc_e.html

Indicator Tools

In March 2002, Environment Canada hosted a workshop on the evolution, applications, and possible challenge of environmental indices. It attracted an international panel of experts in index development. The results of the workshop will help in the development of indicators by Environment Canada.

During 2001–02, a prototype Internet version of the Sustainability Community Indicators package was developed for testing by the Federation of Canadian Municipalities and Canada Mortgage and Housing Corporation. It replaces the software package released in June 2000. The program helps communities develop indicators, monitor their progress towards sustainable development, and facilitate the exchange of indicator-related information.

www.ec.gc.ca/scip-pidd/English/scip_intro.cfm

National Pollutant Release Inventory (NPRI)

The NPRI is the only legislated, nationwide, publicly accessible inventory of its type in Canada. It provides Canadians with information on key pollutants being released to the environment from facilities located in their communities. It tracks on-site releases of pollutants to air, water, and land; off-site transfers in waste; and off-site transfers for recovery, reuse, recycling, and energy recovery. The data are used in conducting research, formulating environmental objectives and codes of practice, issuing guidelines, tracking progress in the management of toxic substances, and reporting on the state of the environment. Canadians can search for pollutants in their community by typing in the first three digits of their postal code.

In December 2001, Environment Canada published new NPRI reporting requirements for the 2002 reporting year, which include the addition of air pollutants that contribute to smog and other forms of air pollution. These pollutants, known as criteria air contaminants, include sulphur oxides, nitrogen oxides, volatile organic compounds, particulate matter, and carbon monoxide. The annual reporting of emissions of criteria air contaminants will allow for comprehensive inventories of these pollutants on an annual basis rather than at the present five-year interval. The inventory will allow Canadians to track releases from both industrial and large commercial facilities, and from other sources, such as motor vehicles, residential fuel combustion, and natural sources that contribute to emissions of these pollutants. The new reporting requirements also result in reporting from more municipal wastewater facilities and lower reporting thresholds for certain heavy metals.

www.ec.gc.ca/pdb/npri/npri_home_e.cfm

4. Pollution Prevention (Part 4)

4.1 Pollution Prevention Plans

The Act allows the Minister to require any person to prepare and implement a pollution prevention (P2) plan to avoid or minimize pollution and wastes, and to reduce the overall risk to the environment or human health. The Minister may also require pollution prevention plans from Canadian sources of international air and water pollution for substances not on the List of Toxic Substances, with the approval of the Governor in Council, and if the government responsible for the area in which the pollution source is located cannot or will not take action.

Initial work to use pollution prevention planning during 2001–02 occurred in the following areas:

- **Acrylonitrile** — In March 2002, Environment Canada completed a risk management strategy for acrylonitrile, a toxic substance under CEPA 1999, that is used in the manufacture of synthetic rubber. The strategy proposed P2 planning to reduce releases from synthetic rubber manufacturing facilities, the largest source of emission source of the substance.
www.ec.gc.ca/nopp/DOCS/consult/acn-gaz1/en/index.cfm
- **Dichloromethane** — In July 2001, Environment Canada held an information session to inform stakeholders of proposed P2 planning to reduce releases of dichloromethane, a toxic substance under CEPA 1999, from five targeted industrial sectors. The target is a combined 85% reduction in emissions from these sectors by 2007. The sectors include aircraft paint

What Is Pollution Prevention?

Pollution prevention is the use of processes, practices, materials, products, or energy that avoid or minimize the creation of pollutants and waste and reduce overall risk to human health or the environment. It represents a shift in the way we do business, emphasizing prevention instead of clean-up.

stripping, flexible polyurethane foam blowing, pharmaceutical and chemical intermediates, adhesive formulations, and industrial cleaning.

www.ec.gc.ca/nopp/DOCS/consult/dcm-gaz1/en/index.cfm

- **Nonylphenol and its ethoxylates** — In 2001–02, Environment Canada initiated development on the use of P2 plans for textile mill effluents and nonylphenol and its ethoxylates, both toxic substances under CEPA 1999. The objective is a 97% reduction in use from the textile sector.
www.ec.gc.ca/NOPP/P2P/EN/P2notices.cfm

4.2 Pollution Prevention Programs

CCME Pollution Prevention Awards

The Act allows the Minister to establish programs that publicly recognize significant achievements in the area of pollution prevention. Rather than establishing a separate program, Environment Canada is participating in the CCME Pollution Prevention Awards Program, which recognizes organizations that have shown leadership and innovation in pollution

prevention — the use of processes, practices, materials, products, or energy that avoid or minimize the creation of pollutants and waste at the source. There were six award winners in 2001:

- ***Dana Canada (Spicer Driveshaft Division) (Overall Efforts for a Medium-sized Business)*** — The Spicer Driveshaft Division is responsible for the design, production, assembly, and application of automotive driveshafts and related components and services. A process improvement approach led to reductions in nitrogen oxide and other contaminant emissions by 60%.
- ***IBM Canada (Bromont Plant) (Overall Efforts for a Large Business)*** — IBM Canada developed a no-clean flux process that eliminated the need for perchloroethylene parts cleaning. This initiative eliminated the need for chemical solvent cleaning and led to a 20% reduction in manufacturing cycle time and annual savings of \$1.5 million. The plant also eliminated cyanide hazardous waste, reused energy, reduced water consumption, and minimized chemical treatment requirements.
- ***Cambridge Memorial Hospital (Overall Efforts for an Institution, Organization, or Group)*** — This health care facility has developed a comprehensive Environmental Management System and was the first hospital in North America to be certified as ISO 14001 compliant. The hospital has had a 20% reduction in biomedical wastes in each of two years since certification and has implemented an Integrated Pest Management Program. It also initiated a mercury-free medicine campaign to phase out mercury-containing products and eliminate releases of mercury to the environment.
- ***Calgary Transit (Pollution Prevention Innovations)*** — The “Ride the Wind” project is the first wind-powered light

rail transit system in North America.

The entire fleet of 100 cars will be driven by wind-generated power for the next 10 years. This project will avoid the generation of 26 000 tonnes of carbon dioxide annually and will significantly reduce other air pollutants.

- ***Dana Canada (Thorold Frame Plant) (Co-winner for Greenhouse Gas Reductions)*** — The facility is responsible for manufacturing automotive components and assemblies for light vehicle structures. Reformulation of a draw compound and parts washing soap has resulted in reduction in employee skin irritation, water consumption, and wastewater treatment. There were annual savings of more than \$20 000 in energy costs and 28% reduction in greenhouse gas emissions.
- ***Coquitlam School District 43 (Co-winner for Greenhouse Gas Reductions)*** — The School District 43 consists of 75 schools, representing 3.7 million square feet and serving the needs of 32 000 students. The district has reduced energy consumption per unit area by almost 12.9% and emissions per unit by 13.6%. Absolute reductions in greenhouse gas emissions of 5.7% have been achieved.

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

Accelerated Reduction/Elimination of Toxics

The voluntary Accelerated Reduction/Elimination of Toxics (ARET) Program, which ran from 1995 to 2000, was a voluntary, non-regulatory program that targeted 117 toxic substances, including the virtual elimination of 30 substances that persist in the environment and may accumulate in living organisms. Participating facilities (318 in total) reported final calendar year results in July 2001. The results indicate that, as a whole, ARET participants reported a

combined reduction in releases of all ARET substances, totalling 27 825 tonnes.

In 2001–02, work continued on the development of the ARET 2 Program, which will incorporate a new program design and improvements over the initial ARET. It addresses the recommendations of the Commissioner for Environment and Sustainable Development to develop performance criteria and also incorporates the principles and criteria contained in Environment Canada's Policy Framework for Environmental Performance Agreements.

www.ec.gc.ca/aret/

Extended Producer Responsibility

Extended Producer Responsibility (EPR) addresses what many regard as the weakest link in the product responsibility chain — the final disposal of products after their sale and use by consumers. Under EPR, the responsibility for post-consumer products is extended to the producer of the product — a responsibility that has been traditionally held by municipalities and taxpayers. In March 2001, Environment Canada launched the Extended Producer Responsibility and Stewardship Web site. The Web site includes an inventory of national, regional, and provincial initiatives that integrate these concepts in waste diversion programs for post-consumer packaging materials and products.

www.ec.gc.ca/epr/

Publications released in 2001–02 include *A Guidance Manual for Establishing, Maintaining and Improving Producer Responsibility Organizations (PROs) in Canada, and Assessing When and How to Implement Extended Producer Responsibility*. Examples of projects undertaken by Environment Canada's regional offices in 2001–02 include:

- ***Chlorofluorocarbon (CFC) Recovery and Destruction Program*** — Environment Canada negotiated a national industry-led CFC recovery and destruction program with the refrigerants industry. Industry began implementing levies on refrigerant sales in February 2001, and began collecting CFCs from commercial stationary heating, refrigeration, and air conditioning equipment in January 2002.
- ***Electronics Equipment Recovery Program*** — Environment Canada worked closely with the electronics industry, other federal government departments, provincial and territorial governments, and municipalities to negotiate a national industry-led product recovery program for end-of-life electronics equipment. Industry released a preliminary roadmap in March 2002 that documents a draft management strategy and targets Canada-wide implementation by 2007.
- ***Take-back Program for Mercury Fever Thermometers*** — Environment Canada is negotiating a national take-back program for mercury fever thermometers with pharmacies, retailers, and distributors. In a month-long pilot project, 1500 thermometers, containing an estimated 390 grams of mercury, were recovered at over 100 participating pharmacies in Ontario.

Promoting Pollution Prevention

There are numerous outreach programs across the country to educate and enable citizens, and provide pollution prevention tools to help industries to voluntarily reduce their impacts on the environment.

In 2001–02, several fact sheets were developed on pollution prevention:

- The Nuts and Bolts of P2;
- P2 Planning — The Basics;

- Canadian Pollution Prevention Information Clearinghouse; and
- Canadian P2 Success Stories.

www.ec.gc.ca/nopp/docs/fact/en/index.cfm

Environment Canada has developed regional outreach activities directed at small and medium-sized enterprises to promote pollution prevention. The aim is to reduce the use and release of toxic substances and to encourage companies to take a more systems-based approach to improving environmental performance. Examples of projects undertaken by Environment Canada's Regional Offices in 2001–02 include:

- ***EcoDesign Innovation Pilot Program*** — The Pacific and Yukon Region launched the EcoDesign Innovation pilot program to help small and medium-sized enterprises find ways to become more competitive through process efficiency. Eight companies participated in the pilot, which provided matching funds to pay for a qualified consultant. The program will reduce solid waste by 142 tonnes, natural gas use by 8525 gigajoules, electricity use by 225 900 kilowatt-hours, water use by 56 712 cubic metres, wastewater releases by 56 712 cubic metres, hazardous materials by 13 400 cubic metres, and greenhouse gas emissions by 480 tonnes.
- ***P2 and Remote Resource Extraction*** — The Prairie and Northern Region is developing P2 expertise, resources, tools, and materials for the oil and gas sectors in the remote and ecologically fragile areas of the Northwest Territories and Nunavut. A background report identifying the environmental impacts and P2 opportunities was updated and distributed. Presentations were given on opportunities to implement P2 for the oil and gas industry. A stakeholder meeting was also held to present and

Pollution Prevention Information Clearinghouse

The Canadian Pollution Prevention Information Clearinghouse, authorized under CEPA 1999, section 63, is a comprehensive Internet tool that links Canadians with the information they need to practice or support pollution prevention. The Clearinghouse provides access to a variety of pollution prevention documents, such as technical reports, guides, regulations, training materials, and success stories. The Web site has been enhanced to reflect the growing interest in pollution prevention, with new sections on CEPA 1999, funding, and planning. It now includes over 1300 pollution prevention references classified under 40 different industrial sectors.

www.ec.gc.ca/cppic

discuss environmental concerns relating to drilling fluid management for northern oil and gas development.

- ***Regional Corporate Smog Action Plan*** — Environment Canada, in collaboration with Health Canada and Public Works Canada, is reducing emissions of smog precursors from its operations through the Corporate Smog Action Plan. In 2001, the regional plan was piloted at Ontario Region's Downsview facility. Staff were notified approximately 20 times of smog advisories during 2001–02. Based on preliminary results of questionnaires, 58% of respondents used alternate modes of transportation such as carpooling; 72% avoided using small gas engines such as lawnmowers and leaf blowers; 59% suspended use of solvents and pesticides; and 27% avoided refuelling their cars between 8 a.m. and 8 p.m. on smog days. These actions resulted in a reduction of approximately 5800 kilograms of pollutants. The program will be extended throughout southern Ontario. **www.on.ec.gc.ca/pollution/fpd/csap/intro-e.html**

- **Mercury Recovery Program** — Ontario Region conducted a pilot project to demonstrate the feasibility of recovering mercury from appliances going to waste disposal. During the pilot project in Niagara Falls, 1314 appliances, such as chests freezer, washing machines, some gas appliances, were collected, of which 9% contained mercury switches. An estimated 14 765 tonnes of white goods are collected in Ontario each year, which potentially represents 147.6 kilograms of mercury that could be recovered. The success of this project has led other municipalities in Canada and the United States to implement mercury switch/sensor recovery procedures.
- **EnviroClub** — In 2001–02, two EnviroClub events took place in Quebec (Saguenay Lac-St-Jean 2000 and Centre du Québec). The EnviroClub encourages small and medium-sized companies to take leadership in implementing pollution prevention and eco-efficiency initiatives. So far, participating companies have reduced VOC emissions by 94.3 tons per year, hazardous wastes by 508 tons per year, and use of petroleum products by 1.3 million litres. lavoieverte.qc.ec.gc.ca/dpe/Anglais/dpe_main_en.asp?prev_enviroclub
- **EnviroClub for Federal Facilities** — Launched by the Quebec Region in 2001, this project will help representatives from federal facilities, who are involved with environment management or operational management, to carry out pollution prevention projects within their organizations. The project includes training and awareness in pollution prevention, facility visits to identify pollution prevention opportunities, and implementation and follow-up with each partner. In 2001–02, six workshops were given and three pollution prevention projects were implemented.
- **Mercury Use Pattern Survey** — Working with the province of Nova Scotia, the Atlantic Region conducted a mercury use pattern survey and sampled the wastewater from 17 hospitals. Despite efforts by some facilities to reduce mercury use wastewater concentrations of mercury remain high. This may be due to residual mercury collected in plumbing systems. Work is currently under way to track mercury through hospital plumbing systems and to identify specific P2 opportunities at two provincial hospitals.
- **Environmental Technology Verification Program** — The program promotes the marketability and credibility of Canada's environment industry by providing validation and independent verification of performance claims. The program fosters innovation and provides industries with the tools to protect the environment and promote pollution prevention. Since its inception in 1997, 39 certificates have been issued under the program. Five certificates were awarded during 2001–02.

5. Controlling Toxic Substances (Part 5)

The Act provides the authority to identify, screen, and assess substances to determine if they are toxic. To be found toxic under CEPA 1999, substances must enter the environment in amounts that have or may have an immediate or long-term harmful effect on the environment or human health.

5.1 Risk Assessments of Existing Substances

There are currently about 23 000 substances manufactured in, imported into, or used in Canada on a commercial scale that have not been assessed for the risks they pose to human health or the environment. These substances are on the Domestic Substance List (DSL). The DSL distinguishes between substances that are assessed and managed under the Existing Substances Program, and those that are subject to the New Substances Program.

Existing substances are assessed in three ways. First, a screening level assessment must be conducted on all substances identified through categorization of the DSL. Second, the Ministers of Environment and Health are required to establish a Priority Substance List (PSL), which identifies substances to be assessed on a priority basis. Third, the Ministers must review the decisions of other OECD countries to ban or seriously restrict a substance for environmental or health reasons, and determine if the substance meets the definition of toxic under CEPA 1999. Canada is the only country in the world taking such a comprehensive approach to examining all substances in commerce.

Categorizing the Domestic Substances List (DSL)

The Act requires the Ministers to categorize all 23 000 substances listed on the DSL by September 2006, identifying those substances that pose the greatest potential for human exposure in Canada that are persistent, bioaccumulative, and inherently toxic to human and non-human organisms. If a substance meets these criteria, then a screening-level risk assessment is required to determine whether the substance is toxic under the Act.

Notable accomplishments in 2001–02 included the following:

- Environment Canada generated estimates and collected data on the persistence, bioaccumulation potential, and aquatic toxicity for approximately 12 000 discrete organic chemicals on the DSL. The estimates and data were made available to the public in March 2002. Work is continuing on generating and collecting data on the remaining substances.

- Environment Canada published the *Guidance for Categorizing Organic Substances on the Domestic Substances List* for public comment in spring 2002. The document describes the methodology and criteria for categorizing the approximately 12 000 organic substances on the DSL.
- Health Canada is focusing on developing and refining the approaches for identifying those substances on the DSL that pose the greatest potential for human exposure or are inherently toxic to humans. As part of that development process, a number of scientific consultations with external experts were held.
- Environment Canada drafted and consulted on criteria for determining inherent toxicity to non-human organisms. The criteria were discussed with the Technical Advisory Group, a multistakeholder group created to provide expert advice to Environment Canada on issues of a scientific and technical nature. The results of the pilot project will be used to finalize these criteria.

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

Screening-level Risk Assessments

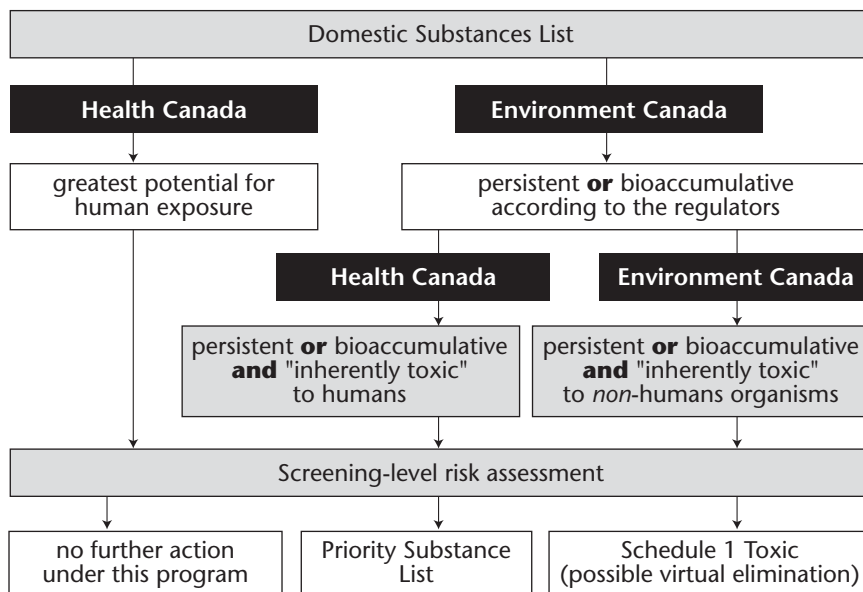
In 2001–02, Environment Canada focused on developing tools to conduct screening-level ecological risk assessments, based on lessons learned from the PSL assessments. Work continued on the pilot project involving 123 organic substances. Final results from the pilot project will be used to refine the screening-level risk assessment methodology, the criteria for moving to a more thorough assessment, and the methodology for prioritizing substance assessments.

Health Canada continued to develop and refine the approach and criteria for decision-making for conducting screening-level risk assessments on substances identified through categorization of the DSL, by focusing on screening-level risk assessments on a number of high-production-volume chemicals as well as on specific classes of substances (groups of related substances that have a similar molecular structure) such as the polybrominated diphenyl ethers.

Health Canada continued to develop a screening-level risk assessment on those perfluoroalkyl substances on the DSL that are related to perfluorooctanysulfonate. A health and environmental screening-level risk assessment on this group of compounds is expected to be released for public comment in 2002–03.

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

Categorization and Screening of Substances on the DSL



Updates for Substances on the First Priority Substances List

There were 13 substances on the first PSL (PSL1) for which there was insufficient information to conclude on "toxicity" to the environment or human health. Seven of these substances required follow-up by Environment Canada, five required follow-up by Health Canada, and one substance required follow-up by both departments. Environment Canada and Health Canada addressed the data gaps for all of these assessments in 2000–01. In addition, chlorinated paraffins, also a PSL1 substance, is being re-evaluated by both Health Canada and Environment Canada. In 2001–02, the draft follow-up reports for 15 substances went through peer review. They will be released for public comment in 2002–03.

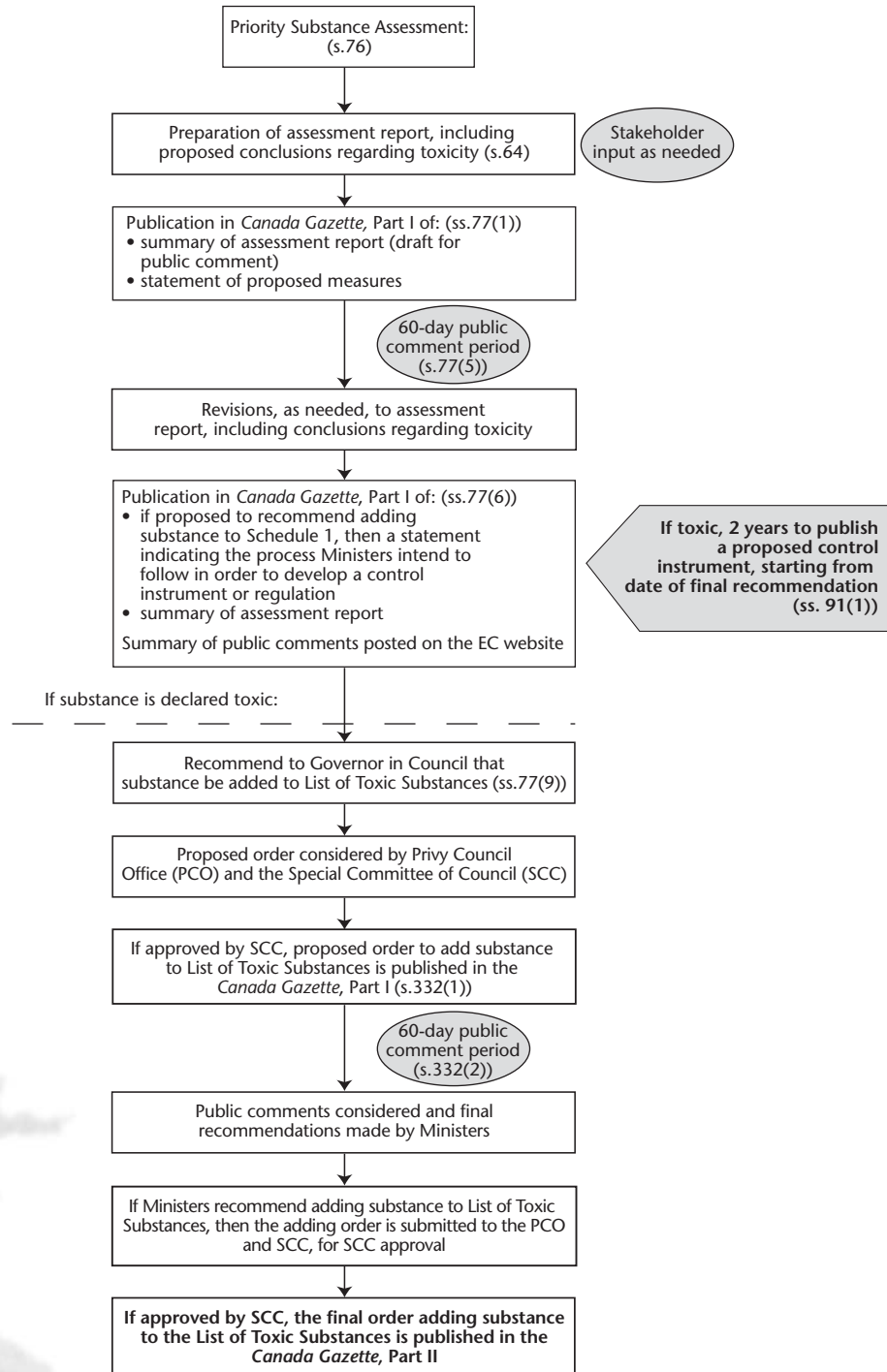
www.ec.gc.ca/substances/ese/eng/psap/PSL1_IIC.cfm

The Second Priority Substances List

Of the 25 substances on the second PSL (PSL2), published in 1995, risk assessments on 23 substances were completed by December 2000 within the five-year time frame prescribed under CEPA 1999. In 2001–02, five PSL substances were added to the List of Toxic Substances: PM₁₀, acetaldehyde, acrolein, acrylonitrile, and 1,3-butadiene. Final Ministerial decisions were also published in the *Canada Gazette* indicating that eight additional PSL substances were determined to be toxic and were proposed to be added to the List of Toxic Substances: ammonia dissolved in water, textile mill effluents, nonylphenol and its ethoxylates, inorganic chloramines, road salts, ethylene oxide, formaldehyde, and *n*-nitrosodimethylamine. Work is progressing on the final reports for the remaining substances.

Two assessments (ethylene glycol and aluminum salts) were suspended in order to collect necessary data. Health Canada has initiated work with stakeholders and

Assessment of Substances on the Priority Substance List



others to collect the necessary data that will permit completion of these assessments with respect to human health impacts.

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

Other Assessments

- **Ozone-depleting Substance** — The Parties to the Montreal Protocol, including Canada, decided to ban the production of bromochloromethane beginning January 1, 2002. They also decided to continue research to determine if *n*-propyl bromide is hazardous to the ozone layer. To support these commitments, Environment Canada issued a section 71 notice on August 12, 2000, requiring any persons engaged in an activity involving the substances to notify the Minister. This information will be used for the purpose of assessing whether these substances are toxic or are capable of becoming toxic or for the purpose of assessing whether to control these substances.
- **Trichloroethylene and Tetrachloroethylene** — In support of taking action on the releases of TCE and PERC into the environment, a notice was published on August 4, 2001, requiring companies to provide information on trichloroethylene or tetrachloroethylene used in solvent degreasing.
- **Hydrofluorocarbons and Perfluorocarbons** — Environment Canada conducted CEPA 1999 section 71 surveys on for 1999 and 2000. The surveys support the development of Canada's climate change policy. A study to evaluate the usefulness of CEPA 1999 as a vehicle for managing the reduction of these greenhouse gases was also completed. Greenhouse gases are being considered for addition to the NPRI.

www.ec.gc.ca/CEPARRegistry/notices/default.cfm

5.2 Management of Toxic Substances

The Act requires that toxic substances be managed to minimize the risks they pose to the environment and human health. The most dangerous toxic substances (those that are found to be persistent, bioaccumulative inherently toxic and primarily the result of human activity) are targeted for virtual elimination.

The Act imposes strict timelines for taking preventive or control action to manage the risks posed by toxic substances. For substances that have been determined to be toxic under section 77 (i.e., assessed as a result of the PSL, screening of the DSL, or review of another jurisdiction's decision), two years are allowed to develop a proposed instrument containing preventive or control measures, such as pollution prevention plans, regulations, or certain guidelines.

Once the proposed instrument is published, interested parties have 60 days to comment on the proposal or file a notice of objection and request the establishment of a board of review. The final instrument must be published within 18 months after the publication of the proposed instrument.

The Act also imposes requirements for the virtual elimination of releases into the environment of substances that are persistent, bioaccumulative inherently toxic and that result primarily from human activity. Section 65 further requires the Ministers of Environment and Health to specify the level of quantification (LOQ) for each substance whose discharges to the environment are targeted for virtual elimination on a Virtual Elimination List.

Table 2 Management Tools under Development during 2001–02

Management Tool	Status
<p>REGULATIONS</p> <ul style="list-style-type: none"> • <i>Amendments to the PCB Waste Export Regulations</i> • <i>Contraventions Regulations (under the federal Contraventions Act)</i> • <i>Disposal at Sea Regulations</i> • <i>Environmental Emergencies Regulations</i> • <i>Export of Substances under the Rotterdam Convention</i> • <i>Federal Halocarbon Regulations, 2002</i> • <i>Federal Hazardous Waste Regulations</i> • <i>Federal Petroleum Products and Allied Petroleum Products Storage Tank Systems Regulations</i> • <i>Interprovincial Movement of Hazardous Waste Regulations</i> • <i>New Substances Fees Regulations</i> • <i>On-Road Vehicle and Engine Emission Regulations</i> • <i>Prescribed Non-hazardous Wastes Regulations</i> • <i>Prohibition of Certain Toxic Substances Regulations, 2001 (benzidine and hexachlorobenzene)</i> • <i>Regulations Amending the Export and Import of Hazardous Wastes Regulations</i> • <i>Regulations Amending the New Substances Notification Regulations</i> • <i>Regulations Amending the Ozone Depleting Substances Regulations, 1998</i> • <i>Regulations Respecting the Form and Content of an Application for a Permit for Disposal at Sea</i> • <i>Sulphur in Diesel Fuel Regulations</i> • <i>Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations</i> 	<p>Under development Finalized October 25, 2001 Finalized August 15, 2001 Under development Under development Finalized August 28, 2002 Instructions given to Justice Canada for the drafting of the proposed regulation – February 2002 Under development Under development Proposed June 30, 2001 Proposed March 30, 2002 Consulted March 2001 Proposed September 29, 2001 Under development Finalized June 6, 2001 Finalized March 13, 2002 Finalized August 15, 2001 Proposed December 22, 2001 Proposed August 18, 2001</p>
<p>POLLUTION PREVENTION PLANS</p> <ul style="list-style-type: none"> • Acrylonitrile releases from synthetic rubber manufacturing facilities • Dichloromethane from aircraft paint stripping, flexible polyurethane foam blowing, pharmaceutical and chemical intermediates, adhesive formulations, and industrial cleaning • Textile mills effluent and nonylphenol and its ethoxylates from the wet processing textile industry • Nonylphenol and its ethoxylates in manufacture and imported products 	<p>Under development Under development Under development Under development</p>
<p>CODES OF PRACTICE</p> <ul style="list-style-type: none"> • Integrated Steel Mills and for Non-Integrated Steel Mills • Dichloromethane-based Paint Strippers • Base Metal Smelters and Refineries 	<p>Finalized December 2001 Consultations held early 2001 Proposed March 2002</p>
<p>ENVIRONMENTAL QUALITY GUIDELINES</p> <ul style="list-style-type: none"> • CCME water quality guidelines (inorganic fluorides, nonylphenol and its ethoxylates) • CCME sediment quality guidelines (nonylphenol and its ethoxylates) • CCME soil quality guidelines (dioxins and furans, selenium, nonylphenol and its ethoxylates) • CCME water quality guidelines (aluminum, mercury, nitrate, phosphorus, methyl tertiary-butyl, sulfolane, diisopropanolamine) • CCME soil quality guidelines (uranium, sulfolane, diisopropanolamine) • Environmental Choice Guidelines on Renewable Low-impact Electricity 	<p>Under development Under development Under development Under development Under development Proposed December 8, 2001</p>
<p>ENVIRONMENTAL PERFORMANCE AGREEMENTS</p> <ul style="list-style-type: none"> • Voluntary Action through the Responsible Program (Canadian Chemical Producers' Association) • Refractory Ceramic Fibres (six companies) • 1,2-Dichloroethane (Dow Chemicals) 	<p>Finalized February 2002 Finalized February 13, 2002 Finalized October 26, 2001</p>
<p>ADMINISTRATIVE AGREEMENTS</p> <ul style="list-style-type: none"> • Quebec Pulp and Paper Administrative Agreement sector • Canada-wide Standards <ul style="list-style-type: none"> • <i>Benzene (Phase II)</i> • <i>Petroleum Hydrocarbons in Soil</i> • <i>Mercury-containing Lamps</i> • <i>Mercury in Dental Amalgams</i> • <i>Dioxins and Furans from Waste Incineration and Coastal Pulp and Paper Boilers</i> • <i>Dioxins and Furans from Iron Sintering Plants and Steel Making Electric Arc Furnaces</i> 	<p>Under development Endorsed September 2001 Endorsed May 2001 Endorsed September 2001 Endorsed September 2001 Endorsed May 2001 Proposed September 2001</p>

The LOQ is the lowest concentration of a substance that can be accurately measured using sensitive but routine sampling and analytical methods. Table 2 summarizes the management tools that were under development in 2001–02. It should be noted that the tools include regulations under Part 5 of the Act as well as other parts of CEPA 1999, such as agreements under Part 2, guidelines and codes of practice under Part 3, P2 plans under Part 4, and regulations under Parts 7, 8, and 9.

Toxics Management Process

The Toxics Management Process is a new, more streamlined approach to controlling substances declared toxic under CEPA 1999. It is the result of a 2001–02 review of Environment Canada's risk management process, and is designed to fulfill the new requirements of CEPA 1999.

The Toxics Management Process deals both with substances identified for virtual elimination and substances slated for life-cycle management. Under the process, risk management strategies that identify a range of management tools, including preventive and control instruments, are developed. The risk management strategies also serve as the basis for public consultations.

The Toxics Management Process is initially being used to manage PSL2 toxic substances and is being further refined to deal with other toxic substances. Highlights of actions taken on the risk management strategies for PSL2 toxic substances slated for life-cycle management in 2001–02 include:

- **Road Salts** — A risk management strategy was developed for road salts to address the need for reducing releases of road salts to the environment while maintaining road safety. Consultations were initiated through a Working Group comprising representatives from the

Summary of Actions on PSL1 Toxic Substances

The following tools for managing PSL1 toxic substances were under development in 2001–02:

- *Proposed Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations* were published on August 18, 2001.
- *To aid in developing a regulation, a notice, published on August 4, 2001, required companies to provide information on trichloroethylene or tetrachloroethylene used in solvent degreasing.*
- *Proposed Prohibition of Certain Toxic Substances Regulations, 2001 (covering benzidine and hexachlorobenzene)* were published on September 29, 2001.
- *An Environmental Performance Agreement for Refractory Ceramic Fibres* was signed in February 2002 with six companies respecting environmental emissions monitoring, inspection, and product stewardship.
- *Codes of Practice for Integrated Steel Mills and for Non-integrated Steel Mills* were published in December 2001. Implementation is currently under way.
- *An Environmental Performance Agreement* was signed with Dow Chemical in October 2001 respecting the production and distribution of 1,2-dichloroethane.
- *Consultations were held on the development of a code of practice on dichloromethane-based paint strippers in commercial furniture refinishing and other stripping applications.*
- *A draft Code of Practice for Base Metal Smelters and Refineries* was discussed at a national workshop on the environmental performance of the base metal smelting sector in March 2002.

federal, provincial, territorial, Aboriginal, and municipal governments, environmental non-governmental organizations, and industry. Meetings were held in April, June, and September 2002.

- **Nonylphenol and its Ethoxylates (NPEs)** — A risk management strategy was developed for nonylphenol and its ethoxylates to manage releases from

four priority sectors: products containing nonylphenol and its ethoxylates, wet processing textile industry, pulp and paper industry, and municipal wastewater effluents. P2 planning under CEPA 1999 is also being proposed for textile mills, manufacturers and importers of products containing NPEs in order to manage NPEs upstream from municipal wastewater treatment plants. The proposed reduction targets are 50% after two years and 100% after five years in the use of NPEs, mainly through product reformulation.

- **Wet Processing Textile Industry** — A risk management strategy was developed for the wet processing textile industry addressing textile mill effluents and nonylphenol and its ethoxylates. Environment Canada initiated development on the use of P2 plans for this sector, with the objective of a 97% reduction in the use of nonylphenol and its ethoxylates and reducing the toxicity of textile mill effluents. Consultations were initiated in June 2000.
- **Municipal Wastewater Effluents** — These effluents are major sources of several toxic substances, including ammonia, inorganic chloramines, textile mill effluents, and NPEs. In March 2002, Environment Canada hosted a workshop to consult with Canadian experts on using P2 planning as a tool to manage wastewater effluents. The workshop helped shape Environment Canada's risk management strategy for municipal wastewater effluents and identified issues and challenges that need to be addressed. Among many suggestions, the participants advised that P2 for toxic substances must consider broader wastewater management, and that defined roles, responsibilities, cooperation and participation between all jurisdictions

Toxic Substances Management Policy

Canada continues to promote actions both domestically and internationally on the virtual elimination of releases of substances under the federal Toxic Substances Management Policy, a leading-edge policy among industrialized countries. The Policy calls for the virtual elimination of releases of toxic substances that are persistent and bioaccumulative and that are present in the environment primarily due to human activity (Track 1 substances) and life-cycle management of other toxic substances and substances of concern (Track 2 substances). Nine of the 12 Track 1 substances were active ingredients in pesticides that are now prohibited in Canada. Environment Canada continues to take action to severely limit the others under CEPA 1999 and other Acts or programs.

www.ec.gc.ca/CEPARRegistry/policies/default.cfm

are critical to a successful municipal wastewater effluent strategy.

Virtual Elimination

Under the Act, the Ministers of Environment and Health must propose virtual elimination for substances that are toxic under CEPA 1999 and persistent (take a long time to break down), bioaccumulative (collect in living organisms and end up in the food chain), and primarily the result of human activity. The ultimate objective of virtual elimination is to reduce releases to the point where they can no longer be measured (below the Level of Qualification (LOQ)).

Since CEPA 1999 came into force, there have been no final assessments of substances that would trigger its virtual elimination provisions. However, the department is preparing for this eventuality. In 2001–02, Environment Canada initiated the development of an approach to implement the virtual elimination provisions of the Act that will also be consistent with

the Toxics Substances Management Policy. It will outline the approach to be taken for substances identified for virtual elimination under CEPA 1999 and for the 12 substances identified for virtual elimination under the Toxics Substances Management Policy.

In 2001–02, work was ongoing on the development of level of qualifications for hexachlorobutadiene and chlorobenzenes. These LOQs will be finalized following consultations with stakeholders in concert with consultations on risk management strategies for these substances.

Regulations

A regulation imposes conditions on an activity related to a substance or limits the concentrations that can be used, released to the environment, or present in a product. In 2001–02, four regulations regarding toxic substances were at various stages of development:

- ***Tetrachloroethylene (Use in Dry Cleaning and Reporting Requirements) Regulations*** — The proposed regulations were published on August 18, 2001. These regulations will reduce releases of tetrachloroethylene to the environment from dry-cleaning facilities by requiring newer, more efficient dry-cleaning machines, by minimizing spills of this solvent and by managing the collection and disposal of residues and wastewater. The reporting provisions apply to persons who import or recycle tetrachloroethylene for any use, to persons who sell it to dry cleaners.
- ***Trichloroethylene and Tetrachloroethylene (Solvent Degreasing) Regulations*** — A notice was published on August 4, 2001, requiring companies to provide information on trichloroethylene or tetrachloroethylene used in solvent degreasing. Based on the information received, Environment

EPA Design Criteria

EPAs must address the following core design criteria:

- *Senior-level commitment from participants;*
- *Clear environmental objectives and measurable results;*
- *Clearly defined roles and responsibilities;*
- *Consultation with affected and interested stakeholders;*
- *Public reporting;*
- *Verification of results;*
- *Incentives and consequences; and*
- *Continual improvement.*

Canada is developing regulations that will apply to companies that used over 1000 kilograms of trichloroethylene or tetrachloroethylene in solvent degreasing in 2000. The new regulations will reduce the use of these substances in solvent degreasing by approximately 97%. Survey information also indicated that trichloroethylene and tetrachloroethylene consumption in solvent degreasing has decreased, respectively by 45% and 70% between 1995 and 2000.

- ***Prohibition of Certain Toxic Substances Regulations*** — The proposed regulations were published for consultations on September 29, 2001. The regulations feature a schedule listing toxic substances subjected to prohibition for manufacture, use, process, sale, offer for sale, or import. The proposed regulations will add two substances (benzidine and its salt) to the current schedule and set specific conditions on one substance (hexachlorobenzene).
- ***Ozone-depleting Substances Regulations, 1998*** — Environment Canada published the final *Regulations Amending the Ozone-depleting Substances Regulations, 1998* on March 13, 2002. The regulations phase out one of the last imports of CFCs into Canada, those

from metered dose inhalers. It required the cooperation and coordination of Health Canada, health groups, and the pharmaceutical industry.

www.ec.gc.ca/CEPARRegistry/regulations

Environmental Performance Agreements

An Environmental Performance Agreement (EPA) is an agreement that is negotiated among parties to achieve specified environmental results. EPAs are second-generation voluntary instruments that flow from Environment Canada's experience with Memoranda of Understanding (MOUs) with industry sectors. Negotiation and implementation of MOUs during the 1990s provided Environment Canada with valuable lessons, and led to the development of a *Policy Framework for Environmental Performance Agreements* (June 2001).

www.ec.gc.ca/epa-epe/pol/en/framewktoc.cfm

An EPA must consider specific core design criteria in the negotiating process. The Policy Framework provides assurance of transparency and accountability as well as a solid basis for negotiating agreements.

In 2001–02, three MOUs or agreements meeting the criteria outlined in the Policy Framework for Environmental Performance Agreements were signed:

- MOU with the Canadian Chemical Producers' Association — Signed by Environment Canada, Health Canada, Industry Canada, and the provinces of Alberta and Ontario, the MOU commits the parties to reduce the release of chemical substances through voluntary action under the Canadian Chemical Producers' Association's Responsible Care Program. The MOU meets all the criteria set out in Environment Canada's Policy Framework for Environmental

Performance Agreements. It includes an annex setting out specific targets and timelines to reduce releases of VOCs. A significant aspect of this MOU is the active participation of non-governmental organizations.

www.ec.gc.ca/epa-epe/ccpa-acfpc/en/index.cfm

- ***Environmental Performance Agreement Respecting the Production, and Distribution of 1,2-Dichloroethane*** — In 1997, releases from Dow Chemical accounted for approximately 79% of emissions of 1,2-dichloroethane, a toxic substance under CEPA 1999. An environmental performance agreement, signed in October 2001, commits Dow Chemical to prepare an environmental management plan, establish emission reduction goals, conduct air monitoring, and report on releases.
www.ec.gc.ca/epa-epe/1_2-DCE-DOW/
- ***Environmental Performance Agreement respecting Refractory Ceramic Fibres*** — This agreement, signed in February 2002 with six companies, applies to environmental emissions monitoring, inspection, and product stewardship. The data collected under the monitoring program will be used by health and environment specialists to better evaluate the risks associated with this substance.

Progress reports on agreements respecting environmental performance signed with Dofasco in 1997 and Algoma in 2000, show that these companies are on track in meeting the targets set under the Strategic Options Report for Steel Manufacturing.

www.ec.gc.ca/epa-epe/Algoma/en/index.cfm

www.dofasco.ca/ENVIRONMENT_AND_ENERGY/body_environ_frameset.html

International Actions

Many toxic substances that are produced, used, and released into the environment are of global concern. In order to efficiently and effectively address the assessment of risk for existing substances, a concerted international approach has been taken. Key international activities in 2001–02 included:

- ***Climate Change*** — The Government of Canada announced its intention to ratify the Kyoto Protocol to the Framework Convention on Climate Change. The Protocol requires that, in the commitment period of 2008–12, Canada reduce its aggregate releases from human sources of carbon dioxide equivalent emissions of selected greenhouse gases by 6% below 1990 levels. The greenhouse gases include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride. In 2001, the science assessment of climate change was conducted globally by the Intergovernmental Panel on Climate Change. Environment Canada conducted CEPA 1999 section 71 survey on hydrofluorocarbons and perfluorocarbons for 1999 and 2000. The surveys support the development of Canada's climate change policy. A study to evaluate the usefulness of CEPA 1999 as a vehicle for managing the reduction of these greenhouse gases was also completed. Greenhouse gases are being considered for addition to the NPRI.
- ***Children's Environmental Health*** — Environment Canada and Health Canada participated along with 70 other representatives in a Trilateral Workshop on Children's Health and the Environment in North America, hosted by the North American Commission for Environmental Cooperation (CEC), in November 2001. The workshop focused on developing an action-oriented agenda for collaborative work to better

protect the health of North American children from environmental threats. The key areas of focus for the workshop included: asthma and respiratory diseases, lead poisoning and other effects of lead exposure, effects of other toxic substances including pesticides, and environmental/health databases and indicators. (The CEC Cooperative Agenda for Children's Health and the Environment in North America was finalized in June 2002.)

www.cec.org

- ***Dioxins, Furans, and Hexachlorobenzene*** — A CEC Task Force completed the Phase 1 North American Regional Action Plan (NARAP) on Dioxins, Furans, and Hexachlorobenzene. It focuses on monitoring and assessment activities as a preliminary step to the development of risk management recommendations to be undertaken in the Phase 2 NARAP. The objective of this NARAP is to improve capacities of the parties to reduce exposure to dioxins, furans, and hexachlorobenzene, to prevent and reduce releases from human sources to the environment, and to promote continuous reduction of releases where feasible. The Phase 1 NARAP will be released for public consultation following internal approvals.
- www.cec.org
- ***Assessments of High-Production-Volume Chemicals*** — Canada is participating in a variety of Organisation for Economic Cooperation and Development (OECD) committees and task forces to develop Screening Information Data Sets for high-production-volume chemicals and to assess the hazards of these chemicals. Member countries are sponsoring initial assessments of the data sets, with Canada sponsoring five. Environment Canada and Health Canada are also part of a pilot project to review the chemical assessment reports that are being

generated under the International Council of Chemical Associations initiative to collect data and assess 1000 high-production-volume chemicals by 2004.

- **National Environmental Policy** — Environment Canada continued its role with the OECD by participating on the new Working Party on National Environmental Policy. In August 2001, Environment Canada published a *Guidance Manual for Establishing, Maintaining and Improving Producer Responsibility Organizations in Canada*, that provides decision-makers with a handbook containing the necessary tools to identify when and how EPR should be applied to various types of products and packaging. Environment Canada took a leadership role in helping to formulate OECD Council Recommendations for improving the environmental performance of green public procurement for OECD member countries.
- **Sustainable Development** — Canadian case studies were provided to the OECD on topics related to the eco-efficiency project, aimed at analyzing the relationship between firms, management systems and environmental performance, and on the sustainable construction project, whose objective was to analyze and develop policy instruments for environmentally sustainable buildings. Canada has also helped make progress on better integrating economic and environmental policies in the area of domestic and international tradable permit systems for greenhouse gas emissions.
- **Multimedia Models** — In October 2001, Canada and the United States co-hosted a workshop in Ottawa of the OECD and the United Nations Environment Programme (UNEP) on the use of multimedia models for estimating overall

environmental persistence and long-range transport in the context of assessing POPs and substances that are persistent, bioaccumulative, and toxic. The application of models is an important component of the categorization of the DSL, and this initiative was successful at focusing on the usefulness of multimedia.

5.3 Substances and Activities New to Canada

Substances that are not on the Domestic Substances List (DSL) 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.

CEPA 1999 requirements apply to all new substances unless other applicable Acts contain the same requirements for notice and assessment and are specifically identified on Schedule 2 of the Act. These provisions mean that CEPA 1999 sets the standard and acts as a safety net for new substances that are not covered under other Acts of Parliament.

Risk Assessments

During 2001–02, Environment Canada and Health Canada jointly assessed approximately 700 new substances (chemical and polymer) notifications and four notifications for transitional substances. Transitional substances are defined as substances that were manufactured in or imported into Canada between January 1987 and July 1994 (when the *New Substances Notification Regulations* came

into effect). These reviews resulted in the imposition of various kinds of controls on seven new substances and six Significant New Activities notices in 2001–02. These notices require persons who want to import, manufacture or use the substance to provide additional information to the Minister.

www.ec.gc.ca/substances/

Good Laboratory Practice

The Good Laboratory Practice (GLP) Compliance Monitoring Unit is responsible for advising scientific evaluators of new substances notifications on compliance issues related to submitted test data and for performing inspections and audits in Canadian testing facilities. Highlights of activities in 2001–02 included the following:

- collaborated on preparing the report for the OECD mutual joint visits to Canada, the Netherlands, New Zealand, and Australia;
- provided support to the public consultations on revision of the *New Substances Notification Regulations*;
- represented Canadian interests on OECD GLP Steering and Working Groups;
- participated in domestic and OECD GLP training courses;
- conducted audits for the Canadian Association of Environmental Analytical Laboratories;
- maintained the Canadian database of OECD GLP inspections; and
- provided information on compliance issues to new substances evaluators.

www.etcentre.org/divisions/spd/English/spd.html

Consultations on the New Substances Program

When the *New Substances Notification Regulations* were promulgated in 1994, a commitment was made by Environment Canada and Health Canada to review them

after the first three years of implementation. This was to enable adjustments to be made to the Regulations and to the New Substances Program if necessary. To help fulfil this commitment, a multistakeholder consultative process was established in June 1999, to work towards a common understanding of the *New Substances Notification Regulations* and the overall program and to provide consensus recommendations for their improvement. Eight meetings were held in 1999–2001. The consultations resulted in 76 consensus recommendations. The final report of the multistakeholder consultations was released in May 2002. The Government Response report and an Action Plan to address the consensus recommendations will be released in early 2003.

Regulations

In 2001–02, two regulations were being developed under section 89 of CEPA 1999:

- ***Amendments to the New Substances Notification Regulations*** — Amendments of Schedules IX and X to the *New Substances Notification Regulations* were published on June 6, 2001. Amendments to Schedule IX (type of polymers) enhanced its content readability and understanding. Amendments to Schedule X (list of reactants and their Chemical Abstracts Service registry numbers) updated the list of reactants.
- ***New Substances Fees Regulations*** — Environment Canada published the proposed *New Substances Fees Regulations* on June 30, 2001. The regulations were developed as a result of recommendations following the 1995 departmental program review. The regulations allow for a partial cost recovery scheme for the assessment and notification processes.

www.ec.gc.ca/CEPARRegistry/regulations

Scheduling of Other Acts

CEPA 1999 allows for the waiving of its notification and assessment requirements for new substances if they are met by another federal Act. This means that CEPA 1999 acts as a safety net — unless new substances fall under other Acts that are specifically listed in Schedule 2 (chemicals or polymers) or Schedule 4 (products of biotechnology), CEPA 1999 requirements will apply to all new substances.

On August 7, 2001, final orders to add three Acts and Regulations to Schedule 2, and five Acts and Regulations to Schedule 4 were published (see Table 3). The legal provisions that authorize the Schedules came into force on September 13, 2001.

Interdepartmental action plans have been initiated to develop regulations under the *Food and Drugs Act* and the *Fisheries Act* and in certain products under the *Health of Animals Act* in order to meet CEPA 1999 requirements. In spring 2002, Health Canada and Environment Canada signed an MOU whereby Health Canada will apply the *New Substances Notification Regulations* and conduct an environmental assessment of substances in products that are regulated under the *Food and Drugs Act*. During 2001–02, Health Canada assessed ten new substances in products regulated under the *Food and Drugs Act*. Other such agreements are currently being drafted with Fisheries and Oceans Canada and the Canadian Food Inspection Agency to address transgenic aquatic organisms and livestock animals, respectively.

www.ec.gc.ca/CEPARegistry/orders

International Actions

Key international activities related to new substances in 2001–02 included:

- ***Four Corners Agreement*** — In an effort to streamline the new substances notification and assessment schemes in Canada and the United States, Environment Canada is collaborating with the United States Environment Protection Agency and industry in both countries through the Four Corners Agreement, which was first piloted in 1996. This agreement involves the exchange of technical data and assessment information. During 2001–02, four substances were submitted and reviewed under this program. One of these substances was added to the Non-Domestic Substances List, while the three remaining substances were being assessed.
www.ec.gc.ca/substances/index_f.html
- ***Canada–Australia Arrangement*** — During 2001–02, Canada and Australia continued their discussions on developing a formal arrangement between the two countries and started exchanging information to gain greater understanding of their respective New Chemicals programs. The Canada–Australia Arrangement is also in keeping with the OECD Task Force on New Industrial Chemicals and is being viewed as a model for other OECD countries. (The Arrangement was signed by both parties in August 2002.)
www.oecd.org
- ***OECD Task Force on New Industrial Chemicals*** — Canada chairs the OECD Task Force on New Industrial Chemicals, established in 1999–2000. Seven work elements were developed at that time. In 2001–02, progress has been achieved in all seven work elements:
 - bilateral/multilateral arrangements;
 - standardized notification form;
 - standardized formats for assessment reports;
 - hazard assessment — promoting the exchange of common elements;

Table 3 Scheduled Acts and Regulations

Schedule 2 (Chemicals and Polymers)	Schedule 4 (Animate Products of Biotechnology)
<i>Pest Control Products Act and Pest Control Products Regulations</i>	<i>Pest Control Products Act and Pest Control Products Regulations</i>
<i>Feeds Act and Feeds Regulations</i>	<i>Feeds Act and Feeds Regulations</i>
<i>Fertilizers Act and Fertilizers Regulations</i>	<i>Fertilizers Act and Fertilizers Regulations</i>
	<i>Seeds Act and Seeds Regulations</i>
	<i>Health of Animals Act and Health of Animals Regulations (veterinary biologics)</i>

- minimal and no-notification requirements for low-concern or exempt chemicals;
 - confidential business information/proprietary information; and
 - inventories.
- **OECD Environmental Exposure Assessment Task Force, Emission Scenario Documents** — Environment Canada, in cooperation with Health Canada, actively contributes as a member of the OECD Environmental Exposure Assessment Task Force. In 2001–02, work was initiated on the development of two emission scenario documents to describe chemical uses and discharges at pulp and paper and textile mills. They will be included as part of the OECD’s effort to share available emission scenario documents and other useful information and tools.
www.oecd.org

5.4 Export of Substances

The Act allows 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, to control their export. The Act also allows the Minister to make regulations in relation to substances specified on the Export Control List.

Regulations

The *Export Control List Notification Regulations* require exporters to provide notice of the proposed exports of substances on the Export Control List and to submit annual reports. In 2001, there were twelve notifications of exports received.

www.ec.gc.ca/ceparegistry/subs_list/eclnrexlst2001.cfm

Environment Canada continued development of the *Export of Substances under the Rotterdam Convention Regulations* to permit Canada to implement the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. The regulations will ensure that chemicals and pesticides subject to the prior informed consent procedure are not exported to parties to the Convention without the importer’s prior informed consent.

www.ec.gc.ca/CEPARegistry/regulations

6. Animate Products of Biotechnology (Part 6)

The Act establishes an assessment process for new animate products of biotechnology (such as living organisms) that mirrors provisions in Part 5 respecting new substances that are chemicals. Animate products of biotechnology pose several potential risks to the environment, particularly to natural biodiversity. They may introduce toxins, interfere with naturally occurring plants and animals, and harm natural genetic diversity. Inanimate products of biotechnology will continue to be dealt with as “substances” under Part 5.

Living organisms that are not on the DSL 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.

6.1 Risk Assessments

Since the start of the program in 1997, 119 notifications have been received, and 32 have already been taken through the full assessment procedure. A significant new activity notice was issued for one of these substances. For 70 notifications, information submitted by companies was incomplete and could not be processed; 13 notifications were withdrawn by the company, and one notification was on hold. In 2001–02, seven notifications were received. One was taken through the assessment process, one was paused, two were on hold, and three were incomplete and returned to the company. No control actions were necessary

during 2001–02. As well, a number of consultations were conducted with several potential notifiers to deal with regulatory issues involved in the pre-notification of aquatic and terrestrial plant species and transgenic cows and pigs.

6.2 International Actions

Key international activities related to biotechnology in 2001–02 included:

- **Cartagena Protocol on Biosafety to the Convention on Biological Diversity** — The Cartagena Protocol on Biosafety under the Convention on Biological Diversity was negotiated in January 2000 and signed by Canada in April 2001. It aims to protect biological diversity from the potential risks posed by living modified organisms resulting from modern biotechnology. It establishes an advance informed agreement procedure for ensuring that countries are provided with the information necessary to make informed decisions on environmental release before agreeing to the import of such organisms into their territory.

Canada is considering whether to ratify the Biosafety Protocol, and the government will consult with Canadians on this specific question in September 2002. (Proposed regulations under CEPA 1999 that would enable ratification to take place, should that decision be taken, were published on August 29, 2002.)

- **OECD Harmonization of Regulatory Oversight in Biotechnology** — An OECD Working Group will ensure that environmental, human health, and safety aspects are properly evaluated while avoiding non-tariff trade barriers to products of biotechnology. Representatives of Health Canada and Environment Canada, as well as the Canadian Food Inspection Agency form Canada's delegation to the Working Group. There were two meetings of the working group in 2001–02. Results included a final Guidance Document on creating a unique identifier for transgenic plants, progress on a consensus document on the use of taxonomy in the risk assessment of microorganisms, and a consensus document on detection methods.
- **OECD Working Group on Microorganisms** — Health Canada plays a prominent role in the OECD Sub-Working Group on Micro-organisms. In 2001–02, Health Canada and the U.S. Environmental Protection Agency co-wrote a *Guidance Document on the Use of Taxonomy in the Risk Assessment of Micro-organisms: Bacteria*, which is near publication. Health Canada and the Netherlands will also co-write a Guidance Document on the *Health Effects of Microorganisms*.
www.oecd.org

7. Controlling Pollution and Managing Wastes (Part 7)

7.1 Nutrients

Nutrients are defined as substances that promote the growth of aquatic vegetation. 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.

Nutrients Science Assessment

In response to the recommendations of the House of Commons Standing Committee on the Environment and Sustainable Development in its 1988 CEPA review, the Government of Canada committed in 1995 to undertake “a comprehensive study of nutrients that enter the Canadian environment through human activities... to determine whether or not nutrients in general are causing negative environmental effects; whether only certain nutrients, rather than nutrients as a class, are problematic; and, whether those effects are limited...to water or to entire ecosystems, including wildlife.” The Nutrients Science Assessment demonstrated that excess nutrients are a key water quality issue and was publicly released on July 6, 2001 under the title, *Nutrients and their Impact on the Canadian Environment*. To date, more than 2300 copies of the report have been distributed nationally and internationally.

www.durable.gc.ca/group/nutrients/report/index_e.phtml

Five Natural Resources Departments

Nutrients Science/Policy Working Group

The five natural resources departments (5NR) include Environment Canada, Agriculture and Agri-Food Canada, Fisheries and Oceans Canada, Health Canada, and Natural Resources Canada. In March 2001, the 5NR Nutrients Science/Policy Working Group hosted a multistakeholder National Nutrients Workshop in Ottawa. Workshop proceedings were released in June 2001, and a smaller bilingual workshop executive summary was released in November 2001. First steps have been taken in identifying nutrient science and policy gaps in Canada. An inventory of federal nutrient-related programs and policy was compiled. An analysis of this inventory identified key areas where further action is needed to address the major nutrient impacts identified in the science assessment.

A National Advisory Group on Nutrients consisting of twelve interested stakeholders who attended the National Nutrients Workshop from across Canada was established in June 2001. This group, which assists the 5NR Nutrients Science/Policy Working Group in developing key recommendations, met face-to-face in April 2002.

The draft *Recommendations for a Federal Nutrient Agenda — Towards a National Nutrient Agenda* is the first step in meeting the final deliverable of the 5NR Nutrients Science/Policy Working Group and the recommendations from the National Nutrients Workshop. The draft agenda is built on a strategic framework that addresses the breadth of the nutrient issue

in Canada and outlines strategic priorities for action. It outlines key next steps that could be taken by the federal government to move the nutrient agenda forward.

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.

Canada's National Programme of Action

In November 2001, Canada released its first report on Implementing Canada's National Programme of Action for the Protection of the Marine Environment from Land-based Activities. Canada's National Programme of Action, released in 2000 by the federal government, provinces, and territories, aims to prevent marine pollution from land-based activities and protect habitat in the nearshore and coastal zones of Canada. The November 2001 progress report describes the current framework for managing the marine environment in Canada and presents more than 90 initiatives that are contributing to the goals of the program. Although it is a new program, Canada was able to share valuable lessons learned with the international community.

www.npa-pan.ca

Information Clearinghouse

To help build the capacity of Canadians and to promote Canada's National Programme of Action (it is better known internationally than it is in Canada), an Information Clearinghouse was launched in March 2001. This online tool provides comprehensive resources on marine and coastal activities, expertise relevant to the program, and links to community groups, scientists, and government. The Clearinghouse also serves as a focal point for the Secretariat, providing news and distributing documents to the public.

www.npa-pan.ca

Intergovernmental Review Meeting

Canada hosted the First Intergovernmental Review Meeting on the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) in Montréal on November 26–30, 2001. The meeting was a major international event to assess worldwide progress of the GPA's implementation since 1995 and reported to the World Summit on Sustainable Development in Johannesburg, South Africa in September 2002. Government officials from over 100 countries along with non-governmental organizations and intergovernmental organizations attended the meeting. Thirty-one Ministers from around the world participated in the Ministerial meetings.

Documents endorsed included the GPA work program for 2002–06, a guidance document for managing municipal wastewater, and recommendations for improved ocean governance and financing to achieve GPA objectives. The Ministerial meetings resulted in the "Montreal Declaration," which represents the political commitment to action to improve the state of the world's oceans.

The meeting highlighted the successes and challenges faced in implementing the GPA and observed that considerable progress has been made. However, the meeting also noted the causal relationships among poverty, human health, unsustainable consumption and production patterns, poorly managed social and economic development, and environmental degradation. It highlighted the urgent need to integrate coastal zone management with river basin management and land-use planning. It also highlighted the need to adopt innovative approaches to attract new financial resources, and that such approaches must be tailored to national and local needs. Overall, the meeting put forward the GPA as a suitable means of improving international coastal and oceans governance under ocean-related conventions.

www.gpa.unep.org

7.3 Disposal at Sea

These provisions 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 only six substances that may be considered for disposal at sea (see side-bar);
- an assessment framework for reviewing permit applications, based on the precautionary principle, that must be followed (Schedule 6); and

Disposal at Sea

Schedule 5 of CEPA 1999 stipulates that disposal at sea may be considered only for the following substances:

1. Dredged material;
2. Fish waste and other organic matter resulting from industrial fish processing operations;
3. Ships, aircraft, platforms, or other structures from which all material that can create floating debris or other marine pollution has been removed to the maximum extent possible;
4. Inert, inorganic geological matter;
5. Uncontaminated organic matter of natural origin; and
6. Bulky substances that are primarily composed of iron, steel, concrete, or other similar matter that does not have a significant adverse effect, other than a physical effect, on the sea or the seabed.

- a legal obligation for Environment Canada to monitor disposal sites.

Regulations

On August 15, 2001, Environment Canada published the final *Disposal at Sea Regulations*, which set out emergency reporting requirements, rules for assessing wastes under a National Action List, and the \$2500 permit application fee. The *Regulations Respecting Applications for Permits for Disposal at Sea*, also finalized on August 15, 2001, set out the permit application form. As well, 1999 regulations under the *Financial Administration Act* set out a monitoring fee of \$470 per 1000 cubic metres of dredged material or inert, inorganic geological matter.

www.ec.gc.ca/CEPARRegistry/regulations/

Disposal at Sea Permits

In 2001–02, 95 permits were issued in Canada for the disposal of 3.67 million tonnes of waste and other matter (see Tables 4 and 5). Most of this was dredged

Table 4 Summary of Quantities Permitted (in tonnes) and Permits Issued in Canada 2001–02

Material	Quantity Permitted*	Permits Issued	Percentage of Quantity	Percentage of Permits
Dredged Material	2 952 300	42	81	44
Geological Matter	650 060	4	18	4
Fisheries Waste	49 330	43	1	46
Vessels	14 053	5	<1	5
Organic	200	1	<1	1
Total	3 665 943	95	100	100

* Note: Dredged material and geological matter were converted to tonnes using an assumed density of 1.3 tonnes/cubic metre.

material that had been 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 moderately higher than in 2000–01 but still remain well below totals seen in the previous decade. 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 quantities disposed. One emergency permit was issued to dispose of a barge at sea.

www.ec.gc.ca/CEPARRegistry/permits/DisposalAtSea.cfm

www.ec.gc.ca/seadisposal

Monitoring Program

In addition to inspections conducted by CEPA 1999 enforcement officers and analysts during disposal operations, disposal site monitoring is carried out each year at selected sites, as required by the Act. Disposal site monitoring is used 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. Monitoring activities are conducted in accordance with national guidelines. In 2001, field monitoring was conducted at a total of 14 sites:

- Further monitoring including physical, chemical and biological was carried out at the Black Point disposal site in the Bay of Fundy, which received dredged material from the Port of Saint John. Two additional monitoring programs were carried out: one off North Head, New Brunswick, which received dredged material from a ferry terminal, and another off Prince Edward Island in the Northumberland Strait, which received dredged material from the construction of the Confederation Bridge.
- Sonar surveys were conducted at five sites in the Magdalen Islands that received dredged material from small-craft harbours.
- Five sites designated ocean disposal were surveyed in the Strait of Georgia. Sediment sampling and chemical analysis were carried out at the Sand Heads and Watts Point disposal sites. Video surveys of the seafloor using new data-recording technology were carried

Table 5 Summaries of Quantities Permitted (in tonnes) and Permits Issued by Region 2001–02

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*	783 900	8	114 400	10	1 888 900	23	165 100	1
Geological Material*	0	0	0	0	650 000	3	60	1
Fish Waste	46 730	39	2 600	4	0	0	0	0
Vessels	412	1	0	0	13 641	4	0	0
Organic	0	0	0	0	0	0	200	1
Total	831 042	48	117 000	14	2 552 541	30	165 360	3

* Note: Dredged material and geological matter were converted to tonnes using an assumed density of 1.3 tonnes/cubic metre.

out at Point Grey, Porlier Pass, and Watts Point.

- Sediment transport was studied for the single site in Hudson’s Bay that received dredged material from the port of Churchill Manitoba.

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.

International Actions

In May 2000, Canada became the 10th country to join the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter. The Protocol contains stronger environmental protection requirements, to which Canada is already compliant under CEPA 1999, including a reduced list of permissible wastes, an assessment framework for those wastes and other matter, a ban on incineration at sea, and a ban on the export of waste for disposal at sea. It is expected to come into force within the next few years.

In 2001–02, Environment Canada and the United States co-authored an international

guidance document on sampling dredged material for a disposal at sea permit assessment. As well, Canada has played a leadership role in the development and approval of a series of guidance documents to support the 1996 Protocol when it comes into force.

www.ec.gc.ca/seadisposal/index_e.html

7.4 Fuels

CEPA 1999 provides for a performance-based approach to fuel standards and allows for a range of fuel characteristics to be set to address emissions. 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” that may be used to demonstrate that a fuel conforms to specific requirements provided for by regulations.

Sulphur in Diesel Fuel Regulations

As part of the Federal Agenda on Cleaner Vehicles, Engines and Fuels, Environment Canada published the proposed *Sulphur in Diesel Fuel Regulations* on December 22, 2001. The proposed regulations will lower the maximum limit for sulphur in on-road

diesel fuel to 15 parts per million, commencing June 1, 2006, and will ensure that the level of sulphur in diesel fuel used in on-road vehicles in Canada will not impede the effective operation of advanced emission control technologies planned to be introduced on 2007 and later model year vehicles to comply with stringent new exhaust emission standards. This will meet Canada's commitments in the Canada-U.S. Air Quality Agreement to align the allowable level of sulphur in on-road diesel fuel with the United States.

www.ec.gc.ca/CEPAREgistry/regulations

Methyl Tertiary-Butyl Ether (MTBE) and Other Aliphatic Ethers

On May 26, 2001, the Minister of the Environment published a notice requesting information on the production of MTBE, its use in gasoline, its storage and records of leaks, and the costs and financial benefits associated with ceasing use of MTBE in gasoline. This information will be used to determine whether MTBE and other aliphatic ethers are capable of becoming toxic and whether to control them under CEPA 1999.

www.ec.gc.ca/CEPAREgistry/notices/default.cfm

7.5 Vehicle, Engine, and Equipment Emissions

Vehicle and engine emissions are a major contributor to Canada's air pollution problem. Provisions in CEPA 1999 include the authority to set emission standards for on-road vehicles and engines. It also includes authorities to set emission standards for vehicles and engines used in a variety of off-road applications such as lawnmowers, construction and agricultural

Vehicle Inspection Clinics

Environment Canada, together with partners all across the country, holds free clinics across Canada each summer where motorists can have check-ups on their vehicle's tailpipe emissions, tire pressures and gas cap seal. The vehicle emissions inspection involves a visual inspection to make sure critical emission control components are present, and operational and an exhaust emissions test, which measures pollution levels (hydrocarbons and carbon monoxide) in the exhaust. Over the summer of 2002, 3676 vehicles were tested at 14 clinics.

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

equipment, hand-held equipment and recreational vehicles.

Automakers MOU

On June 11, 2001, an MOU between Environment Canada, the Canadian Vehicle Manufacturers' Association, the Association of International Automobile Manufacturers of Canada, and the member companies of these associations was announced. The MOU formalizes a commitment from vehicle manufacturers to market in Canada, for model years 2001-03, the same low-emission vehicles being offered for sale in the United States under the Voluntary National Low-emission Vehicle Program.

On-Road Vehicle and Engine Emission Regulations

In support of the Federal Agenda on Cleaner Vehicles, Engines and Fuels and commitments under the Ozone Annex to the Canada-U.S. Air Quality Agreement, Environment Canada published the proposed *On-Road Vehicle and Engine Emission Regulations* on March 30, 2002. The regulations introduce more stringent national emission standards for on-road vehicles and engines. For most vehicle classes and on a per-vehicle basis, the targeted standards represent an average

reduction in the allowable levels of smog-forming emissions of about 90% relative to current regulated limits. The regulations are aligned with the U.S. standards, which are generally recognized as the most stringent national emission standards in the world. The regulations will come into effect for the 2004 vehicle model year.

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

Amendments to CEPA 1999

Amendments to CEPA 1999, clarifying the authority to regulate emissions from small marine engines, have been passed by Parliament. Those amendments were contained in Bill C-14, the *Canada Shipping Act, 2001*, which were finalized on November 1, 2001. The amendments address definitions within Part 7, Division 5 (Vehicle, Engine and Equipment Emissions) of CEPA 1999, thereby permitting the regulation of emissions from certain categories of marine engines. This will enable the department to proceed with the development of exhaust emissions regulations for recreational marine engines, such as outboards and personal watercraft.

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

7.6 International Air Pollution

Although there were no activities under these provisions (Division 6 of Part 7) of CEPA 1999 during 2001–02, this section reports on results that flow from commitments in several international agreements respecting air pollution.

Canada–U.S. Air Quality Agreement

Canada is moving forward on the commitments to align Canadian and U.S. requirements for vehicles and fuels as part of our commitment in the Ozone Annex to

the Canada–U.S. Air Quality Agreement, signed in December 2000, to reduce transboundary smog in the eastern half of the two countries. The proposed *Sulphur in Diesel Fuel Regulations*, which will reduce average levels of sulphur to 15 ppm, were published on December 22, 2001, and the proposed *On-Road Vehicle and Engine Emission Regulations* were published on March 30, 2002. Reporting commitments in the Annex are being implemented on schedule, meaning that Canadians had information, for the first time in 2002, on ozone levels within 500 kilometres of the border as reported in the Canada-U.S. 2002 Progress Report on the Air Quality Agreement. In addition, the NPRI was in the process of expanding to include the smog pollutants and a requirement for more companies to report pollutants.

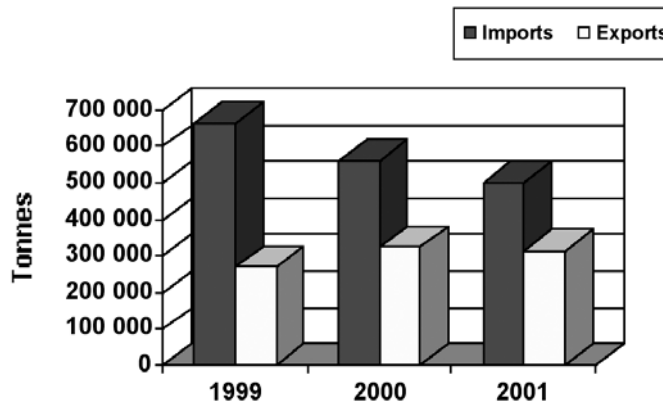
**[www.ec.gc.ca/air/ozone-
annex_e.shtml](http://www.ec.gc.ca/air/ozone-annex_e.shtml)**

Hazardous Air Pollutants

In recent years, there has been growing national and international concern about the health and environmental risks posed by hazardous air pollutants, POPs, and heavy metals. POPs and heavy metals are a significant concern for all Canadians, but especially for Canada's northern Aboriginal people as the long-range atmospheric transport of these pollutants has led to contamination of traditional foods.

POPs and heavy metals (particularly mercury) of concern to Canada come largely from foreign sources through long-range air transport, most notably from the United States, Mexico and Central America, eastern Europe and western Russia, and southern and southeastern Asia. It is therefore in Canada's interest to secure international agreements that restrict or eliminate the use of POPs in other countries.

Figure 1 Hazardous Waste and Hazardous Recyclable Materials Export and Import Statistics for Canada, 1991–2001



www.ec.gc.ca/air/introduction_e.html

www.ec.gc.ca/pops/index_e.htm

In 2001–02, there were a number of international achievements:

- Canada continued its leadership role in international control of POPs. Environment Minister Anderson led the Canadian delegation at a Diplomatic Conference in Stockholm, Sweden, and enabled Canada to become the first country to both sign and ratify the Stockholm Convention on POPs on May 23, 2001;
- The \$20 million, five-year Canada POPs Fund was established to assist developing countries to build their own capacities to deal with POPs. The fund is administered by the World Bank.
- Canada participated actively in the work of the UNEP Global Assessment of Mercury, submitting information to UNEP on the mercury issue in Canada. This assessment may lead to global

actions to control releases of mercury into the environment.

www.ec.gc.ca/mercury

- Canada developed scientific information dossiers on two substances — polychlorinated terphenyls and short-chain chlorinated paraffins — to assist expert group discussions on reassessment of existing substances and possible addition of future substances under the United Nations Economic Commission for Europe POPs Protocol.

7.7 Hazardous Waste, Hazardous Recyclable Material, and Non-hazardous Waste

These provisions provide the authority to enact regulations governing the export and import of hazardous waste (including hazardous recyclable materials). It also includes authorities to:

- introduce regulations on the import and export of prescribed non-hazardous waste for final disposal;

- require exporters of hazardous wastes destined for final disposal to submit waste reduction plans; and
- develop and implement criteria to assess the environmentally sound management of transboundary movements prior to issuing permits for import or export.

CEPA 1999 contains provisions that require the Minister to publish notification information (type of waste, company name, and country of origin or destination) for exports, imports, and transits of hazardous waste and hazardous recyclable material.

Imports and Exports of Hazardous Wastes

The *Export and Import of Hazardous Wastes Regulations*, which have been in place since 1992, provide a way of permitting and tracking the movement of hazardous wastes and hazardous recyclable material into and out of Canada, including transit shipments passing through Canadian territory. These Regulations also assist in ensuring that transboundary movements of hazardous wastes and recyclables are managed in an environmentally sound manner. During the 2001 calendar year, more than 7000 notices were processed for proposed imports, exports, and transits of hazardous wastes and hazardous recyclable materials. During the same period, more than 41 000 manifests were processed for tracking individual shipments approved under these notices.

The 2001 Canadian statistics on transboundary movement of hazardous waste show an overall decrease from previous years (see Figure 1). In 2001, total imports of hazardous wastes were 500 000 tonnes, down 11% from 560 000 tonnes in 2000. Nearly 50% of these imports were destined for recycling. There was a 6% reduction in imports destined for final disposal from the 2000 calendar year. Exports from Canada decreased from

323 000 to 313 000 tonnes between 2000 and 2001. In 2001, more than 75% of these exports were destined for recycling. Of all 2001 exports, all but 10 tonnes were sent to the United States. The balance was exported to Belgium for recycling. Table 6 compares the amounts recycled with total imports and exports.

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

Regulations

In response to the strengthened authorities under CEPA 1999 to control hazardous wastes, Environment Canada is drafting amendments to two current regulations:

- ***Export and Import of Hazardous Wastes Regulations*** — Public consultations were held in March 2001 and February 2002 on the proposed amendments to these regulations. The regulations will harmonize definitions and controls with recent domestic and international changes as well as improve regulatory efficiency. These regulations will also incorporate environmentally sound management criteria. It is anticipated that the proposed regulations will be published in 2003 following another round of stakeholder consultations.
- ***PCB Waste Export and Import Regulations*** — Stakeholder consultations were held in January and February 2001. Amendments will include parallel controls for the import of PCB wastes and some requirements for low-level PCB wastes. Work in 2001–02 continued on incorporating provisions on waste imports and environmentally sound management criteria. The proposed regulations are expected in early 2003.

The enhanced provisions of CEPA 1999 are also being used to develop new regulations concerning interprovincial movements of hazardous wastes and hazardous recyclable

Table 6 Hazardous Waste Management in Canada, 2001

	Imports			Exports			
	1999	2000	2001	1999	2000	2001	
Recycling	40%	50%	47%	Recycling	77%	73%	76%
Total Imports (Tonnes)	663 000	560 000	500 000	Total Exports (Tonnes)	268 000	323 000	314 000

materials and the import and export of non-hazardous wastes:

- **Interprovincial Movements of Hazardous Wastes and Hazardous Recyclable Materials Regulations** — These regulations will ensure that wastes are transported to and received only at authorized facilities for final disposal and recycling operations. Consultations were held on a draft version of the regulations in February 2002. It is anticipated that draft regulations will be published in early 2003.
- **Prescribed Non-hazardous Wastes Regulations** — These regulations will permit Canada to meet its international commitments under the Canada–U.S. Agreement and the Basel Convention and to implement CEPA 1999 authorities for reduction plans and environmentally sound management criteria. The department consulted with stakeholders in March 2001. Draft regulations are expected in 2004.
www.ec.gc.ca/CEPARRegistry/regulations

Environmentally Sound Management

Environment Canada and the provinces and territories are working through the CCME on the development of a national environmentally sound management regime for hazardous wastes. As part of its contribution to this effort, Environment Canada is completing a guideline that will develop Environmentally Sound Management criteria for use

in federal/provincial guidelines and regulations. In addition, in 2001–02, Environment Canada, in consultation with the provinces and territories, initiated the development of draft interim guidelines on landfilling of hazardous waste and contaminated soil. Consultations were also completed nationally on amendments to the CCME National Guidelines on Physical-Chemical-Biological Treatment of Hazardous Waste to reflect current treatment technologies. Both guidelines will also include ESM criteria.

A National Action Plan, vetted through the CCME, was developed and provides a five-year workplan to update existing hazardous waste management guidelines to include ESM criteria. The purpose of these guidelines is to develop common standards that would be incorporated into regulations in the respective jurisdictions. Environment Canada will incorporate these standards into its federal regulations controlling the management of hazardous wastes and hazardous recyclables.

International Actions

Key international activities in 2001–02 included:

- **Basel Convention** — The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal is a global convention under UNEP. Canada ratified the Convention in 1992. In 2001–02, Canada participated on the Basel

Technical and Legal Working Groups and the Joint Technical/Legal Working Group. Work continued on furthering environmentally sound management, developing a mechanism for monitoring compliance and implementation of the Convention by Parties, and establishing criteria for the destruction and elimination of POPs wastes under the related Stockholm Convention. The Technical Working Group adopted three technical guidelines on an interim basis on plastic wastes, waste lead-acid batteries, and biomedical wastes. Significant progress was made on the development of technical guidelines for ship dismantling.

www.basel.int/

- **OECD Working Group on Waste Prevention and Recycling** — In 2001–02, guidelines for recycling personal computers were developed and case studies on the application of ESM to small and medium-sized enterprises were presented. The working group conducted its third workshop on ESM in Washington in March 2002 to facilitate the development of OECD ESM guidelines that incorporate core performance elements for the operation of recycling facilities. As well as further developing the ESM Core Performance Elements, the Washington workshop recommended that a Council Decision/Recommendation on ESM be considered by member countries for possible adoption. This initiative will be vetted through member country stakeholders during the summer of 2003 in preparation for the fall 2003 OECD meeting.
- **Commission for Environmental Cooperation** — During the June 2001 meeting of CEC Ministers, Minister Anderson proposed that member countries develop a North American ESM regime that would provide input to, and complement the OECD and Basel ESM activities. The proposal was accepted and a program was launched to develop ESM within the North American context. A study was initiated that will identify the gaps in the regulatory regimes of the three countries and where harmonization is required. Projects for the enhancement of border controls are also being developed.

8. Environmental Emergencies (Part 8)

The Act provides authorities to require environmental emergency (E2) plans for substances once they have been declared toxic by the Ministers of Environment and Health. It further provides the authority 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 human health. E2 plans must cover prevention, preparedness, response, and recovery. Part 8 also provides authority 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 2001–02, the E2 Planning Risk Evaluation Framework was finalized. This framework was designed to identify which substances currently on the List of Toxic Substances (Schedule 1 of CEPA 1999) or assessed as toxic and recommended for addition to the List require E2 plans. Environment Canada met its 2001–02 commitments by using the framework to evaluate 24 substances. It was determined that 16 of those substances will require E2 plans. In addition, supplementary data gathering on the balance of the toxic substances on Schedule 1 was carried out. This involved collecting information on toxicity and other potentially hazardous properties, spill frequency and severity, and quantity in Canadian commerce, and assessing whether other existing federal and provincial requirements adequately managed the risks posed by an

uncontrolled, unplanned, or accidental release of the substances.

8.2 Environmental Emergency Regulations

Following the events of September 11, 2001, threat assessments conducted in Canada and the United States concluded that hazardous materials and the facilities that manufacture or store them, potentially pose a significant risk to the environment or human health. As part of the federal government's overall response to security issues, Environment Canada began developing environmental emergency regulations under section 200 of CEPA 1999 to reduce the risk of releases of toxic and other hazardous substances resulting from accidents or deliberate acts. The proposed regulations will require any person who owns or manages certain substances to notify the Minister on their location and

quantity and to prepare and implement E2 plans. Key deliverables in 2001–02 included:

- multistakeholder consultation in December 2001 and ongoing communication with a consultation group of approximately 80 organizations and individuals;
- agreement on a candidate list of 174 hazardous substances and accompanying thresholds which, if exceeded at an individual facility, would require an E2 plan;
- Regulatory Impact Analysis Statement (RIAS)
 - A RIAS demonstrates that the proposed regulation is preferred over other policy tools, describes the consultations that have taken place and explains the strategy to ensure compliance and enforcement;
- regulatory drafting instructions; and
- revisions to a data-gathering template and the E2 Planning Risk Evaluation Framework.

www.ec.gc.ca/CEPARRegistry/regulations

9. Government Operations, Federal and Aboriginal Land (Part 9)

The Act provides the authority to regulate federal departments, boards, agencies of the Government of Canada, federal, works and undertakings, federal land, Aboriginal land, and other persons in so far as their activities involved with 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 function under this Part related to the quality of the environment.

9.1 Federal Committee on Environmental Management Systems

Co-chaired by Environment Canada and Natural Resources Canada, the Federal Committee on Environmental Management Systems provides an interdepartmental forum for discussing and coordinating crosscutting issues related to environmental management systems. The Committee promotes sustainable development within government by providing ongoing advice as it relates to setting priorities and strategic directions for greening government.

The Committee meets twice a year and includes a number of active subcommittees and working groups on issues such as storage tanks, contaminated sites and environmental emergencies. Topics explored in 2001–02 include the *Federal Halocarbon Regulations*, pesticide use guidelines, and storage tanks. At its November 2001 meeting, members agreed to create a working group to look at the future of the Committee. This group will review the

Committee’s mandate and objectives, and explore how its initiatives complement other interdepartmental committees on government operations. The review will also include an examination of all subcommittees and working groups.

www.ec.gc.ca/emsinfo/

9.2 Regulations

In 2001–02, three regulations were being developed under the authority of Part 9 of CEPA 1999:

- ***Federal Petroleum Products and Allied Petroleum Products Storage Tank Systems Regulations*** — The proposed regulations will replace the existing *Registration of Storage Tank Systems for Petroleum Products and Allied Petroleum Products on Federal Lands and Aboriginal Lands Regulations* and will provide a more comprehensive framework to effectively prevent soil and groundwater contamination from

storage tank systems. In 2001–02, efforts concentrated on resolving technical requirements within the legal framework of CEPA 1999 and determining an appropriate level of consultation within the regulated communities, particularly the Aboriginal community. The draft regulations are expected to be published in 2003.

- ***Federal Hazardous Waste Regulations*** — Public consultations were completed on March 15, 2002 on proposed drafting instructions for the *Federal Hazardous Waste Regulations*. These regulations will address the processing, handling, storing, recycling, or disposal of hazardous waste by federal institutions, such as federal departments, Crown corporations, and persons on federal and Aboriginal lands.
- ***Federal Halocarbon Regulations*** — The *Federal Halocarbon Regulations* are being amended. The development work started in 2001 and regulations are planned to be in place for the early part of 2003. The amendments incorporate Environment Canada's commitments under the CCME National Action Plan on Ozone Depleting Substances and their Halocarbon Alternatives. Key elements include the establishment of in-use phase-out dates for chlorofluorocarbons and halons. Consultations for the amendments were completed in March 2002.

www.ec.gc.ca/ozone

10. Enforcement (Part 10)

The Act provides a wide range of responses to alleged violations, including the following:

- warnings;
- directions;
- tickets;
- prohibition orders;
- recall orders;
- detention orders for ships;
- injunctions to stop or prevent a violation;
- prosecutions;
- Environment Protection Alternative Measures; and
- Environment Protection Alternative Compliance Orders.

CEPA 1999, Part 10 also provides enforcement officers with a wide range of powers to enforce the Act, including these powers of a peace officer. Enforcement officers can:

- carry out inspection to verify compliance with the Act;
- conduct investigations of suspected violations;
- enter premises, open containers and examine contents, 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 warrant, and
- arrest offenders.

CEPA analysts can also 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. They have no authority to issue warnings, directions, tickets or orders. However, they may be called as expert witnesses for the purpose of securing an injunction or conducting prosecutions.

Part 10 also provides authorities for enforcement officers to issue Environmental Protection Compliance Orders to prevent or stop illegal activity or to require action to correct a violation. CEPA 1999 also provides for Environmental Protection Alternative Measures, which, after the laying of charges, allow for negotiated settlements that avoid the time and expense of lengthy court cases.

10.1 Enforcement Officers

Designations

In 2001–02, four new enforcement officers were designated, while three officers left the Department. Currently there are 92 enforcement officers within Environment Canada. Approximately 20 new officers are expected to be designated in 2002–03.

Training

Enforcement training needs continue to grow as new regulations are developed. Most regulations require some level of specialized training in order to be enforceable. The Department is meeting this challenge by developing new training tools, materials and courses, and by delivering a training program that better

meets the needs of adult learners. Key accomplishments in 2001–02 included:

- Eight participants from different regions attended a Pollution Enforcement Course in North Vancouver. It was intended for newly appointed pollution enforcement officers. In addition, some of these new officers, as well as other officers responsible for the enforcement of CEPA 1999 and the *Fisheries Act*, received General Enforcement Training. An Analysts Training Course was also offered in 2001–02.
- The Ontario Region, in conjunction with program officials and enforcement officers from other regions and national headquarters, developed training materials on the *New Substances Notification Regulations*. This material was used in developing a training course on the Regulations. The course was delivered on three occasions across the country.
- The Quebec Region, trained enforcement officers on the *Federal Halocarbons Regulations*.
- The Pacific and Yukon Region, in collaboration with national headquarters, developed an expert witness training video. It assists officers and scientific staff in understanding their role in an investigation and helps them to prepare for trial and to give expert testimony.

Work continues on introducing and providing training using a variety of efficient and effective learning methods. Past efforts have received positive feedback from both managers and learners.

10.2 Compliance Promotion

In 2001–02, Environment Canada's regional program officers conducted compliance promotion activities in order to help those subject to CEPA 1999 to understand and

achieve conformity with the law. Activities included providing information and education through workshops and seminars and through the development and distribution of material such as brochures, fact sheets and information packages.

The following are some examples of compliance promotion activities conducted in 2001–02:

- Pacific and Yukon Region developed a database listing over 1000 regulatees on federal works and undertakings in British Columbia and the Yukon, for the *Federal Halocarbon Regulations (FHR)*. Three training workshops on the FHR were held and over 70 regulatees attended. In addition, a halocarbon management strategy was developed and a halocarbon management binder produced for each regional Environment Canada facility.
- Pacific and Yukon Region distributed 500 information packages on the *New Substances Notification Regulations* to potential regulatees. It also provided information at three conferences/meetings and to four industry newsletters. A pilot project was initiated to develop contacts with other federal agencies to help promote compliance with the regulations.
- Pacific and Yukon Region presented information on the proposed dry-cleaning regulations at the British Columbia Fabricare Association's annual convention in Vancouver.
- Prairie and Northern Region also held presentations highlighting the proposed dry-cleaning regulations in Calgary and Edmonton. Approximately 200 members of the Alberta dry-cleaning community attended. In addition, a compliance promotion presentation was made to 40 members of the Saskatchewan dry-cleaning community.

- Prairie and Northern Region held three one-day technical workshops and two half-day information workshops on the *Federal Halocarbon Regulations*. Approximately 100 regulatees attended. Three brochures on the regulations were sent to all federal works and undertakings in the region.
- Ontario Region, working with the Ontario Ministry of the Environment, began operating a Joint Technical Assistance Centre in September 2001. Staffed by National Pollutant Release Inventory (NPRI) and provincial officials, it provides program guidance and technical support to assist reporters in complying with the NPRI and with the province's similar regulation. The help desk is part of a pilot project to provide "one window" reporting of air emissions by facilities in the province. The help desk responded to over 2100 calls in its first ten months of operation.
- Ontario Region distributed an information package to approximately 500 federal works and undertakings, including a fact sheet on the findings of a federal survey on activities related to ozone-depleting substances and a fact sheet on the *Federal Halocarbon Regulations* and its amendments.
- Ontario Region organized and delivered workshops to over 80 representatives from federal facilities and First Nations. The workshops' objective was to increase compliance with CEPA 1999 and *Fisheries Act* regulations
- Quebec Region held information sessions with several professional associations and federal departments on the *Federal Halocarbon Regulations*. An information bulletin was also sent to 300 telecommunication companies and 450 readers of 'Virage', a regional information bulletin on the environment intended for federal departments and organizations.
- Quebec Region, together with the Canada Customs and Revenue Agency, conducted five special sessions at the United States–Quebec border and the Port of Montreal to improve enforcement of the *Export and Import of Hazardous Wastes Regulations* and the *Ozone-depleting Substances Regulations*. The Quebec Region also took part in a three-day operation with the United States aimed at hazardous wastes and the trucking industry.
- Atlantic Region held an Environmental Management Workshop for over 80 participants from various federal agencies in the Atlantic provinces. This was a significant opportunity to promote the regulations applying to federal facilities and highlight the vision of Part 9 of CEPA 1999.
- Atlantic Region developed a manual for customs officers. It provides details on the various types of ozone-depleting substances and halocarbons, as well as on the containers and equipment in which they might be transported.
- Atlantic Region held a workshop and a series of meetings with municipalities on reducing the risks posed by sewage discharge. It also participated in a survey of municipal wastewater treatment plants on the American and Canadian side of the St. Croix River. Data gathered was used to develop a comparison of operating standards, emergency reporting procedures and enforcement protocol.

10.3 Inspections and Enforcement

Contraventions Regulations

On May 5, 2001, consultations were held on the proposed *Contraventions Regulations* under the federal *Contraventions Act*. The final regulations were published on October 25, 2001 in Part II of the *Canada Gazette*

and are in force. The *Contraventions Act*, administered by the Department of Justice, provides for the issuing of tickets for alleged offences as an alternative to formal court prosecution. The *Contraventions Regulations* under that Act identify the CEPA 1999 violations that are punishable by ticket. The CEPA 1999 offences that meet the *Contraventions Act* criteria for ticketing are those where there is minimal or no threat to the environment or human life or health. Examples of such offences are the failure of a regulatee to provide information or a report as required by regulations, or the failure to provide information or documents within the time limit stipulated in regulations. CEPA 1999 offences that are ticketable are subject to a fine of \$500 for every day that the alleged violation continues.

The *Contraventions Act* tickets dovetail with similar schemes in the provinces. The Department of Justice signs agreements with provinces and territories so that they allow federal tickets and fine collection for tickets to operate under their existing systems. Thus far, the provinces of Manitoba, Ontario, Quebec, Nova Scotia, New Brunswick and Prince Edward Island have signed such agreements. Therefore, in those provinces where agreements with the Department of Justice are in place, CEPA 1999 enforcement officers will be able to issue tickets for alleged violations of the Act.

Over the next fiscal year, Environment Canada enforcement officers will receive training from the Department of Justice in the issuance of ticket forms and the relevant procedures to follow under the *Contraventions Act*.

Environmental Protection Alternative Measures

In 2001–02, the first Environmental Protection Alternative Measures (EPAM) agreement was negotiated between the Attorney General of Canada and a corporation. After the laying of charges, EPAMs allow for negotiated settlements that avoid the time and expense of lengthy court cases. The agreement was negotiated after charges were laid for the illegal export of CFCs to Cuba. As a result of this agreement, the corporation agreed to contribute \$30,000 to the Environmental Damages Fund, develop a standard operating procedure for handling substances regulated under CEPA 1999, develop a training program for its employees, and publish an article in a trade magazine to alert others to environmental legislation governing ozone-depleting substances.

Inspection and Other Enforcement Activities

Every fiscal year, Environment Canada develops a national inspection plan for the regulations that it administers under CEPA 1999 and the *Fisheries Act*. The plan sets out the national and regional priorities and activities for the coming year. It also outlines the strategic and tactical approaches taken at both the national and regional levels. In developing the plan, a number of factors are taken into consideration. Examples include the capacity, number, and type of targeted populations or activities, the nature of the regulatory provisions; operational complexity; environmental significance; geographic scale; as well as the profile and compliance history of the regulated sectors.

In 2001–02, National Inspection Plan priorities were set to verify compliance with the following regulations:

- *Export and Import of Hazardous Wastes Regulations*;

Table 7 National Enforcement Statistics for 2001-02 — CEPA 1999

	Number of Inspections			Number of Investigations	Number of Prosecutions	Number of Convictions	Number of Contraventions	Directives	Number of Referral to Others	Number of Written Warnings	Number of Other Dispositions
	TOTAL	Field/Site	Administrative Verification								
CEPA 1999	4637	1628	3009	57	27	7	0	5	54	517	1037
Asbestos Mines and Mills Release	0	0	0	0	0	0	0	0	0	0	0
Benzene in Gasoline Regulations	176	55	121	0	0	0	0	0	0	1	46
CEPA – Section(s)	395	218	177	13	3	1	0	3	13	41	112
Chlor-Alkali Mercury Release	4	1	3	0	0	0	0	0	0	0	25
Chlorobiphenyls	64	61	3	4	5	1	0	1	0	1	4
Chlorofluorocarbon, 1989	2	2	0	0	0	0	0	0	0	0	0
Contaminated Fuel	6	6	0	0	0	0	0	0	0	0	0
Diesel Fuel	83	26	57	1	0	0	0	0	0	1	24
Export and Import of Hazardous Wastes	1048	503	545	10	0	0	0	0	18	44	239
Export Control List Notification	159	1	158	0	0	0	0	0	0	0	79
Federal Halocarbon Regulation	194	138	56	11	0	0	0	0	5	148	64
Federal Mobile PCB Treatment and Destruction	0	0	0	0	0	0	0	0	0	0	0
Fuels Information, No. 1	76	1	75	0	0	0	0	0	0	0	79
Gasoline	24	15	9	0	0	0	0	0	5	0	0
Glycol	6	6	0	0	0	0	0	0	0	0	3
National Pollutant Release Inventory	88	20	68	1	0	0	0	0	0	65	2
New Substances Notification	246	48	198	0	0	0	0	0	1	8	59
New Substances Notification – Biotechnology	242	62	180	1	0	0	0	0	5	4	62
Ocean Dumping, 1988/Disposal at Sea Regulations	46	46	0	4	0	0	0	0	0	3	2
Ozone-Depleting Substance Regulations, 1998	914	206	708	8	17	4	0	0	7	39	88
PCB Waste Export, 1996	165	0	165	0	0	0	0	0	0	0	101
Registration of Storage Tank Systems for Petroleum Products and Allied Petroleum Products on Federal Lands	14	4	10	0	0	0	0	0	0	4	0
Phosphorus Concentration	7	7	0	0	0	0	0	0	0	0	0
Prohibition of Certain Toxic Substances	65	0	65	0	0	0	0	0	0	0	46
Pulp and Paper Mill Defoamer and Wood Chip	92	19	73	0	0	0	0	0	0	1	10
Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans	158	23	135	0	0	0	0	1	0	2	2
Secondary Lead Smelter Release	13	12	1	0	0	0	0	0	0	0	2
Storage of PCB Materials	335	143	192	4	2	1	0	0	0	155	61
Sulphur in Gasoline Regulations	5	4	1	0	0	0	0	0	0	0	0
Vinyl Chloride Release, 1992	10	1	9	0	0	0	0	0	0	0	0

INSPECTIONS are compiled – by Regulation and by Subject – based on the Start Date of the inspection. Compliance verified on one regulation for one subject amounts to one inspection;

- one regulation for two subjects amounts to two inspections;
- two regulations for one subject amounts to two inspections.

INVESTIGATIONS are compiled by Regulation and by Suspect, based on the Start Date of the investigation.

- one suspect in contravention with one regulation amounts to one investigation;
- two suspects in contravention with one regulation amounts to two investigations;
- one suspect in contravention with two regulations amounts to two investigations.

ENFORCEMENT ACTIONS (for ex.: warnings, prosecutions etc.) are compiled at the Section level of a regulation, based on the Start Date of the activity (inspection/investigation).

- one action against one section of a regulation amounts to one action;
- two actions against two sections of a regulation amounts to two actions;
(for example, two different actions/measures can be undertaken for a violation/offence, under the Chlor-Alkali Mercury Release Regulations of CEPA:
- an enforcement officer's direction for paragraph 3(1)(a) and a warning for subsection 5(1). They would then account for two enforcement actions).

- *Ozone-depleting Substances Regulations*; and
- *New Substances Notification Regulations*.

Table 7 summarizes the enforcement activities for the fiscal year 2001-2002.

www.ec.gc.ca/CEPAREgistry/enforcement/

10.4 Prosecutions and Key Court Cases

Key prosecutions and court cases in 2000–01 included the following:

- A company was fined \$50,000 in Yorkton provincial court for charges related to the export of hazardous waste. The charges stemmed from the export of 54 drums of hazardous waste paint by-products to a facility in North Dakota. The case is currently under appeal. Another company pleaded guilty in this matter and was fined \$2,000.
- A municipality in Alberta pleaded guilty to charges related to the improper storage and disposal of PCBs on April 12, 2001. Under section 288 of CEPA 1999, the judge granted a conditional discharge on the condition that the town make a presentation to the Alberta Municipal Association on the importance of adhering to the federal PCB legislation. The judge noted the small size of the municipality (3100 people) as a mitigating factor in his decision.
- An Alberta company plead guilty to charges related to the improper handling and disposal of PCB's and was assessed a penalty of \$30,000. A significant portion of the penalty was used to develop a course on environmental management of wastes.
- An Ontario company was charged with exceeding its consumption allowance, contrary to the *Ozone-depleting Substances Regulations, 1998*. The matter is before the courts.
- A recycling company, with locations in Quebec and New Brunswick, and two of its employees have been charged with importing hazardous wastes (waste lead acid batteries) in violation of the *Export and Import of Hazardous Wastes Regulations*. The matter is before the courts.
- The Director of Operations of a Quebec company pleaded guilty to a charge of violating the CEPA (1999) by dumping waste in the ocean without a permit. The person in question was fined \$4,000.
- Two companies in Newfoundland have been charged with offering for sale and selling pressurized products (less than 2 kilograms in weight) containing hydrochlorofluorocarbons, an ozone depleting substances. This is contrary to the *Ozone-depleting Substances Regulations, 1998*. Both cases are before the court.
- A company in Newfoundland pleaded guilty to disposing of fish offal outside its designated disposal area and without the necessary permits. The company was ordered to pay a \$10,000 fine, \$9,500 of which was directed to the Environmental Damages Fund. The Fund, which Environment Canada administers, is used for environmental assessments and other activities to restore damaged areas of the environment.

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, namely deposit/refund systems and tradeable unit systems;
- requirements governing publication of various CEPA 1999 instruments in the *Canada Gazette*;
- boards of review; and
- review of the Act by Parliament every five years.

11.1 Economic Instruments

A central element of Environment Canada's environmental innovation agenda is the use of economic instruments and incentives to achieve environmental policy objectives. Over the past year, Environment Canada has worked, in some cases in collaboration with other federal departments, to explore the potential for economic instruments and incentives to help manage environmental concerns in areas such as climate change, reducing smog, and curbing releases of substances of concern. Examples of activities in 2001–02 include:

- Environment Canada began the preliminary analysis of the potential for cross-border emissions trading of air pollutants (nitrogen oxides and sulphur dioxide) in the power sector. Trading of these emissions in the United States has proven to be an efficient and cost-effective method of achieving emission reductions to address acidification and ground-level ozone air quality concerns.

- Environment Canada has also been an active participant in the work of the National Round Table on the Environment and the Economy in its Ecological Fiscal Reform project. The project has two main objectives: to conduct an in-depth exploration of the concept of ecological fiscal reform, and to focus on a few specific environmental issues with a view to developing a suite of concrete measures. Case studies under this project have considered the potential for economic instruments and incentives in the areas of conservation of agricultural landscapes, cleaner transportation, and chemical substances of concern. Based on the experience from these case studies, the Round Table has concluded that there is a role for ecological fiscal reform in Canada and that it is uniquely appropriate for the challenge of implementing sustainable development. It is now exploring the potential of economic instruments and incentives to reduce or eliminate sulphur and other contaminants in heavy fuel oil.

Acronyms

SNR MOU	Memorandum of Understanding between the five natural resources departments
ARET	Accelerated Reduction/Elimination of Toxics
CCME	Canadian Council of Ministers of the Environment
CEC	Commission for Environmental Cooperation under the North American agreement on Environmental Cooperation
CEPA 1988	<i>Canadian Environmental Protection Act, 1988</i> (repealed)
CEPA 1999	<i>Canadian Environmental Protection Act, 1999</i>
CFC	Chlorofluorocarbon
DNA	Deoxyribonucleic acid
DSL	Domestic Substances List
E2	Environmental emergency
EPA	Environmental Performance Agreement
EPAM	Environmental Protection Alternative Measures
EPCO	Environmental Protection Compliance Orders
EPR	Extended Producer Responsibility
ESM	Environmentally sound management
GLP	Good Laboratory Practice
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-based Activities
HDS	Hormone-disrupting substance
ISO	International Organization for Standardization
LOQ	Level of quantification
MOU	Memorandum of Understanding
MTBE	Methyl tertiary-butyl ether
NAC	National Advisory Committee
NAPS	National Air Pollution Surveillance
NARAP	North American Regional Action Plan
NPRI	National Pollutant Release Inventory
OECD	Organisation for Economic Co-operation and Development
P2	Pollution prevention
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PM	Particulate matter

PM _{2.5}	Particulate matter with aerodynamic diameter less than or equal to 2.5 microns
PM ₁₀	Particulate matter with aerodynamic diameter less than or equal to 10 microns
POPs	Persistent organic pollutants
ppm	Parts per million
PSL	Priority Substances List
PSL1	First Priority Substances List
PSL2	Second Priority Substances List
RIAS	Regulatory Impact Assessment Statement
UNEP	United Nations Environment Programme
VOC	Volatile organic compound



Contacts

Further information on specific CEPA-related programs can be found at the Web site addresses listed throughout this Annual Report. Further information on CEPA 1999 and related activities can be found online at:

- CEPA 1999 Environmental Registry
www.ec.gc.ca/CEPARRegistry
- Environment Canada's Green Lane™
www.ec.gc.ca and
- Health Canada's Web site
www.hc-sc.gc.ca

Departmental publications are available from the departmental library or the nearest regional library. Many current departmental publications are also available through Environment Canada's Inquiry Centre, located on the Main Floor of Place Vincent Massey, 351 St. Joseph Boulevard, Gatineau, Quebec K1A 0H3.

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

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