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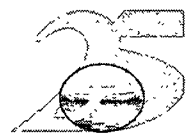
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**Canadian
Environmental
Protection
Act**



Report for the Period
April 1995 to March 1996



At the end of each fiscal year, Environment Canada publishes an annual report for Parliament on the Canadian Environmental Protection Act (CEPA). This report covers the period from April 1, 1995 to March 31, 1996.

For more information on CEPA, please contact:

The CEPA Office
Environmental Protection Service
Environment Canada
Ottawa, Ontario
K1A 0H3

Voice: (819) 953-0142
Fax: (819) 997-0449

This document is also available on the Internet at:

<http://www.ec.gc.ca/CEPA>

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Minister's Message

In accordance with section 138 of the *Canadian Environmental Protection Act* (CEPA), I am pleased to present to Parliament the report on the administration and enforcement of CEPA for the fiscal year ended March 31, 1996.

In addition to our ongoing environmental protection activities, this has been a year of introspection, of reviewing what we do and looking at how to do it better. Some major strides have been made in both endeavours, including:

- ▶ Release of the federal Toxic Substances Management Policy and the federal Pollution Prevention Strategy;
- ▶ Release of the first National Pollutants Release Inventory Report;
- ▶ Design of a computerized tracking system for transboundary movement of hazardous wastes;
- ▶ Publication in Part I of the *Canada Gazette* of the second Priority Substances List CEPA;
- ▶ Tabling of the Report of the Standing Committee on Environment and Sustainable Development respecting its review of CEPA;
- ▶ Tabling of the Government's Response to the Standing Committee's recommendations; and
- ▶ Solicitation and addressing of public input to the Government's proposal.

The coming year will see the development of a renewed and strengthened CEPA, based on our experience with its current provisions. I am confident that this revitalized strategy, which emphasizes pollution prevention and builds on partnerships with all sectors of society, will better enable CEPA to contribute to the prosperity and well-being of both the present and future generations of Canadians.

I would like to expressly thank the numerous individuals, across the country, in Environment Canada and in Health Canada, whose efforts over the past year contributed to the success of CEPA's mission to protect and preserve the environment. Their strong support and guidance is gratefully acknowledged.



Christine Stewart
Minister of the Environment

Canadian Environmental Protection Act

The Canadian Environmental Protection Act (CEPA) is "an Act respecting the protection of the environment and human life and health". CEPA includes provisions dealing with toxic substances, nutrients, the environmental effect of the operations of federal departments, boards and other entities, the protection of the environment on federal land, international air pollution, ocean dumping, environmental research, guidelines and codes of practice, as well as agreements with provinces and territories.

CEPA's comprehensive mandate covers toxic substances throughout the ecosystem and allows control at any stage of a product's life cycle from development and manufacture to transportation and ultimate disposal. An important focus is prevention - averting environmental problems before they occur. Preventive measures include strong regulations and enforcement mechanisms; non-regulatory approaches, such as environmental guidelines, codes of practice and incentives for industry; as well as the development and transfer of pollution measurement and control technologies.

Through CEPA, the federal government recognizes and encourages the shared stewardship of the environment with business, consumers and other levels of government, both nationally and internationally. Environment Canada and Health Canada jointly develop CEPA regulations and guidelines, with Environment Canada administering the *Act* on behalf of the federal government.

CEPA Review and Renewal

Section 139 of CEPA calls for a Parliamentary Review of the Act within five years of the enactment of the legislation. In June, 1993, that review was deferred by the Standing Committee on Environment until after the federal election and, on June 10, 1994, the final motion referring CEPA to the Standing Committee on Environment and Sustainable Development for review was adopted by the House of Commons.

The Standing Committee on Environment and Sustainable Development conducted an extensive review of CEPA and tabled its report on June 20, 1995. The Standing Committee's Report recommended numerous improvements in the management of toxic substances; the control of wastes, including those disposed at sea; environmental soundness of federal operations; and enforcement of the Act. It also indicated important areas for conceptual change for the future. These visionary elements included many important recommendations concerning pollution prevention, national standards and public participation. The Committee also recommended that CEPA be used to contribute to sustainable development and the adoption of guiding principles including pollution prevention, the ecosystem approach, biodiversity, the precautionary principle and user/producer responsibility.

The Government tabled its *Response to the Report of the Standing Committee* with the Clerk of the House of Commons on December 14, 1995. This Response details how the Government intends to deal with the Committee's recommendations in a renewed CEPA. It proposed numerous improvements to the Act to ensure that CEPA is forward-looking legislation contributing to sustainable development in Canada. It also proposed that pollution prevention, the ecosystem approach, biodiversity, science and the precautionary principle, user/producer responsibility, economic responsibility and intergovernmental cooperation provide the philosophical basis of the Act. Overall, it proposed to shift the emphasis of the *Act* to pollution prevention, to bring Canada into line with countries which are already reaping the economic benefits of clean, competitive, innovative industries. National standards and a broader enforcement capability were also proposed to provide all Canadians with an equal level of environmental protection. A number of measures in relation to fuels, wastes, emergencies and government operations were proposed to strengthen the manner in which they are dealt with under CEPA. The Government Response also contained proposals to provide Canadians greater access to information and an enhanced ability to influence government. As well, proposals to reformulate the toxic substances provisions included a system for categorization and screening of existing substances to identify priorities for assessment or for preventative or control action.

The Government's proposal for a renewed CEPA was made available for a 90-day public review which ended in March 1996. During that period, over 400 responses were received.

Elements for a revitalized CEPA are now being developed. Among other provisions, the principle of pollution prevention will be explicitly incorporated into the renewed statute as well as public participation rights. The Government will also further build on partnerships with all sectors of society, creatively use economic instruments and voluntary initiatives, set out clear policies, and enact good regulations. Through these strategies, the Government will give Canadians legislation that is flexible and that has the tools needed to get on with the job of environmental protection.

The Government intends to have a revised Statute before the House of Commons for consideration during the 1996-97 fiscal year.

Sharing Our Responsibility for the Environment

Environment Canada supports the principle that protection and conservation of the environment are shared responsibilities among all Canadians and by all jurisdictions. The Department continues to reaffirm the importance of public consultation in the design of its policies, in the development of its programs and in the delivery of its services. Forging partnerships is a basic way of doing business at Environment Canada.

CEPA 's Channels for Cooperative Action

CEPA provides opportunities for governments and experts in relevant disciplines to consult and to coordinate their efforts. Mechanisms for such consultation and coordination include advisory panels, the Federal-Provincial Advisory Committee and its working groups, agreements with the provinces and territories and cooperative initiatives with interested groups or individuals.

Advisory Panels

CEPA allows for the appointment of advisory panels whose members can be drawn from provincial and territorial governments, industry, labour, environmental and health organizations and other interested groups. The Expert Advisory Panel appointed by the Ministers of Environment and Health in December 1994 to advise them on CEPA's second Priority Substances List (PSL 2), submitted its recommendations for PSL 2 to the Ministers in October 1995.

Federal-Provincial Advisory Committee (FPAC)

The CEPA FPAC is composed of provincial and territorial governments as well as Environment Canada and Health Canada representatives. Committee members work cooperatively to achieve early and effective consultation on environmental protection and toxic substances management initiatives. FPAC is a forum for sharing information between levels of government for more effective protection of the environment.

In the 1995-96 fiscal year, FPAC has been involved in regular meetings and conference calls pertaining to the review of CEPA. It provided an open line of communication for members, at the various stages of development of the Government Response on a renewed CEPA, as well as informing members at each step along the critical path for CEPA's review.

FPAC has also been involved in the many proposals of the Strategic Options Process (SOP) which aims to respond effectively to environmental issues linked to substances identified as toxic under CEPA through the Priority Assessment Process. FPAC takes part in SOP consultations, ensuring that an open and transparent accountability framework is maintained.

FPAC provided provincial and territorial views on the proposed options for lead risk reduction by the Organization for Economic Cooperation and Development (OECD) member countries, in order to prepare a federal position for the February 1996 OECD Environment Ministers meeting.

FPAC also dealt with a number of other issues throughout the year, including the Interim Order to Amend the PCB Waste Export Regulations, which came into effect in November 1995; the PSL 2; Chlorinated Municipal Effluents; and the Global Programme of Action on the Protection of the Marine Environment from Land-Based Activities.

CEPA Part I: Environmental Quality

Research and Monitoring

CEPA Part I, section 7, authorizes the Minister of the Environment to establish environmental monitoring stations, collect and publish data on environmental quality in Canada, conduct research and studies on pollution control and environmental contamination, formulate pollution control plans, and publish information on the quality and the state of the Canadian environment.

In keeping with the authority found under Part I of CEPA, the mandates of the following five Environment Canada science institutes incorporate activities which are CEPA-related:

Environmental Technology Centre (ETC)

During the 1995-96 fiscal year, the ETC continued to coordinate the operations of the federal-provincial National Air Pollution Surveillance (NAPS) Network, a system which measures ambient air quality, by:

- ▶ providing technical support on network operations and quality assurance to the NAPS provincial agencies and two regional offices;
- ▶ preparing and distributing to network Quality Assurance/Quality Control (QA/QC) guidelines for the NAPS; and
- ▶ working with Health Canada and the Atmospheric Environment Service (AES) to coordinate the measurement of acid aerosols at eight Network sites.

Other initiatives undertaken by ETC during the 1995-96 reporting period include:

- ▶ provision of technical information and support to various national and international governmental and non-governmental agencies and organizations;
- ▶ maintenance, in co-operation with provinces and municipalities, of an extensive ambient air toxics sampling network;
- ▶ review and compilation of recommendations on two stack sampling reports;
- ▶ preparation of a method for monitoring carbon monoxide (CO) and nitrogen oxides (NO_x) as well as the development of a manual method for the measurement of ammonia;
- ▶ conducting emission testing for gaseous pollutants at two lime kilns with completion and distribution of reports for each facility;
- ▶ "witnessing" of compliance and performance tests at two sites and provision of an auditing device, along with technical assistance, in the witnessing of a soil remediation project;
- ▶ preparation and publication of an annual report and annual statistics on air quality and its status with respect to the national air quality objectives for the year 1993; and
- ▶ distribution within Environment Canada, as well as to provincial and municipal monitoring agencies, of *An Auditing and Witnessing Guide for CEPA Inspectors*.

The Centre also operates a vehicle emissions testing laboratory. During the 1995-96 fiscal year, the emissions testing laboratory collaborated with various Canadian and American government departments and agencies, as well as private sector entities, in the completion of a variety of projects, including the measurement of emissions from diesel engines and various alternative fuels. Research was also performed on improved methods to measure chemicals such as polyaromatic hydrocarbons (PAH₂), nitro-PAH and polychlorinated biphenyls (PCBs), and to develop and evaluate technologies to prevent and control spills of hydrocarbons and other hazardous chemicals.

In support of CEPA and related guidelines, the ETC also helped to develop regulatory Reference Methods to measure toxic substances, and implemented associated quality assurance programs. For example, the Centre:

-
- ▶ audited test data results and analyzed compliance samples;
 - ▶ licensed a company to use the Environment Canada-patented Microwave-Assisted Process (MAP™); and
 - ▶ completed development of two Reference Methods and two Analytical Methods for chemical and biological testing, and published one Reference Method and a report on quality control/assurance.

National Hydrology Research Institute (NHRI)

In fulfillment of its CEPA-related mandate, during the 1995-96 fiscal year, NHRI designed and built, in collaboration with the Max Planck Institute (Germany), a new device known as a photosynthesizer (Photosyn) to examine the effects of natural and human stressors on aquatic food webs in wetland ecosystems. The Photosyn aids in measuring the impacts of pesticides and other stressors.

Research continued using artificial streams facility to determine the impacts of contaminants from pulp mill effluents on aquatic ecosystems. A new project was initiated using stable-isotope techniques to identify the pathways of contaminants in ecological systems and progress was made in developing a new food web based bioassay for assessing the toxicity of varying levels of exposure to pollutants.

National Water Research Institute (NWRI)

During the 1995-96 fiscal year the NWRI, in collaboration with other government, industry and university researchers, continued its research on pulp mill effluents, focussing on the identification of the agents responsible for the induction of elevated liver detoxification enzymes in fish. Researchers also made headway unraveling the subcellular mechanisms responsible for the reproductive problems that have been observed in fish from waters affected by pulp mills. Several bioassays were developed that can be used to detect the presence of endocrine disruptors and estrogen mimics in effluents from other industries and in sediments from contaminated sites. Results of these studies have been presented at several conferences and articles have been submitted for publication in scientific journals.

NWRI also published several reports related to the relative effects of pulp mill and mine discharges on the environmental quality of the Whalesback Channel of Lake Huron. The research on the remediation of contaminated mine tailings, based on the use of "slags", is continuing in collaboration with McMaster University.

As well, NWRI continued its research program on the remediation of groundwater contaminated by toxic substances. Current research focuses on the *in situ* remediation of solvents using vitamin B-12, and on the remediation of petroleum spills in its Aquatic Ecosystem Restoration Experimental Facility.

Wastewater Technology Centre (WTC) and Canadian Clean Technology Centre (CCTC)

During the reporting period, the WTC continued its CEPA-related research and development initiatives, evaluating technologies and other control options applicable to potential releases of priority substances under CEPA.

Its application of the Composite Correction Program (CCP) assists in optimizing the performance of sewage treatment plants. Work conducted at six such plants in Ontario has demonstrated the ability to meet strict discharge objectives without the need for plant expansion. Based on the success of the CCP to date, the Department of National Defence has obtained approval-in-principle to proceed with the implementation of an optimization program for eight sewage treatment plants over a five-year period.

WTC also administers the Contaminated Sediment Treatment Technology Program, encouraging private sector development of new and innovative treatment technologies to remediate contaminated sediments. Through this program, 7000 cubic metres of contaminated sediment from the Welland River was removed and treated during the summer and fall of 1995.

WTC also undertakes activities respecting waste containment, maintaining its expertise in the areas of characterization, pretreatment and solidification of a wide variety of residues. A protocol of test methods for evaluating the effectiveness of solidification processes was developed and applied to hundreds of

residues. As a result of a field validation of the WTC solidified waste evaluation protocol conducted over the past three years, revisions are being made and guidelines for quality control and field practice are being prepared.

In 1994, the WTC was given approval to proceed with construction of the Canadian Clean Technology Centre (CCTC) to be integrated with the WTC in Burlington. The CCTC's mandate focuses on the development and implementation of cost-effective technologies and alternative processes for reducing waste, optimizing resource use and improving production efficiency. Activities presently underway at the Centre include a process to recover and reuse process wastewater without chemical treatment; an alternative to energy-consuming distillation processes; ion exchange and absorption to recover specific chemicals in process streams; and the recovery and regeneration of cleaning solution chemistry to extend useful life of industrial cleaning processes.

Canadian Wildlife Service (CWS)

The National Wildlife Research Centre (NWRC), a Canadian Wildlife Service (CWS) institution, conducts CEPA-related research and monitoring in Ottawa-Hull and in its regional offices in collaboration with partners in universities, private organizations and other government agencies. By detecting and measuring the effects of toxic substances on wildlife, NWRC researchers can assess the overall health of species, predict the impact of pollutants and provide an early warning system for potential environmental and human health problems.

During the 1995-96 fiscal year, NWRC was involved in numerous research initiatives aimed at furthering scientific understanding of the effects of toxic substances, including PSL 1 toxic substances, on various species of wildlife. Results from these studies, along with an analytical method, have been published. Moreover, data and text contributions dealing with seabirds, waterfowl, game birds and polar bears were contributed to the Canadian Arctic Contaminants Assessment Report and the Arctic Monitoring and Assessment Programme's (A.M.A.P.) Assessment Report.

Chemical analyses for the national CWS assessment of toxic contaminant levels in wild foods (ongoing since 1988) has been completed and the 1993-1995 data submitted to Health Canada for evaluation of risk to human consumers of game birds. Recommendations from Health Canada based on data collected in 1988-1992 from Ontario and Quebec have been made available to the public through popular articles and the 1995 Migratory Birds Hunting Regulations for Ontario and Quebec.

A preliminary version of a computerized model to estimate wildlife exposure in the Canadian environment to substances through inhalation and ingestion of food and water has also been completed.

Laboratory Services for support of wildlife toxicology research and monitoring are located at the NWRC. In the 1995-96 fiscal year, over 6000 wildlife specimens were processed for various analyses. Furthermore, a number of new or improved test methods were developed and some PAH metabolites, which are not commercially available, were synthesized.

During the last fiscal year, Atlantic Region completed field work investigations of exposure of wildlife to toxic chemicals at five Atlantic Coastal Action Program (ACAP) sites and published interim results in several departmental and external newsletters. The final report and a companion fact sheet of a cooperative EPB/ECB Integrated Pest Management survey of Maritime apple, potato and blueberry growers were also published.

Quebec Region completed work on a program for monitoring the clean-up of contamination in the St. Lawrence River. The program is now ready to be implemented.

Ontario Region continues to assess the effects of pollution in the Great Lakes and upper St. Lawrence River through trend analysis of the Herring Gull Egg Monitoring Program, investigating embryonic deformities in ring-billed gulls. The Ontario Region published a summary of contaminant information in snapping turtle and mudpuppy eggs.

In Prairie and Northern Region, an ongoing study monitoring biochemical, hormonal and reproductive endpoints in riparian wildlife on the Wapiti and North Saskatchewan Rivers is evaluating the indirect

impacts of pulp mill effluent. A program to collect common loons for autopsy and analysis of mercury, selenium and lead was also initiated.

In the Pacific and Yukon Region, the more subtle effects of long term exposure to low concentrations of contaminants are being studied through the monitoring of such things as the nesting sites, foraging behaviour, productivity and reproductive systems of local wildlife.

Objectives, Guidelines and Codes of Practice

CEPA Part I, section 8 (as well as CEPA Part IV) allows the federal government to create a wide range of non-regulatory tools, including guidelines and codes for environmentally sound practices, and objectives setting desirable levels of environmental quality.

Environment Canada continues, in consultation with interested parties, to devote considerable effort to developing such instruments to give to industries and regulators recommendations on how to reduce emissions, effluents and wastes.

New non-regulatory instruments currently under development include:

- ▶ Code of Practice for the Reduction of Fluorocarbon Emissions from Refrigeration and Air Conditioning; and
- ▶ Code of Practice for the Reduction of Halon Emissions in the Practices of the Fire Protection Industry.

Federal-Provincial Working Group on Air Quality Guidelines and Objectives

The Working Group, a sub-group of the CEPA-Federal Provincial Advisory Committee, consists of health and environment representatives from both federal and provincial agencies.

The Atmospheric Environment Service (AES) shares the federal lead with Health Canada on the Working Group. During the 1995-96 fiscal year, discussions pertaining to revisions to the current three-tiered framework for air quality objectives resulted in a CEPA/FPAC proposal for a two-tiered framework. This proposal is accompanied by a draft protocol document outlining the process by which the science is reviewed and utilized in making recommendations for national ambient air quality objectives. These revisions and the protocol will result in a formalized process for reviewing scientific information, and improved scientific credibility of air quality objectives.

Recommendations for hydrogen fluoride and carbon monoxide are being re-drafted to reflect the most recent scientific information available. The Working Group continued scientific reviews for particulate matter less than ten micrometres and less than 2.5 micrometres, total reduced sulphur compounds, and nitrogen dioxide. These review documents will form the basis for recommendations for new or revised air quality objectives. The health and vegetation reviews of ground-level ozone impacts have been drafted by the Nitrogen Oxide and Volatile Organic Compound (NO_x/VOC) Science Program and will form the basis for developing recommendations for revisions to the ozone objective by the Working Group.

Environmental Quality Guidelines and Objectives

National environmental quality guidelines (water, sediment, soil, tissue) and objectives established under Part I of CEPA allow federal, provincial and territorial authorities to assess and manage environmental quality issues.

In the fiscal year 1995-96, Environment Canada, in conjunction with the Canadian Council of Ministers of the Environment (CCME), published seven water quality guidelines for toxic substances and Priority Substances List 1 (PSL 1) toxic substances. Moreover, guidelines for 15 other toxic substances are currently in process with 11 in the final review stages, two near completion of their first review and two awaiting second review.

Interim Sediment Quality Guidelines for more than 30 substances have been developed by Environment Canada and are contained in a document that is currently under review. Furthermore, three guidelines are currently in press, six others are under development and guidelines for mercury, 13 polycyclic aromatic hydrocarbons (PAHs), total polychlorinated biphenyls (PCBs) and PCB aroclor mixtures are under review.

Derivation of National Soil Quality Guidelines is at the final review stage for 20 substances. Soil guideline development has also been initiated for three other substances.

The Tissue Residue Guideline Protocol has been approved and is in the publication stream. As well, National Tissue Residue Guidelines are under development for three Track 2 substances under the Toxic Substances Management Policy (TSMP) and have been developed for two PSL 1 toxic substances - which are currently awaiting final approval.

Environment Canada and CCME developed and published two national guidance documents and continue work on several others. Environment Canada and CCME also have developed and published a framework for effective ecosystem-based management that incorporates the ecosystem approach and the concept of community involvement.

Harmonization efforts continue between Environment Canada and the provinces and territories in environmental quality guideline development.

Environment Canada, in conjunction with the St. Lawrence Centre, published a document which provides case studies from several regions in Canada on programs which utilize the ecosystem approach for environmental management.

The National Water Research Institute (NWRI), in collaboration with the Pacific and Yukon Region, continued the process of developing biological sediment quality guidelines for the Fraser River watershed during the 1995-96 fiscal year. As well, development of biological sediment guidelines for the Great Lakes continued.

During the 1995-96 fiscal year, Environment Canada, through the Pacific and Yukon Region and in cooperation with the B.C. Ministry of Environment Lands and Parks and the Department of Fisheries and Oceans, began development of water quality objectives for the Columbia, Fraser and Salmon rivers and water quality criteria for total gas pressure. Furthermore, a pilot project to assess methods to develop ecosystem objectives was initiated in the Salmon River watershed.

Environmental Choice™ Program (ECP)

The ECP, Canada's voluntary ecolabelling program, contributes to the fulfillment of CEPA's goals by developing guidelines which allow consumers to identify products and services that significantly reduce the burden on the environment. The EcoLogo™ is used to identify those products and services which meet the ECP's stringent environmental criteria.

As of August 4, 1995, operational responsibility for the ECP was assumed by Terra Choice Environmental Services Inc. through a licensing arrangement with Environment Canada. However, ownership of the EcoLogo™ and policy control continues to reside with Environment Canada.

In March 1996, the ECP's scope was expanded and now includes:

- ▶ residential sector and home care products;
- ▶ cleaning products and services;
- ▶ office and school products and services;
- ▶ paper products;
- ▶ automotive products and services;
- ▶ personal care products;
- ▶ environmental technologies;
- ▶ programs or initiatives to reduce the stress on the environment; and
- ▶ facilities and events.



In addition to its guideline development process, the ECP has established a complementary panel review and certification process that enables the ECP to consider the relative environmental merits of products and services for which guidelines have not yet been developed.

During fiscal year 1995-96, 27 new sets of product- and service-specific environmental criteria were formulated through the ECP guideline development and panel review and certification processes. Review and revision of 10 existing product categories was completed. Work initiated during the 1995-96 fiscal

year under the guideline development process will produce criteria for 11 more product/service categories in early 1996-97 and could lead to criteria for an additional 14 categories by the end of 1996-97. Due to significant interest in the panel review and certification process, environmental criteria should be established for at least 50 more products/services in fiscal year 1996-97 through this complementary process.

The ECP is recognized as a leader in the area of environmental criteria development for product labeling. In the 1995-96 fiscal year, ECP environmental criteria were cited in numerous procurement requirements issued by Canadian public and private sector institutions at the local, regional, provincial and national levels - and even in several American states. Internationally, other countries' ecolabelling practitioners and government officials are seeking guidance from the ECP on the development of their own criteria. ECP officials are striving to develop environmental criteria consistent with international environmental and trade requirements.

Cooperative Initiatives

Part I of CEPA allows the Minister of the Environment to enter into cooperative initiatives with the provinces and territories and with interested groups or individuals for the betterment of the environment.

During the 1995-96 fiscal year, Ontario Region continued work on the 14 virtual elimination projects under Stream II of the 1994 Canada-Ontario Agreement (COA) on the management of the clean-up of the Great Lakes ecosystem. All are on schedule. As well, Ontario Region completed the first Stream II report for inclusion in the overall CAO progress report and continued compilation of the second progress report.

Ontario Region also completed the two-year Mercury Elimination and Reduction Project with Pollution Probe during the 1995-96 fiscal year. Uses, sources, and emissions of mercury were identified in Ontario and a workshop was held with industrial, government and environmental non-government organization (ENGO) stakeholders. The project concluded with a preliminary agreement with the medical services sector which subsequently led to a Pollution Prevention Agreement with the Hospital for Sick Children, Toronto Hospital, and Centenary Hospital, as well as the possibility of similar agreements with the Ontario Hospital Association and other hospitals.

In the last fiscal year, Environment Canada's Ontario Region, also oversaw the completion of the Green Clean Demonstration Project (the Green Clean reports were completed and work on preparing a manual for Green Cleaners commenced); a partnership agreement was signed with Atlas Steel for a full-scale contaminated sediment remediation project in the Welland Canal; and the Shamrock Chemicals' contaminated coal tar site at Port Stanley was completely cleaned up through close co-operation with the province of Ontario under the terminating National Contaminated Sites Remediation Plan.

The Quebec Region organized and participated in many discussions with representatives of the major Canadian ecosystems programs, resulting in better harmonization between the various activities and programs.

The Wastewater Technology Centre engaged in a technology transfer program with the state of Guanajuato, Mexico on the land application of wastewater treatment plant biosolids as an agricultural fertilizer.

The Atlantic Region continued its agreement with the province of Nova Scotia on the administration of the Storage of PCB Material Regulations.

State of the Environment (SOE)

During fiscal year 1995-96, the SOE Directorate worked with the provinces and territories to finalize a set of common guidelines for SOE reporting in Canada. The Directorate also concentrated on making past information products more easily available to Canadians. In February 1996, Environment Canada's State of Canada's Environment Infobase was released through the Green Lane on the Internet. The Infobase contains information on Canada's spatial ecological framework, the national environmental indicators series and other SOE reporting products.

Chapter by chapter release of the comprehensive third national report, *The State of Canada's Environment - 1996*, also began in February 1996. Work on chapter manuscripts has been underway since 1993-94 and has relied

on substantial contributions from federal, provincial and territorial government agencies, as well as the private sector. The report is scheduled for completion in the summer of 1996 and will be made available in CD-ROM and print formats, as well as on-line.

Environment Canada uses bulletins to report regularly on national environmental indicators which, together, provide a profile of the State of Canada's environment and help measure progress towards sustainable development. Four indicator bulletins and an overview were published in 1995-96. All the indicators published to date plus their supporting data, methodology, and data sources were made available on the Internet. During the 1995-96 fiscal year, research and development work was undertaken to produce indicators for the issues of: acid rain, marine fisheries, biodiversity, sustaining agricultural soils, marine ecosystems and rural to urban land-use change. Research on water quality indices was conducted under the auspices of CCME. In addition, SOE Directorate co-sponsored a national workshop on urban sustainability indicators.

Green Lane

Environment Canada has established an environmental information network on the Internet (<http://www.doe.ca/envhome.html>) to help Canadians make informed decisions and take action on environmental issues and sustainable development. It is comprised of eight World Wide Web servers located in Vancouver, Edmonton, Winnipeg, Burlington, Toronto, Hull, Montreal and Dartmouth.

Anyone with access to the Internet may log onto the Green Lane and get up-to-date information on Environment Canada's activities and, in particular, its CEPA-related endeavours. CEPA-related information such as State of the Environment data, National Pollutant Release Inventory, pollution prevention activities, releases and enforcement can be found on the Green Lane. As well, regional sites contain updates on numerous region-specific CEPA-related activities, such as the Fraser River Action Plan, the Great Lakes Remedial Action Plan, the St. Lawrence River Action Plan and the Atlantic Coastal Action Plan. In general, national information is made available through the departmental home page, and regional information is made available through the regional home pages.

CEPA-Related Publications

Under Part I of CEPA, the Minister of the Environment may authorize the publication of information which pertains to the research and monitoring activities of various Environment Canada entities. A listing of such publications produced during the 1995-96 fiscal year has been compiled and can be obtained by contacting the CEPA Office.

CEPA Part II: Toxic Substances

Part II of CEPA focuses on reducing risks posed by new and existing substances by providing the authority to determine which of these substances should be evaluated, to evaluate them and to implement the appropriate control measures applicable to all aspects of the life cycle for any assessed as "toxic" under the Act.

In order to distinguish new substances from existing ones and to prescribe reporting requirements for new substances, Environment Canada has developed two major inventories:

- ▶ the Domestic Substances List, an inventory of all chemicals known to be in use in Canada during the years 1984-86; and
- ▶ the Non-domestic Substances List, an inventory of substances not in use in Canada between 1984 and 1986 but used elsewhere.

New Substances Program

Domestic Substances List (DSL)

The DSL is an inventory of more than 21,000 substances manufactured in, or imported into, Canada on a commercial scale between 1984 and 1986. Environment Canada published the first list in the January 1991 edition of the *Canada Gazette* Part I. In May 1994, a revised list was published in the *Canada Gazette* Part II, incorporating deletions, additions and corrections to the first list. On November 29, 1995 an amendment to the list, incorporating 32 additions, was published in *Canada Gazette* Part II.

Environment Canada uses the DSL as its sole basis for determining whether a substance is "new" to Canada. It relies on the list when deciding whether substances require notification or assessment before they are manufactured in Canada or imported into the country. Substances on this list are exempt from CEPA's New Substances Notification, as they are considered to be "in use" in Canada. However, existing substances that could cause adverse environmental or health effects can be assessed to determine whether or not they are toxic or capable of becoming toxic as defined under the Act.

Following a revision of the eligibility criteria for the incorporation of living organisms on the DSL, Environment Canada is advising Canadian manufacturers and importers of these developments and has requested the re-nomination of micro-organisms for entry on the list.

Non-Domestic Substances List (NDSL)

There are over 42,000 substances on the NDSL known to be commercially available around the world, but not on the Canadian market.

This list recognizes substances that are not on the Domestic Substances List but are not new to world commerce. The Government requires less detailed information about these substances than about substances new to Canada. Environment Canada chose the USA 1985 Toxic Substances Control Act Inventory as a basis for this list.

The initial list appeared, along with the DSL, in the *Canada Gazette* Part I on January 26, 1991. Environment Canada updated the NDSL from the Toxic Substances Control Act Inventory additions of 1985 to 1990. This revision was published in the *Canada Gazette* Part I on January 6, 1996. The revision added 1,723 substances to the non-confidential portion as well as an additional 65 substances to the confidential portion, bringing the number of substances on the NDSL to over 42,000.

New Substances

Notification and assessment is required before substances not on the DSL can be manufactured in or imported into Canada. The New Substances Notification Regulations prescribe the information required from manufacturers and importers for this notification.

New Substances Notification Regulations: Chemicals and Polymers

The New Substances Notification Regulations for chemicals and polymers came into effect July 1, 1994, marking the beginning of CEPA's New Substances Notification Program. The regulations require manufacturers and importers to supply specified information on new commercial substances, including chemical identity; toxicological and environmental effects data; manufacturing, processing and use data; and the volumes proposed for manufacture and import. The Government may require additional information or testing, impose controls, or ban the manufacture or importation of a substance if it suspects the substance is toxic. The Departments of Environment and Health completed reviews on 700 transitional substances and 500 new substances for 1995-96. These reviews resulted in one substance being prohibited and seven others having various control options being imposed on them.

New Substances Notification Regulations: Biotechnology

The draft New Substances Notification Regulations for Biotechnology Products prepared for the December 1994 multi-stakeholder consultation have been revised following consultation with other government departments. The regulations form part of a package of regulatory amendments, developed by Environment Canada, Health Canada and Agriculture and Agri-Food Canada, that addresses the regulation of biotechnology substances and are collectively known as the *Federal Framework for Regulation of Biotechnology*. The draft regulations are targeted for publication in *Canada Gazette* Part I in 1996 and in *Canada Gazette* Part II in spring 1997.

Good Laboratory Practice (GLP)

The GLP program meets the requirements of the New Substances Notification Regulations under CEPA which ensure that laboratory practices to be followed in developing test data are consistent with the Organization for Economic Cooperation and Development (OECD) *Principles of Good Laboratory Practice*. These principles are an integral part of the OECD Council Decision on Mutual Acceptance of Data, adopted by the OECD Council in 1981. During 1996, public consultation will continue on the development of a formal Canadian GLP program, the development of international bilateral agreements on the mutual recognition of GLP programs, updating of *The OECD Principles of Good Laboratory Practice*, laboratory inspections, and consultation with the newly formed Pest Management Regulatory Agency (PMRA).

The Environmental Technology Centre (ETC) initiated its program of voluntary laboratory inspections during 1995 with the inspection of three Canadian private-sector laboratories which have supplied testing data pursuant to the New Substances Notification Regulations of 1994 and 1995. It also continued its annual activities in determining the compliance status of foreign laboratories which supply similar data and participated in ongoing OECD activities on the development and use of GLP in member countries. Preparatory work for public consultation on this new program continued alongside negotiations with the European Union, Switzerland and the United States on agreements for the mutual recognition of GLP programs. ETC also participated in an OECD Expert Group charged with revising *The OECD Principles of Good Laboratory Practice*. The Pest Management Regulatory Agency (PMRA) decided to require the use of OECD GLP in the context of pesticide registration, and consultation was initiated on areas in which cooperative work can be done.

Toxic Substances Management Policy (TSMP)

The federal government's TSMP was announced in Parliament on June 2, 1995. The policy provides a science-based framework for the management of toxic substances. The key management objectives in the policy are: virtual elimination from the environment of toxic substances that are persistent and bioaccumulative and are present in the environment due, primarily, to human activity such as manufacturing, use or waste disposal (Track 1 substances); and management of other toxic substances and substances of concern throughout their life cycles to prevent or minimize their release into the environment (Track 2 substances). The policy is being applied to the Priority Substances Assessment Program and the New Substances Notification Program under CEPA. For substances declared to be toxic under CEPA, the policy provides directional guidance in selecting management objectives. Environment Canada led the development of the policy and is continuing its leadership role in its implementation. The TSMP document and its two companion reports, *TSMP - Report on Public Consultations* and *TSMP - Persistence and Bioaccumulation Criteria*, are available from Environment Canada's Information Office.

Candidate substances for management under Track 1 of the policy have been identified and scientific justifications have been drafted for the following substances:

- | | | |
|-------------------------|---------------------|---------------|
| ▶ Aldrin | ▶ Endrin | ▶ PCBs |
| ▶ Chlordane | ▶ Heptachlor | ▶ PCD-dioxins |
| ▶ Chlorinated paraffins | ▶ Hexachlorobenzene | ▶ PCD-furans |
| ▶ DDT | ▶ Mirex | ▶ Toxaphene |
| ▶ Dieldrin | | |

These justifications will be initially released in draft form for public comment in 1996. Specific management options will be developed and implemented both domestically and internationally for confirmed Track 1 substances. Discussions have been initiated with the provinces and territories to develop a national strategy for toxic substances based on the TSMP.

Priority Substances Assessment Program

CEPA requires the establishment of the Priority Substances List (PSL) which contains those substances which merit immediate investigation and assessment. Substances on this list are assessed to determine whether or not they are toxic or capable of becoming toxic, as defined under CEPA. A substance on the PSL is examined to determine if it is entering or may enter the environment in a quantity, or concentration, or under conditions

- ▶ having or that may have an immediate or long-term harmful effect on the environment;
- ▶ constituting or that may constitute a danger to the environment on which human life depends; or
- ▶ constituting or that may constitute a danger in Canada to human life or health.

Environment Canada manages the program. Health Canada has the responsibility for providing human health risk assessments for PSL substances.

Priority Substances List 1 (PSL 1)

The first Priority Substances list, PSL 1, was published in February 1989 and contained 44 substances. These substances were assessed by the end of 1993-94, within the five year time frame prescribed under CEPA.

PSL 1 Substances Assessed as Toxic - Follow Up Activities

Of the 44 substances on PSL 1, 25 were assessed by Environment Canada and Health Canada to be toxic or capable of becoming toxic, as defined under CEPA. Four are already regulated and two, bis(chloroethyl) ether and bis chloromethyl methyl ether, will be regulated before June 1996. Ongoing work related to the remaining substances continued during 1995-96.

The Strategic Options Process (SOP) was launched in December 1994 to develop strategic options for the management of PSL toxic substances. Part of that process is the creation of "Issue Tables" to develop strategic options. Fourteen Issue Tables have been established, as set out in Item 1 of the *PSL 1 Toxic Substances: 1995-96 Activities* chart. All 14 are expected to submit their recommendations to Ministers on how best to address the problems associated with these CEPA toxic substances during fiscal year 1996-97. Ministerial approval of the SOP recommendations initiates implementation of the preferred option(s). The Minister may also amend the recommendation as he or she deems appropriate.

Benzene, declared toxic under the PSL assessment process, was the subject of a control strategy announced by the Minister of the Environment in July 1995. Part of this strategy included the control of benzene releases from natural gas dehydrators. The Prairie and Northern Region was assigned the task of developing the most effective control strategy for these units because they are located primarily in Alberta (95%) with some in British Columbia, Saskatchewan and Ontario. A working group, chaired by Environment Canada, with representation from the three provinces, the oil and gas industry and other federal government departments is currently developing a strategy which is targeted for implementation by January 1, 1997.

PSL 1 Toxic Substances: 1995-96 Activities

1 - Substances for Which Issue Tables have been Established

Substance SOPs (94/95 and continuing)

Benzidine / 3,3'-dichlorobenzidine (5,3)
Refractory Ceramic Fibres (23)
Chlorinated Paraffins (8)

Substance SOPs (95/96 and continuing)

1,2-dichloroethane (2)
Dichloromethane (11)
Ethylhexyl phthalate (14)
Hexachlorobenzene (16)

Sector SOPs (94/95 and continuing)

Dry Cleaning (24)
Solvent Degreasing (24,25)
Wood Preservation (10,12,16,17,18,22)

Sector SOPs (95/96 and continuing)

Iron and Steel (4,12,17,18,19,20,21,22)
Metal Finishing (17,19,21)
Base Metal Smelting (18,19,21)
Electric Power Generation (17,18,19,20,21)

2 - Other

Dealt with through CEPA FPAC

Chlorinated Wastewater Effluents (9)

PSL 1 Toxic Substances

1. 1,1,1-trichloroethane *
2. 1,2-dichloroethane
3. 3,3'-dichlorobenzidine
4. Benzene
5. Benzidine
6. bis(chloroethyl) ether
7. bis chloromethyl methyl ether
8. Chlorinated paraffins
9. Chlorinated wastewater effluents
10. Creosote impregnated wastes
11. Dichloromethane
12. Dioxins *
13. Effluents from pulp & paper mills using bleach *
14. Ethylhexyl phthalate
15. Furans *
16. Hexachlorobenzene
17. Hexavalent chromium compounds
18. Inorganic arsenic compounds
19. Inorganic cadmium compounds
20. Inorganic fluorides
21. Oxidic, sulphidic, soluble inorganic nickel compounds
22. PAHs
23. Refractory ceramic fibres
24. Tetrachloroethylene
25. Trichloroethylene

As a prelude to a regulation to control benzene, the Environmental Technology Centre (ETC) participated with the Canadian General Standards Board in a study to measure the aromatic content, including benzene, of Canadian gasolines. Environment Canada subsequently drafted a regulation which, among other things, will reduce the concentration of benzene in gasoline and limit the predicted emissions of benzene from the exhaust of gasoline-powered vehicles. It is hoped to have this regulation in place during 1997.

The Prairie and Northern Region continued its work on identifying management options for arsenic air emissions. The process involves stakeholder consultations to assess the possible management options for arsenic in air emissions from gold-roasting facilities in Canada. As well, the ETC developed an improved method to remove arsenic from water.

Under the Canada-Ontario Agreement of 1994, the Ontario Region is working with the Ontario Ministry of Environment and Energy (MOEE) to achieve virtual elimination of 13 persistent bioaccumulative toxic substances in the Great Lakes that are similar to the proposed Track 1 substances under the TSMP. Preliminary profiles for the 13 substances have been compiled to identify the 10 key source sectors contributing toxic loadings to the Great Lakes. The Ontario Region and MOEE are working

with stakeholders to promote preventive action so as to achieve 90% reduction of these priority substances by the year 2000.

The Atlantic Region organized and chaired the multistakeholder Table to develop management options for the electric power generation sector.

Instead of a formal SOP, the issue of Chlorinated Wastewater Effluents was taken to CEPA-FPAC for discussion which focussed on chlorinated municipal effluents. Members have reviewed their respective situations and presented plans of action to reduce the toxic effects of chlorinated municipal effluents. A draft report summarizing this issue, including background, activities undertaken to date and proposed solutions, is being prepared. It is anticipated that the report will be presented to CEPA-FPAC in the fall of 1996, before going to Ministers of the Environment and Health for decision.

As part of a continuing commitment to international harmonization, Environmental Health Criteria Documents prepared by Health Canada for the International Programme on Chemical Safety (IPCS) for five substances included on PSL 1 were finalized; draft Environmental Health Criteria Documents for two other substances on PSL 1 were also prepared. A model international assessment document, Concise International Chemical Assessment Document (CICAD), is being developed as part of an IPCS pilot project that would lead to globally acceptable risk assessments. The model is based on the format used for the human health risk assessments for PSL1 substances. Ottawa hosted the second Steering Group meeting for this IPCS Pilot Project and CICADS were prepared for three PSL 1 substances.

Priority Substances List 2 (PSL 2)

In December 1994, the Ministers of Environment and Health named an Expert Advisory Panel to recommend a new set of substances for PSL 2. In October 1995, after review of approximately 600 candidate substances, the Panel recommended 25 substances to Ministers for inclusion in PSL 2. Its recommendations were accepted by Ministers and PSL 2 was published in December 1995.

Preparations for development of PSL 2 assessment reports have begun under the PSAP. A Guidance Manual has been developed to provide evaluators with a consistent approach for assessing the ecological risks of substances on PSL 2. The manual has been widely reviewed and is expected to be published in 1996-97. A second policy and process document is being prepared to outline the steps in the assessment process which will include extensive technical peer review and consultation with the public at various steps during the assessment. A general scheme has been approved. The document is currently under review and is also expected to be published in 1996-97.

A project leader has been identified for each PSL 2 substance. Environment Canada is managing the assessment of each substance and project leaders from Environment Canada Headquarters and the Regions have been identified. In addition, Health Canada has identified leaders responsible for the human health risk assessment aspect.

Teams of technical experts from academia, government, non-government organizations (NGOs) and industry are being solicited to participate in the first stage of the ecological risk assessment process, problem formulation. An interdepartmental liaison committee representing interested federal departments has been established to nominate experts to provide information and review drafts at various stages of the assessment process. An extensive literature review is underway and voluntary notices have been sent to industry seeking use and release information on PSL 2 substances.

The National Water Research Institute (NWRI) is conducting a pilot study on ammonia from sewage treatment plants (STPs). The generation of ammonia from decomposing particulates in treated sewage was studied at Penetang Harbour. This pilot project will be used to design a more extensive study to show the effect of STP improvements and to assess potential toxic effects.

NWRI and Pacific and Yukon Region have also initiated research on the occurrence of nonylphenol (NP) and nonylphenol polyethoxylates (NPEs) in the Canadian aquatic environment which will provide useful information in support of the assessment of PSL 2 substances.

Priority Substances List 2

- ▶ Acetaldehyde
- ▶ Acrolein
- ▶ Acrylonitrile
- ▶ Aluminum chloride, aluminum nitrate, aluminum sulphate
- ▶ Ammonia in the aquatic environment
- ▶ 1,3-Butadiene
- ▶ Butylbenzylphthalate (BBP)
- ▶ Carbon disulfide
- ▶ Chloramines
- ▶ Chloroform
- ▶ N,N-Dimethylformamide (DMF)
- ▶ Ethylene glycol
- ▶ Ethylene oxide
- ▶ Formaldehyde
- ▶ Hexachlorobutadiene (HCBD)
- ▶ 2-Methoxy ethanol, 2-Ethoxy ethanol, 2-Butoxy ethanol
- ▶ N-Nitrosodimethylamine (NDMA)
- ▶ Nonylphenol and its ethoxylates (NPE)
- ▶ Phenol
- ▶ Releases from primary and secondary copper smelters and copper refineries
- ▶ Releases from primary and secondary zinc smelters and zinc refineries
- ▶ Releases of radio nuclides from nuclear facilities (impacts on non-human species)
- ▶ Respirable particulate matter less than or equal to 10 microns
- ▶ Road salts
- ▶ Textile mill effluents

Data Collection

Sections 15 through 18 of CEPA allow the federal government to collect information (such as data for the National Pollutant Release Inventory) and conduct investigations to support the assessment of existing substances under CEPA and to support the development of management options for substances considered toxic under CEPA.

Twelve notices and surveys were issued to obtain information on commercial trade and use patterns for the following: methyl chloroform, dichloromethane, dichloroethane, carbon tetrachloride, chlorofluorocarbons, hydrochlorofluorocarbons, methyl bromide, hexachlorobenzene, and pesticide registrants. Under section 17, companies submitted 31 notifications. Guidelines have been developed to clarify industry's reporting obligations under this section of the Act.

National Pollutant Release Inventory (NPRI)

The NPRI is a national, publicly accessible database of pollutants released to the Canadian environment from industrial and transportation sources.

The first annual NPRI was published in March 1995 and reflects 1993 releases and transfers. The report for 1994 will be available in the fall of 1996, while 1995's summary, which will include facilities that release large quantities at low concentrations, will be published in the spring of 1997. Information for 1993 is already available on Internet at <http://www.ec.gc.ca/pdb/npri.html>. Subsequent reports will also be available on the Internet.

A notice was published in February 1996 in the *Canada Gazette* requiring facilities to report for 1996. Information required for 1996 is similar to that required for 1995's report.

All Regional offices collected and validated NPRI data submitted by facilities within their respective areas prior to that information being included in the NPRI Report. Regions also responded to NPRI enquiries from the public and media and delivered NPRI training sessions. The Ontario Region collaborated with the US Environmental Protection Agency, using NPRI and the American Toxics Release Inventory data, to prepare a report on releases and transfers of chemicals from facilities on both the Canadian and American parts of the Great Lakes Basin.

Public consultations are planned during the coming year respecting proposed changes to the NPRI.

Disclosing Information

In 1995-96, Environment Canada received 42 requests pursuant to the *Access to Information Act* for information related to CEPA. Requests were made on the following subjects:

- ▶ NPRI Submissions;
- ▶ Pulp and Paper Effluent Chlorinated Dioxins and Furans Regulations;
- ▶ Nickel Compounds;
- ▶ Priority Substances List;
- ▶ Vinyl Chloride Release Regulations;
- ▶ CEPA Investigations;
- ▶ PCB Inventory;
- ▶ PCB Waste Export Regulations;
- ▶ PCB Waste Export Interim Order; and
- ▶ Environmental Compliance.

Environment Canada released information, in whole or in part, in eight requests with documents being totally exempted or excluded in four requests. The information did not exist in 23 requests. Two requests were abandoned and three requests were treated informally. Two requests are still being processed.

Environmental Compliance Requests

Of the 42 CEPA-related requests received in 1995-96, 25 concerned the environmental compliance status of properties. Compliance with respect to CEPA, and all other Acts administered by Environment Canada, were included in the search. Information did not exist in 20 requests, documents were located in three requests and two were treated informally.

Confidentiality Requests

For the 1994 reporting year, 59 companies indicated that the information provided to the NPRI was confidential.

As CEPA provides for the disclosure of information if it consists of general data on uses of a substance, these companies were asked to support their claim for confidentiality using criteria under the *Access to Information Act*.

Four of the 59 claims of confidentiality were accepted; the remainder were rejected. One company filed an application with the Federal Court of Canada for its claim for 1993. The issue remains before the Court. Its claim for 1994 was not pursued.

More than 790 companies who responded to other notices and surveys or who made submissions requested that the information provided remain confidential as provided under Section 19 of CEPA. The information was protected accordingly.

Other Activities

Environment Canada, in its support of CEPA-related activities, carries out a variety of other studies, research and monitoring initiatives.

Under the Fraser River Action Plan, assessments of the presence of some PSL 1 and PSL 2 substances in the atmosphere, water, sediment, and biota in the Fraser River Basin are being conducted in the Pacific and Yukon Region. A concerted effort has also been made to assess the impacts of pulp mill effluents on the aquatic ecosystem in the basin. This assessment is supported by a research program which is evaluating impacts of altered fish liver enzyme levels, wildlife reproductive production and benthic community structure and productivity. The toxicity of selected chlorophenols on early life stages of white sturgeon is also being investigated. These studies have been on-going since 1993 and some have been published.

A comprehensive inventory of trace air contaminants for British Columbia documents, for the first time, atmospheric releases of over a thousand trace air contaminants from industrial, mobile and area sources. The substances, organized under 30 chemical groupings, include persistent organic pollutants, heavy metals, and substances in the National Pollutant Release Inventory. As well, the inventory contains information on total particulate and inhalable particulate emissions. This data will help guide the development of control strategies for hazardous air pollutants.

A two-year research project with funding from the Environmental Innovation Program was completed at Simon Fraser University. This research investigated the destruction and modification of CFCs by chemical means. The experiments, using various combinations of catalytic substrates to hydrogenate ozone-depleting substances (ODSs) under different temperatures, showed that chemical conversion works for CFCs but not for halons. Possible commercialization of this research is being explored by the University.

Health Canada continues to develop screening methods for determining the reproductive developmental effects of priority contaminants. In addition, studies have been completed that will evaluate the effects of a number of toxic substances on male reproductive capability.

They have completed studies on the systemic effects of benzothiophene and acridine, candidates for future PSLs, and submitted reports for publication. A battery of in vitro screening methods have been used to evaluate an environmental chemical's ability to cause endocrine disruption.

Health Canada has also continued research on the development of a gene-expression technique to assess tumour promotion. The transgenic mouse gene mutation assay was used to evaluate the mutagenic potential of a number of environmental contaminants, including dinitropyrene. Studies have also been carried out on the mutagenicity of MMT and its combustion products. The use of molecular biology was applied to the quantitation of human and environmental exposure to microbial biotechnology products.

Health Canada also carried out a pilot study to determine the exposure of subjects from the general population living in Toronto to 29 priority substances through air, water and food.

The Atlantic Region undertook a number of studies to determine the impact of toxic substances on regional ecosystems, including: blood mercury monitoring in breeding loons; a study of dioxin, furan and PCB contamination in the Five Island Lake, Nova Scotia watershed; a study of concentrations of dioxins and furans in the ambient air of the Pictou Landing First Nations Reserve; a study of fluoride concentrations in marine sediments near a fertilizer plant in New Brunswick; a report on chlorobenzenes in sediments near regional textile mills and municipal wastewater treatment plants; and investigations of wildlife exposure to toxic chemicals at five sites.

As well, the Atlantic Region took part in a cooperative Environment Canada/University of Maine workshop to exchange technical information and coordinate monitoring activities on the atmospheric movement of mercury in the region.

The Wastewater Technology Centre also undertook benzene related activities, carrying out methods development and evaluation of a solvent free analysis technique for the analysis of substituted benzenes in environmental matrices. As well, the Centre evaluated a technique for the rapid extraction and analysis of PAH in soil using a low volume solvent extraction.

The National Water Research Institute (NWRI) continues to address the research priorities and the knowledge gaps identified in PSL 1 assessment reports. Its scientists, in collaboration with EP/EC-Atlantic Region, have completed several reports on the toxicity and environmental contamination of freshwater, estuarine and marine

sediments with chlorobenzenes. Research also continues on the occurrence of chlorinated paraffins in the vicinity of Montreal, Toronto and Hamilton.

During the current reporting period, the National Hydrology Research Institute (NHRI) continued work to develop new broad spectrum analytical tools to clarify the fate and transport of priority substances in aquatic ecosystems. A project to develop a quantitative method for the rapid determination of toxic substances in aquatic biota was also initiated and will be completed in the coming fiscal year.

NHRI's ongoing research to develop biotechnological approaches to the containment of contaminants and the *in situ* remediation of contaminated sites included a collaborative project with the U.S. Environmental Protection Agency (U.S. EPA). Results will contribute to development of a numerical model for predicting the transport and fate of bacteria in the subsurface and will provide a management tool for CEPA implementation. Successful model development should also enhance industrial applications of degradative bacteria for ground water remediation at field scale.

Under the Northern River Basins Study, NHRI completed several studies evaluating the impacts of contaminants in pulp mill effluents on riverine productivity and benthic community structure.

Pollution Prevention Strategy

The release of *Pollution Prevention: A Federal Strategy for Action* in July 1995 provided the policy foundation for incorporating the pollution prevention approach in a renewed CEPA. This strategy gives Canadians a clear definition of pollution prevention, one that will move CEPA towards being legislation that directly promotes sustainable development. The strategy also allows for coherent development of new CEPA provisions related to pollution prevention planning, reporting, information dissemination and enforcement.

Pollution Prevention

A pollution prevention Memorandum of Understanding (MOU) was signed with Ontario Ministry of Environment and Energy and the printing and graphics industry. A project co-ordinator has been hired to promote pollution prevention to small- and medium-sized firms. A draft Code of Management Practices forming the basis of a pollution prevention/environmental management system, has been released.

The task force under the pollution prevention MOU with the Motor Vehicles Manufacturers' Association released its third progress report. The task force also organized a public consultation workshop to inform the public of the project results. Under the pollution prevention MOU with the Auto Parts Manufacturing Association, Ontario Region organized two auto parts manufacturers workshops regarding environmental management systems and ISO 9000/14000. The Metal Finishing MOU has been extended to 1997. The task force issued its second progress report for the project and completed the Metal Finishing Pollution Prevention Guide. The Wastewater Technology Centre and the Canadian Clean Technology Centre have been involved in developing and delivering training on pollution prevention practices in metal finishing.

Under the Canada-Ontario Agreement, a study has been conducted to explore the feasibility of a single-window spill reporting system for Ontario for federal and provincial spill reports. The implementation of a trial arrangement is expected to begin in early 1996-97. The Canada-Ontario Agreement Pesticide Review Committee completed a draft business plan and is now consulting with major pesticide stakeholders. The draft plan calls for a cooperative approach to reduce risk from pesticides found to have an adverse impact on the Great Lakes Basin ecosystem.

In the Quebec Region, a 96% reduction has taken place with respect to toxics released in the effluent of 50 industrial plants under the St. Lawrence Action Plan (SLAP). As well, 11 persistent bioaccumulative substances have been identified for virtual elimination under the SLAP. This Region has also developed a new funding and response strategy for projects dealing with the restoration of contaminated marine sites and has successfully applied this strategy in Sector 103 of the Port of Montreal.

Regulations

Various Parts of CEPA provide for the creation of regulations to protect the environment and human life and health. Federal regulatory policy is designed to ensure that government intervenes only when absolutely necessary and that such intervention is fair and results in the greatest net benefit to Canadian society. Environment Canada is following this "smart regulation" principle, ensuring that environmental regulations are based on science, are performance based encouraging innovative solutions, consider the potential economic impact and are strictly enforced but not inflexible. A thorough analysis of each initiative in a renewed CEPA will be undertaken to ensure its conformity with this precept. Currently, 24 regulations are in place under the Act.

CEPA Regulations Currently in Force

- ▶ Asbestos Mines and Mills Release Regulation
- ▶ Chlor-Alkali Mercury Release Regulations
- ▶ Chlorobiphenyls Regulations
- ▶ Contaminated Fuel Regulations
- ▶ Export and Import of Hazardous Wastes Regulations (as amended)
- ▶ Federal Mobile PCB Treatment and Destruction Regulations
- ▶ Fuels Information Regulations No. 1
- ▶ Gasoline Regulations (as amended)
- ▶ Masked Name Regulations
- ▶ Mirex Regulations
- ▶ New Substances Notification Regulations (as amended)
 - ▶ Part I - New substances other than biotechnology products or polymers
 - ▶ Part II - Polymers
- ▶ Ocean Dumping Regulations (as amended)
- ▶ Ozone-depleting Substances Regulations (as amended)
- ▶ Ozone-depleting Substances Products Regulations (as amended)
- ▶ PCB Waste Export Regulations
- ▶ Phosphorus Concentration Regulations
- ▶ Polybrominated Biphenyl Regulations
- ▶ Polychlorinated Terphenyl Regulations
- ▶ Pulp and Paper Mill Defoamer and Wood Chip Regulations
- ▶ Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations
- ▶ Secondary Lead Smelter Release Regulations
- ▶ Storage of PCB Materials Regulations
- ▶ Toxic Substances Export Notification Regulations
- ▶ Vinyl Chloride Release Regulations (as revised)

Note: *Minor modifications to CEPA regulations have been dealt with through the Omnibus Amendment Order which allows departments to clean up various regulations requiring minor changes or corrections.*

Ozone-depleting Substances

The Montreal Protocol on Substances that Deplete the Ozone Layer, signed in September 1987, is designed to prevent a global environmental and health problem from reaching the crisis stage. Canada subsequently has put regulations in place enabling us to meet our commitments under this treaty.

Ozone-depleting Substances (ODS) Regulations

These regulations control the import, manufacture, use, sale, offer for sale and export of ozone-depleting substances in bulk (i.e., which are not in products). They fulfill Canada's commitments (to eliminate the production and consumption of these substances) under the Montreal Protocol. (Note: consumption = production + imports - exports).

Under the ODS regulations, we have already met our commitments for halons and carbon tetrachloride and, as of 1 January 1996, we met our commitments for CFCs, methyl chloroform and HCFCs. Our consumption of methyl bromide has been frozen and will be reduced by 25% in 1998 (except for quarantine and pre-shipment applications and for feedstock use).

An amendment to these ODS regulations to reflect the revisions to the Montreal Protocol (as agreed to in Copenhagen in 1992) was published in the *Canada Gazette* in December 1995. The amendment froze Canadian consumption of HCFCs beginning 1 January 1996 at an agreed base level. These amendments will gradually reduce total consumption of HCFCs by 35% in 2004; 65% in 2010; 90% in 2015; and will eliminate HCFCs in 2020.

Ozone-depleting Substances Products Regulations

The amendments to the ODS Products Regulations were published in December 1995 and prohibit the manufacture, import, sale and offer for sale of plastic foam packaging material or containers in which CFCs have been used as foaming agent and of pressurized containers that contain 10 kilograms or less of CFCs. Health care products are exempted from these regulations. These regulations also prohibit the import of certain products containing ozone-depleting substances (such as refrigeration and air-conditioning equipment and fire extinguishers) from non-Parties to the Montreal Protocol as required by the Protocol.

Strengthening of Canada's Ozone Layer Protection Program

Between January and March 1995, Environment Canada, in cooperation with provincial Ministries of the Environment, consulted Canadians on the improvements that could be made to the national ozone protection program. Recommendations resulting from these consultations were endorsed by the Canadian Council of Ministers of the Environment at its semi-annual meeting in May 1995.

The Quebec Region developed a guide for the use of municipalities with respect to CFC recovery related to home appliances.

The Atlantic Region produced an *Ozone-depleting Substances Information and Identification Reference Guide* to assist Customs Inspectors in identifying illegal ozone-depleting substances entering and exiting Canada and gave seminars to 150 Canadian Custom inspectors, fisheries officers, and US Customs officers.

Notice on Essential Uses Exemptions

In July 1995, Environment Canada published a notice in the *Canada Gazette*, Part I inviting Canadian companies and institutions to submit requests for an exemption to the importation and production phase-out for CFCs, halons, methyl chloroform and carbon tetrachloride for 1997 and beyond. After a careful evaluation, only two types of exemptions were supported by the federal government and, therefore, presented to the Parties to the Montreal Protocol for approval: CFCs for use in metered-dose inhalers and CFCs, halons, methyl chloroform and carbon tetrachloride for use as analytical standards in laboratories.

Interim Orders

CEPA provides for the making of Interim Orders in specific circumstances where immediate action is required to deal with a significant danger to the environment or to human life or health. One Interim Order has been made in the last year.

Interim Order Respecting the PCB Waste Export Regulations

This Interim Order was put into place to ensure that Canadian PCB wastes are managed in an environmentally sound manner in Canada and to prevent any possible significant danger to the environment or to human life or health. Amendments to the PCB Waste Export Regulations, which include the provisions set out in the Interim Order, are currently under development.

Wastes

Export and Import of Hazardous Wastes Regulations (EIHWR)

During fiscal year 1995-96, 1,568 notices for proposed exports of hazardous wastes, 3,538 notices for imports and 500 notices for shipments in transit through Canada were processed. During the same period, 25,000 manifests were received for the tracking of shipments approved under the above-noted notices.

In the fiscal year 1995-96, the notice and manifest database system was redesigned as per the 1994 Needs Analysis study.

This new computerized tracking system, which includes the new client-server system, integrated voice response and fax on demand, will be tested in fiscal year 1996-97, and changes incorporated as required.

In support of compliance and enforcement for these regulations, the Ontario Region has set up a 24-hour hazardous waste response line for Canada Customs.

The Pacific and Yukon Region initiated two investigations in B.C. and one in Yukon of alleged violations of EIHWR but these investigations are not complete and no charges have been laid.

To satisfy the requirements of section 45 of CEPA, after receiving a notice for proposed imports, exports and transits of hazardous wastes, Environment Canada must publish the names of the Canadian importer, exporter, or notifier as well as the name and origin/destination of the waste in question. This information is published semi-annually in Environment Canada's newsletter RESILOG, which is now also available on the Internet at <http://www.doe.ca/resilog/resiloge.htm>.

Basel Convention

This Convention aims to manage the transboundary movement of hazardous wastes. It also supports the continued application of bilateral and multilateral agreements that promote environmentally sound management of hazardous wastes.

In September of 1995, the third meeting of the Parties to the Convention resulted in 28 decisions. One of these decisions, which calls for an amendment to the Convention, would see an immediate ban on the export of hazardous wastes from developed to developing countries for final disposal and would phase out exports for recycling by December 31, 1997.

Since that meeting, a number of technical meetings were held to better define which materials are covered by the Convention and subsequent "ban" amendment. Canada indicated that it would be unable to consider ratification of the amendment until the completion of this work.

Equivalency Agreements with the Provinces and Territories

Subsection 34(6) of CEPA allows for the federal government to enter into equivalency agreements with the provinces and territories as part of CEPA's legislative framework. Such agreements are an effective means to eliminate overlap and duplication in the administration of federal and provincial regulations. As such, they are partnerships that suspend all application of a federal CEPA regulation in a province or territory, excluding federal lands and facilities, by recognizing an equivalent provincial or territorial regulation. The federal government, however, retains its responsibility for reporting annually to Parliament on the administration of equivalency agreements.

Agreement on the Equivalency of Federal and Alberta Regulations on the Control of Toxic Substances in Alberta

This agreement, which was signed on June 1, 1994, continues to operate in Alberta. As a result of this agreement, the provisions of four CEPA regulations do not apply in Alberta: Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans, Pulp and Paper Mill Defoamer and Wood Chip (ss. 4(1), 6(2), 6(3)(b), 7 and 9 only), Secondary Lead Smelter Release and Vinyl Chloride Release. Equivalent Alberta regulations are applied by the province of Alberta and information on the compliance status of relevant industries and enforcement actions is provided to Environment Canada. Implementation of this agreement has successfully eliminated duplication of legislative requirements.

CEPA Part III: Nutrients

Part III of CEPA regulates the nutrient content of cleaning agents and water conditioners. When CEPA was created, the Phosphorus Concentration Regulations, previously under the *Canada Water Act*, were incorporated under Part III.

During the 1960s, one of the major concerns regarding the degradation of the Great Lakes focused on nutrient enrichment or eutrophication. Phosphorus was identified as the controlling element for eutrophication and, in 1972, controls were placed on the phosphorus content of household detergents. During the same period, programs were implemented at major municipal treatment plants in the Great Lakes Basin to control effluent phosphorus levels.

The National Water Research Institute (NWRI) continues its study of nutrient concentration trends in the Great Lakes and trends in Hamilton Harbour were measured and reported. Lately, amelioration in nutrient loads have ceased and water quality has stopped improving. As expected from OECD relationships, changes in nutrients cause changes in harbour water quality. Further nutrient controls will therefore have a beneficial effect on Hamilton Harbour. Lake Erie nutrient concentrations were at record low values in offshore waters.

The Wastewater Technology Centre (WTC) is currently evaluating low-cost innovative upgrading alternatives for enhanced nutrient removal for biological sewage treatment plants.

The National Hydrology Research Institute (NHRI) also undertook activities under Part III during 1995-96, completing final reports under the Northern River Basins Study, a major federal/provincial initiative to assess the effects of pulp mill effluents on the integrity of large northern rivers. The recommendations will form the basis for an integrated sustainability strategy for large river ecosystems.

As part of the NHRI's involvement in the Fraser River Action Plan, they are developing a citizen monitoring program in which local residents learn simple sampling techniques to determine water quality. NHRI has also begun a new research program to determine the relationships between the quantity of added nutrients and the response of benthic biota, the cumulative effects of long-term nutrient loading and the ecological consequences of interactions between nutrients and toxic substances. The information from this program can be used to establish regulatory guidelines for sustainable management of Canadian river ecosystems.

CEPA Part IV: Controls on Government Organizations

Under Part IV of CEPA, the Minister of the Environment has the authority to regulate waste handling and disposal practices and emissions and effluents from federal department, Crown corporation and federal agency activities.

During fiscal year 1995-96, the following initiatives were directed at the federal government:

- ▶ an Interdepartmental Working Group on Airport De-icing and the Environment was established to review and revise the discharge guidelines for glycols from federal facilities, expanding the current guidelines' focus on de-icing chemical management to overall airport stormwater quality management;
- ▶ a Contaminated Sites Management Working Group was created to address current issues pertaining to federal lands;
- ▶ technical Guidelines for Underground Storage Tanks Containing Petroleum Products and Allied Petroleum Products were issued;
- ▶ two regulations are being developed with respect to the registration of storage tank systems and halocarbons;
- ▶ Bill S-7, an act to accelerate the use of alternative fuels for motor vehicles, was promulgated;
- ▶ the Ontario Region established the first of a number of pollution prevention demonstration sites at CFB Trenton - B Wing. New pollution prevention technologies are being implemented and evaluated;

-
- ▶ this Region also hosted a three-day Environmental Issues Workshop as part of the popular Compliance Promotion Program. The compliance promotion newsletter and bulletins, ComPros and ComPro Update, continue to be produced;
 - ▶ the Manitoba Division of the Prairie and Northern Region also conducted a compliance promotion workshop for federal facilities on the Technical Guidelines for Underground Storage Tank Systems Containing Petroleum Products and Allied Petroleum and the proposed Technical Guidelines for Aboveground Storage Tank Systems Containing Petroleum Products and Allied Petroleum;
 - ▶ the Atlantic Region completed an inventory of the hazardous wastes generated by federal facilities in that Region which will be used to develop hazardous wastes management strategies at specific federal facilities;
 - ▶ the federal PCB Destruction Program was implemented; and
 - ▶ an MOU on Compliance with Transport Canada was signed.

Federal Code of Environmental Stewardship

The Federal Code of Environmental Stewardship commits federal government departments to conform with the requirements of CEPA and other federal environmental legislation, and to make their operations compatible with other levels of government where appropriate.

In support of environmental stewardship, the following initiatives were undertaken:

- ▶ mandates for the Federal Committee on Environmental Management Systems and the Environmental Accountability Partnership Committee were defined;
- ▶ the Policy on Greening of Government Operations was announced;
- ▶ three publications were released: A Guide to Green Government; Directions on Greening Government Operations; and Environmental Management System Self-Assessment Guide;
- ▶ the *Auditor General Act* was amended to create the position of Commissioner of the Environment and Sustainable Development, and to require departments to prepare sustainable development strategies;
- ▶ the Auditor General Report on Environmental Management System was published;
- ▶ Environmental Management System workshops were held;
- ▶ the Federal FleetWise initiative was launched;
- ▶ courses on best practices regarding waste reduction, green procurement and green construction were delivered;
- ▶ the Quebec Region's Sectorial Roundtable on Stewardship developed a regional interdepartmental action plan on the greening of government and organized a third Workshop on Environmental Issues.
- ▶ environmental performance self-assessment tools aimed at federal departments and agencies have been developed by the Quebec Region; and
- ▶ the Atlantic and Quebec Regions participated in a project aimed at eliminating PCBs, and allowing for decontaminated materials to be recycled.

CEPA Part V: International Air Pollution

Part V of CEPA covers activities related to domestic sources of air contaminants that create air pollution in other countries or violate international agreements.

Sulphur Dioxide (SO₂) Protocols

Canada has signed two protocols for managing SO₂ emissions under the United Nations Economic Commission for Europe (UNECE) Convention on Long-Range Transboundary Air Pollution. Canada has exceeded both of these commitments.

In 1995, national SO₂ emissions were estimated to be 2.6 million tonnes, or 19% below the agreed to national cap of 3.2 million tonnes. Emissions in a region of southeastern Canada referred to as the Sulphur Oxide Management Area (SOMA) were estimated to be 1.3 million tonnes, or 26% below the SOMA cap set at 1.75 million tonnes for the year 2000. These emissions reductions were largely achieved as a result of the federal-provincial Eastern Canada Acid Rain Program, which capped provincial SO₂ emissions in the seven easternmost provinces. Provincial regulations ensured that the caps were met on time. Some western provinces also set stringent emission requirements on certain major new sources, such as natural gas plants, to minimize the growth in emissions.

However, even with full implementation of both the Eastern Canada Acid Rain Program and the U.S. Acid Rain Program, Canada will continue to receive harmful levels of acid deposition. As a result, Canada is working with the provinces to develop, by 1997, a new National Strategy on Acidifying Emissions to further protect the environment and human health.

The Atlantic Region completed a feasibility study respecting emissions trading for sulphur dioxide management in Atlantic Canada.

Nitrogen Oxide (NO_x) and Volatile Organic Compound (VOC) Protocols

Under UNECE agreements, Canada has signed protocols for both NO_x and VOC reductions. Canada has met the commitments of the First Nitrogen Protocol, freezing NO_x emissions at 1987 levels beginning in 1994. The Second Nitrogen Protocol is currently being developed. The VOC Protocol commits Canada to a freeze on VOC emissions at 1988 levels beginning in 1997 and a 30% reduction in the Lower Fraser Valley (LFV) of British Columbia and in the Windsor-Quebec Corridor (WQC). Canadian VOC emissions are being reduced and additional control measures are being developed to further reduce emissions in the LFV and WQC.

Because a majority of the ozone smog in Canada is the product of pollutants transported from the United States, Canada is closely following U.S. actions to cut smog-producing emissions, as well as working with the U.S. to move towards binational actions on smog.

Progress is also being made on implementing a transboundary, open market Pilot Emission Reduction Trading program for NO_x emission sources in Ontario. There may also be an opportunity for Canada to link with an interstate budget/trading framework for large stationary sources that has been developed by the 37-state Ozone Transport Assessment Group (OTAG) in the United States.

Implementation of recommendations from the CCME "Cleaner Vehicles and Fuels Initiative" will harmonize Canadian control standards for vehicles with those in the U.S. and introduce low-emission vehicle technology and reformulated vehicle fuels to the Canadian market.

National and Regional Smog Management Plans

As originally anticipated in the 1990 NO_x/VOC Management Plan, a second phase of additional measures need to be implemented to consistently meet the 82 parts per billion (ppb) ozone objective.

This Next Steps Smog Plan will contain a review of the smog issue, including the relevant scientific advancements, the results of the 1990 measures and the additional requirements to meet the 82 ppb objective. It will also describe the regional plans for the LFV, the Ontario and Quebec portions of the WQC and the Southern Atlantic Region (SAR). These areas have been identified as having the most serious smog problems in Canada. Preliminary work has begun on the development of Regional Plans for the Ontario and Quebec segments of the WQC and for the SAR. The LFV has had a smog reduction plan in effect for several years. The Next Steps Smog Plan will be presented to the CCME in 1997.

Canada-United States Air Quality Agreement

The Canada-United States Air Quality Agreement was signed in 1991 to protect both countries from transboundary air pollution. While the Agreement provide a framework to deal with all transboundary air pollution, it currently only contains commitments for SO₂ and NO_x emissions, aimed at reducing the acid rain problem.

The Agreement reiterates Canada's commitments to cap national SO₂ emissions at 3.2 million tonnes. It also calls for a 10% reduction in NO_x emissions from stationary sources by the year 2000 and NO_x emission controls on mobile sources equivalent to those in the U.S.. Canada has met its SO₂ commitments, as discussed under "Sulphur Dioxide Protocols," and will achieve the NO_x commitments.

The U.S. is committed to reducing its SO₂ emissions by 40% from 1980 levels by 2010, and its NO_x emissions by 10% by 2000. It is on track to meet these commitments.

In 1995, as per the Agreement, Canada and the U.S. completed a five-year review of the Air Quality Agreement, with input from the public. Both countries concluded that the Agreement is largely working as intended but that a few differences still remain. They also acknowledged that control of transboundary air pollution has not occurred to the extent necessary to protect the environment, particularly for acid sensitive areas. Canada and the U.S. are currently determining what follow-up action is required. The review will be published in the *1996 Progress Report on the Air Quality Agreement* scheduled for release in the fall of 1996.

With respect to the Canada/U.S. Regional Ozone Study Area (ROSA), Ontario Region prepared an analysis of 1995 ground-level ozone season in Ontario, including the preparation of back trajectories for source region analysis during specific episodes of poor air quality.

The Ontario Region also participated in discussions between Canada and the U.S. to investigate the feasibility of, and interest in, establishing an agreement on an air quality management plan for protected spaces within the Great Lakes Basin. Further discussions are planned.

CEPA Part VI: Ocean Dumping

For the most part, contamination of Canada's oceans and coastlines is the result of human activities, one of which is the disposal of wastes at sea. Part VI of CEPA protects our marine environment from the consequences of these activities by taking a comprehensive approach to waste management, pollution prevention and coastal zone management. At the same time, it allows Canada to meet its international obligations under the London Convention, 1972.

Ocean disposal is considered by Environment Canada to be a last resort, to be used only for non-hazardous substances and only after all other methods of disposal have been judged unacceptable. Ocean disposal is not allowed if practical opportunities are available to recycle, reuse or treat the waste. Neither is disposal allowed if the activity is prohibited under any Act of Parliament, or if a licence or permit required under any other Act has not been obtained.

Permits for Ocean Dumping

Each application for disposal at sea is evaluated separately to determine if a permit will be issued. Permits typically govern timing, handling, storing, loading, placement at the disposal site, and monitoring requirements.

Permits Granted in 1995-1996

Over the past year, Environment Canada issued 91 permits for the disposal of an estimated 7.6 million metric tonnes of material. This quantity reflects the amount approved for disposal as opposed to the actual quantity disposed of at sea. Disposal activities are still ongoing for many permits issued.

Permits Rejected in 1995-96

Environment Canada did not reject any applications in the past year as all the requests received met the regulatory requirements.

Regional Forecasts for 1996-97

The number of permits for dredging and fisheries waste is expected to remain stable over the next year with the exception of the Prairie and Northern Region (P&NR) where no dredging applications are expected. However, P&NR will carry out the final site inspection as a result of an ocean dumping permit issued in 1994 respecting the first sub-sea gas distribution tree abandonment to take place in Canadian waters.

Quantities for Permits Issued 1995-96

Material	No. of Permits	Quantity (Tonnes)	Percent of Permits	Percent of Quantity
Dredged*	49	6,235,125	54%	82%
Excavated**	4	1,300,000	4%	17%
Fish Waste***	35	40,020	38%	0.5%
Other****	3	2,958	3%	0.04%
Total	91	7,579,003	100%	100%

- * Rocks, gravel, sand, silt, clay and wood wastes
- ** Mostly soil and rocks
- *** Includes offal, shells, herring waste and fish processing wastewater
- **** 2,400 tonne vessel to create a diving attraction on the West Coast; abandonment of the Drake F-26 offshore subsea wellhead in the Arctic; and disposal of a decommissioned fishing vessel.

Quantities Permitted by Region 1995-96

Material	Atlantic		Pacific/Yukon		Quebec		Prairie/Northern	
	No. of Permits	Quantity (tonnes)	No. of Permits	Quantity (tonnes)	No. of Permits	Quantity (tonnes)	No. of Permits	Quantity (tonnes)
Dredged*	18	1,861,200	13	130,000	18	4,243,850	0	0
Excavated**	0	0	0	0	4	1,300,000	0	0
Fish Waste***	28	36,795	7	4,125	0	0	0	0
Other****	1	308	0	0	1	2,400	1	250
Total	47	1,898,303	20	134,125	23	5,546,250	1	250

- * Rocks, gravel, sand, silt, clay and wood wastes
- ** Mostly soil and rocks
- *** Includes offal, shells, herring waste and fish processing wastewater
- **** 2,400 tonne vessel to create a diving attraction on the West Coast; abandonment of the Drake F-26 offshore subsea wellhead in the Arctic; and disposal of a decommissioned fishing vessel.

Research to Support Ocean Dumping Regulations

Environment Canada continues to improve the tools it uses to assess the materials intended for disposal at sea. Bioassays are becoming standard assessment tools to evaluate the effects of contaminants in the marine environment. Researchers have already developed several standard protocols to assess the quality of municipal and industrial effluents, and work on sediment bioassays is well underway.

Three new Canadian sediment bioassays to evaluate sediment trace chemical concentrations on crustacean mortality, sea urchin reproduction and fluorescence from photoluminescent bacteria have been completed and published. In addition, the U.S. protocol to evaluate bioaccumulation using a clam species is being used. As well, work is expected to be completed, in fiscal year 1996/97, on a bioassay that examines changes in the growth of marine worms. Guidance to aid in the interpretation of these bioassays is being developed to ensure they are applied in a consistent manner. As part of this work, a pollution gradient study is underway to examine effects resulting from decreasing concentrations of pollutants from a single source.

A protocol for deriving sediment quality guidelines was developed and adopted by CCME in March 1995. From this protocol, draft guidelines for several contaminants have been produced and will be used as screening levels in the proposed Waste Assessment Framework for assessing dredged sediments in the Ocean Disposal Program.

International Activities

The Parties to the London Convention, 1972 will be completing a three-year amendment process to address immediate and long term disposal at sea issues. In 1996, the parties to the Convention will convene to discuss long-term proposals to update the Convention.

Ocean Dumping Control Action Plan

In November 1991, Environment Canada established the Ocean Dumping Control Action Plan to devote additional resources to safeguarding the marine environment.

Since the implementation of this plan, monitoring guidelines are progressively being developed, field-tested and phased into routine disposal site monitoring. Long-term surveys are now underway under the marine debris program. A report detailing the first year's results will be released this coming fiscal year. As well, information products, including a World-Wide Web site on the Department's Green Lane, a newsletter and a fact sheet, are available.

Amendments to the Ocean Dumping Regulations

During 1995-96, work has continued on the development of proposed new environmental assessment procedures and standards to better account for effects on the marine environment. These amendments should be in force in 1997-98. Between October 1993 and February 1995, consultations were undertaken across Canada in preparation for developing these amendments. Changes contemplated include:

- ▶ adopting a tiered testing approach to evaluate materials for ocean disposal;
- ▶ new marine environmental quality guidelines and biological assessment tools; and
- ▶ incorporating the Waste Assessment Framework of the London Convention 1972.

CEPA Part VII: General Information

CEPA Part VII contains general provisions respecting the establishment of boards of review, enforcement of, and compliance with, the Act and intergovernmental administrative agreements.

Notices of Objection and Boards of Review

The public may file a "notice of objection" respecting certain decisions or proposed regulations. Under procedures set out in Part VII of CEPA, a Board of Review may be established to examine a notice of objection.

During 1995-96, no Notices of Objection were received and, therefore, no Boards of Review were established.

Enforcement and Compliance

Environmental legislation seeks to safeguard a healthy environment and promote sustainable development. Compliance with the law is mandatory and most Canadians comply with legislation voluntarily. Environment Canada uses both enforcement and compliance promotion to motivate compliance with environmental legislation.

Enforcement Powers

CEPA provides for enforcement powers, including powers to inspect, search for and seize evidence, issue directions, and prosecute for offences with penalties that include fines, jail sentences or court orders. Proposed amendments to CEPA will provide a more flexible means of penalizing violators in proportion to the seriousness of the offence.

Enforcement and Compliance Policy

CEPA's Enforcement and Compliance Policy establishes principles for fair, predictable and consistent enforcement. It informs all parties who share responsibility for protecting the environment - governments, industry, organized labour and individuals - about what is expected of them and what to expect from the officials who promote compliance and enforce regulations.

Enforcement

Compliance means the state of conformity with the law. CEPA provides for a variety of mechanisms to verify compliance, including inspection, taking of samples, auditing of reports, responding to tips, self-reporting and investigations.

Inspection programs verify compliance with the laws and their regulations. Regular inspections are carried out according to an annual National Inspection Plan which identifies the quantity and types of inspections and monitoring activities to be carried out each year. Inspections are also conducted in response to spills, tips and complaints. When violations occur, detailed investigations are undertaken to gather evidence and information in order to make a decision on the appropriate action.

Action is necessary in situations where there is non-compliance with the legislation and may include:

- ▶ verbal and/or written warnings;
- ▶ inspector's directions or orders from the Minister;
- ▶ increased regulatory burden (e.g., more stringent reporting and inspection requirements);
- ▶ injunctions;
- ▶ licensing sanctions (e.g., increased restrictions and suspensions);
- ▶ criminal prosecutions; and
- ▶ civil suits by the Crown to recover costs.

Enforcement Activities 1995-96								
Regulations	Inspections	Investigations	Warnings		Directions	Prosecutions	Convictions	Acquittals/ Withdrawals
			Govt	Other				
PCB Material Storage	338	7	13	49	-	1	1	-
Chlorobiphenyls	101	3	-	-	-	1	-	-
PCB Waste Export	11	-	-	1	-	-	-	-
PCB Destruction	10	1	-	-	-	-	-	-
Secondary Lead	37	-	-	-	-	-	-	-
Vinyl Chloride	5	3	-	-	-	-	1	-
Asbestos Mines and Mills Release	28	-	-	-	-	-	-	-
Chlor-alkali Mercury Release	2	-	-	-	-	-	-	-
Domestic Substances List	3	-	-	-	-	-	-	-
Gasoline	6	-	-	-	-	-	1	-
Ozone-depleting Substances	30	8	-	4	-	-	-	-
Ozone-depleting Products	109	6	-	4	-	3	4	1
Ocean Dumping	81	-	-	7	-	1	-	-
Export/Import of Hazardous Wastes	158	15	-	4	-	9	1	-
Phosphorus Concentration	17	-	-	1	-	-	-	-
Dioxins and Furans	14	3	-	3	-	-	-	-
Defoamer and Wood Chips	6	-	-	-	-	-	-	-
Toxic Substances Export Notification	5	-	-	-	-	-	-	-
Others	2	-	-	-	-	-	-	-
Sub-Total	963	46	13	74	0	15	9	1
Files Closed	-	48	-	-	-	-	-	-
Total	963	94	13	74	0	15	8	1

(as of 12 August 1996)

Prosecutions 1995-96

Name of Individual or Company	Status	Offence Date and Location	Date Charged	Regulations and Offence	Court Date	Result	Penalty	Notes
Atlantic Region								
Werner's Wholesale Group Inc./Société de Commerce en Gros Werner Inc. (D.S. Fraser) and (This file consists of 3 distinct prosecutions in 3 different geographic locations)	Concluded	95/04/24 - 95/10/20 (Fredericton) 95/05/08 - 95-10/20 (Moncton) 95/10/06 - 95/10/20 (Dartmouth)	96/01/15	Ozone-depleting Substances Products Regulations 7 counts 11 Counts 3 Counts	96/03/27	Guilty Plea	\$9,000 Fine	The company pleaded guilty to a total of ten charges - nine for selling the product and one for offering the product for sale. A court order was issued directing Werner's Wholesale Group Inc. to be responsible for disposing of the products in an environmentally safe and acceptable manner.
Quebec Region								
Narinder Nath carrying on business as Exporteurs et Importeurs Nath 10500 L. Acadie Boul., Montreal	For Trial	93/12/15 and 94/12/22	95/10/08	Export and Import of Hazardous Waste Regulations (EIHWR) 26 Counts	96/08/16			Allegedly exported zinc wastes in 12 instances in the Port of Montreal without giving prior notice.
Metalchem Inc. 1725, Washington Rd. USA Metalchem Canada Inc. 200, Argentina Rd., Ontario	Concluded	93/08/30 and 93/09/01	95/08/14	EIHWR 2 Counts	96/06/06	Charges With-drawn		Allegedly exported lead-dross eight times between 93/08/30 and 93/09/29.
Laidlaw Medical Services Inc. Etobicoke, Ontario Gatineau, Quebec	Concluded	94/01/23 and 94/02/11	95/04/10	EIHWR 14 Counts	95/06/19	Guilty Plea	\$8,000 Fine	The company pleaded guilty to two counts and was fined \$4,000 for each. The remaining counts were withdrawn by the Crown.
Hydro Quebec Station No. 3 Shawinigan, Quebec	For Trial	June 11, 1995 Shawinigan	96/03/18	PCB Interim Order	96/11/18			
Ontario Region								
Motilal Dhar carrying on business as Dhar Trading Company	Concluded	April 1994 to March 1995 (Toronto)	96/02/08	EIHWR 16 Counts	96/06/21	Guilty Plea	\$2,500 Fine	Mr. Dhar pleaded guilty to one count. The remainder of the charges were withdrawn.
Walter Faggion and North American Zinc Company Stoney Creek, Ontario	Closed	1993-1995 (Stoney Creek)	95/12/12	EIHWR 70 Counts	96/05/10	Charges With-drawn		Crown prosecutor and the judge withdrew the charges after a re-examination of the evidence.
Mida Metals Int'l Inc. and Brian Love Burlington, Ontario	Stayed	1993-1994	95/12/12	EIHWR 62 Counts	96/07/10	Charges Stayed		All charges against the company and Brian Love were stayed.
Triloki Vashist and Narinder Nath operating a business as T&N Enterprises Exporters & Importers and TNV Trading Ltd. Brampton, Ontario	For Plea	1994-1995	95/06/30	EIHWR 40 Counts	97/01/ 21-23			40 charges were laid for allegedly exporting hazardous waste without meeting the prescribed condition for such exports contrary to the provisions of EIHWR and CEPA.
G.H. Johnson's (Dufferin) Ltd. and Patrick Johnson Toronto, Ontario	Concluded	94/07/08	95/05/01	Storage of PCB Material Regulations 22 Counts	96/01/16	Guilty Plea	\$10,000 fine for G.H. Johnson's & \$5,000 fine for Patrick Johnson	There was a total of three counts at \$5,000 each.
Harish Ghandi operating as Sokari International Mississauga, Ontario	For Trial	April 1993 to September 1994	95/05/17	EIHWR 36 Counts	97/01/ 21-23			
Prairie & Northern Region								
SHRED-A-CAN Recyclers Ltd. Bay 1, 861644 Street S.E. Calgary, Alberta	For Trial	December 1994 to March 1995	95/10/17	EIHWR	96/10/ 23-25			
Pacific & Yukon Region								
JJM Construction Ltd., Miller Contracting Ltd., John J. Miller (Pres) and John W. Lamberton (Captain) 8828 River Road Delta, B.C.	For Trial	95/9/13 and 95/11/17	95/12/19	Ocean Dumping Regulations 2 Counts	97/05/12			

Note: Where there has been no finding of guilty, the information contained herein is only alleged

(as of 12 August 1996)

Applications for Investigations

Under section 108 of CEPA, any two residents of Canada (18 years of age or older) who believe that an offence has been committed under CEPA may request an investigation of the alleged offence. One investigation was pursued under Section 108 during the past year. No violation of CEPA was found.

Implementation Strategies

During the fiscal year 1995-96, implementation strategies have been developed for enforcing regulations dealing with pulp and paper mills and the export and import of hazardous wastes. These strategies include compliance verification and inspection activities for specific provisions as well as possible actions to deal with alleged infractions. Section by section analysis of these regulations incorporates legal, technical and enforceability issues as background for inspectors. This provides overall guidance and inspection priorities.

National Training Program

Training is of major importance in maintaining and enhancing Environment Canada's continually evolving enforcement program. The National Training Program delivers a variety of courses both to officers and analysts in duties ranging from basic inspection skills to very specialized regulation-specific enforcement activities. In 1995-1996, Environment Canada delivered the following CEPA related courses:

- ▶ Train the Trainers;
- ▶ Basic Course for Inspectors;
- ▶ Expert Witness Course;
- ▶ Health and Safety Training Course;
- ▶ Basic Course for Investigators;
- ▶ New Substances Notification Regulations Course;
- ▶ Course for Chilean Inspectors;
- ▶ Sampling Pilot Course;
- ▶ Export/Import of Hazardous Wastes Course; and
- ▶ Environmental Audit Pilot Course.

A catalogue of training courses offered by Environment Canada is available on request.

International Activities

International activities include coordinating transboundary enforcement activities, many of which relate to enforcement of CEPA and its regulations. As well, several international conventions and agreements to which Canada has signed are related to compliance with CEPA.

Internationally, Environment Canada participated in, co-organized, and provided funding for the Fourth International Environmental Enforcement Conference in Thailand. Capacity building, training and encouraging the development of regional networks were the theme of this conference.

The North American Agreement for Environmental Cooperation (NAAEC), a side-agreement to the North American Free Trade Agreement (NAFTA), obliges each of the parties to the Agreement (Mexico, USA and Canada) to report annually to the North American Commission on Environmental Cooperation (NACEC) on their respective environmental enforcement activities. The first such report was prepared in draft form and conveyed to the NACEC for release in 1995-96.

The Environmental Technology Advancement Directorate and the Wastewater Technology Centre (WTC) collaborated with Mexico's Institute of Water Technology and National Water Commission to develop a national water sector operators training and certification program. Implementation financing has been approved by the World Bank.

A Working Group on Enforcement with the US and Mexico was formed during the year. During 1995-1996, several joint transboundary projects were implemented and others planned for the future.

Computerized Information Systems

Implementation of the Enforcement Activities Tracking System (EATS) continued in 1995-96 as more CEPA inspectors were introduced to the program. The basic system was put in place and training was provided in every Region. Future enhancements to increase user satisfaction have been identified necessary modifications will be made.

Agreements with Provinces and Territories

Section 98 of CEPA provides for the federal government to enter into administrative agreements with the provinces and territories.

Such agreements are invaluable cooperative tools for federal, provincial and territorial governments to attain common environmental protection goals on mutually acceptable terms in an administratively efficient manner, while ensuring national environmental standards remain consistent.

Administrative Agreements

Administrative agreements are "work-sharing" partnerships that allow federal, provincial and territorial governments to share the work of administering regulations. They can cover such activities as inspection, enforcement, monitoring and reporting, but do not release any of the parties from their respective responsibilities. Under an administrative agreement, the federal government remains accountable to the Canadian people through Parliament and, therefore, must report annually to Parliament on the agreement.

Agreement between the Government of Quebec and the Government of Canada respecting the Application in Quebec of Federal Pulp and Paper Mill Regulations

This Agreement harmonizes federal and provincial regulatory requirements and provides a single window to industry for the enforcement and compliance of two pulp and paper regulations under CEPA, as well as *Fisheries Act* requirements. It expired January 1, 1996 and negotiations are continuing with respect to the development of a new agreement.

Administrative Agreement for the Administration of Federal-Provincial Pulp and Paper Effluent Regulations within the Province of Ontario

This administrative agreement is under negotiation. When complete, it will encompass the Pulp and Paper Mill Defoamer and Wood Chip Regulations and the Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations pursuant to CEPA as well as the Pulp and Paper Mill Effluent Regulations under the *Fisheries Act*.

Canada-Saskatchewan Administrative Agreement for the Canadian Environmental Protection Act

An administrative agreement for CEPA with the province of Saskatchewan continues to apply to many regulatory aspects of the Act, including specific regulations respecting ozone-depleting substances, PCBs and pulp and paper mills. Among other things, the Agreement provides a one-window spill reporting arrangement with all reports through the province. During the reporting period, training was provided, under the Agreement, to provincial inspectors to allow for their designation as CEPA inspectors for the purpose of receiving spill reports. Training of provincial inspectors of pulp and paper mills was also provided. Provincial inspection of the one regulated pulp and paper mill in Saskatchewan showed compliance with federal pulp and paper regulations. Work will continue during the coming year on spills reporting and the development of a formal mechanism for the exchange of information related to ozone-depleting substances and PCBs.

Canada-Northwest Territories Framework Agreement for Environmental Cooperation in the Northwest Territories

A general framework agreement was signed with the Government of the Northwest Territories in November, 1995. Annexes to the Agreement on specific areas of cooperation are under development.

Agreement on the Administration of Federal Legislation for the Control of Effluents from Pulp and Paper Mills in the Province of British Columbia

This Agreement harmonizes federal and provincial regulatory requirements and provides a single window to industry for the enforcement and compliance of two pulp and paper regulations under CEPA, as well as *Fisheries Act* requirements. During the reporting period, training was provided to 50 provincial investigative staff of the Conservation Officer Service and Regional Waste Managers on their respective obligations under the terms of the Agreement; finalization of the single format electronic data reporting system is expected to be completed by the end of 1996; and inclusion of federal requirements will be required in all future provincial effluent permits as they are amended. This Agreement was signed in September 1994, and expired March 31, 1996. Negotiations are continuing towards the development of a new broader Agreement which could cover other industrial sectors in addition to pulp and paper.

Canada/Yukon Environmental Protection Agreement

Signed in May of 1995, the Canada/Yukon Environmental Protection Agreement identifies areas for cooperation in the planning and delivery of programs for environmental protection in Yukon including activities such as: monitoring, standards, training and conferences, inspection, spills and enforcement and compliance.