



*Canadian Environmental
Protection Act*

**CEPA ANNUAL REPORT:
APRIL 1998 TO MARCH 1999**



Canadian Cataloguing in Publication Data

Canada. Environment Canada

Canadian Environmental Protection Act, annual report
for the period ...

Annual.

Description based on 1998-1999.

Text in English and French on inverted pages.

Title on added t.p.: *Loi canadienne sur la protection de
l'environnement*, rapport annuel pour la période ...

Report year ends March 31.

Issued also on the Internet.

ISBN 0-662-64540-5

Cat. no. En40-11/22-1999

ISSN 1488-8556

1. Canada. Canadian Environmental Protection Act -- Periodicals.
 2. Environmental law -- Canada -- Periodicals.
 3. Environmental protection -- Law and legislation -- Canada -- Periodicals.
 4. Pollution -- Law and legislation -- Canada -- Periodicals.
 5. Environmental policy -- Canada -- Periodicals.
- I. Title.

KE3575.C32C32 1999 354.3'35'097105 C99-980409-XE



Canadian Environmental Protection Act

**CEPA ANNUAL REPORT:
APRIL 1998 TO MARCH 1999**

MINISTER'S MESSAGE

I am pleased to present this report on the implementation of the *Canadian Environmental Protection Act* (CEPA) from April 1, 1998 to March 31, 1999. The year saw a number of achievements about which you will read in the pages that follow.

Science guides action

I am particularly impressed by the excellent scientific work that has been accomplished by scientists here in this department, and at Health Canada under my colleague, Minister Allan Rock. The thorough and painstaking efforts of scientists are significantly improving our ability to understand the impact of toxic substances on the environment and on human health and to decide what action needs to be taken. With this information, we are able to make informed policy choices that address the real problems in the most effective way.

At work here and internationally

As a net receiver of airborne pollutants, Canada has a strong interest in encouraging environmentally responsible choices around the world. Our negotiators have helped to craft milestone international agreements, such as the one signed in 1998 on Persistent Organic Pollutants under the United Nations Economic Commission for Europe. International agreements, cooperation and information sharing are critical for the success of our global efforts to protect the environment and human health, and to support the shift to sustainable development.

Lessons learned

The key lesson that we have learned, since the consequences of the use of DDT and the damage caused by acid rain first alerted us to the need for action 25 years ago, is that pollution prevention and environmental remediation require a concerted, collaborative effort. Provincial, territorial, aboriginal, municipal and foreign governments, industry, the non-governmental sector, communities and the people who live in them all have to take responsibility and take action.

We can succeed when we work together

We are seeing progress. For example, effluent from pulp and paper mills no longer contains the toxic substances that are most threatening to the environment. The industry understood it was time to make a change and did. We now have collaborative projects with other industrial sectors, such as the printing and graphics industry and the dry cleaning industry, to find ways to eliminate the use of the most toxic substances and to prevent pollution.

The Internet gives us the opportunity to share information, ideas, developments and solutions with Canadians and with our neighbours around the world. The Green Lane and other web sites are a rich resource for anyone who wants to know more about Environment Canada's scientific research, funding for community action and environmental projects, work being done on challenges such as climate change, and a wealth of other CEPA-related issues. You will be impressed by the quality of material available through the Internet. This reflects one aspect of our expanding efforts to share information with the public and satisfy the community's right to know.



I believe that as people become more informed, they will become more involved, and the willingness to make required changes will grow. We will not succeed alone. We can succeed, however, when we work together.

Moving forward with CEPA

Within this context, CEPA gives the federal government the legislative framework for regulating toxic substances, responding to international air pollution, controlling the disposal of items at sea and promoting compliance with the law. During the just over 10 years that CEPA has been in place, we have accomplished a great deal.

On September 14, 1999, a renewed CEPA was passed by Parliament. The new Act includes powerful tools that will enhance our collective ability to prevent pollution and effectively address environmental problems. These new tools include:

- requirements for companies to develop a pollution prevention plan
- commitments to virtually eliminate the release of persistent bioaccumulative toxic substances
- protection for individuals who report a CEPA violation, and
- increased opportunities for Canadians to know more about pollution prevention activities and results.

Now, with a renewed CEPA, we will be able to move forward with purpose, building on a solid foundation of science, knowledge and experience.



David Anderson
Minister of the Environment

TABLE OF CONTENTS

SECTION 1: OVERVIEW OF CEPA IMPLEMENTATION, 1998–99	1
SECTION 2: PART-BY-PART REPORT ON CEPA IMPLEMENTATION, 1998–99	3
Part I – Environmental Quality; Objectives, Guidelines and Codes of Practice	3
<i>Scientific Research and Development: The Foundation of</i>	
<i>CEPA Implementation</i>	3
<i>Objectives, Guidelines and Codes of Practice</i>	11
Part II – Toxic Substances.....	12
<i>The Domestic Substances List.....</i>	13
<i>New Substances Notification Regulations</i>	13
<i>Biotechnology Substances.....</i>	14
<i>Priority Substances</i>	14
<i>Toxic Substances Management Policy</i>	17
<i>Fuel Regulations</i>	18
<i>Collecting Data to Assist with Substance Assessment and Management.....</i>	19
<i>Interdepartmental Cooperation.....</i>	19
<i>Hazardous Wastes</i>	20
<i>National Pollutant Release Inventory.....</i>	21
Part III – Nutrients	21
Part IV – Federal Departments, Agencies, Crown Corporations, Works,	
Undertakings and Lands	22
Part V – International Air Pollution	23
<i>Canada’s International Commitments.....</i>	24
<i>Climate Change.....</i>	26
Part VI – Ocean Dumping	27
Part VII – General	29
<i>The Context for Enforcement: Compliance Is the Goal</i>	30
<i>Enforcement on the Net.....</i>	31
<i>Equivalency Agreements</i>	33
<i>Administrative Agreements</i>	33
SECTION 3: CEPA-RELATED ACTIVITIES	36
<i>Public Access to Information</i>	36
<i>CEPA Federal–Provincial Advisory Committee</i>	36
<i>Activities in Preparation for a Renewed CEPA</i>	37
<i>Pollution Prevention Activities</i>	37
<i>Categorizing Substances on the DSL</i>	39
<i>Substances Banned or Severely Restricted by Other Jurisdictions</i>	39

SECTION 4: CEPA-RELATED INFORMATION 40

Research Publications..... 40

Contact Names for Environment Canada Information..... 40

Acronyms 42

SECTION 1: OVERVIEW OF CEPA IMPLEMENTATION, 1998–99

“It is hereby declared that the protection of the environment is essential to the well-being of Canada...” These words, which are the first words of the *Canadian Environmental Protection Act* (CEPA), set the context for the 149 sections that follow. Canada’s environmental protection is the essential purpose of the law.

Implementation of CEPA involves the following cycle of activities:

- *Research and development* — The starting point for CEPA activity is science. Science informs decisions about how to classify a substance, what types of measures are possible and what may be required to protect the environment. Hand in hand with this science are technological developments and new approaches to measuring impacts and preventing pollution. The first part of this Annual Report provides a review of some of the year’s significant scientific and technological achievements. We cannot include them all! Environment Canada and Health Canada scientists published over 300 reports, papers, book chapters and other materials, which document only a portion of their research work.
- *Policy development/consultation* — With research results in hand, we are able to work with stakeholders to determine how best to manage certain substances and what kinds of controls are required. Involving other government departments, other jurisdictions, industry and non-governmental organizations in this process has proved to be an excellent way of doing business. We can explain the scientific assessment of a substance, increase awareness and understanding of the issues involved, learn more about the real-world factors at play and then work towards a consensus on recommendations for action. The results contribute to an improved implementation process.
- *Implementation* — CEPA provides a variety of mechanisms for achieving the goal of environmental protection. Objectives and guidelines, covered in Part I, set benchmarks, while enforcement options, covered in Part VII, provide penalties for the failure to comply with the law and its regulations. We continue to explore ways to ensure that controls and limits on the use or release of toxic substances are respected.
- *Feedback* — Again, science helps us to assess the effect of the measures that have been taken. Are the controls working? What else needs to be done? Is there an acceptable level of compliance with guidelines, or

Environment Canada administers CEPA on behalf of the federal government and shares with Health Canada the task of assessing and managing the risks associated with toxic substances.



do regulations need to be put in place?
Monitoring the state of the environment
and reporting on it so that stakeholders
can participate in the evaluation of current
efforts are other essential CEPA-related
activities.

It is clear that the work undertaken in the context of CEPA is extremely broad. There are, in fact, many challenges associated with reporting on CEPA in any given fiscal year. The enormous volume of work to consider for the Annual Report means that difficult decisions have to be made about what to include. As well, it is sometimes hard to distinguish between departmental activity related to CEPA and other departmental accomplishments. Finally, many projects run over several years, as they move through the research and development → policy development/consultation → implementation → feedback cycle. At what stage do they go from being a work-in-progress to becoming an “achievement,” the successfully completed phase in a project that warrants a line or two in this report?

The pages that follow can therefore provide you with only a snapshot of CEPA accomplishments in 1998–99.

- Section 2 presents information on the implementation of each of CEPA’s seven major parts.
- Section 3 details some of the work that the Department has done to get ready for the passage of Bill C-32 and the implementation of the renewed CEPA.
- Section 4 provides resource information.

We encourage readers to refer to the web sites referenced throughout this Annual Report for more information about items of interest to them.



SECTION 2: PART-BY-PART REPORT ON CEPA IMPLEMENTATION, 1998–99

Part I Environmental Quality; Objectives, Guidelines and Codes of Practice CEPA Sections 7–10

Part I authorizes the Minister to undertake scientific research relating to environmental pollution and to set objectives, guidelines and codes of practice relating to the quality of the environment.

Scientific Research and Development: The Foundation of CEPA Implementation

Through scientific research and development, we can evaluate the impact of toxics on the environment and human health, determine levels of exposure to contaminants that are of acceptable risk, monitor changes to the environment over time and develop solutions to problems. Scientists also look for ways to minimize risk associated with exposure to contaminants as they search for explanations and alternatives. Without this knowledge, we would not know when to set limits on the use of a substance, what limits to set, how to prevent or clean up problems or how to replace the substance with another that has less, and preferably no, damaging qualities.

A wide range of scientific work supports the implementation of CEPA. It falls into four broad categories:

- monitoring,
- research and development,
- testing, and
- advice.

Monitoring

Monitoring changes in the environment, an important component of the scientific work supporting the implementation of CEPA, is essential for assessing the impact of toxics and the effectiveness of measures meant to minimize environmental damage and potential threats to human life. While resources for large-scale, national monitoring programs have declined during the last 10 years, federal, provincial, and territorial governments have increased their cooperative/collaborative efforts in monitoring activities. During 1998–99, ongoing environmental monitoring continued through the following main efforts:

- *National Air Pollution Surveillance (NAPS) Network* — This joint federal–provincial–municipal program, established in 1969, assesses the quality of ambient air in Canadian urban centres. There are over 150 monitoring stations in 55 cities throughout the country. In 1998–99, air monitoring focused on sulphur dioxide (SO₂), carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃) and air toxics: volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated dibenzodioxins/dibenzofurans (PCDDs/PCDFs) and acid aerosols. The NAPS annual data for 1995 and 1996 were published in hard copy and on the Internet. The 1997 data have been collected and validated in preparation for publication.

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



- *Canadian Air and Precipitation Monitoring Program* — The current network of 18 regionally representative sites has been monitoring air and precipitation chemistry, with special attention to transboundary transport, for almost 20 years. The initial focus was on acid rain, but now smog pollutants (ozone and particulate matter) are also measured at some sites. The data, along with information from other networks, are validated and stored for analysis in the National Atmospheric Chemistry database.
- *Acid rain levels* — The amount of sulphate (the main acidifying pollutant) deposited by rain and snow has gone down from the early 1980s to the early 1990s. This is a direct result of reductions in emissions of sulphur dioxide, primarily from primary metal smelters and coal-burning utilities in Canada and the United States.
- *Integrated Atmospheric Deposition Network* — This joint Canada–United States program assesses the atmospheric delivery of persistent toxic substances to the Great Lakes. A second implementation plan was signed in 1998–99, adding the impact of air pollution on urban areas. An updated list of substances to measure will also be prepared.

<http://airquality.tor.ec.gc.ca/IADN>

- *Ecological Monitoring and Assessment Network (EMAN)* — Environment Canada is the coordinating partner in a national network of more than 140 agencies conducting long-term, multi-disciplinary environmental assessment work. The network compiles material from over 100 sites across the country. The last annual Network National Science Meeting, held in Victoria in January 1999, brought together over 400 participants

from across Canada to discuss research findings and to explore new directions for cooperation and partnerships in ecological and monitoring activities. The network's web site promotes monitoring activities and provides tools for training, observation reporting and data management. It is one of the most popular Environment Canada sites.

www.cciw.ca/eman/

- *Arctic Monitoring and Assessment Programme (AMAP)* — This program continues to investigate the presence of persistent organic pollutants (POPs) in the circumpolar Arctic. A report published in 1998–99 presents current information on the distribution, biomagnification and biological effects of organochlorine contaminants in Arctic air, snow, seawater and the marine mammal food chain.

In addition, several longer-term monitoring and assessment programs were completed during this fiscal year:

- In 1998, the Canadian Wildlife Service published its final report summarizing an eight-year survey (1987–95) on levels of contaminants in the major waterfowl species throughout Canada. In only a few cases were contaminant levels found to be of potential concern to the health of the birds. Health Canada determined that the waterfowl and game birds surveyed were safe to eat.

www.cws-scf.ec.gc.ca

- A study of the diet of Great Lakes herring gulls over several years provides insight into the ecological changes that have occurred, particularly in Lake Erie, since the late 1980s. Working from archived egg samples, scientists noted that the consumption of fish by nesting gulls decreased over time. This trend likely reflects declines in fish availability and is believed to explain the recent rapid rates



of decline in levels of polychlorinated biphenyls (PCBs) in Lake Erie herring gull eggs: reductions in PCB exposure result from the change in the herring gull diet and not from declines in biologically available PCB levels in the Lake Erie ecosystem.

- In 1998–99, the Atlantic Region of Environment Canada prepared a review of eight years of data on populations of organisms that live in the sediments — benthic organisms — at ocean disposal sites. A key finding was the absence of significant changes in the benthic organisms during the eight-year period.
- The Atlantic Region Mercury Team published *Mercury in Atlantic Canada — A Progress Report*. The Report summarizes three years of cooperative mercury research in the region and includes the results from studies of regional mercury sources, summarizes levels of mercury in the atmosphere, lake water, sediments, fish and wildlife and proposes a direction for future scientific efforts.
- Results of a joint National Water Research Institute and University of Alberta study show that POPs increase in concentration with increasing altitude in the Canadian Rocky Mountains. This study provides a benchmark for future research and suggests that mountain glaciers and snow fields act as sinks for these semi-volatile contaminants and can gradually

release them to the aquatic environment.

- In 1998, Environment Canada's Pacific and Yukon Region completed the Fraser River Action Plan, which includes a comprehensive assessment of the status of the Fraser River basin's aquatic ecosystem, documenting the presence, fate and effects of pollutants in water, sediments, benthic life, fish and birds. The assessment shows that smaller tributaries in regions affected by proximity to urban areas or by intense agriculture as well as the river's estuary are showing many signs of contaminant stress. (For more information, see the Environment Canada reports entitled *Fraser River Action Plan — Final Report* [1998] and *Health of the Fraser River Aquatic Ecosystem: A Synthesis of Research Conducted under the Fraser River Action Plan*, edited by C. Gray and T. Tuominen [1999].)

State of the Environment Reporting

A new approach to reporting to Canadians on the state of the environment has been established under a Memorandum of Understanding (MOU) signed in 1998–99 by the five federal natural resources (5NR) departments. The approach has four principal components:

- national environmental indicators,
- state of the environment reports, primarily based on issue and/or area of science assessments,
- the Ecological Monitoring and Assessment Network, and

5NR MOU on Science and Technology for Sustainable Development

The five natural resources departments with an interest in science and technology related to sustainable development collaborate under a Memorandum of Understanding. The five departments are:

- *Agriculture and Agri-Food Canada,*
- *Environment Canada,*
- *Fisheries and Oceans Canada,*
- *Health Canada, and*
- *Natural Resources Canada.*



- a web site for integrating and disseminating information.

Guidelines for State of the Environment reports have been developed, and several reports are scheduled for publication in 1999–2000. Under this approach, the federal government continues to report regularly on a national set of environmental indicators, through the publication of indicator bulletins on key environmental issues. Four bulletins in the *National Environmental Indicator Series* — “Urban Water: Municipal Water Use and Wastewater Treatment,” “Climate Change,” “Sustaining Marine Resources: Pacific Herring Fish Stocks” and “Canadian Passenger Transportation” — were updated and published in 1998–99.

www1.ec.gc.ca/~soer/

Environment Canada’s Pacific and Yukon Region launched its *Pacific and Yukon Environmental Indicators* site, which features indicators for marine ecosystems, biodiversity, toxic contaminants, stratospheric ozone depletion and freshwater quality.

www.ecoinfo.org

A Canada–United States progress report, *Selection of Indicators for Great Lakes Basin Ecosystem Health*, presents a set of indicators that will assist reporting, every two years, on the state of the Great Lakes basin ecosystem.

www.epa.gov/glnpo/solec/98/indicators/index.html

Research and Development

It is impossible to describe all the CEPA-related research and development work that was completed or begun in the time period covered by this annual report. The following section categorizes the type of research and development work undertaken and provides examples of some important projects and their results.

In general, scientific research and development related to CEPA can be grouped into four categories:

- *Classification of substances*: Is it toxic? In what situations? At what levels?
- *Detection of substances*: Is it present? At what concentration?
- *Development of cost-efficient tests for substances*: Is this test accurate and reliable?
- *Reduction in the use, release or presence of toxic substances*: Does this measure work?

Classification of Substances

One of the main activities under CEPA is the identification and categorization of some substances as toxic. Solid scientific research is essential to the ongoing process of identifying and classifying toxic substances. This work leads to the development of guidelines, objectives and codes of practice for the safe use and disposal of substances and, when necessary, to the creation of policies or regulations to control their use and disposal. Following are some examples of 1998–99 research relating to the classification of substances:

- Endocrine-disrupting substances (EDS) interact with the hormone-producing systems of many species, resulting in adverse effects on growth, development or reproduction. A significant amount of research on EDS is under way, particularly to identify substances that are not highly persistent but are still widespread in the environment:
 - The National Water Research Institute, in cooperation with the Wastewater Technology Centre, studied municipal effluents in Canada to ascertain the presence of substances that are suspected of causing a variety of estrogenic responses in fish (such as

Environment Canada's Research Facilities

- Environmental Technology Centre
 - coordinates the operations of the federal–provincial–municipal NAPS Network
 - develops tests to measure toxic substances
 - measures emissions from stationary and mobile sources
 - conducts research and development work relating to spill control and other environmental matters
- National Water Research Institute
 - conducts a comprehensive national program of research and development in the aquatic sciences. (In 1998, the National Water Research Institute in Burlington, Ontario, and the National Hydrology Research Institute in Saskatoon, Saskatchewan, joined together to form Canada's largest freshwater research entity.)
- Wastewater Technology Centre
 - studies sewer networks and treatment systems
 - researches impact of municipal wastewaters on the environment
 - identifies ways to remediate contaminated sediments, soils and groundwater
 - assesses and develops pollution prevention opportunities for industry and commerce through the life cycle of their products and services
- Canadian Clean Technology Centre
 - searches for cost-effective technologies and alternative processes for reducing waste, optimizing resources and improving production efficiency
- The St. Lawrence Centre
 - works to support the St. Lawrence Vision 2000 Project to protect and conserve the St. Lawrence River ecosystem
- National Wildlife Research Centre
 - studies the impact of toxic substances on wildlife
- Climate and Atmospheric Research Directorate
 - studies the levels and movements of pollutants in the atmosphere

feminization). Results showed that alkylphenols, which are EDS, are common contaminants in Canadian municipal effluents. Natural and synthetic estrogens were also detected in final effluents at low concentrations. A laboratory procedure, the Toxicity Identification Evaluation, was used to identify the substances responsible for the

toxicity. The results suggested that the estrogenic responses in fish are associated with natural and synthetic estrogens rather than with alkylphenols (nonylphenol and its ethoxylates).

- A special issue of the *Water Quality Research Journal of Canada* reviews the scientific information available



Technology at Work

The Scanning Laser Environmental Airborne Fluorosensor is a remote sensing instrument used to detect oil spills. It is capable of classifying the type of oil spilled and avoids the "false positive" signals of almost all other oil spill remote sensing equipment. A Fluorosensor was able to trace microscopic fuel remnants more than a week after Swissair Flight 111 went down and helped to establish the plane's final flight path.

on nonylphenol and its ethoxylates, which are on the second CEPA Priority Substances List (PSL2). This information will be used to evaluate nonylphenol and its ethoxylates in the context of CEPA.

- A joint study, with Fisheries and Oceans Canada, built on research linking spruce budworm spraying to declining salmon populations in New Brunswick. During a 10-year period, one of the insecticides used contained high concentrations of an EDS, 4-nonylphenol, which was added to increase sprayability. The research is considering the impact of this substance on the growth and survival of salmon.
- Studies by the Environmental Technology Centre on the level of quantification (LOQ) for hexachlorobenzene (HCB) in soil and ash and PCDDs/PCDFs in soil, ash and stack emissions were completed. The LOQ is a benchmark that can be used for regulatory purposes and to determine if the virtual elimination of a substance has been achieved. HCB and PCDDs/PCDFs are on the first Priority Substances List (PSL1) and are to be virtually eliminated according to the Toxic Substances Management Policy. (Part II of this section has more information on toxic substances.)
- Health Canada has several important groups of studies relating to the classification of substances:
 - Results of studies on the systemic effects of chloramines and the biotransformation of azo dyes have been used to establish Drinking Water Guidelines for the acceptable daily exposure to these chemicals. Research on the biotransformation of azo dyes has generated structure-activity rules that can be used to predict the carcinogenicity of these substances and to manage their health risks.
 - Experiments are being conducted to attempt to identify specific components of particulate matter as determinants of acute toxicity. To date, most studies suggest that people with pre-existing cardiovascular or respiratory disease are more susceptible to air pollution. However, some studies note that air pollution also has health effects in the general population. While the studies are the subject of some debate, a major investigation of the cardiovascular impacts of particulate matter is being conducted by the University of Ottawa and Health Canada in collaboration with the Health Effects Institute.

- Experiments are being conducted to improve the identification of dose levels and specific mixtures of POPs that could induce long-term adverse developmental, reproductive and carcinogenic effects (e.g., mammary and prostate cancer). These experiments also attempt to identify stages of development (e.g., perinatal and senescence) during which individuals could be more sensitive to the toxic effects of these chemicals.
- Studies on the PSL2 chemicals hexachloro-butadiene (HCBd) and acrylonitrile used a new gene marker (cII) and the BigBlue rat transgenic model to assist in completing the CEPA assessment of these chemicals.

Detection of Substances

One of the areas of rapidly evolving research is the technology associated with monitoring and controlling the release of substances to the environment. Here are some examples of 1998–99 research relating to the detection of substances:

- A Reference Method EPS 1/RM/36 (March 1999) for the measurement of gaseous emissions to the atmosphere from gas turbines and reciprocating engines was submitted to support the Canadian Council of Ministers of the Environment (CCME) National Emission Guidelines for nitrogen oxides (NO_x), sulphur dioxide and carbon monoxide.
- Significant progress was made in the development and application of tools and bioassays used to detect environmental EDS and to measure their effects. For example, to detect environmental estrogens, a trout vitellogenin (egg protein) bioassay was developed and used to test ambient water, complex effluents and pure chemicals. A semi-permeable

membrane device was tested in a study in Hamilton Harbour and Lake Ontario for its effectiveness as a tool for predicting the response of fish to environmental estrogens and was found to be a good predictor of liver enzyme activity.

- A Microwave-Assisted Process (MAP™) liquid-phase extraction method, developed by the Environmental Technology Centre, reduces the use of toxic solvents and energy in analysing samples. It was validated in cooperation with the United States Environmental Protection Agency.
- Researchers from the National Wildlife Research Centre discovered a new halogenated, heterocyclic substance in seabird eggs. Concentrations of the substance, tentatively identified as 1,1'-dimethyltetrabromo-dichloro-2,2'-bipyrrrole, were found to be highest in Pacific seabirds, lower in those from the Atlantic and absent in Great Lakes birds. Researchers concluded that the compound is a natural bacterial product.

Development of Cost-efficient Tests for Substances

Cost-effective and scientifically reliable tests are essential for the ongoing monitoring of substances in the environment and for checks on particular substances. Here are some examples of tests developed by Environment Canada and Health Canada scientists that relate to the implementation of CEPA:

- A test protocol has been established to evaluate the absorbent capacities of most types and brands of commercial oil sorbents. The new procedure, accepted in North America through the American Society for Testing and Materials (ASTM), is published as *ASTM Standard Method of Testing Sorbent Performance of Absorbents* (# F726-99).



- The Marine Environment Division of Environment Canada has been refining biological tests that can be used to evaluate chemical concentrations in sediment that is destined for disposal at sea. These biological tests are a follow-up to chemical tests that identify the presence of controlled substances. The bioassays use crustacean mortality, sea urchin reproduction, fluorescence from photoluminescent bacteria, changes in sea worm growth and bioaccumulation of material in one species of clam to determine if the sediment is suitable for ocean disposal.
- Health Canada refined a method for identifying chromosome damage in a study using human sperm samples from the Health Canada Pesticide Exposure Assessment Study. The work showed how multiple toxicological endpoints can be combined in one study to increase efficiency and reduce the use of animals for testing.
- Health Canada, in a project funded by Industry Canada's Canadian Biotechnology Strategy, conducted laboratory and field studies to validate new methods for detecting exposure to microbe-based biotechnology products. This work linked to a three-year study on the persistence of microbe-based biotechnology products in the environment and to a four-year study completed with the United States that showed, unequivocally, the immune-related hazards associated with biopesticide exposure of migrant workers.
- Research has demonstrated that tests with embryonic liver cell cultures prepared from domestic chickens, Peking ducks and greater scaup and exposed to 18 different PAHs may be used to develop rapid and inexpensive bioassays. The bioassays can be used to predict the potencies of different PAH compounds and the sensitivities of different species to the effects from PAHs.
- Health Canada develops, improves and assesses the significance of testing procedures (e.g., a uterotrophic bioassay and thyroid function assays) to screen chemicals for endocrine toxicity in the context of an international research effort on EDS.

Reduction in the Use, Release or Presence of Toxic Substances

Research and development can identify ways to reduce or avoid the use, release or presence of substances that may have a harmful effect on the environment.

- The Environmental Technology Centre tested fuel additives, fuel catalysts and hydrogen generators that are sold to increase fuel efficiency and decrease consumption. Only two actually showed potential for reducing exhaust emissions. The Centre also developed a diagnostic tool that enables mechanics to detect and correct engine, drive-train and brake problems that cause excessive fuel consumption and emissions of greenhouse gases and other pollutants. The Multi-Dynamometer Simulator™ (Multi-DS™) is being used at the Ottawa-Carleton Transit Authority facility in Ottawa.
- The toxicity of Dombind™, a dust suppressant used on unpaved roads, was evaluated by scientists at the National Wildlife Research Centre. Dombind™ was found to cause death in several amphibian species and to cause altered behaviour and weight loss in captive birds. These results were taken into consideration by the Ontario Ministry of the Environment when it decided to phase out the use of this product in Ontario.

Testing

Sample tests are used to establish the presence of toxic substances and verify compliance with CEPA regulations. In 1998–99, the Environmental Technology Centre:

- analysed over 17 000 samples for the presence of toxic substances, in support of the NAPS Network,
- tested, along with the Wastewater Technology Centre, legal samples taken in Quebec and Ontario for enforcement purposes,
- conducted an emissions audit of 22 new light-duty vehicle models, including motorcycle exhaust emission testing, and
- collaborated with the Northeast States for Coordinated Air Use Management and the United States Environmental Protection Agency to investigate “real-world” emissions from off-road construction equipment.

Advice

An important contribution to pollution prevention is the sharing of expertise — internally, among regional and national offices of Environment Canada, and externally, with other federal, provincial and territorial government departments, the public, international agencies and foreign governments.

- Environment Canada maintains an extensive web site, which is a major source of CEPA-related information.

www.ec.gc.ca

- In 1998–99, scientists at the Environmental Technology Centre responded to environmental emergencies by providing scientific assistance and advice to the:
 - Newfoundland District Office regarding oiled birds,
 - Atlantic Region after the crash of Swissair Flight 111,

- Quebec Region on the PCB content of oiled beach material,
- Manitoba District Office on sampling automotive residue for PCBs, and
- Pacific and Yukon Region concerning a liquefied petroleum facility.

- During 1998–99, Environment Canada provided partial funding to the three Canadian Environmental Technology Advancement Centres (CETACs), which operate at arm’s length from government. These Centres, with offices in four provinces, provided advice to over 350 Canadian small and medium-sized businesses on ways to commercialize innovative environmental technologies. The Centres’ primary focus was on those technologies that address national environmental priorities and contribute to economic growth. The Ontario Centre also piloted an Eco-efficiency Innovation Initiative, working with various government agencies and industrial sectors to help them to identify and implement more eco-efficient ways of doing business.
- In 1998, an interactive software package on sustainable community indicators was tested in six communities, with positive results. The software helps communities select indicators to assess and monitor their progress towards sustainable development. It also facilitates the exchange of indicator-related information.

Objectives, Guidelines and Codes of Practice

Environmental Quality Guidelines and Objectives

Environmental quality guidelines and objectives are established under CEPA Part I for air, soil, sediment and freshwater and marine water quality. Water, soil and sediment quality guidelines are



Multi-media Document on Environmental Quality Guidelines

Work continued on the comprehensive multi-media document Canadian Environmental Quality Guidelines, 1999. This document summarizes environmental toxicity data and environmental quality guidelines for over 100 toxic substances in air, soil, water, sediment and tissue for the protection of both human and environmental health. It is the most comprehensive compilation of ambient environmental quality guidelines in the world and will be released by CCME in hard copy and on CD-ROM in late 1999.

endorsed by the CCME prior to their publication and are widely used across Canadian jurisdictions for managing toxic substance risks in the environment. Although guidelines are not laws, they may form the basis for laws and regulations. In the case of persistent and bioaccumulative toxic substances, they may act as “action levels” — interim management objectives that assist with tracking progress towards the virtual elimination of the substances.

During 1998–99, over 40 national guidelines for water, soil and sediment quality were finalized and approved by CCME. More than 10 more were under development. These guidelines specify a limit or concentration of a substance in the environment that is recommended in order to protect and sustain the environment and its uses.

www.ec.gc.ca/ceqg-rcqe

Water Quality Guidelines

Finalized: benzene, colour, didecylmethyl-ammonium chloride (DDAC), dissolved gas supersaturation, dissolved oxygen, HCBD, 3-iodo-2-propynyl butyl carbonate (IPBC), reactive chlorine species, styrene and total particulate matter
Under way: aluminum, ammonia, copper, inorganic fluoride, selenium and silver

Sediment Quality Guidelines

Finalized: seven metals, 13 individual PAHs and five organochlorine pesticides (marine and freshwater sediments)

Soil Quality Guidelines

Finalized: cadmium, chromium, copper, ethylene glycol, lead, mercury and zinc

(for protection of agricultural, residential, commercial and industrial land uses)

Under way: selenium and uranium
Assessment in progress: petroleum hydrocarbons

Tissue Quality Guidelines

Finalized: dichlorodiphenyltrichloroethane (DDT), PCBs and toxaphene
Under way: dioxins and furans

Marine Monitoring Guidelines

Under the Disposal at Sea Program, monitoring guidelines have been developed, field tested and phased in to routine disposal site monitoring. In September 1998, a national guidance document was finalized to update the interim monitoring guidelines from 1993. Details on monitoring conducted at representative sites are available in the *Compendia of Monitoring Activities at Ocean Disposal Sites, 1994–1997*.

Part II Toxic Substances CEPA Sections 11–48

Part II contains provisions to reduce the risks posed by existing substances found in Canada or new substances coming into Canada.

As defined in CEPA, a substance is “toxic” if “it is entering or may enter the environment in a quantity or concentration or under conditions

- a) having or that may have an immediate or long-term harmful effect on the environment;*
- b) constituting or that may constitute a danger to the environment on which human life depends; or*

- c) *constituting or that may constitute a danger in Canada to human life or health.” (Section 11)*

Part II also authorizes the regulation of the import and export of hazardous wastes and the composition of fuels.

The Domestic Substances List

The Domestic Substances List (DSL) is an inventory of more than 23 000 substances manufactured in, or imported into, Canada on a commercial scale. It was originally based on substances deemed to have been in Canada between January 1984 and December 1986. Substances not on this list are considered new to Canada and must be assessed to determine if they are toxic or could become toxic according to the *New Substances Notification Regulations*. The DSL includes the original list, published on May 4, 1994, as well as all additions or deletions subsequently published in the *Canada Gazette* as a result of the *New Substances Notification Regulations* and auditing of original nominations. In fiscal year 1998–99, there were 350 additions to the DSL and one deletion.

An Internet site allows a search of the current DSL and Non-Domestic Substances List inventories.

www.ec.gc.ca/cceb1/eng/cphome.html

New Substances Notification Regulations

Before new substances can be manufactured in or imported into Canada, the *New Substances Notification Regulations, 1994* require manufacturers and importers to provide information on chemical identity, toxicological and environmental effects data, manufacturing, processing and use data and the amounts proposed for manufacture or import. If a substance is suspected of being “toxic,” the Government may require additional information or testing, impose controls or ban the manufacture or import of the substance. New substances

include new chemicals and polymers as well as biotechnology substances.

Chemicals and Polymers

During 1998–99, Environment Canada and Health Canada jointly assessed 849 new substances and 153 transitional substances. Transitional substances were manufactured in or imported into Canada between January 1987 (when the DSL was settled) and July 1994 (when the *New Substances Notification Regulations* came into effect). These reviews resulted in the imposition of various kinds of controls on 15 substances.

In an effort to harmonize the notification and assessment of new substances in the United States and Canada, Environment Canada has partnered with the United States Environmental Protection Agency and American and Canadian companies and industry associations through the “Four Corners” pilot project. The pilot project, involving the exchange of technical data and assessment information, ran from July 1996 to July 1998 and has been renewed for two years.

The New Substances Notification Program is implementing cost recovery regulations and conducting consultations on this initiative. An impact assessment of the proposed cost recovery fee schedule was completed by the Business Impact Assessment Group. As well, Environment Canada and Health Canada have reviewed the *New Substances Notification Regulations* using the experience of the first three years of the program. A joint government/industry working group assessed the impact that the Regulations have had on industry. Proposals address the simplification of the Regulations and their implementation and the streamlining of data requirements.

www.ec.gc.ca/cceb1/cost/cost_e.htm



Biotechnology Substances

The biotechnology portion of the CEPA *New Substances Notification Regulations* came into effect on September 1, 1997. Joint Environment Canada/Health Canada assessments were completed on seven new biotechnology substances in 1998–99. After rigorous assessments, it was determined that no controls were required for these biotechnology substances, but one review resulted in a company withdrawing one component of its formulation to avoid a condition (control). It should be noted that beyond the assessments conducted by Environment Canada and Health Canada under CEPA, Agriculture Canada and the Pest Management Regulatory Agency also conduct assessments of new biotechnology substances under their respective legislative responsibilities.

To further international harmonization, both Departments are participating in the Organisation for Economic Co-operation and Development (OECD) Working Group on Harmonization of Regulatory Oversight in Biotechnology. The focus has been on the development of microorganism “Consensus Documents.” Biotechnology regulatory scientists also contributed to negotiations for a biosafety protocol under the Convention on Biological Diversity. Program staff hosted several international groups of scientists (India, South America), permitting sharing of regulatory and assessment knowledge and techniques.

www.ec.gc.ca/cceb1/eng/biohome.html

Priority Substances

Background

Section 34 of CEPA enables the federal government to take action, including making regulations, relating to the quantity or concentration of a toxic substance that may be released to the environment. Based on the advice of experts, two lists of substances that are the most important to assess for toxicity or the capacity to become toxic have been compiled.

The first Priority Substances List (PSL1) was published in 1989 and lists 44 substances. The second Priority Substances List (PSL2), published in 1995, lists 25 substances.

When a substance is deemed toxic under CEPA, the government consults representatives from industry, federal, provincial and municipal governments, and aboriginal and non-governmental organizations to identify management options for that substance. This multi-stakeholder PSL process, referred to as the Strategic Options Process, leads to recommendations to the Minister of the Environment on the most effective and efficient management options to reduce releases of toxic substances.

Actions on PSL1 Substances

During 1998–99,

- work was under way to implement the multi-stakeholder issue table recommendations that were accepted by the Minister in 1997 for dry cleaning, solvent degreasing, benzidine/3,3'-dichlorobenzidine and electric power generation,
- the Minister accepted (in 1998) 52 multi-stakeholder issue table recommendations concerning refractory ceramic fibres, steel manufacturing, base metals smelting, dichloromethane and metal finishing,
- stakeholders were consulted about three toxic substances — 1,2-dichloroethane, HCB and diethylhexyl phthalate — with an options report expected in 2000, and discussions took place with several stakeholders on potential partnerships for initiatives related to chlorine use for wastewater disinfection.

Significant progress was made on finalizing the Technical Recommendations Document, “Recommendations for the Design and Operation of Wood Preservation Facilities,” for facilities that use creosote, pentachlorophenol and compounds of chromium and arsenic.

The Strategic Options Process was evaluated by the Review Branch of Environment Canada during 1998–99. Recommendations resulting from the review are being implemented.

The major changes include:

- reducing the time taken to identify, evaluate and develop management options to 24 months, and
- drafting management or control instruments (such as regulations, guidelines, agreements, etc.) rather than recommendations for Ministerial approval.

Actions on PSL1 Substances for Which There Was Insufficient Information to Conclude on “Toxicity”

At the start of 1998–99, there were 13 PSL1 substances for which there was insufficient information to conclude on “toxicity” under Section 11(a) of CEPA (effects on the

environment) or under Section 11(c) of CEPA (effects on human health). Health Canada continues to conduct research on these substances. Environment Canada developed research plans and obtained new information on the eight substances or groups of substances for which data on effects on the environment were lacking: 1,2-dichlorobenzene, 1,4-dichlorobenzene, trichlorobenzenes, tetrachlorobenzenes, pentachlorobenzene, styrene, 1,1,2,2-tetrachloroethane and waste crankcase oils. Risk analysis was completed using this new information, and the results will be published in 1999–2000.

Additions to Schedule I

In March 1999, 18 PSL1 toxic substances were added to Schedule I, for a total of 45 substances, paving the way for regulations, if they are found to be necessary.



PSL1 CEPA Toxic Substances

- | | |
|--|--|
| (1) 1,1,1-Trichloroethane | (14) Hexachlorobenzene |
| (2) 1,2-Dichloroethane | (15) Hexavalent chromium compounds |
| (3) 3,3'-Dichlorobenzidine | (16) Inorganic arsenic compounds |
| (4) Benzene* | (17) Inorganic cadmium compounds |
| (5) Benzidine | (18) Inorganic fluorides |
| (6) Bis (chloromethyl) ether* | (19) Oxidic, sulphidic, soluble inorganic nickel compounds |
| (7) Chloromethyl methyl ether* | (20) Polychlorinated dibenzodioxins |
| (8) Chlorinated paraffins | (21) Polychlorinated dibenzofurans |
| (9) Chlorinated wastewater effluents | (22) Polycyclic aromatic hydrocarbons |
| (10) Creosote impregnated wastes | (23) Refractory ceramic fibres |
| (11) Dichloromethane | (24) Tetrachloroethylene |
| (12) Effluents from pulp & paper mills using bleach* | (25) Trichloroethylene |
| (13) Bis (2-ethylhexyl) phthalate | |
- * Already regulated

Strategic Options Process

used to develop options for the effective management of toxic substances

1. Substances

Benzidine (5)/3,3'-Dichlorobenzidine (3)**
Refractory ceramic fibres (23)**
Chlorinated paraffins (8)
1,2-Dichloroethane (2)
Dichloromethane (11)**
Bis (2-ethylhexyl) phthalate (13)
Hexachlorobenzene (14)

2. Sectors

Dry cleaning (24)**
Solvent degreasing (24, 25)**

Wood preservation (10, 14, 15, 16, 20, 22)
Iron and steel (4, 12, 15, 16, 17, 18, 19, 22)**
Metal finishing (15, 17, 19)**
Base metal smelting (16, 17, 19)**
Electric power generation (15, 16, 17, 18, 19)**

3. Federal-Provincial Advisory Committee

Chlorinated wastewater effluents (9)

The numbers in parentheses () refer to the relevant substance on PSL1

** Two asterisks mean that recommendations were completed and accepted by the Minister of the Environment and the Minister of Health.

Priority Substances List 2 (PSL2)

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

Progress on PSL2 Assessments

The PSL2 list of 25 substances was published in Part I of the *Canada Gazette* on December 16, 1995. Environment Canada and Health Canada are working together to complete assessments, before December 2000, on the risks to human health and the environment associated with these substances. Toxicology and human exposure assessments for five PSL2 substances have been completed and released for public review. Assessments for several other PSL2 substances are almost complete.

www.ec.gc.ca/cceb1/eng/psap.htm

[www.hc-sc.gc.ca/ehp/ehd/bch/
env_contaminants/psap/psap.htm](http://www.hc-sc.gc.ca/ehp/ehd/bch/env_contaminants/psap/psap.htm)

In order to manage and ensure the release of all assessment reports before December 2000, Environment Canada and Health Canada jointly prepared a PSL2 Assessment Reports Review, Approval, Publishing and Communications Process in November 1998. The plan is for assessments to be published for public review and comment *before* Ministers make decisions on how to classify the substances. After the Ministers' final decision is published in the *Canada Gazette*, there is another formal 60-day review period.

Toxic Substances Management Policy

The federal government's Toxic Substances Management Policy was announced in Parliament on June 2, 1995. This policy provides a science-based framework for the management of toxic substances. The key management objectives in the policy are:

- virtual elimination of releases to the environment of toxic substances that are persistent and bioaccumulative and are present in the environment primarily due to human activity (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 initial list of 12 substances that met the criteria for management under Track 1 of the Toxic Substances Management Policy was published in Part I of the *Canada Gazette* on July 4, 1998. These substances, some of which are on the PSL1, are:

- aldrin,
- chlordane,
- DDT,
- dieldrin,
- endrin,
- HCB,
- heptachlor,
- mirex,
- PCBs,
- PCDDs,
- PCDFs, and
- toxaphene.

All 12 substances are POPs that also enter the Canadian environment from foreign sources through long-range atmospheric transport. There is more information about Environment Canada's international efforts to control POPs in Part V, International Air Pollution. The Scientific Justification Documents that show the basis for the Track 1 designation are available on the Internet.

www.ec.gc.ca/cceb1/eng/tsmp.htm

Within Canada, action has already been taken to severely limit or ban the production, use or release of these 12 substances:

- *PCBs* — The use and release of PCBs to the environment are controlled under CEPA's *Chlorobiphenyls Regulations*, while the storage of PCB material, the export of PCB wastes and the destruction of PCB wastes on federal land are controlled under other regulations. All these regulations are being revised to reflect commitments under the North American Agreement on Environmental Cooperation PCB Regional Action Plan for North America and the United Nations Economic Commission for Europe (UN-ECE) POPs Protocol, which concern the



It is estimated that, over a 20-year period, lowering of sulphur levels in gasoline will prevent over 2100 premature deaths, 93 000 incidents of bronchitis in children, 5 million other health-related incidents, such as asthma attacks, and 11 million acute respiratory symptoms, such as coughs, pneumonia and croup.

phaseout of all PCB uses and the destruction of PCB wastes in a timely manner.

- *Dioxins and furans* — The federal government and the provinces agreed to develop Canada-wide Standards for this group of substances. Environment Canada and a Federal-Provincial Task Force on Dioxins and Furans prepared an inventory report on releases to the environment. The report indicates that atmospheric releases of dioxins and furans declined by 43% between 1990 and 1999 due to plant closures or upgrades of existing plants, while releases to water declined by 99% due to the implementation of the 1992 *Pulp and Paper Mill Defoamer and Wood Chip Regulations* and the *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations*. The *Pulp and Paper Effluent Regulations*, which also regulate pulp and paper mills nationwide, are under the *Fisheries Act* and are supported by environmental effects monitoring programs.
- *HCB* — HCB is released from chlorinated solvents, combustion sources and pesticide use. A control options report indicated that no additional action is required for HCB in chlorinated solvents, because a 65% reduction in their use is expected as a result of the dry cleaning and solvent degreasing sectors following Strategic Options Process recommendations. There will also be a reduction in HCB releases from combustion sources, because the measures to

control dioxins and furans will have a direct effect on HCB releases as well.

- The remaining Track 1 substances were active ingredients in pesticides that are now prohibited in Canada.

Participants in the Accelerated Reduction/Elimination of Toxics (ARET) Program reduced emissions of toxic substances by 24 090 tonnes — a decrease of 64% from base year levels set for specific substances and companies between 1988 and 1993. Of the 303 facilities participating in ARET, 118 met or exceeded their year 2000 ARET reduction targets in all substance categories on which they reported.

Fuel Regulations

Sulphur in Gasoline

In October 1998, the Ministers of Environment and Health announced regulations to significantly lower the allowable level of sulphur in gasoline sold in Canada. The new limit is 30 parts per million (ppm) of sulphur content in gasoline by January 1, 2005 with an interim average limit of 150 ppm by 2002. In 1998, the average Canadian level of sulphur in gasoline was 350 ppm, among the highest in the industrialized world. (The *Sulphur in Gasoline Regulations* were published in the *Canada Gazette*, Part II, June 24, 1999.)

Benzene in Gasoline

Amendments to the *Benzene in Gasoline Regulations* (1997) were prepared for publication in the *Canada Gazette*, Part I, during 1998–99. The amendments would allow a company to apply for up to an additional six months to comply with the *Benzene in Gasoline Regulations*.

Collecting Data to Assist with Substance Assessment and Management

Sections 15 through 18 of CEPA allow the federal government to collect information and conduct investigations to support the assessment of existing substances and the development of management options for substances considered toxic. The following surveys were completed after the notices were sent to specific companies:

- *Notice with Respect to Certain Hydrofluorocarbons (HFCs) and Certain Hydrochlorofluorocarbons (HCFCs), Canada Gazette, Part I, June 20, 1998* — The information was used to support consultations for amendments to the *Ozone-depleting Substances Regulations, 1998* and to assist in the development of Canada's position for the 11th Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer.
- *Notice with Respect to Certain Perfluorocarbons (PFCs), Canada Gazette, Part I, November 28, 1998* — In the context of the climate change program, the information on PFCs requested in this notice will assist Environment Canada in developing strategies to control certain uses of these chemicals.
- *Notice Respecting Textile Mill Effluents, Canada Gazette, Part I, January 9, 1999* — The information collected on processing activities and wastewater treatment at all wet processing textile mills in Canada was used to assist the PSL2 assessment of textile mill effluents.

Duty to Report Information that a Substance Is Toxic

Section 17 puts an onus on businesses, companies and individuals to report to the Minister when, during the normal course of business, they learn that a substance is toxic, as defined in CEPA,

unless they know that the Minister already has this information. In 1998, 26 new submissions under Section 17 were received and evaluated by Environment Canada and Health Canada officials.

Interdepartmental Cooperation

Environment Canada/Health Canada CEPA Management Committee

The CEPA Management Committee was established pursuant to the 1990 MOU between Environment Canada and Health Canada concerning toxic substances and CEPA. It oversees both departments' programs dealing with Priority Substances, new chemicals and biotechnology products, the development of regulatory and non-regulatory control options for toxic substances, amendments to CEPA and its regulations and other related issues.

Ongoing matters under consideration by the Committee during 1998–99 included:

- timely completion of PSL assessment reports,
- the public review process for PSL assessments,
- management of Short Chain Chlorinated Paraffins under the Toxic Substances Management Policy,
- completion of research on PSL1 substances for which there was insufficient information to conclude on "toxicity,"
- joint cooperation for screening the DSL,
- consultation on amendments to the *New Substances Notification Regulations*,
- cost recovery in the new chemicals program, and
- guidelines for reporting chemicals under Section 17.

Decisions of the Committee during 1998–99 included:

- publication for public review of seven assessment reports,
- addition of 18 PSL1 toxic substances to Schedule I of CEPA,



- decision that persistent, bioaccumulative and CEPA-toxic substances (regardless of basis of determination) should be slated for virtual elimination, and
- extension of Health Canada resources for work on transitional substances.

Protecting the Marine Environment from Land-based Activities

A draft National Program of Action for the Protection of the Marine Environment from Land-based Activities was released for public input in March 1999. The draft plan was prepared through the collaborative efforts of the federal, provincial and territorial governments and responds to Canada's commitment under the 1995 Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA). The relevance of the GPA to oceans management — in particular, the importance of managing the coastal zone and the influence of nearshore freshwater environments — has been highlighted at the international level.

Arctic Regional Programme of Action

Canada has also made significant progress towards international implementation of the GPA, through its leadership role in the development of the Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-based Activities (RPA). The RPA will contribute substantially to meet GPA commitments in the Arctic and has a particular focus on regional cooperation and capacity building to address the regional priority pollution sources found in the Russian Federation.

Hazardous Wastes

The *Export and Import of Hazardous Wastes Regulations* provide a way of tracking the movement of hazardous wastes into and out of Canada, including transits passing through Canadian territory.

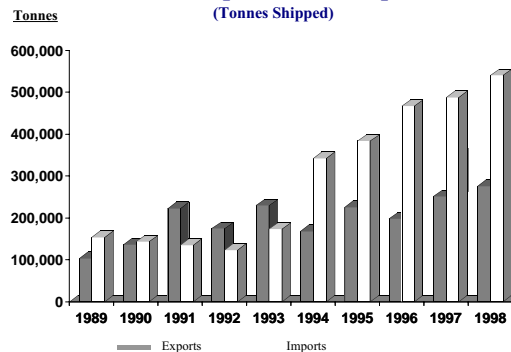
During the 1998 calendar year, 852 notices for proposed exports of hazardous waste, 7 202 notices for imports and 229 notices for shipments in transit through Canada were processed. During the same period, 41 895 manifests were processed for tracking shipments approved under these notices. This represents an 11% increase over 1997. Information on imports and exports of hazardous waste is published twice a year in the *RESILOG* newsletter, which is available on the Internet.

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

Exports of hazardous wastes and hazardous recyclable materials *from* Canada have remained relatively stable over the year. Imports, however, show a consistent increase, but are still less than 10% of the volume of hazardous waste generated in Canada. The increase can be explained, in part, by the growing Canadian waste management industry, including an increased capacity in recycling and material recovery. Sixty percent of the imports were destined for recycling.

Data also show that the number of countries from which Canada imports hazardous wastes is steadily increasing, from 11 countries notifying Canada about proposed shipments in 1995 to 28 countries in 1998. This trend coincides with international agreements such as the Basel Convention, which defines procedures for the transboundary movement of hazardous wastes and hazardous recyclable materials, and a continued increase in compliance by the regulated community. The compliance rate for submitting

Volume Exported and Imported
(Tonnes Shipped)



the requisite manifest documents for waste generator and waste receiver increased in 1998 to 98.9% for exports and 90.3% for imports compared to 28% and 53% respectively in 1992-1994.

The Basel Convention

The major goals of the Basel Convention are to control the transboundary movement of hazardous wastes and to ensure that they are managed in an environmentally sound manner. The September 1996 ban amendment was further qualified at the February 1998 Fourth Conference of the Parties with the addition of two annexes: the Parties agreed to adopt Annex VIII, a list of wastes/recyclables covered by the Convention and the ban amendment, and Annex IX, a list of wastes/recyclables not covered by the Convention and the ban amendment. These annexes were prepared by the Technical Working Group in which Canada was an active participant. Four working groups are preparing for the Fifth Conference of the Parties, scheduled for December 1999.

www.ec.gc.ca/tmd/tmdhp.htm

National Pollutant Release Inventory

The National Pollutant Release Inventory (NPRI) is a national, legislated, publicly accessible inventory, providing Canadians with access to pollutant release information for facilities located in their communities. It tracks on-site releases of pollutants to air, water and land and underground; off-site transfers of waste; and off-site transfers for recovery, reuse, recycling and energy recovery.

Highlights of the 1996 NPRI Summary Report, released in 1998–99, include the following:

- 1818 Canadian facilities filed reports with NPRI in 1996, an increase of 2.2% from 1995, and
- 6635 pollutant reports were filed (one report is filed for each substance released or transferred), an increase of 4.3% from 1995.

An extensive consultation during 1998–99 resulted in the addition of 73 substances to the NPRI reporting requirements, bringing the total to 246 substances. Results for 1997 will be available in fall 1999.

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

Part III Nutrients CEPA Sections 49–51

Part III regulates the nutrient content of cleaning agents and water conditioners.

In 1997, the House of Commons Standing Committee on Environment and Sustainable Development recommended that Environment Canada determine whether or not nutrients in general are causing negative environmental effects; whether certain nutrients, rather than nutrients as a class, are problematic; and whether those effects are limited to one component of the environment, such as water, or the entire ecosystem, including wildlife. The Standing Committee also recommended changing the current definition of nutrients. Currently, the definition of nutrients refers to substances that, when applied to waters in excess, provide nourishment for aquatic vegetation.

To address this, an interdepartmental working group was formed with representatives from the departments under the 5NR MOU. Under the leadership of the National Water Research Institute and the Guidelines and Standards Division, a major assessment of nutrients entering the Canadian environment through human activities is being undertaken to determine the impact on aquatic and terrestrial environments. The Institute continued its research program to determine the relationships between the quantity of added nutrients and the response of bottom-dwelling biota, the cumulative effects of long-term nutrient loading and the ecological consequences of interactions between nutrients and toxic substances.

www.cciw.ca/nwri/



Part IV Federal Departments, Agencies, Crown Corporations, Works, Undertakings and Lands

CEPA Sections 52–60

Part IV provides the authority to regulate waste handling and disposal practices, emissions and effluents from the operations of federal departments, Crown corporations and federal agencies.

Through the Greening of Government Operations initiative, the government continues to establish guidelines for integrating environmental considerations into the operations of all departments. The departments are encouraged to apply these guidelines, taking into account existing regulations and current technological options.

As well, the Federal Committee on Environmental Management Systems provided a forum for departments to exchange best practices in the areas of procurement, waste management, water usage, energy use, fleet management, contaminated sites, storage tanks and environmental emergencies.

Federal Halocarbon Regulations were published in the *Canada Gazette*, Part I, on August 29, 1998. These regulations concern ozone-depleting substances and their halocarbon alternatives and federal lands. (The Regulations came into force on July 1, 1999.)

The draft federal hazardous waste regulations were published for consultation purposes. The existing *Federal Mobile PCB Treatment and Destruction Regulations* are being amalgamated into these hazardous waste regulations.

During the 1998–99 fiscal year, work was done to ensure that appropriate systems are in place for responding to environmental emergencies at federal facilities. The National Environmental Emergency System was

substantially upgraded in 1998 and now incorporates historical data from regions as well as data from various contributing agencies. This system has already been used to assess risks related to year 2000 problems.

A working group, co-chaired by Environment Canada and Transport Canada, was established as a forum for dealing with a range of environmental emergency issues at federal facilities. An immediate priority was the identification of federal land sites with PSL1 substances on them. Preliminary results show some facilities with PSL1 substances in quantities approaching the thresholds identified by the Major Industrial Accidents Council of Canada. Large quantities of fuel are also stored on some sites. The working group, which is under the auspices of the Federal Committee on Environmental Management Systems, is encouraging the custodial departments to conduct staff training and have appropriate emergency plans in place. Promoting compliance with the storage tank regulations is an ongoing project of the Environment Canada Storage Tank Network.

The following activities supported the Greening of Government Operations initiative in 1998–99:

- delivery of training workshops to Crown corporations and agencies on tools to measure environmental performance and best practices for environmental management systems, and
- delivery of two ISO 14000 Environmental Management workshops.

In 1998, Environment Canada conducted an assessment of 15 of the Department's facilities, including laboratories and weather stations, to determine the state of emergency preparedness practices. Unpublished results indicated that effective contingency plans were in place, although comprehensive risk assessments may not have been carried out, as necessary. Some training needs were identified.

The Quebec Region offered a course on the management of hazardous wastes and

responding to environmental emergencies to 20 participants from federal organizations in May 1998.

Part V

International Air Pollution

CEPA Sections 61–65

Part V authorizes the control of domestic sources of air contaminants that create air pollution in other countries or that violate international agreements.

Canada plays a lead role on the international stage in seeking international cooperation and agreements on measures to control air pollution. This is because, overall, due to global wind patterns and a cold climate, many more pollutants arrive in Canada by air and remain here than leave from here by air. To protect the health of Canadians and their environment, it is therefore

essential not only to control domestic sources of air pollution, but also to participate in efforts to ensure that other countries control their air pollution as well.

Work under Part V of CEPA includes both international work and work within Canada, with provincial and territorial governments and multi-stakeholder groups, towards meeting national pollution prevention goals and international commitments.

International Air Quality Agreements and Protocols

Canada/United States

- Air Quality Agreement (1991)
 - basis for commitments to control acid rain: sulphur dioxide and nitrogen oxide (NO_x) emissions
 - agreement to negotiate a new annex to address ground-level ozone through controls on emissions of NO_x and VOCs
 - agreement to cooperate on joint technical analysis of transboundary fine inhalable particles leading to negotiation of another annex to the Agreement

Canada/United States/Mexico

- Regional action plans on DDT, chlordane, PCBs and mercury

Canada/Europe/United States

- UN-ECE Convention on Long-range Transboundary Air Pollution
 - two Sulphur Dioxide Protocols (1985 and 1994)
 - Nitrogen Oxide Protocol (1988)
 - VOCs (1991)
 - POPs (1998) *NEW*
 - Heavy Metals (HMs) (1998) *NEW*

Global

- Vienna Convention on the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer (1987)
- United Nations Framework Convention on Climate Change (1992) and the Kyoto Protocol on Greenhouse Gas Emissions (1997)
 - Action Plan with rules and mechanisms to implement the Protocol (1998)



Canada's International Commitments

Persistent Organic Pollutants (POPs) and Heavy Metals (HMs)

On June 24, 1998, Canada and 31 other countries signed the Persistent Organic Pollutants and Heavy Metals Protocols under the UN-ECE Convention on Long-range Transboundary Air Pollution.

Canada was the first country to ratify both Protocols, on December 18, 1998.

The POPs Protocol addresses the production, use and atmospheric emission of 16 POPs through multiple control regimes.

The HMs Protocol requires the control of cadmium, lead and mercury by:

- controlling atmospheric emissions from new plants in designated industrial sectors,
- reducing atmospheric emissions from existing facilities by 50% of 1990 levels, and
- controlling the lead content in gasoline and the mercury content in alkaline batteries.

In June 1998, Canada hosted the first round of international negotiations for a global POPs agreement under the United Nations Environment Programme. Canada's objective is to obtain a commitment from countries around the world to undertake appropriate control actions on POPs. Negotiations are expected to be completed in the year 2000.

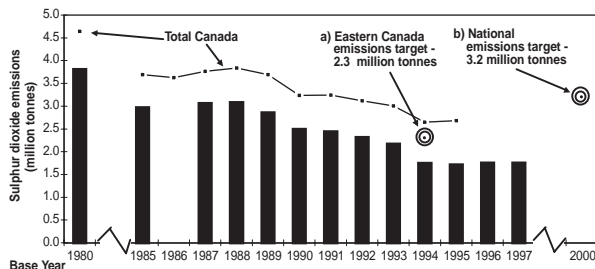
In March 1999, Environment Canada and its provincial and territorial counterparts held multi-stakeholder consultations on a proposed Strategic Implementation Framework for International Commitments on Hazardous Air Pollutants. The Strategic Implementation Framework describes the set of programs and measures that Canada will use to tackle the issue of POP and HM releases in Canada.

In addition to these international initiatives, Canada is working in a continental context with the United States and Mexico to develop and implement regional action plans on DDT, chlordane, PCBs and mercury. Bilaterally, Canada is also working with the United States under the "Great Lakes Binational Toxics Strategy" to reduce emissions of POPs and HMs in the Great Lakes basin.

Sulphur Dioxide

Canada has been successful at meeting the national caps set for sulphur dioxide emissions, largely as a result of the Eastern Canada Acid Rain Program, which capped provincial sulphur dioxide emissions in the seven easternmost provinces. Some western provinces have also set stringent emission requirements on major new sources, such as natural gas plants, to minimize increases in emissions. However, even with full implementation of these programs and the United States Acid Rain Program, ecosystems in eastern Canada continue to receive harmful levels of acid deposition. Further action was necessary, so, in October 1998, 26 federal, provincial and territorial Ministers of Energy and Environment signed the Canada-Wide Acid Rain Strategy for Post-2000. As part of the implementation strategy, next-step reductions in sulphur dioxide emissions will be negotiated over the next few years.

Eastern Canada Emissions of Sulphur Dioxide



Nitrogen Oxides

Canada is committed, pursuant to the 1988 UN-ECE Nitrogen Oxide Protocol, to freeze national emissions of nitrogen oxides at 1987 levels. Canada continued to meet this commitment in 1998–99.

Volatile Organic Compounds (VOCs)

Canada signed the UN-ECE Convention on Long-range Transboundary Air Pollution Protocol on VOCs in 1991 but has not ratified it. The negotiation of a European protocol to abate acidification, eutrophication and ground-level ozone is nearing completion. This protocol will address ground-level ozone and acid rain through controls on nitrogen oxides, VOCs, sulphur and ammonia.

Under the UN-ECE Convention, the negotiation of a final overarching protocol has been completed and it is expected to be signed in Sweden in early December 1999. This protocol addresses ground-level ozone, eutrophication (only in Europe), and acid rain, through controls on nitrogen oxides, VOCs, ammonia (only in Europe), and sulphur dioxide. The Protocol allows Canada (and the United States) to sign without making emission commitments. It also allows Canada (and the United States) to complete their current ongoing acid rain and ground-level ozone domestic and bilateral negotiations. These negotiations will determine the emission reduction commitments that will be submitted to the Protocol upon ratification in two to three years.

Ozone-depleting Substances

Under the Montreal Protocol, Canada made an international commitment to reduce emissions of ozone-depleting substances to 6% below 1990 levels by 2004.

Amendments to the Ozone-depleting Substances Regulations

The *Ozone-depleting Substances Regulations* were revised and published in the *Canada Gazette*, Part II, on January 6, 1999. These regulations combine and enhance the previous *Ozone-depleting Substances Regulations* and the *Ozone-depleting Substances Products Regulations*. The new Regulations include control measures that will help to implement additional requirements under the Montreal Protocol and meet Canada's domestic commitments under the Ozone Layer Protection Program.

Chlorofluorocarbons (CFCs) and Metered-dose Inhalers

In July 1998, the Minister approved a strategy for making the transition from CFC to non-CFC metered-dose inhalers to meet commitments under the Montreal Protocol. Canada's Transition Strategy has objectives to reduce CFC metered-dose inhalers by 60% in 2001 and to eliminate them in 2005. The strategy was designed to balance the goal of eliminating CFCs in inhalers with the need to ensure that users have a continuing supply of inhalers for medical purposes.

Nine new projects were approved and five projects continued under funding from the Multilateral Fund of the Montreal Protocol on Substances that Deplete the Ozone Layer.

Although sulphur dioxide emissions continued to drop throughout the 1980s and 1990s, the actual deposition of wet sulphate is still above critical load levels in some regions. The critical load for aquatic ecosystems is the amount of wet sulphate deposition that must not be exceeded in order to protect at least 95% of lakes in a region from acidifying to a pH level of less than 6.0. Many studies suggest that a pH of at least 6.0 is needed to protect most aquatic organisms.



Here are two examples of projects funded under the Public Education and Outreach component of the Climate Change Action Fund:

- *The Perth CO2000 project involves citizens, businesses and community organizations in finding ways to make Perth, Ontario, more environmentally and economically efficient. The town expects to reduce greenhouse gas emissions by 20%, to create strong community partnerships and initiatives that will be sustained after funding ends and to produce a model for other communities to consider.*
- *The Sunridge Group will enhance and expand the EnerGuide for Houses program in Saskatchewan, for which they are the official agent. Working with members of community-based organizations, First Nations people, real estate and renovations groups and homeowners, they will raise awareness of climate change issues and do home inspections to promote improved energy efficiency.*

Ozone above the earth, in the stratosphere, is beneficial, protecting the Earth's environment from the sun's damaging rays. That's why we worry about holes in the ozone layer and are taking action to control the ozone-depleting substances that contribute to the deterioration of the ozone layer.

Ozone at ground level, on the other hand, is detrimental to the Earth's environment, affecting the quality of the air we breathe and contributing to the greenhouse effect. Ground-level ozone is not beneficial, and so we are taking steps to control its presence.

Climate Change

International

Environment Canada, with the Department of Foreign Affairs and International Trade, was active in advancing negotiations on climate change and supporting the involvement of developing countries. We play a key role in improving global awareness of climate change and its impacts through science activities, including participation in the World Climate Change Research Program and the Intergovernmental Panel on Climate Change, to which over 30 Canadian scientists, academics and others have made a significant contribution.

National

Development of the National Implementation Strategy for Climate Change involves 450 government and private sector participants, environmental group representatives and

academic experts, working to identify the options and opportunities available to each sector of the economy to meet Canada's commitment to address climate change. Environment Canada is the federal lead for 6 of the 16 work groups, heading efforts on public education and outreach, credit for early action, sinks, municipalities, Kyoto mechanisms and (with Natural Resources Canada) science, impacts and adaptation.

www.ec.gc.ca/climate/index.html

The Climate Change Action Fund was established by the Government of Canada in 1998 and is co-managed by Environment Canada and Natural Resources Canada. The three-year, \$150-million fund has four components:

- *Public Education and Outreach* supports projects that build public awareness and understanding of climate change and promote actions to reduce greenhouse gas emissions.
- *Science, Impacts and Adaptation* supports research to advance knowledge of the magnitude, rate and regional and national impact of climate change. The purpose is to better estimate the risks and to find ways to adapt to the predicted changes.
- *Technology Early Action Measures (TEAM)* supports cost-effective technology projects that will lead to significant reductions in greenhouse gas emissions.
- *Foundation Analysis* supports the analysis of options to meet Canada's Kyoto commitments.

www2.climatechange.gc.ca/ccaf/

Federal Smog Plan

In 1990, responding to concerns about the impact of smog on human and ecological health, the CCME adopted a NO_x and VOC Plan, which included over 80 actions and initiatives to reduce emissions and broaden our scientific understanding of smog. The Plan was reviewed in 1995, resulting in the Phase 2 Federal Smog Plan. A NO_x/ VOC Science Assessment was published late in 1997.

The federal government is now developing a Phase 3 Federal Smog Management Plan, building on the Phase 1 and 2 Plans. This Phase 3 Plan will complement actions taken by other levels of Canadian government. Phase 3 targets emissions from domestic sources under federal responsibility, such as standards for new vehicles and consumer products and measures to reduce pollution from fossil fuel use.

Canada-wide Standards Development

In January 1998, members of the CCME, except for Quebec's Minister of the Environment, endorsed a Canada-wide Accord on Environmental Harmonization and the Policy for the Management of Toxic Substances. In 1998–99, federal–provincial Canada-wide Standards Development Committees began work, under the environmental standards sub-agreement, on three airborne substances related to climate change targeted for Canada-wide Standards: particulate matter, ozone and benzene. (Other substances targeted for Canada-wide Standards development are mercury, dioxins and furans and petroleum hydrocarbons.)

Voluntary Initiatives

As part of its non-regulatory approach to environmental protection, Environment Canada has been negotiating MOUs with industry groups representing manufacturers of recreational marine engines, utility engines (e.g., chain saws, lawn mowers, etc.) and diesel off-road engines to voluntarily supply cleaner engines to the Canadian market. These MOUs are being pursued

to secure near-term environmental benefits and could serve as a prelude to emissions regulations under the new CEPA. To date, representatives from the recreational marine engine sector have agreed to sign an MOU that will take effect for the 2001 model year. Also, representatives from the small hand-held utility engine sector (e.g., chain saws, leaf blowers, etc.) have agreed to sign an MOU that will take effect for the 2000 model year.

MOUs covering non-hand-held utility engines (e.g., lawn mowers, generators, etc.) and diesel off-road vehicles — construction and agricultural equipment — are under discussion with manufacturers.

Part VI

Ocean Dumping

CEPA Sections 66–86

Environment Canada regulates the disposal of substances at sea and meets its international obligations under the London Convention 1972 by means of the Ocean Dumping Regulations and a system of permits under Part VI.

Canada is committed to strong and effective controls on ocean disposal. Ocean disposal includes:

- the disposal of all types of material at sea, including destruction at sea by incineration, and
- the loading of wastes on ships, aircraft, platforms or other structures for disposal at sea.

Disposal at sea is permitted only for non-hazardous substances, where it is the environmentally preferable and practical alternative. Permits are not granted if practical opportunities are available to recycle, reuse or treat the waste. Environment Canada considers a number of factors before granting a permit, including:

- waste audits,



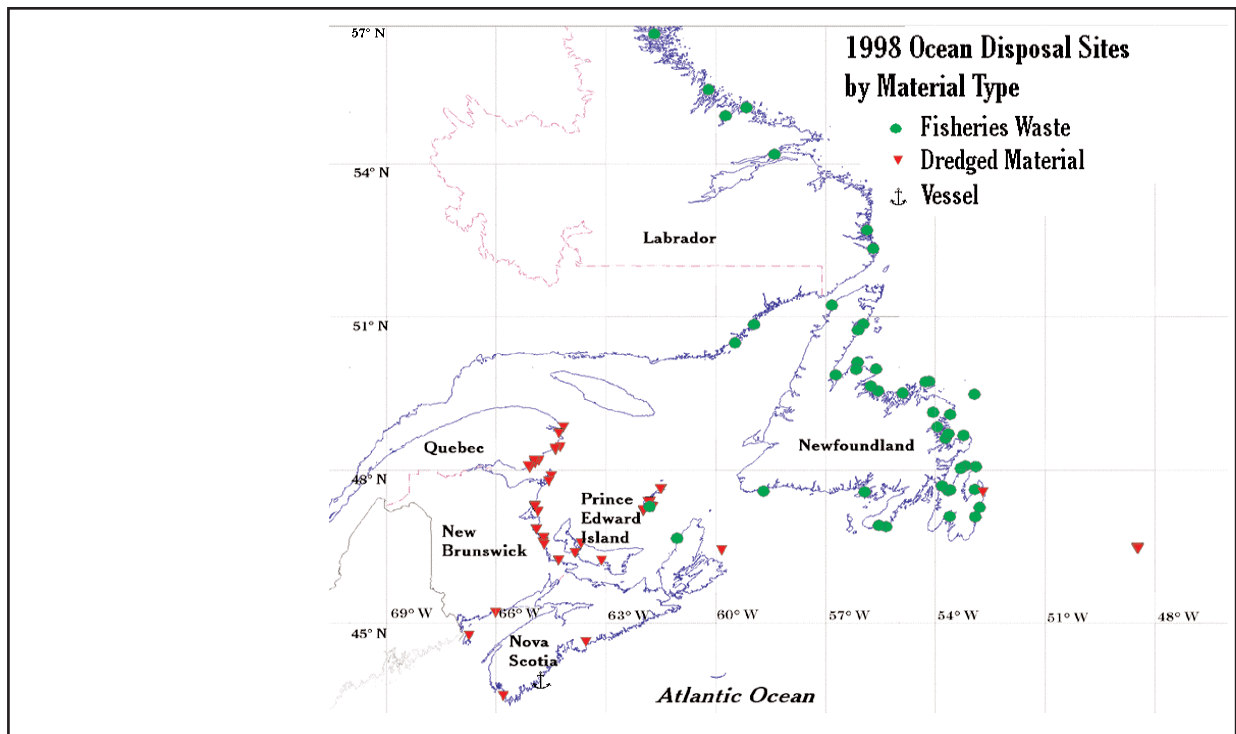
- alternatives to ocean disposal,
- potential environmental impacts, and
- conflicts with other legitimate uses of the sea.

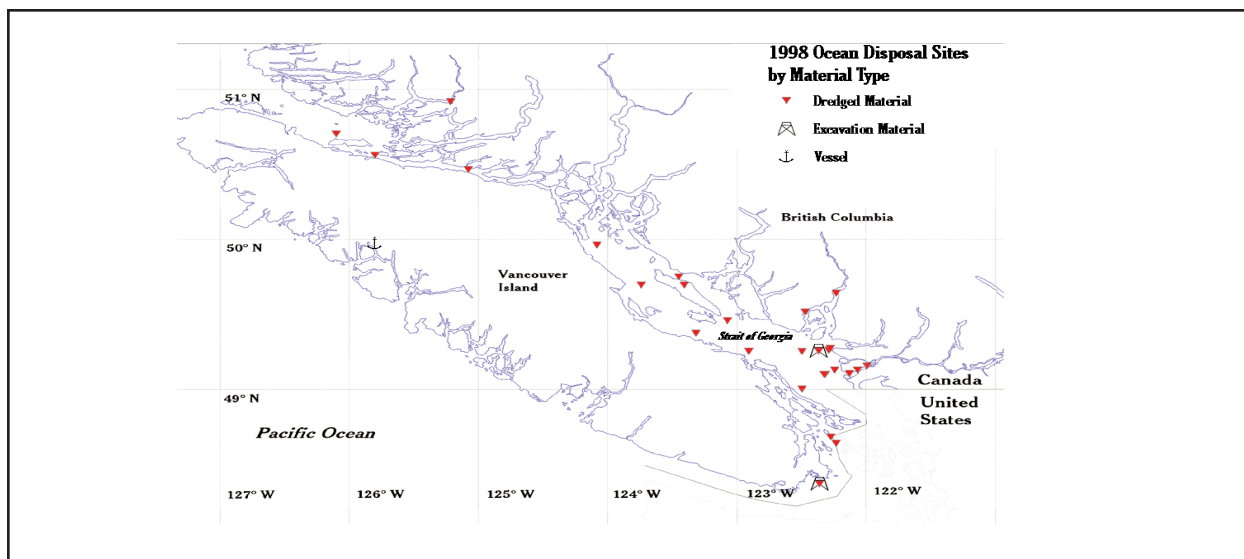
Inert materials or uncontaminated materials of natural origin are considered suitable for ocean disposal. The majority of the material disposed of at sea is dredged material that must be moved to keep shipping channels and harbours clear for navigation and commerce. Fish waste that cannot be recycled as fertilizer, animal feed or other products may be disposed of at sea, with a permit. Other wastes that may be approved for ocean disposal include scrap metal and decommissioned vessels.

During the 1998–99 period, Environment Canada issued 104 permits for the disposal of an estimated 10 million tonnes of material. This is the amount approved for disposal as opposed to the actual amount disposed of at sea, which may be less.

The total number of permits issued in 1998–99 increased by 44% from the year before, while the total quantity of material approved for disposal increased by 146%. This is the result of a new permit fee of \$470 per 1000 cubic metres of dredged sediment or inert organic material disposed of at sea. The fee is for recovery of disposal site monitoring costs. The new fee came into effect on March 17, 1999, after extensive consultations, and many applicants applied for permits before that date; hence, the figure increases in 1998–99. The \$2500 permit application fee remains in place for all permits.

Environment Canada rejected one application for disposal at sea in 1998–99. The application was for the disposal of sediments from Cap-aux-Meules harbour in the Magdalen Islands. Chemical contaminants exceeded national guideline levels. Subsequently, a permit was issued to allow sediments to be moved within the harbour.





Permits Issued in Canada during 1998–99

Material	Quantity approved (in tonnes)	Permits issued	% of quantity	% of permits
Dredged sediment	6 831 070	54	69	52
Excavated soil	2 977 000	7	30	7
Fisheries waste	48 699	41	≤1	39
Vessels	371	2*	≤1	2

* One permit was for the disposal of the 331-tonne *Matthew Atlantic* on the east coast and the other for the disposal of a 40-tonne derelict barge off Vancouver Island.

Part VII

General

CEPA Sections 87–139

Part VII of the Act concerns the enforcement of regulations made under CEPA and other administrative matters. Under Section 34(6) of CEPA, the federal government can enter into an Equivalency Agreement with a province, so that provincial requirements are enforced in place of the equivalent CEPA regulation. In addition, under Section 98, the federal government can enter into Administrative Agreements with provinces.

There were 24 CEPA regulations in force in 1998–99:

- Asbestos Regulations,

- Benzene in Gasoline Regulations (amended January 1999),
- Chlor-Alkali Mercury Release Regulations,
- Chlorobiphenyls Regulations,
- Contaminated Fuel Regulations,
- Diesel Fuel Regulations,
- Export and Import of Hazardous Wastes Regulations,
- Federal Mobile PCB Treatment and Destruction Regulations,
- Fuels Information Regulations No. 1,
- Gasoline Regulations,
- Masked Name Regulations,
- New Substances Notification Regulations,
- Ocean Dumping Regulations,
- Ozone-depleting Substances Regulations (amended January 1999),
- PCB Waste Export Regulations,
- Phosphorus Concentration Regulations,



- Prohibition of Certain Toxic Substances Regulations,
- Pulp and Paper Mill Defoamer and Wood Chip Regulations,
- Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations,
- Registration of Storage Tank Systems for Petroleum Products and Allied Petroleum Products on Federal Lands Regulations,
- Secondary Lead Smelter Release Regulations,
- Storage of PCB Material Regulations,
- Toxic Substances Export Notification Regulations, and
- Vinyl Chloride Release Regulations, 1992.

The Context for Enforcement: Compliance Is the Goal

The CEPA Enforcement and Compliance Policy establishes principles for fair, predictable and consistent enforcement and 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 CEPA and its 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.

When suspected violations occur, investigations are undertaken to gather evidence and information in order to make a decision on the appropriate enforcement action. In provinces where cooperative arrangements have been put in place through Administrative Agreements, pursuant to Section 98 of CEPA, certain inspection and enforcement activities relating to CEPA may be carried out by provincial inspectors in accordance with their roles and responsibilities.

Enforcement Activities within Canada

To address the concerns about Environment Canada's enforcement capabilities raised in recent Auditor General and Standing Committee on Environment and Sustainable Development hearings and reports, the Department began a strategic planning process in early 1998.

The government's response to the Third Report of the Standing Committee on Environment and Sustainable Development can be found on Environment Canada's Green Lane.

www.ec.gc.ca/enforce/homepage/report/pollaws_e.htm

More than 70 Environment Canada inspectors, investigators and managers attended a national workshop in June 1998 to develop an Environment Canada Enforcement Action Plan, endorsed by senior managers in July 1998. The Action Plan addresses several key issues (defined as 15 projects), addressing gaps and weaknesses in program management and policies, and providing additional tools to enable officers to perform their duties more effectively.

Specific projects include:

- developing a framework for departmental enforcement and compliance policies, and decision making,
- improving intelligence gathering, analysis and sharing, and
- improving regulations development and amendments.

Currently 13 of the 15 projects are completed and are in the implementation phase.

Reporting on Enforcement Activities

Using the National Enforcement Management Information System and Intelligence System (NEMISIS), the Enforcement Program can now rely on nationally consistent definitions to report on cross-Canada enforcement activities. NEMISIS will increasingly offer managers and enforcement officers an important work tool and will provide a more precise picture of Environment Canada's enforcement activities.

Environment Canada offers the NEMISIS software to provinces free-of-charge as part of the sharing of enforcement-related information among enforcement agencies.

Enforcement on the Net

In December 1998, the Enforcement Branch launched its Homepage on Environment Canada's Green Lane. Enforcement information had previously been available on the Green Lane but is now presented in a more easily accessible and

coherent way. The Homepage provides the public with information on legislation, policies, reports and completed prosecutions and provides links to a number of partner organizations, provincial, federal and international enforcement organizations and agencies, such as INTERPOL, the Commission for Environmental Cooperation, the United States Environmental Protection Agency, the RCMP and the FBI.

www.ec.gc.ca/enforce/homepage/default.htm

Enforcement Activities and Actions 1998–99

Regulations	Enforcement Activities			Enforcement Actions					
	Administrative verifications	Field/site inspections	Investigations	Inspector's Verbal Warning	Warning Letter	Inspector's Verbal Direction	Inspector's Written Direction	Referral to other Governments	Prosecution
CEPA Regulations									
Asbestos	1	23							
Chlor-Alkali Mercury Release	14	7							
Chlorobiphenyls	9	148	4						
Contaminated Fuel	4								
Diesel Fuel	49	77		1	2				
Export & Import of Hazardous Waste	157	165	16	1	12				
Fuels Information No. 1	64		1		1				
Gasoline		65							
New Substances Notification	23	14	2		12				
New Substances Notification – Biotechnology	3	17	1						
Ocean Dumping, 1988		46	1						3
Ozone-depleting Substances	97	181	9		9			1	
PCB Waste Export	1	8							
Pulp & Paper Mill Defoamer & Wood Chip	58	20							
Pulp & Paper Mill Effluent Chlorinated Dioxins & Furans	111	23							
Registration of Storage Tank Systems for Petroleum Products & Allied Petroleum Products on Federal Lands	16	2							
Secondary Lead Smelter Release	3	18							
Storage of PCB Materials	198	198	6		35	3			
Vinyl Chloride Release, 1992	4	3	1		2				
CEPA Guidelines									
Glycol		6					1		
National Pollutant Release Inventory	193	38	29		152				
*CEPA – Sections	53	496	7	2	23				
**Totals	1058	1555	77	4	249	3	1	1	3

Note: There were no enforcement actions related to the following regulations: Benzene in Gasoline; Federal Mobile PCB Treatment and Destruction; Masked Name; Phosphorus Concentration; Prohibition of Certain Toxic Substances; Toxic Substances Export Notification.

* The category "CEPA – Sections" refers to enforcement activities and actions taken under a section of the Act, rather than under a CEPA regulation; for example, a citizen can request an investigation of an alleged offence under CEPA Section 108.

** The category "Totals" refers to the total enforcement activities and actions taken under CEPA.



In 1998–99, approximately 150 individuals participated in one of the following courses relating to environmental enforcement:

- *Multimedia Sampling Course (1 week)*
- *Contaminated Site Health and Safety Course (1 week)*
- *Forensic Interviewing Course (1 week)*
- *National Undercover and Cover Team Course (3 weeks)*
- *Boating Course for Enforcement Officers (2 weeks)*
- *Basic Inspector's Course for CEPA Enforcement Officers (2 weeks)*

National Training Program

Training continues to be of major importance in maintaining and enhancing the enforcement program. The National Training Program comprises a wide range of courses developed and delivered through the collaborative efforts of staff from headquarters, the regions and the Wastewater Technology Centre. Participants include environmental protection enforcement officers, wildlife officers as well as staff from partner agencies, such as Canada Customs. Subjects range from those dealing with general skills — for example, General Enforcement Training for CEPA Enforcement Officers — to very specialized responsibilities and advanced investigative techniques, such as the Forensic Interviewing Course and the Undercover Course.

In support of regional compliance activities and enforcement of the *Export and Import of Hazardous Wastes Regulations*, training was provided to CEPA inspectors from across Canada on a central database to enquire on enforcement-related activities. The system has become an integral part of national and regional compliance promotion directed at priority companies.

A computer-based training package for Customs inspectors was developed with Revenue Canada – Customs to enhance the enforcement of the *Export and Import of Hazardous Wastes Regulations* at border crossings.

In conjunction with the Department of Indian Affairs and Northern Development, Environment Canada developed a training program for First Nations in Alberta concerning

the CEPA-required registration of all underground fuel storage tanks on Aboriginal lands and federal facilities.

A five-week General Enforcement Training course for CEPA Enforcement Officers was prepared in anticipation of CEPA officers receiving “peace officer” powers, as set out in CEPA 1999.

Other Enforcement-related Activities

In 1998–99, increased efforts were made to promote awareness and compliance with various CEPA regulations, including the *Export and Import of Hazardous Wastes Regulations* and the new *Ozone-depleting Substances Regulations*.

Environment Canada and Revenue Canada – Customs are working on an “umbrella” agreement that will foster continued cooperation on CEPA-related enforcement and other matters, such as hazardous wastes and ozone-depleting substances.

A two-day federal–provincial working-level enforcement meeting was held in Whitehorse in June 1998 to share enforcement-related experiences, to network and to discuss common training.

A course on environmental crimes, developed by Canada, the United States, the Netherlands and Germany under the auspices of INTERPOL, was given to trainers from Eastern European countries. The intent is for them to train members of the regular police forces in their countries to make them aware of environmental crimes and how to respond to them.

Equivalency Agreements

CEPA Section 34(6) provides for Equivalency Agreements where provincial or territorial environmental legislation has provisions that are equivalent to the CEPA provisions. The intent is to eliminate the duplication of environmental regulations. Equivalency is based on the following criteria: equivalent regulatory standards (as determined by measurement and testing procedures and penalties and enforcement programs) and similar provision for citizens to request investigations.

The federal government has the responsibility to report annually to Parliament on the administration of Equivalency Agreements. Only one province, Alberta, has entered into an Equivalency Agreement with the federal government.

The Canada/Alberta Equivalency Agreement

“An Agreement on the Equivalency of Federal and Alberta Regulations for the Control of Toxic Substances in Alberta” was signed on June 1, 1994 and came into effect on December 28, 1994. The following CEPA regulations no longer apply in Alberta:

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

In 1998–99, the regulated facilities continued to show compliance with their provincial operating licences for dioxin, furan and vinyl chloride emissions. There were no violations. There was one uncontrolled release of vinyl chloride from a plant that was reported to Alberta Environmental Protection. Stack analysers at another facility showed an excessive release of vinyl chloride on one occasion. Environment

Canada has contacted Alberta Environmental Protection to obtain more details about both releases.

Administrative Agreements

Administrative Agreements are working arrangements between the federal government and provincial and territorial governments to streamline efforts in administering regulations. The agreements usually cover inspections, enforcement, monitoring and reporting, and so forth, with each jurisdiction retaining its legal authorities.

Quebec

Environment Canada signed an Administrative Agreement with the Government of Quebec for the application in Quebec of the federal pulp and paper mill regulations (in effect from December 16, 1997 to March 31, 2000).

This Agreement deals with regulations under CEPA and the *Fisheries Act* and creates a “one-window” approach to administer regulations affecting 62 pulp and paper mills in Quebec. The CEPA federal regulations covered by the Agreement and affecting seven mills are the *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations* and the *Pulp and Paper Mill Defoamer and Wood Chip Regulations*.

According to the agreement, the province collects the regulated information, conducts inspections under its own regulations and relays data to Environment Canada.

In 1998-99, Environment Canada reviewed 1008 monthly reports from the mills and the municipalities, produced monthly reports on compliance, discussed problematic mills with Quebec and took appropriate action in conformity with the enforcement and compliance policy. Two investigations by federal government representatives were ongoing during the year. If we consider just the CEPA federal regulations, Environment Canada reviewed 112 reports of the 1008 reviewed under the agreement.



The agreement management committee met four times during the year to improve the automated system for transmitting data from the regulated industry and to set up emergency and follow-up procedures.

Saskatchewan

The Canada–Saskatchewan Administrative Agreement for CEPA (in force since September 15, 1994) covers the following CEPA regulations:

- *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations,*
- *Pulp and Paper Mill Defoamer and Wood Chip Regulations,*
- *Ozone-depleting Substances Products Regulations,*
- *Ozone-depleting Substances Regulations,*
- *Chlorobiphenyls Regulations,*
- *Federal Mobile PCB Treatment and Destruction Regulations,* and
- *Storage of PCB Material Regulations.*

In October 1998, eight Conservation Officers from the Saskatchewan Spill Control Centre were given CEPA spill reporting training and qualified for designation as inspectors under CEPA for the purpose of Section 36, CEPA, release of toxic substances.

Under the terms of the Agreement, the Saskatchewan Department of Environment and Resource Management (SERM) receives all reports related to unauthorized releases or spills and then notifies Environment Canada of releases of substances that fall under the federal Act.

In 1998–99, 36 releases of electrical fluids that had the potential of containing PCBs were reported. After examination, it was found that only two contained PCBs, one of which was on federal lands. The province found that appropriate corrective measures had been taken by industry following the release on provincial land, and no further action was required. With respect to the release on federal lands, the Environment Canada and Department of Indian

Affairs and Northern Development assessment of the initial cleanup identified some deficiencies, and the utility company undertook additional cleanup.

Compliance with the following federal regulations was promoted and verified:

- *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations* — There are two large pulp and paper mills in Saskatchewan. One is a state-of-the-art zero liquid discharge plant and produces no liquid effluent. SERM has incorporated the *Pulp and Paper Mill Effluent Chlorinated Dioxins and Furans Regulations* into the permit for the other mill. All reported information received by the province according to its regulations is copied to Environment Canada. Administrative inspections of these data showed compliance with the regulations.
- *Pulp and Paper Mill Defoamer and Wood Chip Regulations* — Pulp and paper mills in Saskatchewan do not use products listed in these regulations at this time. Consequently, no inspection activities occurred under the CEPA *Pulp and Paper Mill Defoamer and Wood Chip Regulations*.
- *Ozone-depleting Substances Products Regulations* — The CEPA regulations prohibit the sale of small containers of ozone-depleting substances. The provincial regulations also cover the sale of small containers, as well as certification of refrigeration technicians and requirements for recovery. Through the agreement, Environment Canada focuses its effort on sale of containers, and Saskatchewan focuses on certification and recovery activities. Federal inspectors conducted five inspections relating to sale of containers of ozone-depleting substances in 1998–99, two jointly with SERM. In addition, SERM conducted one inspection under the *Saskatchewan*

Ozone-depleting Substances Control Act to verify certification and recovery activities and found no violations.

- *Ozone-depleting Substances Regulations* — These CEPA regulations control manufacture, import, consumption and export of ozone-depleting substances. There is no manufacturing of ozone-depleting substances in Saskatchewan. In 1998–99, Environment Canada and SERM conducted joint inspections of three refrigerant distributors and two automotive facilities that distribute or use ozone-depleting substances. These facilities were found to be in compliance with the federal regulations.
- *Chlorobiphenyls Regulations and Storage of PCB Material Regulations* — There were no inspections conducted under the *Chlorobiphenyls Regulations* of in-use equipment containing PCBs in 1998–99. Environment Canada conducted six inspections under the *CEPA Storage of PCB Material Regulations*, four of which took place at federal storage sites and two at private sector sites. Saskatchewan was informed of all Environment Canada inspection activities at non-federal sites. Of the six sites inspected, CEPA inspectors found one private site to be out of compliance. A letter setting out the minor violations was issued. A joint Environment Canada–SERM reinspection of the site confirmed that the site had been brought into compliance.

Environment Canada maintains the inventory of in-use PCB-containing equipment in Saskatchewan and the inventory of stored PCB-containing equipment and other materials and waste containing PCBs.

Yukon

Canada and Yukon use the Canada–Yukon Environmental Protection Agreement (in force since May 16, 1995) as a reference for working cooperatively, where most practical. In 1998–99, areas of cooperation included:

- *monitoring* — a vehicle emissions testing clinic and a NAPS station in Whitehorse,
- *research* — assessment and evaluation of three contaminated sites,
- *standards* — Canada participated on Government of Yukon advisory committees developing regulations: air emissions regulations were promulgated in 1998–99, and solid waste regulations are almost ready,
- *inspections* — two joint inspections relating to special/hazardous wastes; information sharing on environmental emergencies, and
- *spills* — the Yukon Spills Committee met three times to exchange information, confirm lead response agencies and increase the level of awareness related to environmental emergency preparedness.

Northwest Territories

The Canada–Northwest Territories Framework Agreement for Environmental Cooperation in the Northwest Territories was signed on November 15, 1996 and focuses on maintenance and improvement of current levels of environmental protection through cooperative efforts. It includes the following areas of cooperation:

- development of, and adherence to, policies, guidelines and standards,
- development of, and compliance with, legislation and regulations, and
- response to environmental emergencies in cooperation with all responsible agencies.

This agreement expired on April 1, 1999, when the territory of Nunavut was created.

The two governments have agreed that they will not renew the agreement as they intend to implement cooperative activities through annexes to the Framework Agreement. However, in 1998–99, Environment Canada and the Northwest Territories did not negotiate any annexes, due to ongoing discussions related to interjurisdictional cooperation under the Canada-wide Accord on Environmental Harmonization, under the auspices of the CCME.



SECTION 3: CEPA-RELATED ACTIVITIES

This section covers CEPA-related activities that concern the Act as a whole.

Public Access to Information

In 1998–99, Environment Canada received 70 requests for CEPA-related information under the *Access to Information Act*. The requests were on the following subjects:

- CEPA inspectors,
- contaminated sites,
- DDT and Dicofol,
- disposal and export of PCB waste,
- environmental compliance checks,
- import and export of hazardous wastes,
- PCB inventory,
- sulphur emissions, and
- sulphur in gasoline.

Information was released, in whole or in part, for 27 requests. The information did not exist for 24 requests. Eight requests were abandoned by the applicant, and one request was transferred to another department. Ten requests were still being processed at year-end.

Thirty-five of the 70 requests concerned the environmental compliance status of properties or facilities. Compliance with respect to all Acts administered by Environment Canada was included in the search.

CEPA Federal–Provincial Advisory Committee

The Federal–Provincial Advisory Committee, required under Section 6 of CEPA, is made up of provincial/territorial representatives and a federal environmental and a federal health representative. The Committee's main purpose is to ensure early and effective collaboration on environmental protection and toxic management initiatives. It also provides a forum for sharing information between the two levels of government.

During 1998–99, the Committee worked on the development and approval of the Dioxins and Furans and Hexachlorobenzene Inventory of Releases. The Inventory was prepared by Environment Canada and the Federal–Provincial Advisory Committee Task Force on Dioxins and Furans and was released in January 1999. The Inventory identifies priority sectors for controlling releases of dioxins and furans with a view to their virtual elimination. Recommendations will be taken into consideration by the CCME when it develops Canada-wide Standards for dioxins and furans.

The Federal–Provincial Advisory Committee also worked on defining the distinct roles of the National Ambient Air Quality Objectives and Canada-wide Standards.

A workshop on voluntary initiatives (non-regulatory measures) led to an agreement to explore opportunities to promote the use of voluntary measures in an effective and harmonized way. Other items on the Federal–Provincial Advisory Committee's agenda during 1998–99 included mercury and lead in paint, the PSL assessment and the renewal of CEPA.

Health Canada and Environment Canada, in conjunction with the Federal–Provincial Working Group on Air Quality Objectives and Guidelines, published the Science Assessment Document for particulate matter of less than 10 micrometres (PM₁₀) and less than 2.5 micrometres (PM_{2.5}). This assessment formed the scientific basis for the process to develop Canada-wide standards for particulate matter, which is scheduled to be completed in spring 2000.

www.hc-sc.gc.ca/ehp/ehd/catalogue/bch.htm

Activities in Preparation for a Renewed CEPA

CEPA 1999 received Royal Assent on September 14, 1999. It is the product of extensive consultations with Canadians that began in June 1994, when the House of Commons Standing Committee on Environment and Sustainable Development started its review of the current CEPA, which came into effect in June 1988.

The new Act has 356 Sections, compared to the 149 Sections in CEPA 1988, and covers the following items:

- Pollution prevention;
- Managing toxic substances;
- Clean air and water: fuels, engine emissions, international air and water pollution;
- Controlling pollution and wastes — land-based sources of marine pollution, disposal at sea, movement of hazardous wastes and recyclables and of non-hazardous wastes;
- Environmental matters related to emergencies;
- Biotechnology;
- Federal government operations and federal and Aboriginal lands;
- Enforcement;
- Information gathering, objectives, guidelines, and codes of practice;
- Public participation.

www.ec.gc.ca/cepa

In preparation for the changes in the renewed CEPA, the Department has undertaken various activities.

Pollution Prevention Activities

Pollution prevention is an underlying principle of the renewed CEPA. The Preamble declares that “the protection of the environment is essential to the well-being of Canadians and that the primary purpose of this Act is to contribute to sustainable development through pollution prevention.”

Environment Canada’s Pollution Prevention Team met to plan and coordinate the Department’s implementation of Pollution Prevention — A Federal Strategy for Action and to strengthen the Department’s outreach activities with various stakeholders.

Throughout the year, the Department has worked with other federal agencies to advance pollution prevention. Environment Canada provided Statistics Canada with advice on the pollution prevention aspects of the “Environmental Expenditures Survey,” which was distributed in the summer of 1998. The survey, which collects data on the expenditures made by primary and manufacturing industries in response to, or in anticipation of, environmental regulations and guidelines, will help to fill in information gaps.

Accomplishments in the regions include the following:

- The Atlantic Region assessed the effectiveness of a group of lending institutions in promoting pollution prevention as a means of minimizing the environmental risk associated with their commercial customers and provided technical assistance to regional development agencies, such as the Atlantic Canada Opportunities Agency, to increase awareness of sustainable development and maximize pollution prevention opportunities in program delivery.
- The Quebec Region worked with industrial sectors, such as the printing and graphics sector and the dry cleaning sector, to prevent pollution and promoted in-plant prevention projects and environmental management systems through the Enviroclub™ initiative.
- In the Ontario Region, various pollution prevention MOUs with the automotive manufacturing, automotive parts, metal finishing and printing and graphics sectors have avoided or minimized the



Two examples of projects funded through EcoAction 2000 follow:

The Terres en ville project promotes sustainable gardening practices among Montreal's community gardeners, who are given information on how to manage soil, diseases and waste in an ecologically sound way. The focus is on chemical-free, compost-rich gardening. Urban gardeners have learned how to use weeds, such as stinging nettle and horsetail, as a natural way to combat garden pests.

Take Back Toxins: Reducing Hazardous Waste for Cleaner Water
works with new immigrants to Vancouver to provide them and their neighbours with a convenient place to safely dispose of toxic household products. The project also suggests eco-friendly products for at-home use. The goal is to collect and safely dispose of almost 1 tonne of residual household hazardous products and to encourage long-lasting behavioural changes.

creation of more than 9000 tonnes of pollutants and wastes. Work was also undertaken to help the Hamilton International Airport to implement a number of pollution prevention initiatives to demonstrate how these types of facilities can benefit from pollution prevention.

- The Prairie and Northern Region published the "Manitoba and Saskatchewan Pollution Prevention Guide for Printers," which was developed with the Saskatchewan Graphic Arts Industry Association and the Manitoba Green Printing project, coordinated by the Alliance of Manufacturers and Exporters of Canada.
- The Pacific and Yukon Region worked with other orders of government to assist an aluminum smelter and fertilizer operation in adopting pollution prevention planning and to initiate the start-up of a pollution prevention program with British Columbia's printing and graphics sector.

Partnerships with other levels of government are key to harmonizing approaches to pollution prevention. The success of the St. Lawrence River Action Plan is built on a close working relationship between the federal and Quebec governments, which has resulted in the development of a pollution prevention program with projects aimed at reducing 18 toxic substances of concern in three industrial sectors: metallurgy, chemistry and metal finishing.

The Department continued to facilitate the private sector's shift to pollution prevention through voluntary initiatives and various pollution prevention MOUs.

Canadian Pollution Prevention Information Clearinghouse

The Canadian Pollution Prevention Information Clearinghouse is a significant pollution prevention tool for the Canadian public. The Clearinghouse has more than 900 records covering 24 industrial sectors, ranging from laboratories to food processing. In March 1999, more than 1900 users visited the site, staying for an average 12 minutes per visit.

www3.ec.gc.ca/CPPIC/index_e.htm

The Department's efforts to increase the capacity of Canadians to implement pollution prevention practices continued through the EcoAction 2000 Community Funding Program.

The 1998 Pollution Prevention Awards, presented by the CCME, recognize organizations that have shown leadership in pollution prevention — the use of processes, practices, materials, products or energy that avoid or minimize the creation of pollutants and wastes — at the source. One Pollution Prevention Award-winner was an Alberta company that developed Envirowrapper, a reusable, lightweight pallet wrapper made of durable polypropylene or polyethylene with straps and release buckles. Envirowrapper can be reused for several years. It is an environmentally friendly alternative to stretch wrap, which is thrown out after one use.

Categorizing Substances on the DSL

The new CEPA will require the Minister of the Environment and the Minister of Health to “categorize” the 23 000 substances listed on the DSL on the basis of their potential persistence, bioaccumulation and inherent toxicity within seven years after the date of Royal Assent (September 14, 1999). Substances that are categorized as persistent or bioaccumulative and inherently toxic will then be subject to screening-level risk assessments to determine whether they are “toxic” as defined in the Act or require a more in-depth assessment.

A pilot project is under way at Environment Canada that will identify the organic substances that are likely to be of most concern with regard to persistence, bioaccumulation and inherent toxicity. A list of over 7000 organic substances is being reviewed. In addition, a database was developed that will be used to organize the technical and scientific data for the categorization and screening of assessments.

In support of this work, Health Canada has initiated the development of an approach to categorize substances on the DSL in order to identify those that may present the greatest potential for exposure for individuals in Canada. The Priority Substances Section of Health Canada

has also initiated the development of an approach for conducting the screening-level assessment of human health risks for substances to be categorized from the DSL.

A Domestic Substances List Advisory Group with representatives from government, industry, academia, environmental organizations and consultant groups has been set up by Environment Canada to identify and resolve issues of a scientific, technical and process nature that emerge from implementation of the project. The Domestic Substances List Advisory Group met on two occasions in 1998–99.

Substances Banned or Severely Restricted by Other Jurisdictions

Another initiative begun by Environment Canada in anticipation of the new CEPA is the identification and review of substances banned or severely restricted by other jurisdictions in Canada and in OECD countries. An action plan has been prepared, proposing procedures for exchanging information on these substances with other jurisdictions.

SECTION 4: CEPA-RELATED INFORMATION

Research Publications

Environment Canada and Health Canada scientists published over 300 reports, papers, book chapters, articles and manuscripts on CEPA-related subjects during 1998–99. This impressive body of work appeared in books and scientific journals, which are available in libraries and from the publishers. Departmental publications are available from the Departmental library or the nearest regional library. Many current Departmental publications are also available through Environment Canada's Inquiry Centre, located on the main floor of Place Vincent Massey, 351 St. Joseph Boulevard, Hull, Quebec K1A 0H3.

Further information on specific CEPA-related publications may be found on the Internet at the web site addresses listed throughout this Annual Report.

Contact Names for Environment Canada Information

Headquarters Directors of Communications

Linda Bergeron
Environmental Protection Service
Telephone: (819) 953-6603
Fax: (819) 953-8125
e-mail: Linda.Bergeron@ec.gc.ca

Ann McMonagle
Policy and Communications Service
Telephone: (819) 953-2853
Fax: (819) 994-6484
e-mail: Ann.McMonagle@ec.gc.ca

Mark Colpitts
Ministerial Communications Services
Telephone: (819) 953-9738
Fax: (819) 953-6789
e-mail: Mark.Colpitts@ec.gc.ca

Regional Managers of Communications

Wayne Eliuk
Atlantic Region
Telephone: (902) 426-1930
Fax: (902) 426-5340
e-mail: Wayne.Eliuk@ec.gc.ca

Clément Dugas
Quebec Region
Telephone: (418) 648-5777
Fax: (418) 648-3859
e-mail: Clement.Dugas@ec.gc.ca

Maureen Martinuk
Ontario Region
Telephone: (416) 739-4787
Fax: (416) 739-4776
e-mail: Maureen.Martinuk@ec.gc.ca

Kathryn Labach
Prairie and Northern Region
Telephone: (708) 951-8867
Fax: (708) 495-2478
e-mail: Kathryn.Labach@ec.gc.ca

Anne-Marie Clancy
Pacific and Yukon Region
Telephone: (604) 713-9513
Fax: (604) 713-9517
e-mail: ClancyA@ec.gc.ca

Research Facilities

Climate and Atmospheric Research Directorate

Joan Masterton
Director, Science Assessment & Integration
Branch
Telephone: (416) 739-4321
Fax: (416) 739-4380
e-mail: Joan.Masterton@ec.gc.ca

Environmental Technology Centre

Dr. David Thornton, Director
Telephone: (613) 991-9550
Fax: (613) 998-1365
e-mail: David.Thornton@etc.ec.gc.ca

National Water Research Institute

Dr. Martine Allard
Manager, Science Liaison
Telephone: (905) 336-4503
Fax: (950) 336-6444
e-mail: Martine.Allard@ec.gc.ca

National Wildlife Research Centre

Keith Marshall
Chief, Wildlife Toxicology Division
Telephone: (819) 997-3044
Fax: (819) 953-6612
e-mail: Keith.Marshall@ec.gc.ca

The St. Lawrence Centre

Jean Burton
Telephone: (514) 283-9930
Fax: (514) 283-1719
e-mail: Jean.Burton@ec.gc.ca

Wastewater Technology Centre

Dr. J.R. Jocelyn Paré, A/Director
Telephone: (905) 336-4745
Fax: (905) 336-4858
e-mail: Jocelyn.Pare@ec.gc.ca



Acronyms

5NR MOU	Memorandum of Understanding on Science and Technology for Sustainable Development among the five federal natural resources departments: Agriculture and Agri-Food Canada, Environment Canada, Fisheries and Oceans Canada, Health Canada and Natural Resources Canada
AMAP	Arctic Monitoring and Assessment Programme
ARET	Accelerated Reduction/Elimination of Toxics
ASTM	American Society for Testing and Materials
CCME	Canadian Council of Ministers of the Environment
CEPA	<i>Canadian Environmental Protection Act</i>
CETAC	Canadian Environmental Technology Advancement Centre
CFC	chlorofluorocarbon
DSL	Domestic Substances List
EDS	endocrine-disrupting substance
EMAN	Ecological Monitoring and Assessment Network
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-based Activities
HCB	hexachlorobenzene
HCBD	hexachlorobutadiene
HM	heavy metal
LOQ	level of quantification
MOU	memorandum of understanding
NAPS	National Air Pollution Surveillance
NEMISIS	National Enforcement Management Information System and Intelligence System
NPRI	National Pollutant Release Inventory
OECD	Organisation for Economic Co-operation and Development
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCDDs	polychlorinated dibenzodioxins
PCDFs	polychlorinated dibenzofurans
PFC	perfluorocarbon
POP	persistent organic pollutant
PSL	Priority Substances List
RPA	Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-based Activities
SERM	Saskatchewan Department of Environment and Resource Management
TEAM	Technology Early Action Measures
UN-ECE	United Nations Economic Commission for Europe
VOC	volatile organic compound

