2002

Report of the

Commissioner of the Environment and Sustainable Development

to the House of Commons

Chapter 1

Toxic Substances Revisited

Office of the Auditor General of Canada

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For copies of this report or other Office of the Auditor General publications, contact

Office of the Auditor General of Canada
240 Sparks Street, Stop 10-1
Ottawa, Ontario
K1A 0G6

Telephone: (613) 952-0213, ext. 5000, or 1-888-761-5953
Fax: (613) 954-0696
E-mail: distribution@oag-bvg.gc.ca

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Chapter

1

Toxic Substances Revisited

The audit work reported in this chapter was conducted in accordance with the legislative mandate, policies, and practices of the Office of the Auditor General of Canada. These policies and practices embrace the standards recommended by the Canadian Institute of Chartered Accountants.

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Toxic Substances Revisited

Main Points

1.1 The production, use, and release of industrial chemicals, pesticides, and their by-products in Canada can pose serious risks to the health of Canadians and to our environment. Specific groups of Canadians—for example, the Inuit in the North and children—can be particularly at risk because of their higher exposure and sensitivities. Some chemicals are associated with health problems such as cancer, decreased fertility, and neurological disorders. Other chemicals are the subject of considerable scientific debate over which ones (and in what concentrations) might be affecting human health and the environment.

1.2 In 1999 we audited the federal government's scientific investigation of existing industrial chemicals and pesticides and its management of their use. We concluded that the federal government was not adequately managing the risks created by toxic substances.

1.3 In 2002 we revisited the departments we had audited to assess their progress in implementing our 27 recommendations. This follow-up has found mixed progress. Although the federal government has made some progress in managing toxic substances since our 1999 audit, its ability to detect, understand, and prevent the harmful effects of toxic substances is still limited. The processes we observed seem to defy timely, decisive, and precautionary action. Many of the root causes of problems we found in 1999 continue today: underresourced commitments; major gaps in scientific knowledge; and burdensome regulatory processes. None of this augurs well for our health or our environment. Sustainable development offers the hope of a new approach to managing the risks posed by toxic substances. In our opinion, the current situation and future prospects are not environmentally, economically, or socially acceptable. We are leaving our children the responsibility of assessing, and certainly of managing, toxic substances in use today.

1.4 In the management of industrial chemicals, we found that departments have made encouraging progress in some areas:

- Research activities are better co-ordinated and research priorities have been established, helping to ensure that the expertise of the federal government and other partners will be used to protect human health and the environment.
- The process for managing toxic substances has been improved. It will allow for the development of strategies and management options to begin before the final assessment report on a substance is completed.

- Tracking of key toxic substances has been improved through additions to the National Pollutant Release Inventory. The information provides Environment Canada with the ability to track changes in releases of key substances from some sources.

1.5 However, we found more limited progress in these essential areas:

- Measuring the presence of toxic substances in the environment and their effects on plants, animals, and humans in order to understand, for example, key impacts.
- Applying risk management controls to the substances on the first list of priority substances that were declared toxic in 1994, to reduce their release into the environment.
- Applying the Toxic Substances Management Policy across federal departments, a policy that establishes precautionary and proactive principles and accountability for dealing with toxic substances and that is to be applied in all areas of federal responsibility.
- Achieving the government's objective of virtually eliminating predominantly man-made releases of toxic substances that are persistent and bioaccumulative.

1.6 Progress in addressing our recommendations on pesticides is limited:

- There is still no risk reduction policy guiding pesticide management to assist in minimizing the risks to people and the environment.
- Few of the pesticides approved for use decades ago have been re-evaluated against current standards.
- The government has no overall picture of pesticide use in Canada because there is still no database on pesticides sales to assist in monitoring the risks to health, safety, and the environment.

Background and other observations

1.7 Since our 1999 audit a number of new developments have occurred, including the ratification of the Stockholm Convention on Persistent Organic Pollutants (POPs) and the introduction of the new *Canadian Environmental Protection Act,* 1999 (CEPA, 1999). CEPA, 1999 has led to sweeping changes in federal activities, introducing new requirements and modifying existing ones.

1.8 Our follow-up looked more closely at one of these changes, the requirement that Environment Canada and Health Canada categorize all substances on the Domestic Substances List—around 23,000 substances. This categorization must be completed by 14 September 2006. The federal government is also required subsequently to assess or screen the substances that have been identified as having the greatest potential exposure to Canadians, or that are persistent or bioaccumulative and inherently toxic to human beings or non-human organisms. This process may take up to a few decades to complete.

The Department has responded. In this follow-up, we did not make new recommendations to departments. The six departments affected by the 1999 audit and by this follow-up have provided a joint response to the chapter. The response, in the Conclusion section of this chapter, indicates that the responsible departments will continue to "strengthen their capacity within available resources" but does not indicate the specific actions they will take.

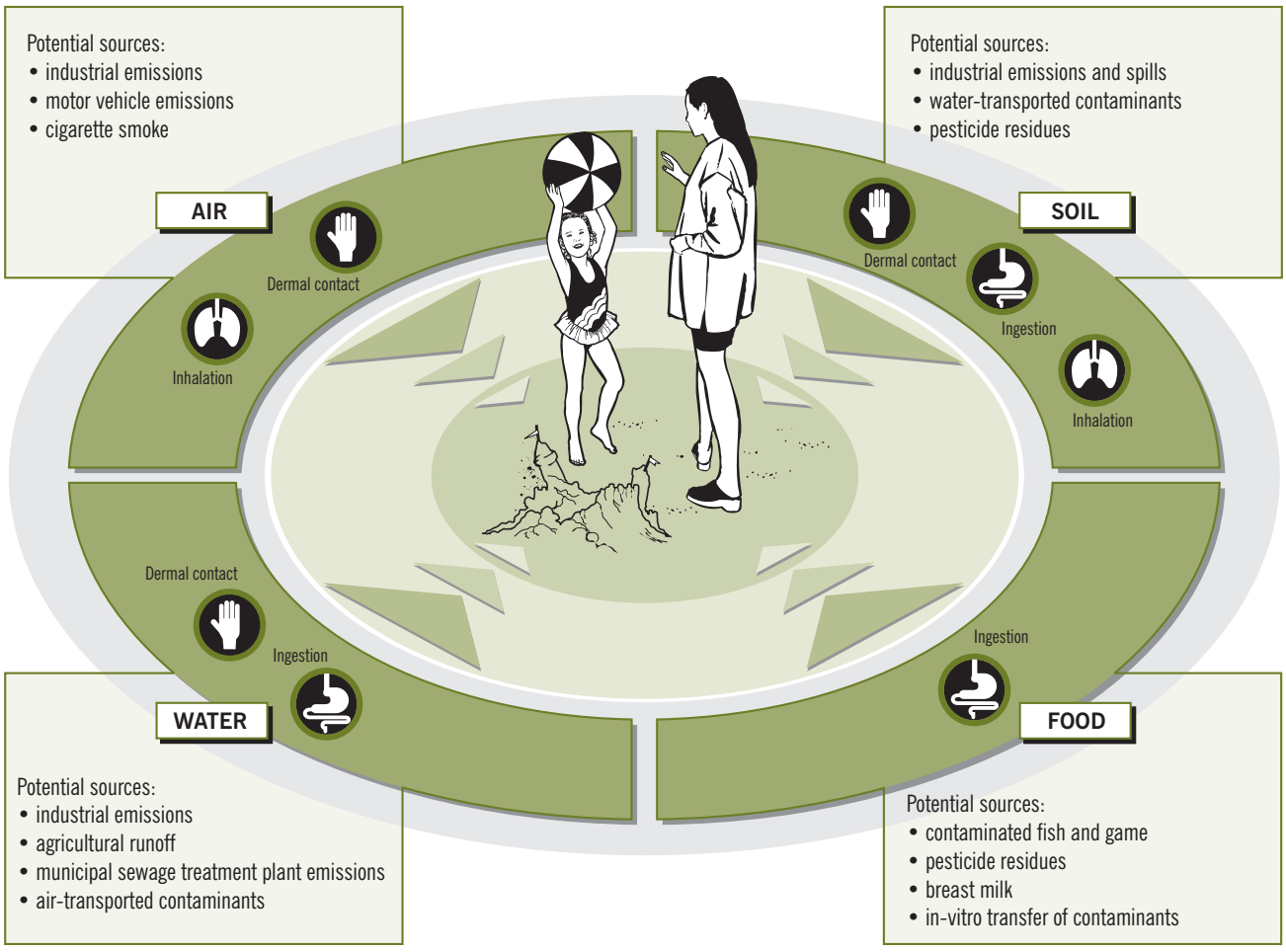
Introduction

The issue

1.9 Chemicals are used and found everywhere in Canadian society—in our homes, cars, farms, industries, computers, hospitals, clothing, foods, products, and schools. They contribute to our quality of life, our economic well-being, and our industrial competitiveness.

1.10 These substances enter our air, water, land, and food from several sources including industries, agricultural runoff, contaminated sites, abandoned mines, vehicle emissions, and consumer products used in our homes. However, some substances are harmful or could be harmful to the health of Canadians and to their environment. The worst of these, toxic substances, have been linked to lung disease, reproductive problems and birth defects, cancers, developmental disorders, allergic reactions, lowered resistance to disease, and other illnesses or disorders. Major pathways of potential human exposure are illustrated in Exhibit 1.1. A list of some toxic substances, their sources of release, and related health concerns are shown in Exhibit 1.2.

Exhibit 1.1 **Major pathways of human exposure to environmental contaminants**



1.11 There are many types and definitions of toxic substances. The 1999 audit looked broadly at "toxic substances," including both industrial chemicals and pesticides. Although these substances are treated differently under federal legislation and associated programs, they both have the potential to cause harm to Canadians and their environment. The term "toxic" has an everyday meaning but can also have a precise legal meaning. Exhibit 1.3 defines the terms used in this report.

1.12 For the many reasons we noted in 1999, tackling the problems associated with toxic substances is a massive and complex challenge for the federal government. It is not a single problem: there are thousands of potentially toxic substances. Substances can be released from "point sources" (for example, specific industrial plants) and from "non-point sources" (for example, vehicle exhaust and agricultural runoff). Many substances enter

Exhibit 1.2 Selected toxic substances, their global and local sources of release, and related health concerns

Toxic substances	Sources of release	Potential human health concerns
Heavy metals (and related compounds)		
Lead, cadmium, mercury	Mining, hydro-reservoirs, coal-fired power plant emissions, industrial chemicals, batteries, paint, ceramics, plumbing, electrical supplies	Behavioural and neurological disorders, brain and kidney damage, bone disease
Contaminants and byproducts		
Chlorinated dioxins and furans, PCBs, chlorinated naphthalenes	Pulp and paper, incineration, manufacturing, electrical insulation	Decreased fertility, prostate and testicular cancer, reproductive disorders, breast cancer, acute toxicity, hormone disruption, chloracne, liver damage
Pesticides		
DDT*, toxaphene*, aldrin*, dieldrin*, endrin*, chlordane*, lindane*, copper chromated arsenate	Agriculture, agri-food, forestry, residential and municipal use	Cancer, reproductive disorders, irritations of skin membrane and respiratory tract, acute toxicity
Commercial chemicals		
Chloroethylenes, chloroethanes, benzene, butadiene, ozone-depleting substances	Industrial processes, incineration, industrial and municipal effluents	Induction of tumours or cancers, increased UV exposure
Common air pollutants		
Respirable particulate matter (PM_{10} and $PM_{2.5}$), volatile organic compounds (VOCs), nitrogen oxides (NO_x), ground-level ozone, sulphur dioxide (SO_2)	Vehicle emissions, incineration, industrial processes, construction, smelting, power plant emissions	Bronchitis, dermatitis, respiratory disease, decreased lung and pulmonary function (cardiovascular challenge), inflammation and irritation of respiratory tract, induced asthmatic attacks

* A special review of lindane under the *Pest Control Products Act* has resulted in a decision to phase out all remaining uses of this active ingredient (5 April 2002). The other substances in this list are no longer used in Canada but are still present in the environment. Long-range transport is the way these persistent substances still enter Canada.

Many of these health concerns were first observed in wildlife (including fish) by researchers. In addition to sharing many of the potential human health endpoints (such as cancer), wildlife populations are also vulnerable to other endpoints, including wasting, failure to thrive, eggshell thinning, skewed sex ratios, alterations in recruitment to breeding populations, and population decline. Given that they may be exposed in a manner different from humans and that they are susceptible to different kinds of effects, plants and animals can be either more or less susceptible than humans.

the environment from local sources but others originate beyond Canada's borders. Some substances occur naturally in the environment (such as heavy metals) and some are released through natural processes and also human activity.

1.13 But which substances pose risks to our health and environment? And what should the federal government be doing about them? The government has been grappling with these questions for decades, and over time it has responded with a complex labyrinth of scientific research and monitoring, legislation and regulations, policies and voluntary programs.

Toxic substances are also found in the home, for example, benzene emissions from automobiles parked in attached garages.

A follow-up to our 1999 Report, chapters 3 and 4

1.14 In 1999 we audited specific aspects of the federal response to toxic substances. We examined activities in six key departments: Environment Canada, Health Canada (including the Pest Management Regulatory Agency), Fisheries and Oceans Canada, Agriculture and Agri-Food Canada, Natural Resources Canada, and Industry Canada. We reviewed three major pieces of federal legislation—the *Canadian Environmental Protection Act* (CEPA), the *Fisheries Act*, and the *Pest Control Products Act*. We found significant weaknesses in both the activities and the legislative framework and we addressed them in 27 recommendations. This chapter provides a report on the status of the departments' progress in implementing those recommendations.

1.15 Chapter 3 of the Commissioner's 1999 Report, Understanding the Risks from Toxic Substances: Cracks in the Foundation of the Federal House, focussed on how federal departments provide scientific information to support decision making. It examined the co-ordination of research among federal departments, the state of environmental monitoring networks, and

Exhibit 1.3 Defining toxic substances

Toxic substances—An everyday term that generally includes industrial and commercial chemicals, heavy metals, manufacturing by-products, and pesticides that, when released into the environment, have the potential to harm human health or environmental quality.

Substances toxic under CEPA, 1999—A substance is defined as toxic under the *Canadian Environmental Protection Act,* 1999 if it is "entering or may enter the environment in a quantity or concentration or under conditions that: (a) have or may have an immediate or long-term harmful effect on the environment or its biological diversity; (b) constitute or may constitute a danger to the environment on which life depends; or (c) constitute or may constitute a danger in Canada to human life or health."

CEPA List of Toxic Substances—For substances on Schedule 1 of CEPA, 1999, "the Governor in Council may, if satisfied that a substance is toxic, on the recommendation of the Ministers of Health and Environment, make an order adding the substance to the list of toxic substances in Schedule 1." When a substance is listed on Schedule 1, the government has the authority to regulate it and take preventive or control actions (for example, pollution prevention plans and regulations). There are currently 52 substances on the CEPA, 1999 list.

the scientific assessment of existing industrial chemicals and pesticides. Our audit found the following:

- A growing gap between the demands placed on federal departments to provide and use scientific information on toxic substances and their ability to meet existing obligations and respond to emerging issues.
- Weak co-ordination and collaboration among departments undertaking research and monitoring.
- Significant shortcomings in the federal government's environmental monitoring activities and programs.
- Failure to reassess previously approved pesticides against current standards for protection of human health and the environment.
- Fragmentation of federal programs as well as conflict and divisiveness among departments, leading to indecision and inaction.

Overall, we concluded that the federal government's ability to detect and understand the effects of toxic substances on Canadians and our ecosystems was seriously threatened.

1.16 Chapter 4 of our 1999 Report, Managing the Risks of Toxic Substances: Obstacles to Progress, focussed on federal departments' management of the risks created by substances identified as toxic. It examined legislation, government-wide policies, and voluntary programs used to achieve virtual elimination, life cycle management, pollution prevention, and pesticide risk reduction. It also looked at the tracking and reporting of toxic releases and pesticide sales. Our audit found the following:

- A high degree of conflict among departments.
- Failure to develop and implement risk management objectives and associated plans for many toxic substances.
- Failure to implement key federal policies as intended, including the Toxic Substances Management Policy.
- Little action on substances assessed and declared toxic under the *Canadian Environmental Protection Act*.
- Failure to develop a risk reduction policy or strategy for pesticides.
- Inadequate tracking of toxic substance releases and pesticides.
- Lack of effective accountability, reporting, and monitoring of voluntary programs used to manage high-priority substances.

Overall, we concluded that the federal government was not managing the risks adequately.

The federal role

1.17 As in 1999, the federal government's main responsibilities in the management of industrial chemicals are to identify which substances pose a risk to human health and the environment and to determine what polluters must do to avoid or minimize the use and release of toxic substances. Nine pieces of federal legislation govern the assessment, production, use, transportation, and disposal of toxic substances.

1.18 **Shared but different responsibilities.** As we reported in 1999, a complicated infrastructure of scientific research and monitoring, regulations, policies, and voluntary programs has been established in Canada to protect the health of Canadians and their environment from the threats posed by toxic substances. This infrastructure involves not only the federal government but also provincial governments, industry, academia, and non-government organizations.

1.19 Several federal departments are engaged in activities to assess and manage the risks associated with toxic substances; no one department has the full responsibility. Rather, each has a different yet complementary role to play, determined by its mandate, its scientific capacity, and its legislative responsibilities. Underpinning our 1999 audit findings and those of this follow-up is the recognition that departments need to work co-operatively together to ensure that the collective federal expertise is consistently brought to bear in support of the government's policy objectives.

Focus of the follow-up

1.20 In our follow-up review we asked, Have federal departments made adequate progress in implementing the recommendations of our 1999 audit? What has changed since then? Are there still "cracks in the foundation" of the government's work on assessing and monitoring toxic substances? Are there still obstacles to progress in the management of toxic substances? Have new concerns arisen since our original audit?

1.21 To assess the actions taken since 1999 by the six departments examined in that audit, we asked each for a progress report and supporting documents. During the audit we also requested additional information and documents. We reviewed the materials we received and interviewed officials of the departments to satisfy ourselves that the information provided to us was plausible. The scope of the 1999 audit and this follow-up covered existing substances. The introduction into commerce of new chemicals and pesticides is governed by separate legislative processes not included in the scope of the audit. (Additional information on the objective, scope, and approach of this follow-up review is provided in About the Follow-Up at the end of the chapter.)

1.22 A number of important changes have occurred in toxics management since our 1999 audit. For example, a bill proposing a new *Pest Control Products Act* was introduced in the House of Commons. In addition, Canada ratified the Stockholm Convention on Persistent Organic Pollutants (POPs). Perhaps most important, the new *Canadian Environmental Protection Act, 1999* (CEPA, 1999) came into force. CEPA, 1999 led to sweeping changes in federal activities, introducing new requirements and modifying existing ones. In effect, CEPA, 1999 introduced new ground rules for, among other things, priority substance assessments, the development of risk management controls, virtual elimination, and management of substances on Canada's Domestic Substances List.

1.23 Though not addressed in the original 1999 audit, our follow-up looked more closely at one of these changes, the requirement that Environment Canada and Health Canada categorize all substances on the Domestic Substances List (DSL)—around 23,000 substances. This categorization must be completed by 14 September 2006. The federal government is also required subsequently to assess or screen the substances identified through categorization and this may take a few decades to complete.

1.24 Environment Canada and Health Canada believe that the DSL categorization and screening exercise is an international precedent. According to Environment Canada, Canada is the first country in the world whose legislation requires a systematic review of all chemicals in commerce. Other countries and jurisdictions such as the Netherlands and the European Union are commissioning a similar exercise but have yet to develop legislation.

Observations

1.25 In response to the recommendations made in our 1999 audit, departments have been taking action to varying degrees and on a variety of fronts. Since our 1999 audit, departments have indicated to us that they have identified funding needs and sought new funding and that final decisions on funding by the federal government are still pending. The table that begins on page 25 lists our 1999 recommendations and our assessment of departments' progress against them.

Assessing the presence and risks of toxic substances

1.26 **An incomplete knowledge base.** The base of knowledge about the toxicity, effects, and risks of toxic substances is incomplete and still developing. There is good information on relatively few substances. For many substances currently in use, there are few data about toxicity, persistence, exposure, and effects. The risks may be insignificant—or they may be significant.

1.27 To identify and resolve the issues related to the presence of toxic substances, one of the federal government's key environmental challenges is to understand which substances pose a threat to people and our environment. It does this in three ways:

- conducting scientific research to understand threats to the environment, animals, plants, and human health;
- determining the presence and effects of toxic substances in the environment; and
- assessing the risks of specific chemicals.

Together, these analyses provide information to government scientists and policy makers that helps them identify and implement risk management controls to reduce the presence of toxic substances in the Canadian environment.

Better management of research activities

1.28 **Improved consultation and co-ordination.** One of our major concerns in 1999 was the degree of acrimony among the departments involved in research. Our follow-up found that scientists from different departments are co-ordinating their research efforts better. This has been due, in part, to activities under the Toxic Substances Research Initiative. In addition, officials from different departments have improved the sharing of information on their monitoring programs.

1.29 **Research priorities established.** In 1999 we noted that research priorities often were based more on the priorities of funding partners than on what was needed for the public good. Since then, Environment Canada, Fisheries and Oceans Canada, and Health Canada have identified and articulated their separate research priorities. Among their priorities, they all list research on toxic substances, such as sources and effects of endocrine-disrupting chemicals and persistent organic pollutants (POPs), or research in support of CEPA, 1999. Some of their projects have been funded under a $40 million Toxic Substance Research Initiative, which ended in March 2002. This may have an impact on collaborative work in the future.

1.30 **Completion of gap analyses.** In 1999 we found a lack of co-ordinated and integrated strategic leadership by key departments. We recommended that Environment Canada, Health Canada, Fisheries and Oceans Canada, and Natural Resources Canada each conduct an analysis of the gaps between their projected demands for scientific research and their existing capacity. Environment Canada and Fisheries and Oceans Canada have done this, and each has indicated that its gap analysis will help it pursue new funding initiatives and reallocate current staff to fill the identified gaps. Natural Resources Canada and Health Canada have yet to complete such an analysis.

Little improvement in measuring the presence and effects of toxic substances

1.31 Measuring the presence of toxic substances in the environment and their effects on life is crucial for determining our exposure to them, detecting changes over time, and assessing whether present actions to reduce exposure are effective.

Ambient monitoring — Measuring the presence and level of toxic substances in the environment (air, land, water, and biota).

Effects monitoring — Measuring changes in organisms, populations, or entire ecosystems that may be caused by various stresses, including toxic substances.

1.32 In 1999 we found that ambient monitoring was inconsistent and incomplete, even for priority industrial chemicals. Many parts of Canada had no monitoring stations for industrial chemicals or pesticides. Similarly, effects monitoring was a patchwork of various initiatives that, in our view, was disorganized and lacked focus.

1.33 Since our original audit, the Minister of the Environment has created the Task Force on the Canadian Information System for the Environment (CISE) to provide advice on the design and implementation of an environmental information system. In its October 2001 report, the CISE Task Force noted that the "gaps in environmental information are significant." Indeed, the report noted that Canada's performance in collecting, managing, assessing, and communicating environmental information is below that of many other countries. The CISE Task Force made many recommendations.

At the conclusion of our follow-up the government had not responded or committed to taking action, although Environment Canada reported that a response is being developed.

1.34 **Only marginal improvement since 1999.** Departments now meet more regularly, discuss some of the information on their monitoring programs, and discuss what actions they need to take. While there have been some new investments in monitoring since our 1999 audit, many priority substances in many parts of Canada are still not monitored.

Women of childbearing age and children in the Arctic are susceptible to the risks posed by contaminants in traditional or country foods. Fish and game, traditional foods, are contaminated by air-transported toxics.

1.35 Our current review raised a new concern: the lack of knowledge about levels of toxic substances found in the bodies of Canadians (for example, in human fat tissue, breast milk, blood, urine, and hair). This information could assist officials, physicians, policy makers, and regulators in identifying opportunities to reduce exposure and health risks. Currently, Health Canada has no program to evaluate this kind of information nationally, though it has done some regional studies of a few specific substances.

The process of assessing priority substances is not yet complete

1.36 The *Canadian Environmental Protection Act* (1988) introduced the Priority Substances Assessment Program, and elements of this program continue under CEPA, 1999. In this program, the ministers of the Environment and Health identify substances that will undergo priority assessment. The Act also requires both ministers to assess whether a substance is capable of becoming or is toxic under CEPA, 1999. This assessment process results in the release of an assessment report for public consultation. After public consultation has been completed and the comments received have been addressed, the ministers must publish a final decision and recommend to the Governor in Council whether to add the substance to the CEPA List of Toxic Substances. Legislated management controls for a substance can be put into place only when the Governor in Council has added the substance to the CEPA list.

1.37 In 1989, 44 substances or groups of substances were selected for priority assessment (commonly referred to as the first Priority Substances List or PSL1). In 1999 we reported that 25 of the assessed substances had been declared toxic under CEPA, and 6 had been declared not toxic. All of the substances declared toxic under CEPA except one (short chain chlorinated paraffins) were added to the CEPA List of Toxic Substances.

1.38 At the time of our 1999 audit, Environment Canada and Health Canada had been unable to reach a conclusion about the toxicity of 13 of the 44 PSL1 substances identified originally. These substances were high priorities by definition, and substantial amounts of public money had been spent to conduct the assessments. In our 1999 audit we recommended that the departments reach a formal conclusion on the toxicity of the substances and make the results available to the Canadian public.

1.39 Since then, new information and science have become available. According to Environment Canada, Health Canada and Environment Canada have updated the assessments of the 13 substances. At the

conclusion of our follow-up, the updated assessments had not been publicly released.

1.40 In 1995, 25 additional substances or groups of substances were selected for priority assessments, which were scheduled for completion in December 2000. These substances constitute the second Priority Substances List or PSL2.

1.41 Our follow-up found that Environment Canada and Health Canada completed the assessments of 23 of the 25 substances on the PSL2 within the mandated timeframe. Assessment of the two remaining substances was suspended (under section 78 of CEPA, 1999) because new or additional information was needed to assess whether the substances were toxic or not.

1.42 Of the 23 substances assessed so far, the ministers have published a final decision on 19. The two ministers recommended 14 of those 19 substances for inclusion on the CEPA List of Toxic Substances; to date, the Governor in Council has added 5 of them to the list. Assessments of four substances have been published for public comment, but the ministers' final decisions on them have yet to be announced.

1.43 Why, after 13 years for PSL1 substances and 7 years for PSL2 substances, are there still substances without a final published decision? Our follow-up work indicates that the delays can be attributed to the lack of sufficient information to conclude on toxicity; the complexity of the decision-making and administrative processes; the time it took to interpret and implement the new requirements of CEPA, 1999; and the limits on the departments' resources.

1.44 We are very concerned that it is taking so long to complete the assessments of these priority substances, many of which could be endangering the environment or human health. It is important that their assessment be completed so that management controls can be put in place.

Reducing the risks of toxic substances

1.45 **Assessing a substance for toxicity is only a first step.** Once a substance has been declared toxic under CEPA, 1999, a host of decisions need to be made. How can exposure be reduced? How should the use of the substance be controlled? What regulations or other measures (for example, pollution prevention plans or voluntary agreements) are needed? How will releases be measured and the effectiveness of management controls be measured and verified? Over the past three years, the government has made positive efforts in some key areas to improve the management of toxic substances. But it has not made enough progress in other essential areas.

Some management activities have improved

1.46 **Policy on the use of environmental performance agreements has been developed.** In 1999 we noted that the government was relying increasingly on voluntary initiatives to reduce industrial emissions of toxic substances. We found then that the process for determining whether or not to use voluntary initiatives was not robust, nor were the initiatives themselves. We recommended that Environment Canada develop a policy outlining the

Chemical valley near Sarnia. Industry is a key source of chemical emissions to the environment.

Municipal sewage effluents are an important source of contaminants in the environment, and municipal chlorinated wastewater effluents have been added to the CEPA List of Toxic Substances.

conditions under which voluntary initiatives could be used. We are encouraged that the Department now has such a policy, and that it includes all of the key components we recommended. It is too early to assess the policy's implementation but the development of performance objectives, measures, and timelines will be an important element of all agreements signed under it.

1.47 At the time of the original audit, another initiative the federal government was using to achieve voluntary reductions was the Accelerated Reduction/Elimination of Toxics (ARET) program. Environment Canada is currently redesigning ARET; at the end of our follow-up, it had not yet announced the new program.

1.48 **Improved tracking of releases of toxic substances.** The National Pollutant Release Inventory is the main vehicle through which Environment Canada is informed about releases of toxic substances. In 1999 we noted that the Department was not tracking 10 of the 25 toxic substances under CEPA as well as many other priority substances.

1.49 Since then, 105 substances have been added to the Inventory, and reporting thresholds for a few substances have been lowered. The additions include many substances that have been declared toxic under CEPA, 1999, and others whose toxicity is currently being assessed. Of the 52 substances on the CEPA List of Toxic Substances, 29 are monitored through the Inventory and four of them are not. The remaining 19 substances have not been added to the Inventory because their use is prohibited or because the substance is a compilation of several substances (for example, chlorinated wastewater effluents) and the NPRI is a point source inventory of only specific substances.

1.50 **The new toxics management process.** Managing toxic substances on the second priority list as well as other toxic substances follows a different methodology, the Toxics Management Process. This process satisfies many of our criticisms of the PSL1 process. Administered by Environment Canada and Health Canada, the Toxics Management Process is intended to assist in the development of management controls for identified key sources of emissions of toxic substances under CEPA, 1999.

Slow progress in implementing control measures for the first list of priority toxic substances

1.51 A variety of different types of management controls can be used to deal with substances declared toxic under CEPA, 1999. Some of these controls are legislated under CEPA, 1999 (such as regulations, pollution prevention plans, and codes of practice) while others are not (such as Canada-Wide Standards and voluntary initiatives by industry). Exhibit 1.4 illustrates the management controls in place for PSL1 toxic substances. Environment Canada reports that reductions in some substances have been achieved.

1.52 **Are risks from PSL1 toxic substances being managed?** Following the assessment of PSL1 substances and their designation as toxic in 1994 under CEPA, the federal government embarked on a series of consultations

(Strategic Options Processes) with stakeholders such as industry, environmental groups, and provincial governments to determine what actions were needed to reduce the risks to Canadians. In 1999, 9 of the 14 consultations had been completed, generating 52 separate recommendations. In 2002, all of the consultations had been completed and they achieved a consensus on 75 recommendations that ministers accepted for a range of actions by the federal government, provincial governments, and industry.

Exhibit 1.4 How is the federal government managing PSL1 toxic substances?

Of 25 substances on the first Priority Substances List that were declared toxic in 1994,

• 3 are subject to prohibitions	1,1,1-Trichloroethane
	Bis (chloromethyl) ether
	Chloromethyl methyl ether
• 9 are subject to various management controls	Benzene
	1,2-Dichloroethane
	Inorganic arsenic compounds*
	Inorganic cadmium*
	Inorganic fluorides*
	Oxidic-sulphidic and soluble inorganic nickel compounds*
	Polychlorinated dibenzo-para-dioxins
	Polychlorinated dibenzofurans
	Polycyclic aromatic hydrocarbons*
• 5 are being studied and/or monitored	3'3'-Dichlorobenzidine
	Bis (2-ethylhexyl) phthalate
	Effluents from pulp and paper mills using bleaching
	Refractory ceramic fibres
	Short chain chlorinated paraffins
• 5 are not subject to any management controls**	Benzidine
	Chlorinated wastewater effluents
	Dichloromethane
	Tetrachloroethylene
	Trichloroethylene

*Only one industrial source of the substance is managed through two codes of practice with the steel manufacturing sector.

**For some of these substances, a management control has been proposed.

In addition, recommendations for the design of wood preservation facilities address seven toxic substances emitted by that sector only (chromium, creosote-impregnated waste materials, hexachlorobenzene, inorganic arsenic compounds, polychlorinated dibenzo-para-dioxins, polychlorinated dibenzofurans, polycyclic aromatic hydrocarbons).

Recommended actions include regulations, codes of practice, information gathering, and monitoring. We are concerned by the lack of implementation and oversight exercised over this process since then. As we noted in 1999, departments still have not estimated the resources they will need to implement the recommendations. In addition, the implementation status of the recommendations from the Strategic Options Process for toxic substances on PSL1 is unclear. Environment Canada tracks the status of the actions under its direct control and responsibility, such as regulations and codes of practice. However, its knowledge of actions taken by industry and other stakeholders is weaker.

1.53 The following seven industry sectors are major emitters of nine PSL1 toxic substances: coal-fired power generation, solvent degreasing, base metal smelting, metal finishing, dry cleaning, municipal wastewater treatment plants, and aluminium smelters. The federal government has not yet put in place management controls for these sectors (Exhibit 1.5). There is no process for measuring to what extent the actions taken so far on other toxic substances have reduced the risks; data on emission reductions are still not collected systematically or reported publicly.

Exhibit 1.5 Still no federal management controls in place for trichloroethylene

Trichloroethylene (TCE) is a toxic substance under CEPA, 1999 used as a degreasing solvent, in dry cleaning, and as an ingredient in adhesives. It can be found in household products such as paint removers, typewriter correction fluids, adhesives, spot removers, and rug cleaning fluids. TCE has been classified as "probably carcinogenic to humans" and may constitute a danger to human life or health in Canada.

Chronology of federal action in the solvent degreasing sector

1989	TCE put on Priority Substances List and assessment initiated.
1993	Priority Substance Assessment Report completed. Substance declared toxic under CEPA.
1994	Strategic Option Process consultation established in the solvent degreasing sector.
1997	Strategic Options Process completed. Regulation recommended.
2000	Trichloroethylene added to the CEPA list of toxic substances.
2002	Nine years after TCE was declared toxic, no federal management instruments are in place.

Substances on the second priority list will be managed through a new process

1.54 Currently, as noted in paragraph 1.42, five substances on the second priority list are on the CEPA List of Toxic Substances. Toxic substances from the PSL2 will be managed through a new process, the Toxics Management Process. At the conclusion of our follow-up, one risk management strategy for a toxic substance on the list had been issued for consultation. However, because this process is in its early stages it is too early to comment on the status of its implementation.

Assessing the Domestic Substances List

Many substances to be managed in the future

1.55 **Categorization, a process under way.** The *Canadian Environmental Protection Act, 1999* requires that Environment Canada and Health Canada categorize all substances on the Domestic Substances List, a list of close to 23,000 substances that were in commercial use in Canada between 1984 and 1986. Many of the substances are still used commercially. Health Canada is currently identifying additional substances (over 1,700 at present) under the *Food and Drugs Act* that were not on the original list and will have to be added. Environment Canada and Health Canada are required to categorize all of these substances by 14 September 2006, including any new ones identified by Health Canada. Substances introduced into Canada since 1986 have been and continue to be assessed through other processes under CEPA, 1999 and were not addressed in this audit.

1.56 The substances on the Domestic Substances List will be categorized to determine which ones will require an assessment or screening—because they represent the greatest potential exposure for Canadians or are persistent or bioaccumulative and inherently toxic to human beings or non-human organisms (Exhibit 1.6). Environment Canada and Health Canada are developing approaches to categorizing different types of substances (for example, organic and inorganic). The departments believe they will meet the 14 September 2006 deadline.

Did you know?

Number of substances on the Domestic Substances List to be categorized: **about 23,000**

- estimated number of substances controlled under the *Food and Drugs Act* that will be added: **over 1,700**
- number to be potentially screened (assessed), after categorization: **up to 4,000**
- years it may take to screen the substances: **a few decades**

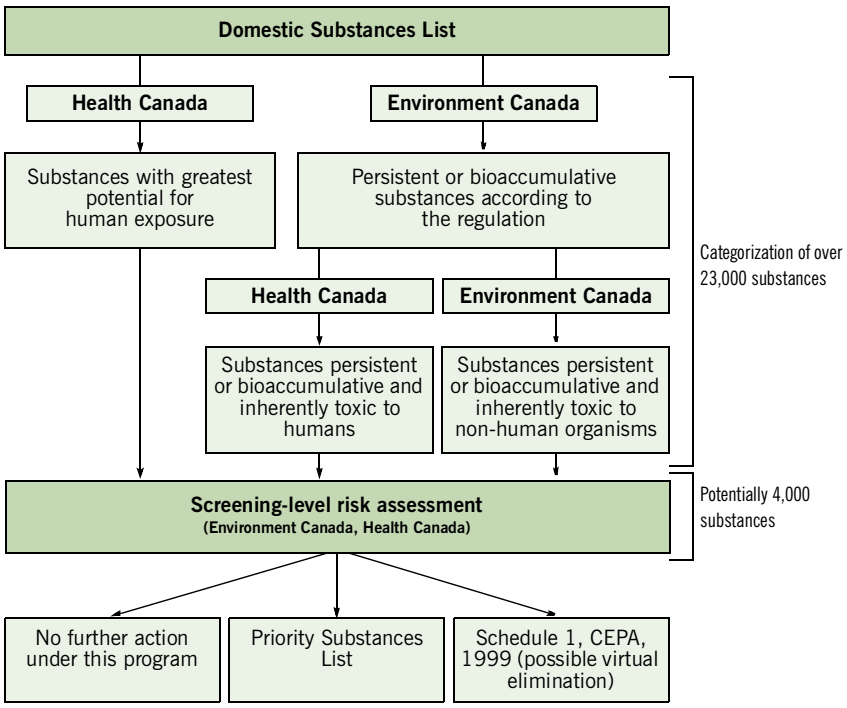
1.57 **Screening—A challenging and potentially lengthy process.** Following categorization, some of the substances will require an assessment or screening. Screening will indicate whether a substance requires no further action; is toxic under CEPA, 1999 and should be added to the CEPA List of Toxic Substances; or is added to the Priority Substances List. Up to 4,000 substances on the Domestic Substances List may ultimately have to be screened.

1.58 Mandated under CEPA, 1999, this step does not have a deadline. At this point it is uncertain how long the process will take; it may take a few decades to complete. It is a significant challenge, recognizing that it stems from over 60 years of intensive growth in the commercialization of chemicals globally without any pre-market assessment of risks to the environment and human health.

1.59 It is too early to speculate how many chemicals on the Domestic Substances List are likely to be declared toxic under CEPA, 1999. The number may exceed the total arrived at in the past 25 years, and all of these substances will have to be managed in addition to those being managed today.

1.60 In 1999, we raised concerns about the growing gap between the demand on departments to assess and manage substances and a federal infrastructure increasingly ill-equipped to meet it. Given the slow progress in assessing and managing the current list of substances and the magnitude of the task ahead, we still have the same concerns.

Exhibit 1.6 **Categorizing and screening substances on the Domestic Substances List**



The precautionary principle: How will it be applied?

1.61 In assessing the many substances on the Domestic Substances List and managing those substances identified as toxic under CEPA, 1999, one of the key hurdles facing departments will be the lack of information on many substances (for example, on their toxicity). To assess and ultimately manage the potential risks, the government is committed to applying the precautionary principle. Specifically, under CEPA, 1999 the government is to "exercise its powers in a manner that protects the environment and human health, applies the precautionary principle that, where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation…."

1.62 **Some progress on the precautionary principle.** In 1999 we noted that the federal government had failed to develop a clear and consistent interpretation of the precautionary principle and its application to toxic substances.

1.63 Since then, CEPA, 1999 has come into force. It entrenches the precautionary principle in the preamble to the Act and imposes a general duty on the Government of Canada to administer the Act in a way that applies the precautionary principle. The Act also specifically requires in section 76.1 that the principle and a "weight of evidence approach" be applied when conducting and interpreting the results of activities carried out

under that section, such as screening assessment. Environment Canada has started to develop guidance to implement these CEPA, 1999 obligations. In addition, under the direction of the Privy Council Office, the government has been developing a common view of the precautionary approach/principle and how it will be applied. This exercise is intended to apply to all federal legislation and programs, not just those under CEPA, 1999. Departments have consulted with the public, and the government intends to finalize the federal framework for applying the precautionary approach/principle.

1.64 However, we are concerned that even though the precautionary principle is a key element of assessing and managing toxic substances, there are still no guidelines on its use under CEPA, 1999. In our opinion, given the 23,000 or more substances that will have to be assessed to varying degrees under CEPA, 1999 and the lack of information on many of them, the lack of concrete operational guidance governing the precautionary principle is worrisome. We urge the federal government to complete both exercises soon.

Toxic Substances Management Policy: Largely abandoned?

1.65 In 1995 the federal government introduced a major policy framework, the Toxic Substances Management Policy. The policy sets two fundamental management objectives:

- virtual elimination from the environment of toxic substances that are persistent (they take a long time to break down in the environment), bioaccumulative (they collect in living organisms and end up in the food chain), and primarily the result of human activity (Track 1 substances); and
- management of other toxic substances and substances of concern throughout their entire life cycles to prevent or minimize their release into the environment (Track 2 substances).

1.66 The Toxic Substances Management Policy was intended to apply to all areas of federal responsibility. In 1999 we were seriously concerned that federal departments were not fully implementing the policy. Several departments had not developed plans and strategies to apply the policy to specific substances or to their own operations. Since our audit, some of the key elements of the policy have been incorporated into CEPA, 1999. Today, it still is not clear how committed individual departments are to applying the policy in their programs and to measuring and reporting their progress. In our view, the policy has been largely abandoned by key departments.

1.67 **Is it achieving the virtual elimination of substances that are most toxic?** Under the Toxic Substances Management Policy of 1995, 12 substances met the criteria for virtual elimination (Track 1 substances). Eight of those are pesticides no longer registered in Canada; the four remaining substances are currently subject to various management controls. In 1999 we found that departments had failed to define even short-term, incremental steps toward virtual elimination. Departments were mired in conflict over the meaning of virtual elimination.

1.68 The concept of virtual elimination has now been enshrined in CEPA, 1999. Virtual elimination is the ultimate reduction of a substance released into the environment to below the level of quantification specified by the ministers of Environment and Health. CEPA, 1999 also establishes a formal Virtual Elimination List and specific obligations for the ministers of the Environment and Health in dealing with a substance identified for virtual elimination.

1.69 Currently, there are no substances on the CEPA Virtual Elimination List. One substance from the second Priority Substances List (hexachlorobutadiene) has been identified as a candidate for virtual elimination. With regard to the four original non-pesticide Track 1 substances, it is Environment Canada's position that while these substances are not on the CEPA Virtual Elimination List, they are managed as Track 1 substances, in a manner consistent with the Toxic Substances Management Policy.

1.70 Environment Canada has been developing levels of quantification (or detection) limits for these four substances; however, at the conclusion of our follow-up this process was not complete. It is not clear whether the existing or proposed management controls on these substances will eventually achieve these levels of quantification.

Pesticides: Limited progress on our recommendations

1.71 Managing pesticides is very different from controlling emissions of toxic industrial chemicals. Pesticides are not by-products of a manufacturing or production process. Rather, pesticides are designed to be toxic to pests. They are purposely applied to farmlands that grow the food we eat and export; to our forests; and to the lawns, parks, and green spaces we enjoy in our communities. However, some pesticides have been linked to cancer, reproductive disorders, skin irritations, respiratory tract problems, and other illnesses.

Agriculture is the primary user of pesticides in Canada.

1.72 All products used, sold, or imported in Canada that are designed to manage, destroy, attract, or repel pests are regulated by Health Canada's Pest Management Regulatory Agency through the *Pest Control Products Act* (PCPA). The products include chemicals, devices, and even organisms, and are referred to collectively as pest control products or simply pesticides.

1.73 Key activities of the Agency include evaluating potential pesticides for registration in Canada; re-evaluating existing pesticides for continued registration in Canada; developing and implementing policies and guidelines on pest management; disseminating information on pest management; and enforcing compliance with the PCPA. Although the products are regulated by the federal government, the actual use of pesticides is regulated by the provinces and territories. The current Act is over 30 years old; at the end of our follow-up, a bill proposing a new PCPA had been introduced in the House of Commons.

1.74 In 1999 we reported significant shortcomings in the Agency's activities. Overall, our follow-up found that the Agency has made limited progress on the recommendations we had addressed to it.

Did you know?

Number of active ingredients registered for use in pesticides in Canada: **over 550**

Number of active ingredients requiring re-evaluation against current standards: **405**

Number of active ingredients whose re-evaluation has been initiated: **49**

- number whose re-evaluation has been completed: **10**
- number whose re-evaluation has been discontinued because the active ingredient is no longer used: **7**
- number whose re-evaluation is still ongoing: **32**

Number of active ingredients still requiring re-evaluation: **388**

1.75 **Improved co-operation among departments.** The Pest Management Regulatory Agency is the lead federal agency for pesticide registration. Fisheries and Oceans Canada and Environment Canada both conduct their own pesticide research. In 1999 we noted that the Agency had gained a reputation as a "closed shop" and was perceived not to welcome input from other federal departments. In 1998 it had signed an interdepartmental agreement with Environment Canada to improve communication and clarify respective roles and responsibilities in the exchange and use of scientific information. We noted in 1999 that very little exchange of information had begun. The agreement the Agency was negotiating with Fisheries and Oceans Canada had not been signed by the end of our audit. Since then, the Agency has begun to share information with Environment Canada and it now has a signed agreement with Fisheries and Oceans Canada.

1.76 Based on our review and findings, many aspects of the federal government's management of pesticides are still of serious concern to us. We therefore intend to conduct an in-depth audit and report on it to Parliament in fall 2003.

1.77 **Is there a policy on pesticide risk reduction?** When the Pest Management Regulatory Agency was established in 1995, it was directed to develop a pesticide risk reduction policy for all sectors of pesticide use. The policy could then guide the Agency's activities in registering new pesticides, re-evaluating existing pesticides, and monitoring their use. In 1999 we noted that no such policy had been established. There is still no policy, after seven years.

1.78 **Little progress in re-evaluating existing pesticides.** There are over 550 active ingredients in the 5,892 pesticides registered for use in Canada. Of these, over 300 were approved before 1981 and over 150 before 1960, when conditions placed on their use were less stringent than they are today and perhaps below current standards of health and safety in pesticide use. In 2001, the Agency committed to re-evaluate 405 of those active ingredients by 2006. The evaluation of many of these has been going on for years. Of the 49 re-evaluations begun prior to March 2002, we found that only 17 have been completed or discontinued. Quite simply, progress has been slow (see the case study on chromated copper arsenate, on page 22).

1.79 **No database on pesticide sales.** Data on pesticide sales are one of the primary tools for tracking the amounts and types of pesticides used in Canada and released into the environment. This information is needed to monitor the risks to health, safety, and the environment; and to measure the extent to which lower-risk pesticides and non-pesticide alternatives are being adopted. Canada is one of the few member countries of the Organisation for Economic Co-operation and Development (OECD) that lack a sales database. In 1999 we recommended that the Agency meet its commitment to establish a national pesticide sales database. The Pest Management Regulatory Agency committed to developing and implementing such a database by 2001.

1.80 Since 1999, the Agency has undertaken a number of activities including the pilot testing of data collection methods. However, the Agency

does not have a database on pesticide sales that it can use to help monitor the risks to health, safety, and the environment. Until such a database exists, Canada will remain one of the few countries with little knowledge of the volumes of pesticides used within its borders.

Children could be exposed to arsenic and chromium leaching from playground structures constructed out of CCA pressure-treated wood.

A long and unfinished evaluation process

This case of wood treated in Canada with chromated copper arsenate (CCA) illustrates the slow process of pesticide re-evaluation.

Pressure treated wood containing CCA is currently sold in Canada and used to build some things like outdoor decks and playground structures. A wood preservative containing arsenic, chromium, and copper, CCA protects wood from attacks by fungi and insects. There are growing concerns about its impact on human health and the environment as a result of leaching, especially when it is used around homes and in schools and playgrounds. The chronology of action on this pesticide is as follows:

1989 Priority Substances List 1 established under the *Canadian Environmental Protection Act* included compounds of arsenic and chromium, components of CCA.

1992 Re-evaluation of CCA initiated by the Department of Agriculture. Responsibilities were transferred to the Pest Management Regulatory Agency (PMRA) in 1995.

1994 Priority substance assessments by Environment Canada and Health Canada completed and compounds of arsenic and chromium determined to be toxic under CEPA.

Start of Strategic Options Process Consultation with the wood preservation industry.

1999 Hexavalent chromium and inorganic arsenic added to the CEPA list of toxic substances.

Commissioner's 1999 audit found acrimony between the PMRA and Environment Canada over which organization would lead the discussion with industry to control the use of CCA and other heavy-duty wood preservatives.

Strategic Options Process Consultation completed, led to a report with recommendations directed toward industry (e.g., product labelling program). Specific regulations not recommended.

2002 February 22—United States Environmental Protection Agency (US EPA) reached a voluntary agreement with registrants of affected CCA products to discontinue the use of arsenic-based preservatives. Effective December 31, 2003 all distribution, sale, and use of existing stocks of affected CCA manufacturing-use and end-use products will be unlawful under the *Federal Insecticide Fungicide and Rodenticide Act*. After this date, CCA products may only be used for the preservative treatment of forest products and in accordance with the 2001 edition of the American Wood Preservers' Association Standards.

March 28—Temporary registration of alternatives to CCA, ACQ (amine), and copper azole, accepted by the PMRA.

April 3—PMRA announced an agreement with Canadian manufacturers to make a transition away from the use of CCA in treated lumber for the residential market by 31 December 2003, while retaining full industrial use.

Re-evaluation of wood preservatives not concluded at the time of our follow-up. No decision by the PMRA on the safety of CCA.

Conclusion

1.81 In 2002 we visited the departments we had audited in 1999 and assessed their progress in implementing our 27 recommendations from that audit. This follow-up has found mixed progress. Although the federal government has made some progress in managing toxic substances since 1999, its ability to detect, understand, and prevent the harmful effects of toxic substances is still limited.

1.82 Over the past three years, the government has taken action on many fronts. We see less acrimony and more co-operation among departments. Research priorities have been established, and most of the departments we reviewed have identified the gaps between their demand for scientific research and the resources they have available. A new policy has been developed to guide decisions about when to use voluntary instruments and what they should include. Environment Canada is tracking releases of over 100 more substances than it was in 1999.

1.83 However, the federal government has not published a final conclusion on the toxicity of 13 of those 44 substances that were put on the first Priority Substances List in 1989. It has committed few additional resources to measuring the presence of toxic substances in the environment or their effects on plants, animals, and human beings. There has been limited progress on developing and implementing management controls to mitigate the release of toxic substances.

1.84 The government has made only limited progress in addressing our 1999 recommendations on pesticides.

1.85 To us, the whole situation is confounding. The processes we observed seem to defy timely, decisive, and precautionary action. Many of the root causes of problems we found in 1999 continue today: underresourced commitments; major gaps in scientific knowledge; and burdensome regulatory processes. None of this augurs well for the protection of our health. Sustainable development offers the hope of a new approach to managing the risks posed by toxic substances. In our opinion, the current situation and future prospects are not environmentally, economically, or socially acceptable. Our children may have to finish the job of assessing, and certainly managing, toxic substances in use today.

Departments' joint response

The 1999 audit by the Commissioner of the Environment and Sustainable Development on the Government of Canada's management of toxic substances pointed to challenges in assessing and managing risks, a desire for improved monitoring, and problems in the ability of departments to work together.

Since then, the Government of Canada has been implementing an extensively revised *Canadian Environmental Protection Act* (CEPA) with new authorities and responsibilities. We have incorporated the findings of the

1999 audit in designing the program shifts that are being made to deal with the new Act. Improvements have been made to provide better co-ordination of activities, more efficient use of available resources, enhanced interdepartmental co-operation on research and monitoring, and improved assessment and management processes to reduce the risks posed by toxic substances. In several important areas, such as the assessment of new substances and the systematic categorization and assessment of existing substances, the Government of Canada has accomplished more than larger jurisdictions such as the United States and the European Union.

The Government of Canada's work on the management of toxic substances, including pesticides, is focussed on reducing the risks posed to the environment and human health. Under CEPA, 1999, pollution prevention remains a cornerstone of that work and is furthered through a wide range of regulatory and non-regulatory tools to control releases of toxic substances.

The departments responsible will continue to strengthen our capacity within available resources to assess and manage the risks to human health and the environment that are associated with toxic substances, including pesticides.

Matters for future investigation

1.86 We have not made any new recommendations in this follow-up audit, since many of the important activities that are needed are already under way in the federal government. However, considering the seriousness of the threat that toxic substances may pose to human health and the environment and the limited progress we found in some important areas, our Office will conduct additional follow-up work and audits of this area in the future. We will examine progress in addressing selected matters raised in our 1999 audit and in this follow-up, focussing on areas where performance has been especially weak and progress limited. In addition, we will expect to see in the future that departments have done the following:

- Developed, implemented, and measured the effectiveness of risk reduction actions for the major sources of release and exposure of priority toxic substances.
- Demonstrated the relevance of the Toxic Substances Management Policy and clarified its application.
- Developed detailed operational guidance on applying the precautionary principle to the assessment and management of toxic substances under CEPA, 1999.
- Considered and used the full range of available legislative authorities and policy instruments to address toxic substances and other substances of concern.
- Ensured that the most problematic substances are fast-tracked through the assessment and risk management processes.

Managing toxic substances: Departments' progress on 1999 audit recommendations, May 1999 Report of the Commissioner of the Environment and Sustainable Development

Chapter 3, Understanding the Risks From Toxic Substances, Cracks in the Foundation of the Federal House Recommendation	Departmental progress							Federal government's overall progress	Comments
	AAFC	NRCan	F&O	HC	PMRA	EC	IC		
Overarching concerns									
3.70 Environment Canada, Health Canada, Natural Resources Canada and Fisheries and Oceans should each conduct an analysis of gaps between projected demands for scientific research on toxic substances (including the need for new scientific methods, skills and expertise) and existing departmental capacity,		○	●	○		●			F&O and EC demonstrated the completion of a gap analysis.
and subsequently use this information to assess federal gaps overall.		○	○	○		○		○	Departments have yet to combine their efforts for federal gap analysis.
Mobilizing capacity: Weak interdepartmental co-ordination of research									
3.86 Environment Canada, Health Canada, Agriculture and Agri-Food Canada, Natural Resources Canada and Fisheries and Oceans should better integrate and collaborate on research related to toxic substances at a strategic, interdepartmental level. For collaborative work, departments should identify common needs and priorities, define their respective roles, accountabilities and resources, implement action plans and report results. Departments should take into account the need to integrate such work with other research activities related to health and the environment and to ensure effective communication between science and policy sectors.	◒	◒	◒	◒		◒		◒	Interdepartmental collaboration on toxic substances research has improved through Toxic Substances Research Initiative. Overall federal action plan still required.
3.92 Environment Canada and the Pest Management Regulatory Agency should forthwith implement the provisions of their memorandum of understanding. They should plan and set priorities for research and monitoring, exchange results, consider these results during regulatory decision-making processes and report the results of these actions on a scheduled basis.					○	○		○	Memorandum of Understanding required a review in 2000. To date a final updated version is not complete.

● Completed ◒ Satisfactory progress ○ Limited progress

Agriculture and Agri-Food Canada (AAFC), Environment Canada (EC), Fisheries and Oceans Canada (F&O), Health Canada (HC), Industry Canada (IC), Natural Resources Canada (NRCan), Pest Management Regulatory Agency (PMRA)

Chapter 3, Understanding the Risks From Toxic Substances, Cracks in the Foundation of the Federal House Recommendation	Departmental progress AAFC	NRCan	F&O	HC	PMRA	EC	IC	Federal government's overall progress	Comments
3.94 Fisheries and Oceans and the Pest Management Regulatory Agency should proceed forthwith to plan and set priorities for research and monitoring, exchange results, consider these results during regulatory decision-making processes and report the results of these actions on a scheduled basis.			◒		◒			◒	Memorandum addressing this recommendation was signed in 2001.
Shortfalls in ambient and effects monitoring									
3.114 Environment Canada, Fisheries and Oceans, Health Canada (including the Pest Management Regulatory Agency) and Natural Resources Canada should, together with other partners, identify current and projected needs regionally and nationally for ambient and effects monitoring of priority industrial chemicals and pesticides, based on program and policy objectives.		◒	◒	◒	○	◒		◒	Departments participated on the Task Force on Canadian Information System for the Environment (CISE). Monitoring needs identified for chemicals and pesticides were general and sporadic.
3.115 The departments should develop and maintain a co-ordinated inventory of current ambient and effects monitoring programs, including existing sites, species, substances and parameters measured. The inventory should be used to determine gaps relative to identified needs and objectives.		○	◒	○		◒		○	EC and F&O demonstrated departmental inventories. No co-ordinated inventory exists.
3.116 The departments should collaborate on establishing and maintaining a nationally integrated ambient monitoring system for air and water that is based on identified needs and program and policy objectives. They should also develop and implement a long-term strategy for a nationally co-ordinated environmental effects monitoring program, building upon current industry sector and regional initiatives.		○	○	○		○		○	No integrated ambient monitoring system exists.
3.117 The departments should consider and evaluate options to extend the "polluter pays" principle to ambient and effects monitoring.						◒		◒	Program exists to implement principle for industry effluents. Limited sector involvement to date.

● Completed ◒ Satisfactory progress ○ Limited progress

Agriculture and Agri-Food Canada (AAFC), Environment Canada (EC), Fisheries and Oceans Canada (F&O), Health Canada (HC), Industry Canada (IC), Natural Resources Canada (NRCan), Pest Management Regulatory Agency (PMRA)

Chapter 3, Understanding the Risks From Toxic Substances, Cracks in the Foundation of the Federal House Recommendation	Departmental progress AAFC	NRCan	F&O	HC	PMRA	EC	IC	Federal government's overall progress	Comments
Using information to assess risks									
3.128 Environment Canada and Health Canada should forthwith reach a formal conclusion on the toxicity of the 13 substances for which they have not yet done so. The results should be made available to the Canadian public and should provide a clear rationale for the designation of the substances as either toxic or non-toxic under the *Canadian Environmental Protection Act*, bearing in mind the government's commitment to the precautionary principle.				○		○		○	Progress in assessments have been observed. Results not available to the public. Final conclusion not announced.
3.131 Environment Canada and Health Canada should develop a process for incorporating new information and reconsidering decisions taken on substances previously assessed under the *Canadian Environmental Protection Act*. This process should define roles, accountabilities, timelines, decision criteria and procedural steps.				○		○		○	Progress was not demonstrated.
3.141 The Pest Management Regulatory Agency should develop and implement a program of re-evaluation of pesticides presently registered for use in Canada. This program should identify priorities and a schedule for completion. Priorities should be determine in consultation with other government departments, including Environment Canada, Health Canada, Natural Resources Canada and Fisheries and Oceans, as well as other stakeholders.					○			○	A pesticides re-evaluation program has been developed. Of 405 re-evaluations of pesticide active ingredients, 17 completed or discontinued.
3.142 The Pest Management Regulatory Agency should develop and document the processes to be followed for pesticide re-evaluations and special reviews. The processes should include a clear definition of responsibilities, timelines and reporting, and should clarify the roles of federal science-based departments in ensuring that the findings of ongoing Canadian research and monitoring are reflected in regulatory assessments. The process for special reviews in particular should identify the conditions that will trigger a review.					○			○	Elements of documented re-evaluation process are incomplete.

● Completed ◒ Satisfactory progress ○ Limited progress

Agriculture and Agri-Food Canada (AAFC), Environment Canada (EC), Fisheries and Oceans Canada (F&O), Health Canada (HC), Industry Canada (IC), Natural Resources Canada (NRCan), Pest Management Regulatory Agency (PMRA)

Chapter 4, Managing the Risks of Toxic Substances: Obstacles to Progress Recommendation	Departmental progress AAFC	NRCan	F&O	HC	PMRA	EC	IC	Federal government's overall progress	Comments
Implementing the key policies									
4.53 Environment Canada, Health Canada and the Pest Management Regulatory Agency should identify specific substances subject to life cycle management, including CEPA-toxic equivalents and other substances of concern. Each should develop and apply strategies for life cycle management by substance, sector and/or region.				◓	◓	◓		◓	Substances identified; limited progress in developing and applying strategies.
4.54 Federal departments, including Health Canada, Fisheries and Oceans, Industry Canada and Natural Resources Canada, should each develop a plan for implementing the Toxic Substances Management Policy. Each plan should explicitly recognize and build upon the expertise and capabilities of the department, be consistent with the plans of other departments, and include clear statements of departmental accountability, specific goals and milestones.		○	○	○			○	○	Implementation plans were still in draft form and/or were missing or weak in key elements.
4.59 Industry Canada should ensure that its core industry sector programs related to industrial innovation and technology development reflect the government's commitment to pollution prevention. It should commit itself to specific objectives, activities, and timelines for enhancing the principles of pollution prevention within industry, large and small.							○	○	Progress was not demonstrated.
Turning words into action: Managing industrial chemicals									
4.82 Environment Canada and Health Canada should exercise greater leadership by defining objectives for reducing the risk of industrial chemicals to public health and the environment and by ensuring that risk management options are developed to achieve these objectives.				○		○		○	Link between risk management objectives, reduction in risks, and management options not demonstrated.
4.83 Environment Canada and Health Canada should develop plans to implement recommended risk management measures for substances declared toxic under the *Canadian Environmental Protection Act* (CEPA) before such recommendations are presented to ministers. These plans should include measurable targets, specific timetables, resource estimates and funding sources.				○		○		○	Plans to implement recommendations for PSL1 toxic substances were not demonstrated. Environment Canada has indicated that management strategies for PSL2 substances will address this recommendation.

● Completed ◓ Satisfactory progress ○ Limited progress

Agriculture and Agri-Food Canada (AAFC), Environment Canada (EC), Fisheries and Oceans Canada (F&O), Health Canada (HC), Industry Canada (IC), Natural Resources Canada (NRCan), Pest Management Regulatory Agency (PMRA)

Chapter 4, Managing the Risks of Toxic Substances: Obstacles to Progress Recommendation	Departmental progress AAFC	NRCan	F&O	HC	PMRA	EC	IC	Federal government's overall progress	Comments
4.84 The roles and responsibilities for implementing recommended risk management measures for substances declared toxic under CEPA should be clearly defined for Environment Canada, Health Canada, Industry Canada, Natural Resources Canada, and other departments. These roles and responsibilities should capitalize on the expertise and capacities of each department.		○		◒		◒	○	◒	EC and HC have articulated their roles and responsibilities.
4.105 Environment Canada, in consultation with other participating departments, should develop a policy outlining conditions necessary for using voluntary initiatives. Before renewing a voluntary initiative, Environment Canada should evaluate its contribution toward the government policy objectives of pollution prevention and life cycle management.						●		●	Policy completed and outlines conditions necessary for using voluntary initiatives.
4.106 If Environment Canada chooses to use voluntary initiatives to manage voluntary initiatives to manage priority substances, including CEPA toxic substances and others, it should establish rigorous requirements for them. At a minimum, these initiatives should include: clearly identified environmental objectives; the release levels that exist at the beginning of the agreement; measurable targets with timelines; release or performance measures; clearly defined roles and responsibilities; consequences for failing to meet targets and rewards and recognition for achieving them; a reporting requirement and provision for credible verification; and regulator evaluation of the initiative to determine progress and consider whether corrective action is necessary.						◒		◒	Requirements established, however, it is too early to assess whether policy has been fully implemented.
4.107 If Environment Canada uses voluntary initiatives to manage toxic substances not identified as priorities, it should encourage industry sectors, associations and individual companies to also adopt the same requirements as indicated above.						◒		◒	Commitment made, however it is too early to assess the status of implementation.

● Completed ◒ Satisfactory progress ○ Limited progress

Agriculture and Agri-Food Canada (AAFC), Environment Canada (EC), Fisheries and Oceans Canada (F&O), Health Canada (HC), Industry Canada (IC), Natural Resources Canada (NRCan), Pest Management Regulatory Agency (PMRA)

Chapter 4, Managing the Risks of Toxic Substances: Obstacles to Progress Recommendation	Departmental progress AAFC	NRCan	F&O	HC	PMRA	EC	IC	Federal government's overall progress	Comments
Improvements needed in the management of pesticides									
4.119 The Pest Management Regulatory Agency, in consultation with other federal departments, including Environment, Health, Fisheries and Oceans, and Natural Resources, should establish a risk reduction policy for managing pesticides. Among other things, the policy should reflect commitments in the federal government's Pollution Prevention Strategy and the Toxic Substances Management Policy. The risk reduction policy's objectives should be reflected in the registration of new pesticides, the re-evaluation and special review of existing pesticides, and all Agency programs for the promotion of alternatives, including integrated pest management.					○			○	No final pesticide risk reduction policy has been published and implemented.
4.120 The Pest Management Regulatory Agency should develop and implement, in conjunction with the provinces, a national pesticides risk reduction strategy for Canada.					○			○	A strategy for lawn care pesticides has been developed. No overall national pesticide risk reduction strategy has been developed and implemented.
4.127 Fisheries and Oceans, together with Environment Canada and the Pest Management Regulatory Agency, should develop a policy on sustainable aquaculture that addresses, among other things, the use of pesticides and other products in aquaculture as well as the role of integrated pest management.			○					○	An Aquaculture Policy Framework was published. It does not directly address pesticides or the role of integrated pest management.
4.128 The Agency should ensure that its pesticide registration decisions do not create conflicts with other federal legislation, including but not limited to the *Fisheries Act*. Where such conflicts may arise, the Agency should exchange scientific and/or policy advice with other departments before registration decisions are taken.					N.A.*			N.A.	

● Completed ◒ Satisfactory progress ○ Limited progress

*N.A.—Status of progress is unknown or information is not available.

Agriculture and Agri-Food Canada (AAFC), Environment Canada (EC), Fisheries and Oceans Canada (F&O), Health Canada (HC), Industry Canada (IC), Natural Resources Canada (NRCan), Pest Management Regulatory Agency (PMRA)

Chapter 4, Managing the Risks of Toxic Substances: Obstacles to Progress Recommendation	Departmental progress AAFC	NRCan	F&O	HC	PMRA	EC	IC	Federal government's overall progress	Comments
Inadequate tracking of toxic releases and pesticides									
4.134 Environment Canada should ensure that releases of priority toxic substances are reliably monitored and reported through either the National Pollutant Release Inventory or other means, where that would be more appropriate,						◒		◒	105 additional substances or groups of substances added to NPRI. Other substances still to be monitored.
and should periodically publish progress made toward achieving release reduction targets.						○		○	Limited published data available on trends.
4.138 The Pest Management Regulatory Agency should meet its commitment to establish a national database of pesticide sales in order to monitor the use of pesticides and gauge the effectiveness of risk reduction activities.					○			○	No database exists that is being used by the PMRA. Activities have been undertaken to develop a database (for example, data pilot testing).

Agriculture and Agri-Food Canada (AAFC), Environment Canada (EC), Fisheries and Oceans Canada (F&O), Health Canada (HC), Industry Canada (IC), Natural Resources Canada (NRCan), Pest Management Regulatory Agency (PMRA)

● **Completed**—Corrective action has been fully implemented.

◒ **Satisfactory progress**—Progress is being made at a satisfactory pace.

○ **Limited progress**—Some progress is being made, but the pace or scope is not satisfactory.

About the Follow-Up

Objective

The objective of this follow-up review was to provide a status report on the progress made by six federal departments (Environment Canada, Health Canada, Industry Canada, Natural Resources Canada, Fisheries and Oceans Canada, and Agriculture and Agri-Food Canada) and the Pest Management Regulatory Agency in addressing the 27 recommendations in chapters 3 and 4 of the 1999 Report of the Commissioner of the Environment and Sustainable Development to the House of Commons. In addition, we endeavoured to include the effects of changes to the *Canadian Environmental Protection Act, 1999* as they relate to our 1999 audit findings.

Scope and approach

To assess the federal government's progress in addressing the 27 recommendations, we asked for progress reports and supporting documentation from six federal departments (Environment Canada, Health Canada, Industry Canada, Natural Resources Canada, Fisheries and Oceans Canada, and Agriculture and Agri-Food Canada) and the Pest Management Regulatory Agency. In addition, we asked for additional documents and other information and conducted interviews with officials of the departments.

Our work was designed to provide a moderate level of assurance. We relied on departmental and agency responses for some of our conclusions; however, we have conducted sufficient inquiries to satisfy ourselves that the information provided is plausible under the circumstances.

Criteria

Based on our assessment of the actions taken by departments in addressing the 27 recommendations we assigned one of the following three ratings:

- **Completed.** Corrective action has been fully implemented.
- **Satisfactory progress.** Progress is being made at a satisfactory pace.
- **Limited progress.** Some progress is being made, but the pace or scope is not satisfactory.

In determining the ratings given for each recommendation, the audit team considered such factors as the following:

- the inherent conditions embedded in the recommendation;
- whether the action(s) taken by the department related directly and deliberately to the recommendation;
- the complexity of the recommendation;
- the time that has elapsed since the recommendation was made;
- the extent to which existing and remaining planned actions will address the recommendation;
- the balance between activities and results; and
- any significant changes in circumstances that have occurred since the 1999 audit.

Audit team

Principal: John Reed
Director: Frank Barrett

Annie Bérubé
Liliane Cotnoir (Acting Director)
Vivien Lo
Dany Ross
George Stuetz

For information, please contact Communications at (613) 995-3708 or 1-888-761-5953 (toll-free).

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