2002

Report of the

Commissioner of the Environment and Sustainable Development

to the House of Commons

Chapter 2

The Legacy of Federal Contaminated Sites

Office of the Auditor General of Canada

The 2002 Report of the Commissioner of the Environment and Sustainable Development comprises 6 chapters and The Commissioner's Perspective—2002. The main table of contents is found at the end of this publication.

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Chapter

2

The Legacy of Federal Contaminated Sites

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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The Legacy of Federal Contaminated Sites

Main Points

2.1 The federal government has so far failed to address the issue of federal contaminated sites adequately. Thirteen years after it started to deal with this issue, it still

- does not know how many of its sites are contaminated;
- does not have a full picture of the risks to human health and the environment and the likely cost of dealing with (cleaning up or managing) the sites;
- does not have a ranking of the worst sites in order of risks;
- does not have long-term, stable funding to manage the problem effectively; and most important,
- does not have firm central commitment and leadership, including an action plan for dealing with the higher-risk sites in a timely manner.

2.2 The federal government could appear to be applying a double standard. On the one hand, those who lease federal lands and cause contamination are required under recent lease agreements to clean up their own mess. On the other hand, the government has failed to establish a similar mandatory requirement for federal organizations to clean up their own contamination on federal lands.

2.3 At its current spending rate, the government will need decades to deal with its known contaminated sites. It has assessed over 8,500 sites since 1996 but has yet to begin evaluating at least 1,500 additional sites it suspects to be contaminated. Government officials are considering including their current estimate of the minimum amount of the government's environmental liability in the notes to the government's financial statements for the year ended 31 March 2002. We estimate that the total cost to Canadians to deal with these sites represents billions of dollars.

2.4 The federal government says it is managing its fiscal deficits to avoid leaving a burden for future generations, but its failure to deal in a timely manner with the environmental legacy of contaminated sites in its own backyard passes on another burden.

Background and other observations

2.5 As noted in our audits of 1995 and 1996, the need for a program to clean up contaminated sites in Canada was recognized in 1989 when the federal government participated in a $250 million five-year federal/provincial program. As part of this program, Environment Canada started to develop a

list of federal sites suspected of being contaminated and requiring further study. This program ended in 1995. Other federal commitments since 1996 have so far resulted in only limited progress toward resolving the problem of contaminated sites under federal responsibility. The progress has been focussed on developing policy and guidance documents, assembling a more complete picture of federal contaminated sites, and cleaning up some of them.

2.6 Unless they are managed properly, contaminated sites can lead to significant contamination of water, soil, and air, thus threatening human health and the environment; they can also take valuable land out of productive use and jeopardize the way of life of those who live off the land.

2.7 It is far easier and less costly (up to 40 times less expensive in the case of groundwater supply contamination, according to an estimate by the United States Environmental Protection Agency) to prevent environmental damage than to try and correct it after contamination occurs. Pollution prevention is an important element of sustainable development.

2.8 The use of storage tank systems containing petroleum or allied petroleum products is a major cause of the contamination on federal sites and is a widespread problem. The current regulations are mainly a paper exercise that will do little, if anything, to reduce contamination caused by spills or leaks. Significant gaps exist, with potentially harmful consequences. For example, under the regulations a leaky storage tank could remain in use, polluting the surrounding environment, and there is no requirement to clean up the contamination.

2.9 One of Canada's largest and most contaminated sites is the Sydney tar ponds. Although federal officials do not consider it to be a federal site, the government has

- spent over $66 million on environmental studies and cleanup attempts since the 1980s. An additional contribution of $187 million was made to modernize steel-making facilities—amounting to over $250 million spent on this site and surrounding area during the last 20 years;
- not yet found, along with the other parties involved, an acceptable cleanup or management solution, although federal government officials anticipate that the community will recommend options in spring 2003 for consideration by the three levels of government;
- not decided on the extent of its future contribution, if any, toward the costs associated with the next cleanup phase of the Sydney tar ponds site; and
- not developed a clear policy for dealing with contaminated sites where other levels of government are involved.

After 20 years and $66 million spent on environmental studies and cleanup attempts, the federal government still needs to finalize its game plan for the Sydney tar ponds site.

Federal departments and agencies have responded. All federal departments and agencies responsible for contaminated sites, except for Agriculture and Agri-Food Canada and Health Canada, provided a response to our recommendations. Their detailed responses follow each recommendation throughout the chapter. They generally agree with our recommendations and in their responses have indicated a number of actions under way to deal with them, in whole or in part. The Treasury Board Secretariat and Environment Canada did not fully agree with all of our recommendations. We noted that some departments and agencies expressed concerns in their responses regarding the adequacy of existing human and financial resources to complete the identification and assessment of contaminated and suspected sites, and to deal with (clean up or manage) the sites in a timely manner. Responses also revealed different points of view on a mandatory requirement for federal organizations to clean up or manage their contaminated sites and the preparation of a consolidated report on progress achieved against action plans.

Introduction

The issue

2.10 Thousands of sites on federal properties have been contaminated by the federal government, tenants on its lands, and others as a result of decades of misuse relative to recent standards. These contaminated sites are scattered across Canada, some in urban settings and others in remote areas. They include abandoned mines in the North (see Chapter 3), airports, government laboratories, harbours and ports, landfills, lighthouse stations, military bases and training facilities, and reserve lands. Exhibit 2.1 provides several examples of the approximately 780 federal contaminated sites that require action.

Contaminated site—A site at which substances occur at concentrations above background levels and pose, or are likely to pose, an immediate or long-term hazard to human health or the environment, or that exceed levels specified in policies and regulations.

2.11 The contaminants at these sites include petroleum products such as gasoline and oil, heavy metals, and a variety of toxic substances (Appendix A). Exposure to high levels of hazardous substances through the contamination of water, soil, and air has been linked to various adverse health conditions. These include cancer, respiratory illness, reproductive problems and birth defects, nervous system disorders, allergic reactions, hypersensitivity, and decreased resistance to disease.

2.12 If not properly managed, contaminated sites can lead to significant contamination of water, soil, and air, thus threatening human health and the environment. They can also take valuable land out of productive use for agriculture, commerce, industry, recreation, or housing, which in turn will lower property values and affect tourism, recreation, and economic development. Contamination of a site can force nearby residents to move or to find alternative sources of water, which may be costlier, or if they live off the land, it can jeopardize their way of life.

Did you know?

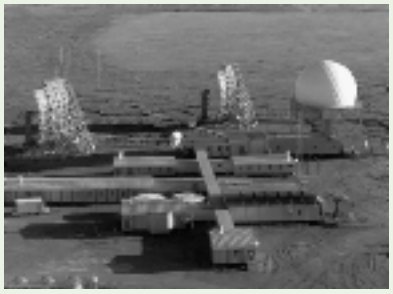
Number of litres of groundwater that one litre of gasoline can render unfit for human consumption: **1 million**

Percentage of all Canadian municipalities that rely entirely or partially on groundwater: **40**

2.13 The sizes of contaminated sites range widely. For example, a minor spill from a gasoline storage tank could be cleaned up within days at a cost of a few thousand dollars. Cleaning up a very large site, such as the abandoned Giant Mine in Yellowknife, could take a decade or more and cost about $50 million to about $400 million depending on the cleanup option chosen. Some sites present a higher risk and need more urgent attention; others present a lower risk, and departments have more discretion in timing their cleanup. The cleanup of these sites represents billions of dollars in costs to Canadians.

2.14 A federal contaminated site needs to be dealt with (cleaned up or managed) to a level appropriate to the land's current or intended federal use. Cleaning up some sites, such as certain abandoned mines, is not always technically or economically feasible. Those sites require long-term care to monitor and maintain the containment structures and to control access to, and use of, the land.

Exhibit 2.1 Examples of federal contaminated sites requiring action



Property name: Distant Early Warning (DEW Line) sites (such as the National Defence site at Komakuk Beach, Yukon shown here)

Number of contaminated sites: 42

Custodian: National Defence (21 sites), Indian and Northern Affairs Canada (21 sites)

Location: Roughly along the 66th parallel in Canada's North

Contaminants: Petroleum hydrocarbons and polycyclic aromatic hydrocarbons (PAHs), toxic organics (such as polychlorinated biphenyls or PCBs)

Status: National Defence (7 sites remediated, 7 under remediation or remediation scheduled, 2 assessed, 5 under assessment), Indian and Northern Affairs Canada (3 sites remediated, 18 under assessment)

Property name: Victoria Harbour

Number of contaminated sites: 17

Custodian: Transport Canada

Location: Victoria, British Columbia

Area: 270.49 hectares

Contaminants: petroleum hydrocarbons and nuisance substances (asbestos)

Status: under assessment

Property name: Tobacco Plains (abandoned gas station)

Number of contaminated sites: 1

Custodian: Indian and Northern Affairs Canada

Location: Roosville, British Columbia

Area: Not specified

Contaminants: Petroleum hydrocarbons and PAHs

Status: Under remediation

Property name: Banff National Park of Canada

Number of contaminated sites: 32

Custodian: Parks Canada Agency

Location: Rocky Mountains, Alberta

Area: 6,641 square kilometres

Contaminants: Petroleum hydrocarbons and PAHs, heavy metals, oxygen-depleting substances, toxic organics, nuisance substances

Status: 26 sites under assessment, 1 under risk management, and 5 assessed with no further action required

Exhibit 2.1 (Continued)

Property name: Edmonton Garrison

Number of contaminated sites: 18

Custodian: National Defence

Location: Sturgeon, Alberta

Area: 2,533.83 hectares

Contaminants: Petroleum hydrocarbons and PAHs, heavy metals

Status: 2 sites remediated, 3 under remediation, 11 under risk management, 2 under assessment

Property name: McNab Point (lighthouse)

Number of contaminated sites: 1

Custodian: Fisheries and Oceans Canada

Location: Niagara-on-the-Lake, Ontario

Area: 0.09 hectare

Contaminants: Heavy metals (lead and zinc)

Status: Under assessment

Property name: Kingston Harbour

Number of contaminated sites: 8

Custodian: Transport Canada

Location: Kingston, Ontario

Area: 1,196.78 hectares

Contaminants: Petroleum hydrocarbons and PAHs, heavy metals, oxygen-depleting substances, toxic organics

Status: All sites under risk management

Property name: Gloucester Landfill (south of Ottawa International Airport)

Number of contaminated sites: 1

Custodian: Transport Canada

Location: Ottawa, Ontario

Area: About 107 hectares

Contaminants: Toxic organics from hazardous and municipal waste

Status: Under remediation

Exhibit 2.1 (Continued)

Property name: Small Craft Harbour Belleville

Number of contaminated sites: 2

Custodian: Fisheries and Oceans Canada

Location: Belleville, Ontario

Area: 14 hectares

Contaminants: Petroleum hydrocarbons and PAHs, heavy metals

Status: Under assessment

Property name: Lachine Canal

Number of contaminated sites: 32

Custodian: Parks Canada Agency

Location: Montreal area, Quebec

Area: 84.1 hectares

Contaminants: Petroleum hydrocarbons and PAHs, heavy metals

Status: 19 sites under assessment, 11 assessed, 1 under risk management, 1 remediated

Property name: Canadian Forces Goose Bay

Number of contaminated sites: 63

Custodian: National Defence

Location: Happy Valley–Goose Bay, Newfoundland and Labrador

Area: 5,047.83 hectares

Contaminants: Petroleum hydrocarbons and PAHs, heavy metals, oxygen-depleting substances, toxic organics

Status: 4 sites remediated, 28 under remediation, 28 under risk management, 3 under assessment

Property name: Argentia (former United States naval base)

Number of contaminated sites: 31

Custodian: Public Works and Government Services Canada

Location: Argentia, Newfoundland and Labrador

Area: 3,388.36 hectares

Contaminants: Petroleum hydrocarbons and PAHs, heavy metals, toxic organics (PCBs), nuisance substances (asbestos), explosives

Status: 5 sites remediated, 18 under remediation, 5 under risk management, 3 under assessment

Source: The Federal Contaminated Sites and Solid Waste Landfills Inventory maintained by the Treasury Board Secretariat and information provided by the custodians

The federal role

2.15 Current government policy requires that federal departments and agencies follow sound environmental management practices on their properties to avoid causing contamination. They are also required to take a consistent and orderly approach to managing sites that are already contaminated, in order to achieve the best value for Canadians.

Previous audits

2.16 In 1995 we audited certain aspects of the federal government's management of hazardous wastes (see the Auditor General's May 1995 Report, Chapter 2). One aspect we looked at was how Environment Canada manages contaminated sites; another was the storage and destruction of polychlorinated biphenyls (PCBs). We reported our concern that when the National Contaminated Sites Remediation Program ended in 1995, the government lacked adequate information on federal contaminated sites, their risks to human health and the environment, and the cost of cleaning them up. We also reported that no national plan or federal fund had been created for cleaning up the remaining contaminated sites that pose unacceptable risks to human health and the environment.

2.17 In 1996 we examined the approach of the federal government to gathering information on its contaminated sites (see the Auditor General's November 1996 Report, Chapter 22). We concluded that the government did not have a complete picture of its contaminated sites or a timetable for assembling one. This meant it was unable to assess the risks to health, safety, and the environment; nor could it establish how long it would take and how much it would cost to clean up and manage its contaminated sites. We reported finding limited central leadership and a lack of accountability for providing it.

2.18 We issued follow-up reports on both audits, in December 1997 and December 1998 respectively. We reported that the government had made only limited progress toward implementing our recommendations.

Focus of the audit

2.19 In examining whether progress had advanced since our last audits, we asked the following questions:

- Does the federal government have a complete inventory of the sites it owns or manages that are contaminated?
- Does it have a full picture of the risks the sites pose and the likely cost of dealing with the sites?
- Does it have a management framework for these sites that includes a long-term action plan for dealing with the worst sites in order of risk?

2.20 Our audit included a survey of all 15 federal departments and agencies that own or manage sites that have been contaminated. However, we focussed on four key departments: Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, and Transport Canada.

We examined policies and guidance documents developed mainly by the Treasury Board Secretariat, as well as Environment Canada's role with respect to contaminated sites.

2.21 For more information on our audit objective, scope, approach, and criteria, see About the Audit at the end of the chapter.

Observations and Recommendations

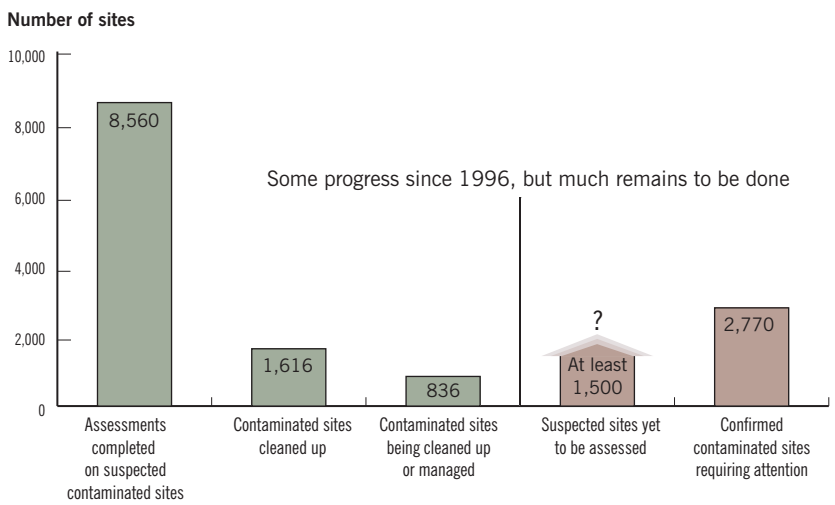
The current situation

Thousands of sites still need attention

2.22 Some progress has been made since our 1996 audit. Based on the results of our survey, departments reported that they had assessed 8,560 suspected contaminated sites since 1996 to determine whether or not they were contaminated. They also indicated that 1,616 confirmed contaminated sites had been cleaned up and that 836 sites are currently being cleaned up or managed (Exhibit 2.2).

2.23 Substantial work remains to be completed. Eleven departments reported to us that at least 1,500 suspected sites still require initial assessment work to determine whether they are contaminated. Three departments (Department of Foreign Affairs and International Trade, Environment Canada, and Fisheries and Oceans Canada) know that they have suspected contaminated sites but are uncertain how many exist. One department (Fisheries and Oceans Canada) has not established a time frame for completing its assessments. The federal government is unable to inform Parliament and the people of Canada about the potential risks that these unassessed sites may pose.

Exhibit 2.2 Federal contaminated sites—The current situation



2.24 Of the assessed sites, departments reported to us in the fall of 2001 that there were 3,606 contaminated sites on federal lands at that time. While 836 of these are currently being cleaned up or managed, thousands of sites still need attention.

How did this situation arise?

2.25 Over many decades, direct actions and operations of the federal government and others have caused the contamination of thousands of federal sites. Contamination resulted, in part, from the application of standards or practices of the day, many of which are no longer viewed as being environmentally acceptable. This situation mainly occurred before the government's commitments to pollution prevention, which can help limit contamination of new sites. Some of the causes of contamination were the following:

- spills and leaks from fuel storage tanks;
- disposal of hazardous wastes, laboratory wastes, lethal warfare agents (such as mustard gas), and pesticides; and
- the use of sites for training in military and airport fire-fighting operations.

2.26 Some contaminated sites, known as orphan sites, became the federal government's responsibility when those who caused the contamination went out of business or were unable to pay for cleanup. Abandoned mines in the North are an example. The government is responsible for managing and cleaning up these orphan sites (see Chapter 3).

Did you know?

Number of tonnes of sediments contaminated with chemical waste in the Sydney tar ponds: **700,000**

Number of storeys in a building the size of a football field this waste would fill: **60**

2.27 At some contaminated sites where several levels of government (federal, provincial, and municipal) are involved, the federal government has yet to clarify what role it will play. For example, the Sydney tar ponds site has involved the private sector, a federal and a provincial Crown corporation, and a municipal landfill. The federal government has spent over $66 million on environmental studies and cleanup attempts since the 1980s. An additional contribution of $187 million was made to modernize steel-making facilities—amounting to over $250 million spent on this site and surrounding area since 1981 as part of various agreements with other levels of government. However, it has not yet decided on the extent of its future contribution, if any, toward the costs associated with the next cleanup phase at one of Canada's largest and most contaminated sites (see case study on page 12).

No clear, mandatory requirement exists to clean up federal contaminated sites

2.28 We reported in 1995 and 1996 that no federal legislation dealt specifically with the cleanup of federal contaminated sites. This remains unchanged. Although the 1999 *Canadian Environmental Protection Act*, Part 9, gives the federal government the ability to make regulations that could address issues related to federal contaminated sites, the government has not done so.

The Sydney tar ponds—One of Canada's largest and most contaminated sites

The federal government has

- spent over $66 million on environmental studies and cleanup attempts since the 1980s. An additional contribution of $187 million was made to modernize steel-making facilities — amounting to $250 million spent on the Sydney tar ponds site and surrounding area during the last 20 years (Appendix B);
- not yet found, along with the other parties involved, an acceptable cleanup or management solution; however, federal government officials anticipate that the community will recommend options in spring 2003 for consideration by the three levels of government;
- not decided on the extent of its future contribution, if any, for the costs associated with the next cleanup phase of the Sydney tar ponds site; and
- not developed a clear policy for dealing with contaminated sites where other levels of government are involved.

After 20 years and $66 million spent on environmental studies and cleanup attempts, the federal government still needs to finalize its game plan for the Sydney tar ponds site.

Background

For the purposes of this chapter, we refer to the Sydney tar ponds site as being part of the Muggah Creek watershed. This site comprises the first five areas indicated on the map. The Sydney tar ponds site rests in the heart of an urban area in Sydney, Nova Scotia, where more than 25,000 people live within a four-kilometre radius. Contaminants found within and surrounding the areas include heavy metals, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and raw sewage. This site is considered one of Canada's largest and most contaminated sites.

Sources of contamination

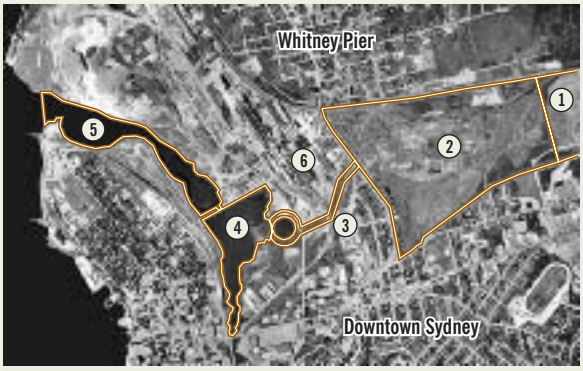
The contaminants at the Sydney tar ponds are mainly the result of steel-making operations carried out, until 1967, by several private sector owners. In 1967, the Nova Scotia government bought the steel-making operation and created the Sydney Steel Corporation (SYSCO), a provincial Crown corporation. The SYSCO plant was shut down in 2000. The federal government owned and operated the coke ovens from 1968 to 1973 through the Cape Breton Development Corporation, a federal Crown corporation. Over the years, the municipal landfill area also contributed contamination. The Sydney tar ponds is an example of a contaminated site where three levels of government are involved. However, there is no clear federal policy for dealing with contaminated sites where other levels of government are involved.

Reason for federal involvement

Federal files indicate that the federal government is involved in the Sydney tar ponds because of the scale and complexity of the challenge and the inability of any one level of government to act effectively on its own. In 1998, all three levels of government signed a memorandum of understanding (MOU) with the Joint Action Group, a community-based advisory body, acknowledging that resolving the health and environmental issues at the Sydney tar ponds is beyond the scope of any single level of government. A purpose of the MOU was to demonstrate and confirm the parties' long-term commitment to providing funds and the timely implementation of approved cleanup projects, subject to governments' resource constraints. The MOU also states that it is not intended to establish legally binding obligations among the parties.

Federal contributions to date

During the last 20 years, the federal government has spent over $250 million on this site and surrounding area as part of various agreements with other levels of government (see Appendix B). This includes about $66 million on environmental studies and cleanup initiatives associated with the Sydney tar ponds site. It also includes $187 million spent mainly in the 1980s to modernize the SYSCO facilities, a source of contamination at the Sydney tar ponds site. Although the objectives of the two modernization agreements did not specifically mention pollution prevention or cleanup of the site, some of the projects funded incorporated environmental improvements.



The following areas form part of the Muggah Creek watershed:

1. Old Sydney landfill
2. Coke ovens
3. Coke ovens brook connectors
4. South tar ponds
5. North tar ponds
6. Sydney Steel Corporation

Source: Environment Canada

The Sydney tar ponds—One of Canada's largest and most contaminated sites (cont'd)

Evaluating cleanup solutions

To date, the federal government, along with the other parties involved, has not yet found an acceptable cleanup or management solution. The three levels of government continue to conduct further studies, carry out surface cleanup, and evaluate various cleanup solutions. Federal government officials anticipate that cleanup or management options will be recommended by the Joint Action Group to the three governments for their consideration in spring 2003.

Future federal contributions undecided

We noted that the provincial government first reported its estimate of the cost of cleaning up the Sydney tar ponds and adjacent sites in its financial statements for the year ending 31 March 2000. The amount reported was $318 million. In arriving at its estimate, the Province assumed that the current cost-sharing arrangements with the federal government would continue for the subsequent phases of the cleanup. We noted that more recent cost-sharing agreements generally provide for a federal/provincial ratio 70:30. However, federal departmental officials informed us that the federal government has not yet decided on the extent of its future contribution, if any, for the costs associated with the next cleanup phase of the Sydney tar ponds site.

Conclusion

In our opinion, it is important for the federal government to decide on what role it is going to play on this site and make long-term stable funding commitments if appropriate.

2.29 Two federal laws apply indirectly to contaminated sites. The *Fisheries Act* applies only when contaminants leak, or are likely to leak, into fish-bearing waters—but it does not apply to the site itself. Federal policies developed under the *Federal Real Property and Federal Immovables Act* require departments to determine the environmental condition of a property before buying or selling it and to determine whether it needs to be cleaned up.

2.30 As noted in our case study on page 14, the use of storage tank systems is a major cause of the contamination on federal sites, and there are significant gaps in the current federal regulations, with potentially harmful consequences. For example, there is no provision that requires departments to clean up known contamination of spills and leaks from storage tanks.

2.31 The federal government, as Canada's largest landowner, is not leading by example. It could appear to be applying a double standard. On the one hand, those who lease federal lands and cause contamination are required under recent lease agreements to clean up their own mess. This is consistent with the "polluter pays" principle. On the other hand, the government has failed to establish a similar requirement for federal organizations to clean up their own contamination on federal lands. It is not in the spirit of the federal Code of Environmental Stewardship for the Government of Canada to require that others take action to protect the environment if it is not prepared to take the same action itself.

2.32 Most provinces have some form of legislation that can require owners of contaminated sites in the province to deal with the sites. In at least half of the provinces (British Columbia, Manitoba, New Brunswick, Nova Scotia, and Ontario), the legislation is binding on the provincial government. However, the federal government does not have to comply with provincial laws. If it did, federal documents indicate that many federal sites could face cleanup orders in some provinces.

Storage tanks—Significant gaps exist in current regulations

Significant gaps in the current federal regulations for storage tanks need to be addressed to help prevent and clean up contamination from storage tanks.

The current situation

In 2000, departments reported over 7,000 storage tank systems containing petroleum and allied petroleum products on federal lands. A storage tank system can consist of a single storage tank or two or more connected tanks. These systems may contain flammable substances (aviation and diesel fuel, engine oil, fuel oil, gasoline, solvents, and thinners). About 34 percent of the systems are underground, which makes it more difficult to detect contamination.

The map shows that aboveground and underground storage tank sites under the responsibility of the four departments we examined are spread throughout Canada. The accompanying bar graph shows the approximate number of storage tank systems, by region, for the four departments.

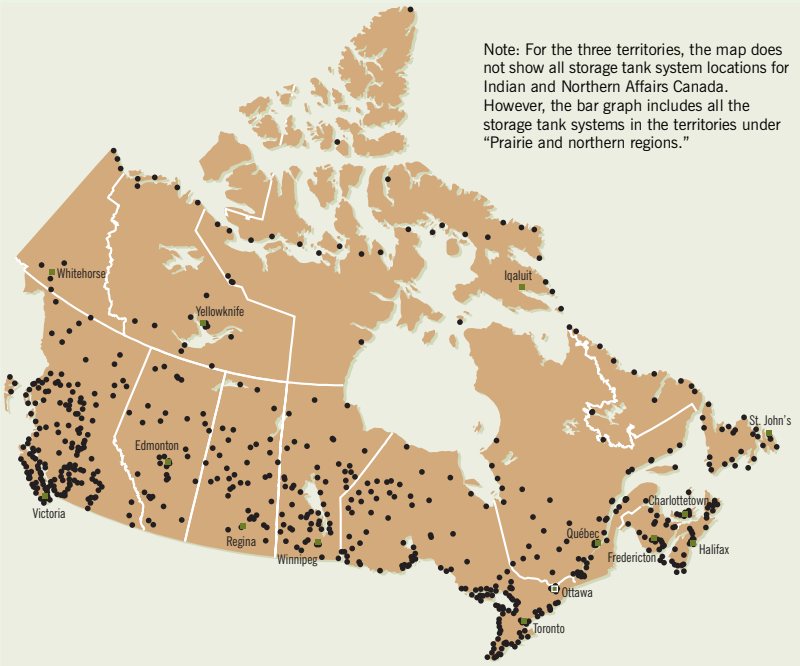
Spills and leaks from storage tank systems on federal lands and Aboriginal lands have contaminated many sites. Spills and leaks can endanger human life, put wildlife at risk, destroy habitat, and interfere with local tourism, recreation, and fish farming. Even small amounts of the stored substances in the wrong places can make water unfit to drink, contaminate soils, create explosive hazards, and cause offensive odours (see illustration on page 15).

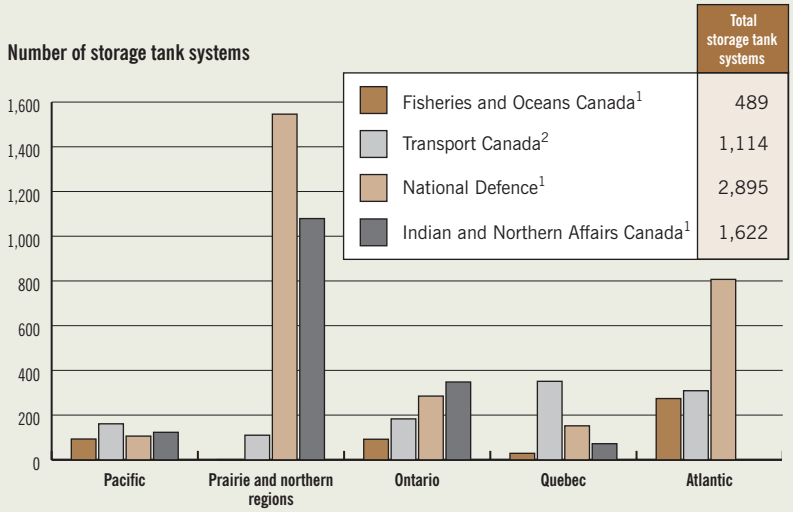
How did this situation arise?

In the last 40 years, storage tank systems for petroleum products were installed on federal lands mainly to service an expanding transportation sector. Many of the systems were made of steel, without rust protection. As those systems age, they are more likely to leak, due in part to rusting.

What is the federal government doing?

In 1996, Environment Canada issued storage tank registration regulations under the *Canadian Environmental Protection Act.* These regulations came into force in 1997 and apply to all owners of storage tank systems that contain petroleum or allied petroleum products and are on federal lands and Aboriginal lands. Each federal department must keep a record of all registered storage tank systems on its lands. It must also submit an annual compliance status report to Environment Canada or include the report in its performance report. All federal departments that own and operate storage tank systems in Canada agreed to comply with the regulations, except for Transport Canada (see page 15, fourth bullet).





1. Number of registered storage tank systems for year 2000.
2. Number of storage tank systems on Transport Canada lands as at 1 March 2002.

Source: Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, and Transport Canada

Storage tanks—Significant gaps exist in current regulations (cont'd)

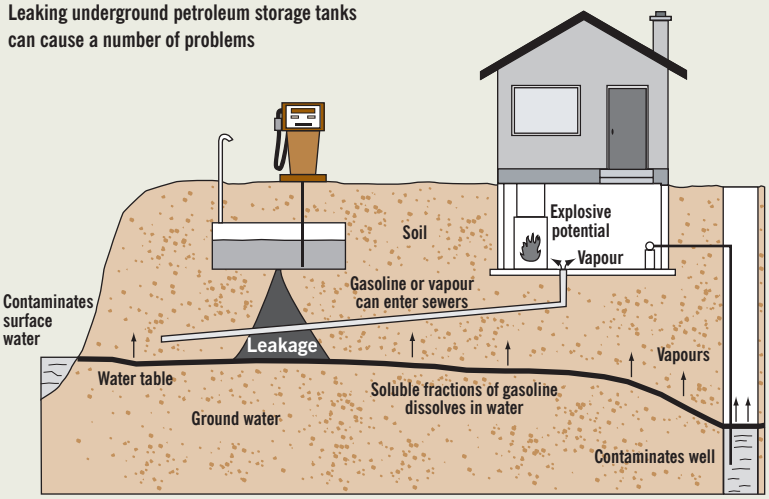
Under the regulations, Environment Canada receives and processes the annual storage tank reports from departments. As a regulator, Environment Canada is also expected to provide leadership, advice, and guidance to departments and to carry out compliance, implementation, and enforcement activities.

Are federal actions effective?

The current registration regulations are not enough. They are mainly a paper exercise that will do little, if anything, to reduce contamination caused from spills or leaks. We noted the following significant gaps in the regulations:

- There is no provision that requires the cleanup of spills and leaks from storage tanks.
- An owner can use a registered storage tank system that does not meet current codes and standards, as such compliance requirements are not included in the current regulations. A tank could be in compliance with the registration regulations and yet be leaking. There is no provision in the existing regulations to stop an owner from operating a leaking system.
- For annual compliance reporting purposes, storage tank compliance is not clearly defined. The regulations make reference to guidelines that in turn refer to over 250 technical elements contained in codes and standards that cover many life-cycle aspects of storage tanks. However, it is not mandatory for departments to comply with these codes and standards. Each department has developed its own tools to determine storage tank compliance and they differ. The numbers indicating storage tank compliance as reported are misleading.
- Problems occur when dealing with storage tanks owned by some tenants on federal lands. Departmental officials indicated that there has been some difficulty in getting some tenants to register their tanks. Another problem relates to the concern that the information reported by a custodial department in its annual report is not the same as what a tenant is required to provide to the department. Under the regulations, tenants are only required to provide information on the registration elements of their storage tank systems; they are not required to determine or report on compliance with the storage tank technical guidelines. Thus, a reporting department may assume a potential liability for tanks owned and operated by tenants that are reported as being compliant with the regulations. Transport Canada officials cited this as the main reason why it did not agree to comply with the registration regulations.
- Inspections and monitoring of storage tank systems are not mandatory under the current regulations. Yet, regular inspection and monitoring for leaks is a basic preventive measure.

Leaking underground petroleum storage tanks can cause a number of problems



Source: Environment Canada

Lessons for the future

It is far less expensive to prevent a leak from occurring than to deal with the problem afterwards. A study conducted for Environment Canada indicated that it can be many times more costly to clean up contamination from a leaking tank than to upgrade or replace a tank.

Officials at two key departments have informed us that they are increasingly replacing underground storage tanks with aboveground storage tanks as this helps to reduce the risk of future contamination and to make it easier to detect leaks.

There are also alternatives to using petroleum storage tanks. For example, Fisheries and Oceans Canada has been replacing the main source of power at some of its remote diesel-operated lighthouse stations with solar power, a more sustainable energy source. This also has the added benefit of reducing greenhouse gas emissions, which have implications for climate change.

Environment Canada is currently developing new storage tank regulations. Departmental officials informed us that they expect to publish updated regulations in the *Canada Gazette*, Part I, by March 2003.

2.33 The lack of a clear, mandatory requirement for federal organizations to clean up federal contaminated sites is a disincentive for action. If there were a requirement to clean up sites that remain federal property, cleaning up a department's contaminated sites would be a higher priority. There are various options available to the government to remove this disincentive. For example, the government could use specific legislation for this purpose; it could make appropriate regulations (developed by Environment Canada) under the *Canadian Environmental Protection Act* (1999); or it could impose a government-wide policy. In the absence of any mandatory requirement to clean up federal contaminated sites, it is not clear to departments what they are obligated to do; nor is it clear to Canadians what can be expected from federal organizations.

What is the federal government doing?

2.34 As we noted in our 1995 and 1996 audits, the need for a program to clean up contaminated sites was recognized in 1989 when the federal government participated in the $250 million five-year federal/provincial National Contaminated Sites Remediation Program. An objective of this program was to clean up certain high-risk contaminated sites. As part of the program, Environment Canada started to develop a list of federal sites where contamination was suspected and that required further study. This program ended in 1995.

2.35 Other federal commitments we noted in our 1995 and 1996 audits included Canada's Green Plan (1990), the Code of Environmental Stewardship for the Government of Canada (1992), and A Guide to Green Government (1995). As well, in a 1998 draft accounting policy, the federal government expressed its intention to include in its financial statements the costs of dealing with contaminated sites under its responsibility.

Recent commitments to take action

2.36 Two years later, in June 2000, the federal government approved the Federal Contaminated Sites Assessment Initiative (FCSAI). The initiative provided a total of $30 million over two years to help departments and agencies estimate the cost of cleaning up or managing their contaminated sites. A goal of the government was to be able to report the total cost in its financial statements for the year ending 31 March 2002.

2.37 Funding for the FCSAI ended on 31 March 2002. As a result of statements made in the 2001 Budget, the government will delay recording the cost of cleaning up and managing its contaminated sites until at least 2003, five years after it expressed its intention to do so.

2.38 In the 2001 Budget speech, the Minister of Finance acknowledged that contaminated land lies unused and unproductive across Canada. The Minister recognized that these contaminated sites, known as brownfields, may have the potential to be cleaned up, thereby bringing health, environmental, and economic benefits to local communities. Accordingly, the Minister announced that the National Round Table on the Environment and the Economy had agreed to develop a national

brownfield redevelopment strategy. This strategy is expected to be released in November 2002 and will be available on the Round Table's Web site (www.nrtee-trnee.ca/).

Roles assigned to key federal players

2.39 Part of the Treasury Board Secretariat's role is to develop overall policy for managing federal contaminated sites, along with supporting policies. The Secretariat is also responsible for managing a central database of all known federal contaminated sites, using information provided by federal departments and agencies.

2.40 Environment Canada has a role to play, within the federal government, in the development of regulations under the 1999 *Canadian Environmental Protection Act* that could address issues related to federal contaminated sites. The Department is also responsible for providing departments and agencies with scientific advice on how to manage their contaminated sites.

2.41 Other departments are also actively involved in addressing the problem of contaminated sites. For example, Health Canada provides guidance and leadership on health issues and responds to community health concerns in support of the provincial role. Public Works and Government Services Canada, through the supply of contracting services, provides other departments with strategic, technical, and project management expertise in assessing, investigating, cleaning up, or managing their sites.

2.42 The interdepartmental Contaminated Sites Management Working Group (CSMWG) was established in 1995 to develop a common federal approach to managing contaminated sites and exchanging information on them. Currently representing 15 departments and agencies, the Working Group has been very active since our 1996 audit. It has established a Web site (www.ec.gc.ca/etad/csmwg) that features its publications, various technical tools, and other reference materials.

Policies and guidance documents developed since our last audits

2.43 Since 1996, the federal government has developed policies to identify and manage its contaminated sites and to determine the related costs. It has also developed 12 guidance documents that deal with contaminated sites (Appendix C).

2.44 In 1998, the Treasury Board Secretariat developed an environmental policy requiring that when departments buy, use, or sell property, they take measures to ensure that future generations can continue to use it. This is consistent with the Code of Environmental Stewardship for the Government of Canada and the concept of sustainable development.

2.45 In February 1998, the Secretariat released a draft policy on accounting for costs related to contaminated sites. This policy was finalized in June 2002. The policy's intent is that the government will report any costs related to contaminated sites that it is likely to incur in order to

- deal with public health and safety,

- honour written agreements, or
- meet the standards set out in an act or regulation of a government in Canada (federal, provincial, or municipal) or abroad that it considers acceptable.

2.46 The inventory policy developed by the Treasury Board Secretariat in 2000 requires federal departments and agencies to keep a list of their known contaminated sites and landfill sites. This information is to be provided to the Secretariat at least once a year for updating its central database. This is an important step toward providing a government-wide summary of the number and status of contaminated sites under federal responsibility. This central database has been available since 17 June 2002 on the Secretariat's Web site (www.tbs-sct.gc.ca/dfrp-rbif/cs-sc/).

2.47 In 2001, the Secretariat developed a draft policy aimed at giving departments direction on managing their contaminated sites consistently, using best practices. This policy was finalized in June 2002. Each department will be required to develop a management plan by 30 June 2003.

2.48 Many of the guidance documents (listed in Appendix C) are directed mainly at federal contaminated sites. An exception is the Canadian Environmental Quality Guidelines, published in 1999. These guidelines were developed by the federal government and all provinces and territories to provide goals, benchmarks, or indicators for air, water, soil, sediment, and tissue.

Departments are laying the foundation

2.49 Since our previous audits, federal departments and agencies have focussed on assembling a more complete picture of their contaminated sites and cleaning up some of them.

2.50 In their second sustainable development strategies, all 15 departments and agencies we surveyed made one or more commitments to deal with the contaminated sites they own or manage. Eleven of them made one or more commitments related to their storage tanks.

Are federal actions effective?

2.51 Assigning responsibilities and developing guidance documents are necessary, but not sufficient, for dealing with federal contaminated sites. We would expect that a responsible landowner, including the federal government as Canada's largest landowner, would make a firm commitment to deal with its contaminated sites in a timely manner. For the federal government, such a commitment would be a management framework to

- develop a complete list of its contaminated sites,
- assess the risks they pose and the likely cost of correcting the problem,
- rank the sites in order of risk,
- ensure that departments and agencies have enough funds to fix the problem, and
- develop and carry out an action plan.

The government still does not have a list of all its contaminated sites

2.52 Although departments have identified and assessed additional contaminated sites since our last audit, they reported to us that at least 1,500 suspected sites still require initial assessment work to determine whether they are contaminated. Three departments (the Department of Foreign Affairs and International Trade, Environment Canada, and Fisheries and Oceans Canada) recognized that they have suspected contaminated sites but were uncertain how many existed.

2.53 The government still does not have a complete list of all its contaminated sites. For example, the list does not include contaminated sediments from untreated storm water discharge, contamination from lethal warfare agents, and all abandoned petroleum storage tanks that caused contamination. Identifying sites with suspected contamination is a first step in assembling a full picture of the problem; this step remains incomplete.

2.54 The next step is to assess the suspected sites for contamination. Of the four departments we examined, Fisheries and Oceans Canada was the only one that did not have a time frame for completing assessments of at suspected sites. As federal departments continue assessing their suspected sites, the number of sites known to be contaminated is expected to grow. Therefore, the government still does not know the full extent of the problem.

2.55 In the four departments we examined, we reviewed the databases they had developed to manage the information related to known contaminated sites. We noted that databases were designed to provide the information required for the Treasury Board Secretariat's central database on contaminated sites. However, the central database remains incomplete for two reasons. First, the departments have not yet identified and assessed all of their suspected contaminated sites. Second, the departments have not forwarded the information on all of their known contaminated sites to the central database because some of the data are still being analyzed. As at 31 July 2002, only about 2,850 contaminated sites were listed in the central database, compared with the 3,606 confirmed contaminated sites reported to us.

Risks and costs are not fully known

2.56 Federal departments have not yet fully assessed the known contaminated sites they own or manage; about 500 sites were classified as having insufficient information to determine whether action is required. Departments need to complete these assessments before they can assess the risks to human health and the environment and estimate the costs of cleaning up and managing their sites. As already noted, the government has delayed its commitment to record those costs until at least 2003.

2.57 We found that departments are not recognizing the costs associated with their contaminated sites in accordance with the accounting policy. For example, some departments do not always account properly for the costs when they first identify a contaminated site, as the policy requires, even though they know they will have to clean it up. Our review indicated that

departments' current overall cost estimates were understated. The Treasury Board Secretariat will need to monitor the information from departments closely and make adjustments where needed, before the government records these costs in its financial statements.

2.58 Government officials are considering including their current estimate of the minimum amount of the government's environmental liability in the notes to the government's financial statements for the year ended 31 March 2002. We estimate that the total cost to Canadians to deal with these sites represents billions of dollars. This does not include Crown corporations, which are required to report their environmental costs in their own financial statements.

Did you know?

Ratio of the cost of cleaning up a contaminated site to the cost of completing accurate assessments (according to federal estimates): **10:1**

2.59 Until the federal government has identified all its sites where contamination is suspected and has confirmed whether they are in fact contaminated, the full extent of the cleanup costs cannot be known. In our opinion, departments need to complete environmental site assessments of all contaminated sites under their responsibility so they can estimate and report more accurately what it will cost to manage them and clean them up. In the meantime, they can use the information they have to make their best estimate and continue to update their estimates as they get more information. This, in turn, would enable the federal government to include in its financial statements its best estimate of the actual and contingent liabilities (costs) related to contaminated sites under its responsibility.

2.60 **Recommendation.** The Treasury Board Secretariat, in conjunction with all federal departments and agencies responsible for contaminated sites (Appendix D), should determine the costs to deal with all known contaminated and suspected sites, and the Secretariat should report them in the federal government's financial statements.

Treasury Board Secretariat's response. The Secretariat accepts the recommendation. In June 2002, the Treasury Board approved the Policy on Accounting for Costs and Liabilities Related to Contaminated Sites requiring departments to identify and report as liabilities the estimated costs of managing and/or remediating known contaminated sites. The estimated liability will be disclosed in the Government of Canada summary financial statements, beginning with those for 2001–02.

Canada Customs and Revenue Agency's response. The Agency agrees. It will report liabilities and contingent liabilities in accordance with the Treasury Board Policy on Accounting for Costs and Liabilities Related to Contaminated Sites. Costs will be determined when the damaging event takes place or in the fiscal year when the damage is identified. Costs and liabilities will be reported yearly in accordance with the above-mentioned policy.

Department of Foreign Affairs and International Trade's response. The current Treasury Board Secretariat Policy on Accounting for Costs and Liabilities Related to Contaminated Sites deals only with known sites.

The Department is satisfied that the current policy is sufficient and should not be expanded to include suspected sites.

Environment Canada's response. The Department agrees. Environment Canada has made an initial estimate of costs and liabilities for the sites for which it is responsible, in accordance with the Treasury Board Policy on Accounting for Costs and Liabilities Related to Contaminated Sites. These figures will be updated annually.

Fisheries and Oceans Canada's response. The Department agrees. The assessment of the costs associated with Crown-owned and other types of property is reported to the Treasury Board Secretariat annually. These costs are based on known liabilities and, where appropriate, on an extrapolation of the results of current assessments. The Department will continue its efforts in this area for Crown-owned and other types of property. The report to the Treasury Board Secretariat is updated annually.

Indian and Northern Affairs Canada's response. The Department accepts this recommendation. The Department will continue to assess known contaminated sites to get substantive liability figures, as most figures are currently indicative. The Department will also, based on available resources, assess suspected sites to determine the extent of contamination. It is extremely difficult to determine when assessments will be completed since every fiscal year funding that the programs receive is limited and used to deal with priority sites. Given the lack of secure, long-term funding, it is impossible at this point to give a time frame for when the Department will have cleanup cost estimates associated with its suspected sites.

Parks Canada Agency's response. Parks Canada is committed to reporting its total liabilities for contaminated sites by May 2003.

Royal Canadian Mounted Police's response. The Department concurs with the recommendation. In effect, the Department has reported and will continue to report consistent with the Policy on Accounting for Costs and Liabilities Related to Contaminated Sites.

Transport Canada's response. Transport Canada accepts the recommendation. It will continue to provide the Treasury Board Secretariat with its costs and liabilities information as required by the Secretariat's policy. Transport Canada will follow the reporting procedures submitted by the Secretariat in the Public Accounts Instruction Manual.

The government has not ranked its sites in order of risk

2.61 The federal government has no master list that ranks contaminated sites under its responsibility in order of the risk they pose to human health and the environment. The different priorities that departments have set will have an impact on the extent to which they will consistently clean up their higher-risk sites first.

2.62 Departments' and agencies' responses to our survey questionnaire indicate that, over the last four years, total spending averaged about $90 million a year to clean up and manage federal contaminated sites.

National Defence and Indian and Northern Affairs Canada reported the largest expenditures, averaging about $40 million and $28 million per year respectively. We noted that some departments have received funding to clean up their contaminated sites regardless of the level of risk, while others have been unable to obtain funds to clean up sites that are known to be high-risk. Examples include the following:

- Fisheries and Oceans Canada, National Defence, and Transport Canada undertook much of their cleanup effort because the government decided to sell federal lands; the sites they cleaned up were not necessarily high-risk sites.
- Officials at Indian and Northern Affairs Canada were unable to obtain the necessary funds to deal with one high-risk site (Mount Nansen Mine, see Chapter 3). They claim that the site could be cleaned up to acceptable standards within three years for less than $6.3 million. Instead, the Department has recently been spending about $1.5 million a year on its care and maintenance.

Did you know?

Approximate annual amount per Canadian spent by the federal government to clean up and manage contaminated sites under federal responsibility: **$3.00**

2.63 As the extent of this government-wide problem is understood more fully, the need increases for central leadership to rank the high-risk sites and ensure that resources are available in departments to deal with them. In our view, a government-wide ranking of the worst sites by risk would serve as an impetus for action and would help ensure that departments dealt with high-risk sites appropriately and cost-effectively. Of the approximately 780 known sites that departments currently classify as requiring action, cleanup action on about 250 of them has yet to begin. In addition, of the approximately 840 known sites that departments currently classify as likely requiring action, over 500 are still undergoing assessment to determine the nature and extent of cleanup required, if any.

Long-term, stable funding is needed

2.64 In some cases, departmental officials have stated that the cost of cleaning up or preventing the spread of contamination on their properties is more than is available in their budgets. The government has been made aware of this at least twice since 1999 but still has not provided long-term, stable funding. Six departments and agencies responding to our questionnaire said the lack of dedicated funds over the long term is a constraint to moving ahead faster with cleanup work.

2.65 As already noted, in 2000 the federal government provided $30 million over two years to help departments and agencies estimate the cost of cleaning up or managing their contaminated sites. That funding has ended and not all departments have completed their assessments. The government has not allocated additional funds to departments to complete the remaining assessments and clean up their high-risk sites, some of which are known to need immediate attention. At its current spending rate, it will take decades for the government to clean up all the federal contaminated sites it currently knows about.

A firm commitment with an action plan is missing

2.66 The federal government has not yet shown a firm commitment by preparing an action plan to ensure that departments deal with contaminated sites in a timely manner. We note that under the Treasury Board Secretariat's recently approved management policy, the first departmental management plans are to be submitted to the Secretariat for its information. There is no indication that the Secretariat will review the plans from a government-wide perspective to determine whether they address high-risk contaminated sites appropriately.

2.67 We believe that the Treasury Board Secretariat needs to explore options with departments and develop the government-wide action plan it now lacks for dealing with high-risk sites. One option, for example, could be establishing a central funding program to provide departments and agencies with the resources they need for their cleanup work. Disclosing in the government's financial statements the costs of dealing with all federal contaminated sites would highlight the need for central leadership to manage this significant financial liability.

2.68 Several gaps remain in federal policy related to contaminated sites. The government still needs to decide what role it wants to play in the cleanup of contaminated sites it does not own or manage, including those where other levels of government are involved, such as the Sydney tar ponds. It also needs to decide on its role in dealing with contaminated sites where the federal government is involved but the contamination was caused by others, including orphan sites such as abandoned mines in the North. In addition, the government needs to ensure that when landfill sites on federal property are designed, used, operated, and shut down, steps are taken to minimize contamination and prevent unacceptable impacts on human health and the environment.

2.69 In the sustainable development strategies tabled in February 2001, the four departments we examined made a general commitment to deal with their contaminated sites. However, none indicated when its contaminated sites would be cleaned up or managed so they no longer posed unacceptable risks to human health and the environment.

2.70 In our view, the federal government needs to take measures to ensure that contaminated sites under federal responsibility are cleaned up or managed so they no longer pose unacceptable risks to human health and the environment and that a costly legacy is not left to future generations.

2.71 **Recommendation**. Environment Canada should develop a clear, mandatory requirement for federal organizations to clean up or manage their contaminated sites.

Environment Canada's response. The Department does not accept this recommendation at this time. It does not propose to develop a mandatory instrument under the *Canadian Environmental Protection Act* (CEPA) at this time. Environment Canada views Treasury Board Policies as mandatory. Departments are making progress and significant investments are being

made. The Department will continue to monitor progress on the implementation of the Treasury Board policy and will explore the development of CEPA instruments.

Indian and Northern Affairs Canada's response. The Department agrees. The Treasury Board Secretariat and Environment Canada could play a key leadership role, from the federal point of view, in the management of contaminated sites. Until stable, long-term funding for contaminated sites management is secured for federal departments, the issues and risks surrounding contaminated sites will continue to increase and become more difficult to deal with.

Public Works and Government Services Canada's response. The Department agrees but notes that mandatory requirements must be funded appropriately to facilitate compliance. With respect to orphan sites, the Department's agreement is also conditional upon funding being made available to clean up/risk manage orphan sites for which we are made responsible.

Royal Canadian Mounted Police's response. The Department concurs with the recommendation.

2.72 **Recommendation**. The Treasury Board Secretariat and Environment Canada should develop policies to fill gaps, such as a policy for dealing with contaminated sites like the Sydney tar ponds site that involve many levels of government.

Treasury Board Secretariat's response. The Secretariat partially agrees. The Treasury Board has recently issued two new policies, Accounting for the Costs and Liabilities of Federal Contaminated Sites and Management of Federal Contaminated Sites, which are intended to provide guidance in dealing with contaminated sites on federally owned lands or for which the federal government has taken responsibility. The Treasury Board mandate is for federal lands only; the Secretariat will continue to monitor policy requirements within its mandate.

Environment Canada's response. The Department agrees. Environment Canada, in consultation with central agencies and other departments, has begun the development of guidance for federal departments and agencies on participation in the assessment and remediation of contaminated sites that involve many levels of government. The expected completion date is the end of fiscal year 2002–03.

Indian and Northern Affairs Canada's response. See the Department's response to the recommendation in paragraph 2.71.

Public Works and Government Services Canada's response. The Department agrees, conditional upon inclusion in the policies of a statement to the effect that, where a federal department or agency will be asked to participate in a multi-stakeholder initiative on lands not under its control, funding will be made available.

Royal Canadian Mounted Police's response. The Department concurs with the recommendation.

2.73 **Recommendation**. All federal departments and agencies responsible for contaminated sites (Appendix D) should complete the identification and assessment of contaminated sites under their responsibility.

Canada Customs and Revenue Agency's response. The Agency agrees. It will conduct Phase II Environmental Site Assessments of known and suspected contaminated sites under its responsibility. For sites identified as of 31 March 2002, full assessments will be completed by 31 March 2010.

Correctional Service of Canada's response. The Department fully accepts this recommendation. It is already committed to assessing its contaminated sites to a level where remedial or risk management approaches can be taken. However, some of these assessments are very expensive and the Department can allocate only a limited proportion of its operations budget to this endeavour. Over the past four years, the Department spent $2.4 million on site assessments, remediation, and risk management activities.

Department of Foreign Affairs and International Trade's response. The Department concurs with this recommendation. As required in the Treasury Board Federal Contaminated Sites Management Policy and the Best Practices Advisory on Contaminated Sites Management Plans, the Department will develop a contaminated sites management plan, which will include the next steps to identifying and completing site assessments of all suspected properties. As per Treasury Board Secretariat requirements, the contaminated sites management plan will be completed by 31 March 2003.

Environment Canada's response. The Department agrees. It expects to complete this exercise for the sites for which it is responsible within five years, that is, by fiscal year 2007–08.

Fisheries and Oceans Canada's response. The Department agrees. The Contaminated Sites Management Plan will be developed by June 2003, as per Treasury Board Secretariat requirements. The plan will provide specific action for the identification, assessment, and ranking of sites according to potential risk. In addition, the plan will include action for cleaning up or otherwise managing the known contaminated sites. In addition, it should be noted that a policy on the federal involvement in non-federal sites must be developed to allow the Department to plan for further assessments of properties. The time frame for the implementation of the plan will depend upon the availability of the human and financial resources.

Indian and Northern Affairs Canada's response. See the Department's response to the recommendation in paragraph 2.60.

National Defence's response. The Department accepts the recommendation. Historically, the Department's environmental program has addressed the identification and assessment of contaminated sites. Those sites still requiring assessments and remediation are now captured through the business planning process and the Department's Corporate Environment

Program. Outstanding activities will be included in the contaminated sites management plans required under the recently issued Treasury Board policy. This action is ongoing.

Natural Resources Canada's response. The Department accepts the recommendation. It will continue to work to complete the initial assessment of potentially contaminated sites under its responsibility. The initial assessment of suspected contaminated sites is expected to be completed in 2004.

Parks Canada Agency's response. As part of our draft environmental management system commitments, Parks Canada plans to complete an assessment of all of our sites by March 2006. As noted in the Report, our ability to meet this target will depend on the identification of stable funding.

Public Works and Government Services Canada's response. The Department agrees. It is actively assessing its real property inventory and will continue to do so as part of its contaminated sites management plan (see the Department's response to the recommendation in paragraph 2.75).

Royal Canadian Mounted Police's response. The Department supports the recommendation. In order to effectively implement this recommendation, the RCMP is currently developing a Contaminated Site Management Strategy, which is expected to be implemented by April 2003. This Strategy will allow the RCMP to properly identify and assess contaminated sites under its responsibility. The identification and assessment of contaminated sites is expected to be completed by March 2006. Please note that it is our intention to address the management of contaminated sites and storage tanks immediately.

Transport Canada's response. Transport Canada accepts the recommendation. It has a target and objective within its Environmental Management System to inventory and remediate or risk manage all sites by 2003–04.

Treasury Board Secretariat's response. The Secretariat agrees. Since June 2002, the Treasury Board has approved a number of policies making federal government departments accountable for the identification, assessment, and management of contaminated sites for which they are responsible. Federal departments and agencies have been actively engaged in identifying and assessing contaminated sites for which they are responsible and have already assessed 85 percent of suspected contaminated sites. This information has been recorded in the Federal Inventory of Contaminated Sites, which was made available to the public on the Internet in June 2002. Departments will continue to update the inventory on an ongoing basis. Completion date: July 2003.

2.74 **Recommendation**. The Treasury Board Secretariat and Environment Canada should provide central leadership to rank the high-risk sites on a government-wide basis and ensure a source of long-term stable funding to deal with these sites.

Treasury Board Secretariat's response. The Secretariat partially agrees. Federal departments and agencies are accountable for managing contaminated sites for which they are responsible within existing resource levels and in accordance with approved policies. The Contaminated Sites and Solid Waste Landfills Inventory Policy and the Federal Contaminated Sites Management Policy require departments to rank sites using the National Classification System for Contaminated Sites and deal with them on a priority basis. Resourcing decisions are made through the government's policy and priority-setting processes.

Environment Canada's response. The Department partially accepts this recommendation. It agrees with the Treasury Board Secretariat's response that sites should be ranked by risk but on a departmental basis. Environment Canada further notes that it has already developed several tools to assist federal departments in the management of their sites, including the National Classification System used to rank high-risk sites.

Indian and Northern Affairs Canada's response. See the Department's response to the recommendation in paragraph 2.71.

Public Works and Government Services Canada's response. The Department agrees.

Royal Canadian Mounted Police's response. The Department concurs with the recommendation.

2.75 **Recommendation**. The Treasury Board Secretariat and Environment Canada, in conjunction with all departments and agencies responsible for contaminated sites (see Appendix D), should establish a firm commitment including an action plan and timetable to complete assessments, rank sites, and clean up or manage all known contaminated sites in a timely manner.

Treasury Board Secretariat's response. The Secretariat partially agrees. Departments have demonstrated their commitment to addressing contaminated sites over the past two years by identifying and assessing their contaminated sites, and taking appropriate action to manage them. To date, over 85 percent of suspected sites have been assessed and classified, and almost 70 percent of the worst sites have been remediated, are in the process of being remediated, or are being risk-managed. Departments will ensure that this progress continues through the development of contaminated sites management plans, consistent with the Contaminated Sites Management Policy. Expected completion date is July 2003.

Environment Canada's response. The Department agrees. It also agrees with the Treasury Board Secretariat's response to this recommendation that each department and agency, as per the Contaminated Sites Policy, establish its own action plan and timetable. Environment Canada also co-chairs the Contaminated Sites Management Working Group, the interdepartmental forum to work on common contaminated sites issues. Activities on this committee include the development of guidelines and best practice advisories. This work is ongoing.

Canada Customs and Revenue Agency's response. The Agency agrees. It will develop contaminated sites management plans, referred to in the Federal Contaminated Sites Management Policy. These plans will be five-year plans, updated annually, that reflect current priorities and technology and take into account the available funds.

Correctional Service of Canada's response. The Department finds it difficult to commit to a precise time frame until all of our suspected sites have been subjected to a first characterization study, described in Phase II Assessment in the document entitled "A Federal Approach to Contaminated Sites." It is difficult to predict the full scope of the effort required for risk assessments, risk management, or remediation work until the Phase II assessments have been completed. External funding will also be required to fully action this recommendation.

Fisheries and Oceans Canada's response. The Department agrees. The Contaminated Sites Management Plan will be developed by June 2003, as per Treasury Board Secretariat requirements. The plan will provide specific action for the identification, assessment, and ranking of sites according to potential risk. In addition, the plan will include action for cleaning up or otherwise managing the known contaminated sites. It should be noted that a policy on the federal involvement in non-federal sites must be developed to allow the Department to plan for further assessments of properties. The time frame for implementation of the plan will depend on the availability of the human and financial resources.

Indian and Northern Affairs Canada's response. The Department accepts this recommendation. As per the Treasury Board Contaminated Sites Management Policy, the Department's Northern Affairs Program has an action plan and timetable for addressing contaminated sites. The plan is adjusted on an annual basis to reflect delays due to limited resources.

The Department's Indian and Inuit Affairs Program (IIAP) is currently developing a long-term contaminated sites management plan for the Program. This plan will complement the Department's Contaminated Sites Management Policy and will be linked to its Long-Term Capital Plan and IIAP's Environmental Stewardship Strategy Action Plan. Additionally, IIAP has developed the Web Enabled Data Solution (WEDS) system that tracks, prioritizes, and generates action plans for IIAP's contaminated sites. However, due to the lack of long-term, stable funding, the implementation of this plan will be hindered.

National Defence's response. The Department accepts the recommendation. The requirement to formally prepare contaminated sites management plans is included in the June 2002 Treasury Board policy on the management of contaminated sites. These documents will include action plans and timelines for contaminated sites still in the departmental inventory. Plans will be formalized in fiscal year 2003–04.

Parks Canada Agency's response. As part of our draft environmental management system commitments, Parks Canada plans to complete an assessment of all its sites by March 2006, with a timetable for cleanup by individual parks to be completed by March 2009. As noted in the Report, our ability to meet these targets will depend on the identification of stable funding.

Public Works and Government Services Canada's response. The Department agrees. It has established a target date of 1 July 2003 for completion of a contaminated sites management plan that will contain such an action plan. The extent to which required work will be completed in a timely manner will be commensurate with the financial support received through negotiations with the Treasury Board Secretariat as part of the Annual Reference Level Update estimates process, and through requests for new long-term funding as part of the Cabinet decision-making process.

Royal Canadian Mounted Police's response. The Department supports the recommendation. This commitment will be part of the aforementioned (see the Department's response to the recommendation in paragraph 2.73) Contaminated Site Management Strategy, expected to be completed by April 2003.

Transport Canada's response. Transport Canada accepts the recommendation. In addition to the Environmental Management System target above (see the Department's response to the recommendation in paragraph 2.73), Transport Canada will prepare a departmental management plan for its contaminated sites. The plan, to be completed by 1 July 2003, will be consistent with the Treasury Board Secretariat's Best Practices Advisory on Contaminated Sites Management Plans.

2.76 **Recommendation**. The Treasury Board Secretariat and Environment Canada, in conjunction with all departments and agencies responsible for contaminated sites (Appendix D), should periodically report on a consolidated basis on progress against the action plan.

Treasury Board Secretariat's response. The Secretariat partially agrees. In keeping with the government's commitment to the principle of ministerial and departmental accountability, the Treasury Board requires departments and agencies to report progress against all commitments, including those related to the remediation and management of contaminated sites, through annual departmental performance reports. In addition, the Federal Inventory of Contaminated Sites is widely available on the Internet and is regularly updated by departments to provide current information on the status of each site.

Environment Canada's response. The Department agrees. It notes the response by the Treasury Board Secretariat and agrees that the Secretariat should maintain the lead on this aspect of federal contaminated site management.

Canada Customs and Revenue Agency's response. The Agency agrees. It will report on a yearly basis, in conjunction with other federal departments and agencies.

Fisheries and Oceans Canada's response. The Department agrees. It will provide the necessary information required by the Treasury Board Secretariat and Environment Canada. The expected completion date will be as requested by the Treasury Board Secretariat and Environment Canada policy and time frame.

Indian and Northern Affairs Canada's response. The Department agrees with this recommendation. It reports to the Treasury Board on an annual basis regarding the progress being made on all aspects of cleaning up a site (that is, assessment, remediation, monitoring, etc.).

National Defence's response. The Department accepts the recommendation. It has included a target related to contaminated sites (contaminated sites are remediated, under remediation, or risk managed) in its Sustainable Development Strategy (SDS). Progress on this target will be reported through the Department's annual SDS and Performance Report. This action is ongoing.

Parks Canada Agency's response. Parks Canada will continue its ongoing networking with the federal Contaminated Sites Management Working Group to meet its reporting requirements under Treasury Board policy.

Public Works and Government Services Canada's response. The Department agrees. It reports on progress related to contaminated sites targets through its Sustainable Development Strategy and annual Performance Report. We recommend that the Treasury Board Secretariat develop guidelines for reporting on contaminated sites, to be included in their annual Guidelines for Preparation of Departmental Performance Reports. If all federal departments and agencies reported in the same way on their contaminated sites activity through their performance reports, the Secretariat could roll up the data for a consolidated report.

Royal Canadian Mounted Police's response. The Department supports the recommendation. The Contaminated Site Management Strategy, expected to be completed in April 2003, will also include a reporting mechanism to support reporting on a periodic basis.

Transport Canada's response. Transport Canada accepts the recommendation. Its progress will be reported in its annual reports and the annual reports of the Contaminated Sites Management Working Group.

Lessons for the future

2.77 There are two important lessons to be learned from the legacy of federal contaminated sites that Canadians have inherited.

2.78 First, it is far easier and less costly—up to 40 times less expensive in the case of groundwater supply contamination, according to an estimate by the United States Environmental Protection Agency—to prevent environmental damage than to try and correct it after contamination occurs. Preventing contamination and minimizing waste are key to avoiding future

contamination and costly cleanup. Pollution prevention is an important element of sustainable development.

2.79 Second, preventive measures will not erase the errors of the past. Contaminated sites under federal responsibility need to be dealt with in a timely manner to reduce the contamination of water, soil, and air, and thus avoid further threats to human health and the environment and allow for productive use of the land.

Conclusion

2.80 Since our audits in 1995 and 1996, the federal government has made only limited progress toward resolving the problem of contaminated sites under its responsibility. Thirteen years after the start of the five-year National Contaminated Sites Remediation Program, it still

- does not know how many of its sites are contaminated;
- does not have a full picture of the risks to human health and the environment and the likely cost of dealing with its contaminated sites; and
- does not have a management framework that incorporates a ranking of the high-risk sites and a long-term action plan for dealing with them in a timely manner.

2.81 As a result, the federal government is unable to assure Parliament and Canadians that it can mitigate the risks that its contaminated sites present. It has not lived up to its statement made in the 1999 Speech from the Throne that it would do more to clean up federal contaminated sites. The government has failed to clean up its own backyard.

2.82 The key issue for the government, and ultimately Parliament, is to make a clear decision on where the issue of dealing with contaminated sites under federal responsibility ranks in priority relative to other demands on the public purse. In any event, it is vital that a firm commitment, including an action plan with a timetable and necessary resources, be made to deal with this issue.

2.83 In our opinion, the federal government needs to deal with the long-standing problem of contaminated sites now. Failure to deal with this government-wide problem will shift the environmental, social, and economic risks and costs to the next generation. This is inconsistent with the federal government's commitment to establish and preserve a healthy and sustainable environment for future Canadians.

2.84 The federal government says it is managing its fiscal deficits to avoid leaving a burden for future generations, and it has stated its commitment to avoid burdening future Canadians with an environmental legacy. Protection of the environment is not a luxury. Our green spaces and diverse habitats and species are part of the heritage we must leave for the future.

About the Audit

Objective

The overall objective of our audit was to assess the federal government's progress since 1995 and 1996 in the management of contaminated sites under federal responsibility. Specifically, we sought answers to the following questions:

- Does the federal government have a complete inventory of the sites it owns or manages that are contaminated?
- Does it have a full picture of the risks the sites pose and the likely cost of dealing with the sites?
- Does it have a management framework for dealing with these sites that includes a long-term action plan for cleaning up the worst sites in order of risk?

Scope and approach

We issued a questionnaire on the management of contaminated sites under federal responsibility to all members of the Contaminated Sites Management Working Group in October 2001, and they all responded. We reviewed and analyzed the responses to the questionnaire. The Working Group currently consists of 15 federal organizations: Agriculture and Agri-Food Canada, the Canada Customs and Revenue Agency, Correctional Service Canada, the Department of Foreign Affairs and International Trade, Environment Canada, Fisheries and Oceans Canada, Health Canada, Indian and Northern Affairs Canada, National Defence, Natural Resources Canada, the Parks Canada Agency, Public Works and Government Services Canada, the Royal Canadian Mounted Police, Transport Canada, and the Treasury Board Secretariat.

At four key departments—Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, and Transport Canada—we assessed the completeness of their inventory of contaminated sites and the estimated costs of cleaning up or managing their sites. We examined government policies and guidance documents developed mainly by the Treasury Board Secretariat, as well as Environment Canada's role in managing the problem of contaminated sites. We reviewed the Federal Contaminated Sites and Solid Waste Landfills Inventory maintained by the Treasury Board Secretariat.

We studied two major cases—storage tanks on federal lands and the Sydney tar ponds—that illustrate actual or potential environmental, economic, social, or health impacts of contaminated sites. We did not conduct an audit of the Sydney tar ponds but provided information on the federal government's involvement with this site and surrounding area since 1980.

The quantitative information in this chapter has been drawn from the various government sources indicated in the text. Although we checked the information for reasonableness, we did not audit it except where indicated.

Criteria

We expected to observe the following:

- The federal government would have developed a cohesive vision of how its contaminated sites should be assessed and managed, one that would be compatible with its decision to delegate responsibility to custodial departments.
- The government would have developed a central, high-level policy framework for dealing with its contaminated sites. It would also have developed and promulgated common reporting conventions on environmental risks, costs, and liabilities for contaminated sites under federal responsibility.
- The Treasury Board Secretariat would have translated this central, high-level policy framework into practical guidance to be available for custodial departments in identifying, assessing, and analyzing the options and the environmental costs associated with the different options.

- The Treasury Board Secretariat would have provided guidance to custodial departments on the recognition and reporting of environmental liabilities and contingencies.
- Custodial departments would have developed consistent principles, practices, and standards for conducting environmental liability assessments; estimating environmental costs and liabilities; preparing comparable management information; and setting priorities for further assessment or cleanup of their contaminated sites.
- There would have been periodic consolidation and reporting of departmental summary-level information on environmental risks, costs, and liabilities.

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Appendix A Contaminants found at federal sites

Federal contaminated sites can contain the following:

- Petroleum hydrocarbons (gasoline, diesel, and motor oil) and polycyclic aromatic hydrocarbons (PAHs) (wood preservatives).
- Heavy metals (zinc, cadmium, lead, mercury, silver, chromium, and arsenic).
- Oxygen-depleting substances (animal manure, human waste, and plant by-products). These substances produce excessive algae, bacteria, and pathogenic organisms.
- Toxic organics (PCBs (polychlorinated biphenyls); chlorinated solvents, such as TCE (trichloroethylene); herbicides; and pesticides, such as DDT (dichloro-diphenyl-trichloroethane)).
- Radioactive substances (uranium, heavy water, radon gas, and cesium).
- Nuisance substances (asbestos, sulphur, iron, methane, sodium, calcium carbonate or calcite, and suspended solids). These substances affect the taste of water and cause odours, explosion hazards, and fouling problems in pipes and treatment systems.
- Explosives (unexploded ordnances).

Source: Federal Contaminated Sites Inventory—Input Guide

Appendix B Sydney tar ponds and surrounding area—Key events and federal contributions since 1980

Year	Key event	Federal contribution (current dollars)
1980	Fisheries and Oceans Canada discovered high levels of PCBs, mercury, lead, and PAHs in the lobsters of Sydney Harbour.	Not requested (part of Department's overall mandate)
1980 to date	Various health risk studies were conducted by the federal government, often in conjunction with others.	$1.9 million[1] +
1982	Fisheries and Oceans Canada shut down lobster fisheries in Sydney Harbour because PAH concentrations exceeded Canadian guidelines.	Not requested (part of Department's overall mandate)
1981–1984	Modernization Agreement – Phase I: a $96 million, federal/provincial agreement was signed to modernize facilities at the Sydney Steel Corporation (SYSCO) located in the Muggah Creek watershed (federal/provincial ratio of 80:20).	$77 million
1986–1991	Modernization Agreement – Phase II: a $157 million, federal/provincial agreement was signed to implement the second stage of the SYSCO modernization program (federal/provincial ratio of 70:30).	$110 million
1986–1991	Sydney Tar Ponds Cleanup Subsidiary Agreement: a $34.2 million, federal/provincial agreement was signed to initiate cleanup of the Sydney tar ponds by the recommended approach—excavation and incineration—(federal/provincial ratio of 70:30).	$24 million
1996	Creation of the Joint Action Group (JAG) – a community-based advisory body was established to recommend acceptable cleanup solutions to the three levels of government. The federal government is an active member; all three levels of government provide funding.	$2.2 million[2]
1998	A Memorandum of Understanding was signed by the three levels of government and JAG, to set out a framework for the participation of all parties.	Not applicable
1999–2003	Cost-Share Agreement: a $62 million, federal/provincial/municipal agreement initially ending March 2002 was signed. The agreement was amended and extended in March 2002 by one year; no additional federal funding was provided. The agreement funded JAG-recommended projects, approved by the three levels of government, to evaluate environmental and health issues associated with the site. (Various cost-sharing ratios apply, but the vast majority is a federal/provincial ratio of 70:30).	$38 million
Total federal contribution		**$253.1 million +**

[1]Refers to Health Canada's headquarters costs for 1997 to 2002 to support research, requests for risk assessments, and other related costs. Costs of more recent health studies are included in the Cost-Share Agreement.

[2]Refers to funding for 1996–97 and 1997–98. Further funding for JAG has been provided through the Cost-Share Agreement.

Appendix C Federal policies and guidance documents for contaminated sites

Date	Policies	Issued by
1998	Treasury Board Real Property Environment Policy	Treasury Board Secretariat
2000	Treasury Board Federal Contaminated Sites and Solid Waste Landfills Inventory Policy	Treasury Board Secretariat
2002	Policy on Accounting for Costs and Liabilities Related to Contaminated Sites	Treasury Board Secretariat
	Treasury Board Federal Contaminated Sites Management Policy	Treasury Board Secretariat
	Guidance documents	
1997	Preventing Site Contamination at Federal Facilities: A Guidance Manual	Contaminated Sites Management Working Group
	Site Remediation Technologies: A Reference Manual	Contaminated Sites Management Working Group
1999	A Federal Approach to Contaminated Sites	Contaminated Sites Management Working Group
	Environmental Guide for Federal Real Property Managers	Treasury Board Secretariat
	Canadian Environmental Quality Guidelines (periodically updated)	Environment Canada/Canadian Council of Ministers of the Environment
	Draft Guideline on Liabilities and Contingent Liabilities Related to Federal Contaminated Sites (draft, revised in 2000)	Subgroup of the Contaminated Sites Management Working Group
2000	Federal Contaminated Sites Inventory – Input Guide (*Technical Document for implementing the Contaminated Sites and Solid Waste Landfills Inventory Policy*)	Treasury Board Secretariat
	Federal Solid Waste Landfills Inventory – Input Guide (*Technical Document for implementing the Contaminated Sites and Solid Waste Landfills Inventory Policy*)	Treasury Board Secretariat
2001	Canada-wide Standards for Petroleum Hydrocarbons in Soil	Environment Canada/Canadian Council of Ministers of the Environment
2002	Best Practices Advisory: Contaminated Sites Management Plans	Treasury Board Secretariat
	Best Practices Advisory: Federal Brownfields	Treasury Board Secretariat
	Best Practices Advisory: Environmental Considerations in Real Property Transactions	Treasury Board Secretariat

Appendix D Departments and agencies responsible for contaminated sites

Agriculture and Agri-Food Canada

Canada Customs and Revenue Agency

Correctional Service Canada

Department of Foreign Affairs and International Trade

Environment Canada

Fisheries and Oceans Canada

Health Canada

Indian and Northern Affairs Canada

National Defence

Natural Resources Canada

Parks Canada Agency

Public Works and Government Services Canada

Royal Canadian Mounted Police

Transport Canada

Treasury Board Secretariat

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