

2008



Status Report
of the Commissioner of
the Environment and
Sustainable Development
to the House of Commons

MARCH

Chemicals Management

Chapter 3
Federal Contaminated Sites



Office of the Auditor General of Canada

The March 2008 Status Report of the Commissioner of the Environment and Sustainable Development comprises The Commissioner's Perspective—2008, Main Points—Chapters 1 to 14, Appendices, and 14 chapters. The main table of contents for the Report is found at the end of this publication.

The Report is available on our website at www.oag-bvg.gc.ca.

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

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

Telephone: 613-952-0213, ext. 5000, or 1-888-761-5953
Fax: 613-943-5485
Hearing impaired only TTY: 613-954-8042
Email: distribution@oag-bvg.gc.ca

Ce document est également publié en français.

© Minister of Public Works and Government Services Canada 2008
Cat. No. FA1-4/2008-3E
ISBN 978-0-662-47847-8



Chapter

3

Federal Contaminated Sites

All of the audit work in this chapter was conducted in accordance with the standards for assurance engagements set by The Canadian Institute of Chartered Accountants. While the Office adopts these standards as the minimum requirement for our audits, we also draw upon the standards and practices of other disciplines.

Table of Contents

Main Points	1
Introduction	3
What we found in 2002	3
Events since 2002	4
Focus of the audit	4
Observations	5
Central leadership	5
Federal government has allocated additional funds to deal with priority contaminated sites	5
Guidance to ensure contaminated sites receive an appropriate level of action is still outstanding	6
Identification, assessment, and management	9
Departments are working to ensure that contaminated sites are identified and assessed	10
Departments are putting significant effort into managing contaminated sites	13
Commitments and action plans need to reflect government objectives	14
Petroleum storage tanks	17
New regulations are not in place	18
The federal government did not follow its own existing regulations	18
Proposed regulations allow high-risk storage tanks to remain in service	18
Accounting for costs of dealing with contaminated sites	20
Departments are determining and reporting the cost of dealing with contaminated sites under their responsibility	20
Conclusion	21
About the Audit	23



Chemicals Management

Federal Contaminated Sites

Main Points

What we examined

As of October 2007, the federal government had identified about 17,800 sites under its responsibility that it knows or suspects are contaminated by substances, including petroleum products, heavy metals, and chemicals. The known sites have been contaminated by the federal government's regular operations, by tenants on its lands, and by others, during decades of use in the absence of today's environmental standards. The federal government has also assumed responsibility for contaminated sites such as abandoned mines North of 60°.

In 2002 we reported that 13 years after it began to tackle contaminated sites, the federal government did not know how many sites it had, the health and environmental risks they represented, or the likely cost of cleaning them up. Nor was it providing central leadership and an action plan for dealing with the higher-risk sites.

For this status report, we looked at the progress made since 2002 by four departments in dealing with contaminated sites under their responsibility, which together account for approximately 89 percent of the federal government's known and suspected contaminated sites. We also looked at whether stronger central leadership has been provided to deal with (including assessing, risk managing, or cleaning up) priority sites.

Why it's important

Unless they are managed properly, contaminated sites can negatively impact surrounding water, soil, and air, threatening human health and the environment. They also take valuable land out of productive use and can jeopardize the way of life of those who live off the land.

What we found

- The government has made satisfactory progress in managing its contaminated sites. The government initially allocated approximately \$1.5 billion over five years as a first instalment of its \$3.5 billion budgetary announcement to manage priority contaminated sites. It has also developed the Federal Contaminated Sites Action Plan with the objectives of effectively eliminating the financial liability associated with its contaminated sites by 2020 and reducing the risks to human health and the environment. It has determined that

contaminated sites under its responsibility represent a liability of about \$3.1 billion (this excludes approximately \$2.9 billion to decommission nuclear facilities).

- The four departments we audited are putting significant effort into managing their contaminated sites. They have remediated about 340 sites, and about 480 others are undergoing remediation. All four departments developed management plans. These plans include some time-bound commitments for dealing with their contaminated sites in order to meet the program's objective of reducing the risk they pose to human health and the environment. During our audit, the Treasury Board of Canada Secretariat issued additional guidance to departments to help ensure that their planned actions are aligned with and will contribute to the federal objective of effectively eliminating the financial liability for known sites by 2020.
- The government found that approximately 66 percent of known contaminated sites under federal responsibility are contaminated by petroleum products. Regulations requiring federal departments to keep an inventory of their petroleum storage tanks were put in place in 1997 but had significant gaps and were not always followed. New regulations requiring departments to take action on their petroleum storage tanks were proposed in 2007—four years later than promised. Although the proposed Regulations will require tanks found to be leaking to be withdrawn from service immediately, their full effect will not come into force up to four years after the Regulations are put in place. Tanks considered to be at high risk of leaking could remain in service until then.

Introduction

Contaminated sites—Sites where substances occur in concentrations higher than background levels and are likely to pose a hazard (immediate or long-term) to human health or the environment, or sites where concentrations exceed levels specified in policies and regulations.

Source: Contaminated Sites Management Working Group

3.1 As of October 2007, the federal government had identified approximately 17,800 confirmed or suspected **contaminated sites** that it has to manage. Examples of these sites include

- abandoned mines in the North of 60° (mines that are north of 60 degrees North latitude),
- areas that surround leaking petroleum storage tanks,
- airports,
- government laboratories,
- harbours and ports,
- landfills,
- light stations,
- military sites and training facilities, and
- Reserve lands.

3.2 Unless these sites are managed properly, contamination from these sites can spread. The surrounding water, soil, and air can become contaminated, threatening human health and the environment. Contamination also takes valuable land and water out of productive use. Many federal sites became contaminated by substances, such as petroleum products, heavy metals, and chemicals, as a result of the regular operations of the federal government, tenants on federal lands, and others—during decades of use in the absence of today’s environmental standards.

3.3 In 2007, the federal government estimated that contaminated sites under its responsibility represent a financial liability of about \$3.1 billion (this excludes approximately \$2.9 billion to decommission nuclear facilities, which we did not cover in this audit).

What we found in 2002

3.4 In our 2002 Report of the Commissioner of the Environment and Sustainable Development (CESD), Chapter 2, we noted that the federal government had failed to adequately address the issue of federal contaminated sites. Thirteen years had passed since it had started to tackle this issue, and the federal government did not

- know how many contaminated sites it had;
- know the likely cost of cleaning up or managing the sites;
- have the worst sites ranked according to level of risk;

- have long-term, stable funding to manage the problem effectively; or
- have firm central leadership, including an action plan to deal with the higher-risk sites in a timely manner.

3.5 These findings were consistent with our audits of federal contaminated sites in 1995 and 1996. In addition, in our 1997 and 1998 follow-up audits, we reported that the government had made only limited progress in implementing our recommendations.

Events since 2002

Remediate—Improve a contaminated site to prevent, minimize, or mitigate damage to human health or the environment. Remediation involves developing and applying a planned approach that removes, destroys, contains, or otherwise reduces the availability of contaminants to have an impact.

Source: Contaminated Sites Management Working Group

Risk manage— Select and implement a strategy to control risk, then monitor and evaluate the effectiveness of that strategy. Risk management may include direct remedial actions or other strategies that reduce the probability, intensity, frequency, or duration of the exposure to contamination.

Source: Contaminated Sites Management Working Group

3.6 Since 2002, the federal government has made budget announcements to deal with (including assessing, **remediating**, or **risk managing**) contaminated sites under its responsibility. In its 2004 Budget, the government announced \$3.5 billion to deal with contaminated sites that pose a risk to human health and the environment. This built on the announcement that was made in the 2003 Budget, which stated that the government intended to accelerate action on federal contaminated sites and included a funding commitment of \$175 million over two years.

3.7 Key goals for the government are to reduce the risks to human health and the environment from these sites and to effectively eliminate its financial liability for known federal contaminated sites by 2020.

3.8 In 2002, we stated that it was important for the federal government to decide on what role it was going to play at the Sydney Tar Ponds and, if appropriate, make long-term stable funding commitments. In 2004, the Government of Canada and the province of Nova Scotia signed a \$400-million agreement to remediate the Sydney Tar Ponds and Coke Ovens sites over a 10-year period ending in 2014. The federal government committed up to \$280 million. The contaminated sediments will be treated on site, using a process known as solidification and stabilization that involves mixing the sediments with hardening agents like cement powder. To date, no decisions have been made about a future use for this site.

Focus of the audit

3.9 For this status report, we assessed the progress that four departments—Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, and Transport Canada—made in addressing select findings and recommendations from our 2002 CESD Report. These four departments (subsequently referred to as “custodial departments”) were selected for examination, because they are collectively responsible for approximately 89 percent of the

contaminated sites under federal responsibility (excluding the decommissioning of nuclear facilities).

3.10 We assessed what Environment Canada and the Treasury Board of Canada Secretariat did to provide central leadership in dealing with priority contaminated sites, and what the federal government did to determine and report the costs of dealing with these sites. We also assessed progress made by Environment Canada to develop regulations for preventing contamination caused by spills or leaks from petroleum storage tanks.

3.11 More details on the audit objectives, scope, approach, and criteria are in **About the Audit** at the end of this chapter.

Observations

Central leadership

3.12 In our 2002 Commissioner of the Environment and Sustainable Development (CESD) Report, we found that a number of departments and agencies said that the lack of dedicated funds over the long term was a constraint to dealing with contaminated sites in a timely manner. In addition, some departments allocated some of their own operational funding to remediate and/or risk manage their contaminated sites, regardless of the level of risk. Others either had no internal funds or limited internal funds that they could dedicate to deal with sites known to be higher risk.

3.13 We recommended that the Treasury Board of Canada Secretariat and Environment Canada provide central leadership to rank the higher-risk sites, on a government-wide basis, and ensure a source of long-term stable funding. They did not fully agree with our recommendation and stated that 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.

Federal government has allocated additional funds to deal with priority contaminated sites

3.14 In 2005, the federal government initially allocated about \$1.5 billion, over five years, to deal with its contaminated sites, as a first instalment of its \$3.5 billion budget announcement. The government established the Federal Contaminated Sites Action Plan, under the joint direction of Environment Canada and the Treasury Board of Canada Secretariat. This plan is used to allocate additional funding to address the legacy of federal contaminated sites,

based on the risk they pose to human health and the environment. We found that a government-wide risk evaluation and ranking methodology was developed to target the priority projects for action.

3.15 Each year, Environment Canada compiles the results of risk evaluations that are completed by departments and agencies. It also presents funding options to an assistant deputy minister steering committee, which is co-chaired by Environment Canada and the Treasury Board of Canada Secretariat. Among other activities, the steering committee sets project priorities, monitors progress, and makes recommendations to the Treasury Board on funding projects that deal with federal contaminated sites. The Treasury Board then reviews recommendations and administers the funding. A list of priority projects is updated annually to reflect progress in dealing with known contaminated sites and in investigating suspected sites. Exhibit 3.1 includes examples of high-priority federal contaminated sites that are receiving additional funding.

3.16 The government-wide funding allocated to manage contaminated sites is in addition to what individual federal departments were already spending. In the 2003–04 and 2004–05 fiscal years—of the Federal Contaminated Sites Accelerated Action Plan (the program that preceded the Federal Contaminated Sites Action Plan)—Environment Canada reported that \$145.1 million in additional funds were allocated to deal with 77 priority contaminated sites, and \$7.57 million were allocated to assess 646 suspected and known sites (Exhibit 3.2).

3.17 The four custodial departments stated that a barrier to dealing with some contaminated sites, especially North of 60°, is limited access—due to remote locations and short working seasons. Departments reported to us and to the Treasury Board of Canada Secretariat that, sometimes, additional costs and work delays occur when additional funding is approved late in a given fiscal year. The government needs to ensure that funding is in place so contracts can be awarded and work can proceed in a timely manner.

Guidance to ensure contaminated sites receive an appropriate level of action is still outstanding

3.18 The Treasury Board's Policy on Management of Real Property (updated in 2006) requires that known and suspected contaminated sites be assessed and classified. The Policy also requires that risk management principles be applied to determine the most appropriate and cost-effective course of action for each site.

Exhibit 3.1 Examples of high-priority federal contaminated sites that are receiving additional funding

Source: Yukon Territorial Government

Property name: United Keno Hill Mine**Custodian:** Indian and Northern Affairs Canada**Location:** Yukon**Description:** Former silver and lead mine**Contaminants:** Polychlorinated biphenyls (PCBs), zinc, arsenic, cadmium, and lead**Status:** Under remediation

Source: Biogénie SRDC Inc.

Property name: CAM-F (Sarcpa Lake)**Custodian:** Indian and Northern Affairs Canada**Location:** Nunavut**Description:** Former Distant Early Warning (DEW) line station**Contaminants:** Debris, abandoned drums, PCBs, zinc, cadmium, lead, and copper**Status:** Under remediation

Source: Fisheries and Oceans Canada

Property name: McInnes Island**Custodian:** Fisheries and Oceans Canada**Location:** British Columbia**Description:** 1 of 27 staffed light stations throughout the province**Contaminants:** Lead, arsenic, and petroleum hydrocarbons**Status:** Under risk management

Source: Indian and Northern Affairs Canada

Property name: Barrenlands (Former Department of Transport site)**Custodian:** Indian and Northern Affairs Canada**Location:** Manitoba**Description:** Bulk fuel storage and equipment maintenance site**Contaminants:** Petroleum hydrocarbons**Status:** Under remediation

Exhibit 3.1 Examples of high-priority federal contaminated sites that are receiving additional funding (continued)



Source: Fisheries and Oceans Canada

Property name: Belleville Small Craft Harbour (includes Zwick's Island East and Meyers Pier Park contaminated sites)

Custodian: Fisheries and Oceans Canada

Location: Ontario

Description: Former commercial harbour used for coal and fuel storage with former landfill sites

Contaminants: Petroleum hydrocarbons, iron, manganese, polycyclic aromatic hydrocarbons (PAHs), ammonia, and heavy metals

Status: Under risk management



Source: National Defence

Property name: Valcartier

Custodian: National Defence

Location: Quebec

Description: Contaminated aquifer

Contaminants: Trichloroethylene

Status: Under remediation and risk management



Source: National Defence

Property name: 14 Wing Greenwood (Northside Lower Zeke's Brook)

Custodian: National Defence

Location: Nova Scotia

Description: Largest air force base in Eastern Canada

Contaminants: Metals, PAHs, and petroleum hydrocarbons

Status: Under remediation



Source: Transport Canada

Property name: Former Remote Radar Site 59

Custodian: Transport Canada

Location: Newfoundland and Labrador

Description: Former U.S. military site at Gander International Airport

Contaminants: Debris and PCBs

Status: Under remediation and risk management

Exhibit 3.2 Progress in addressing our recommendation on central leadership to rank high-risk sites and ensure long-term stable funding is satisfactory

Recommendation	Progress
The Treasury Board of Canada 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. (2002 Report of the Commissioner of the Environment and Sustainable Development, Chapter 2, paragraph 2.74)	Satisfactory

Satisfactory—Progress is satisfactory, given the significance and complexity of the issue, and the time that has elapsed since the recommendation was made.

Unsatisfactory—Progress is unsatisfactory, given the significance and complexity of the issue, and the time that has elapsed since the recommendation was made.

3.19 Back in the 1996–97 fiscal year, a federal interdepartmental working group recognized that departments and agencies needed specific guidance on risk management for federal contaminated sites to help ensure that these sites receive an appropriate level of action. While general guidance exists, specific risk management guidance to ensure that departments are not over- or under-investing in their contaminated sites has yet to be developed. In the absence of this guidance, Indian and Northern Affairs Canada and National Defence have developed their own risk management guidance for their contaminated sites.

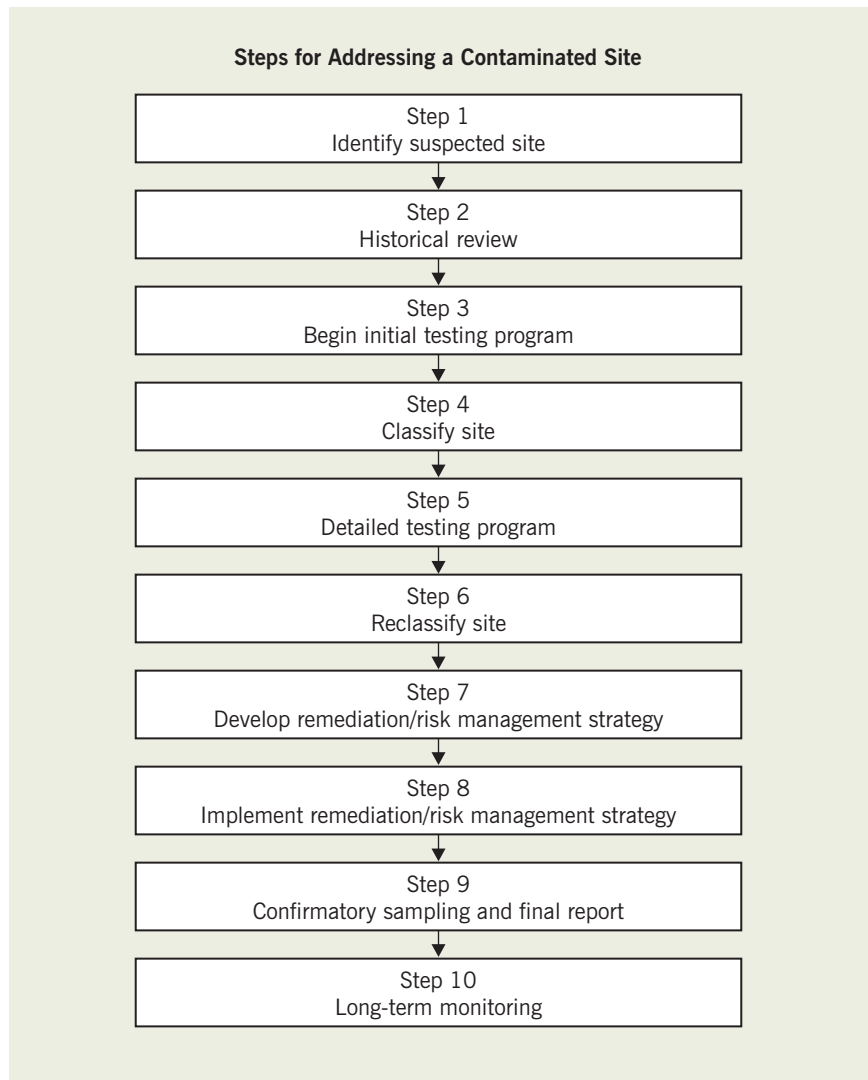
Identification, assessment, and management

3.20 The federal government has a 10-step process to deal with its contaminated sites (Exhibit 3.3):

- Identifying and assessing a site (steps 1 to 6)
- Managing the risks of a site (steps 7 and 8)
- Following-up to ensure that risks have been dealt with (steps 9 and 10)

3.21 Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, and Transport Canada reported to us that they have spent about \$660 million on contaminated sites from fiscal years 2002–03 to 2005–06, including about \$280 million in additional funding made available in budgets 2003 and 2004. The majority of the funding spent by these four departments was spent on site remediation and risk management.

Exhibit 3.3 The government has a process to deal with its contaminated sites



NOTE: The steps shown above illustrate the complete process involved in dealing with contaminated sites. There will be instances where some of the steps may not be required.

Source: Contaminated Sites Management Working Group

Departments are working to ensure that contaminated sites are identified and assessed

3.22 Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, and Transport Canada accepted our recommendation in 2002 to identify and assess the contaminated sites under their responsibility, and they continue to assess sites they suspect or know are contaminated. In spring 2007, we reviewed each department’s records of contaminated sites to determine how many sites have been dealt with since our 2002 audit. We also requested a

representative sample of supporting documentation to assess the reliability of the data. The number of known and suspected contaminated sites continues to change as departmental databases are updated when new information becomes available.

3.23 In spring 2007, we found that Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, and Transport Canada had collectively assessed approximately 2,850 sites since 2002. Once these sites are assessed, the process of determining how to deal with them begins (Exhibit 3.3).

3.24 All federal departments and agencies that have known and suspected contaminated sites are required to maintain an inventory and provide an annual update to the Treasury Board of Canada Secretariat's Federal Contaminated Sites Inventory. These updates help to create a picture of the number and status of contaminated sites that are under federal responsibility. Since 17 June 2002, the Federal Contaminated Sites Inventory database has been on the Secretariat's website. The number of sites listed in the database has increased six fold—from approximately 2,850 in 2002 to approximately 17,800 by October 2007.

3.25 The Treasury Board of Canada Secretariat now requires that departments include additional information in the inventory, such as the nature of work performed each year on these sites. Some of this information will be used for an evaluation of the Federal Contaminated Sites Action Plan program that is planned for the 2007–08 and 2008–09 fiscal years. It is important that departments keep up-to-date, readily accessible records of their contaminated site activities. This will enable the federal government to tell Parliament what has been accomplished with taxpayers' dollars.

3.26 As of October 2007, National Defence indicated that it has approximately 830 known contaminated sites. Its target for assessing approximately 220 suspected sites and determining whether they are contaminated is the 2007–08 fiscal year.

3.27 As of October 2007, Transport Canada indicated that it has approximately 360 contaminated sites, and its target for confirming whether approximately 40 suspected sites are contaminated is the end of the 2007–08 fiscal year. The Department believes that its inventory of contaminated sites is almost complete. It is currently reconciling its property records with its inventory of contaminated sites, to determine whether any additional properties still need to be assessed. It expects to complete this reconciliation within two years.

3.28 Indian and Northern Affairs Canada is responsible for dealing with contamination resulting from

- the operations of others, including First Nation communities, 21 of the 42 Distant Early Warning (DEW) line sites (the other 21 DEW line sites are the responsibility of the Department of National Defence), and abandoned mines North of 60°; and
- its own operations and lands being held for land claim settlements with First Nations.

3.29 As of October 2007, Indian and Northern Affairs Canada indicated that there are approximately 760 sites where contamination is confirmed and approximately 830 sites where it is suspected—all of the contamination has been caused by the operations of others. The Department did not confirm when all suspected sites would be assessed for contamination.

3.30 While the Department recognizes the potential for contamination on department-owned properties, it has yet to take action. In 2005, department officials requested that funding be set aside from its internal budgets to assess its properties for contaminated sites. However, at that time, the request was refused, because the funds were needed to address other department issues.

3.31 During the course of this audit, funding was approved to conduct a review of the Department's properties. The Department hopes to complete this review by December 2010. Department officials have indicated that they do not expect to uncover additional major contamination or large liabilities as a result of this assessment.

3.32 As of October 2007, Fisheries and Oceans Canada indicated that it has approximately 1,860 confirmed contaminated sites under its responsibility. However, it still has approximately 5,100 properties that it has to assess for contamination, and there may be more than one contaminated site per property. The Department has yet to set a timeline for determining whether the remaining 5,100 properties are contaminated. In our 2002 Report of the Commissioner of the Environment and Sustainable Development (CESD), we criticized the Department for not establishing a time frame to identify and confirm contaminated sites—the situation remains unchanged.

3.33 Even though the work is not yet complete, all four custodial departments continue to make progress in identifying and assessing suspected contaminated sites. With the exception of Transport Canada and National Defence, which have a target to complete assessment of their sites by the 2007–08 fiscal year, a review of the departments'

management plans, which cover a three-year period, indicate that they currently have planned assessment work until the 2009–10 fiscal year (Exhibit 3.4). The Treasury Board of Canada Secretariat has indicated that additional assessments may continue beyond the three years covered by the management plans. Assessment work can continue after contamination is confirmed at suspected sites, in order to better define site characteristics before determining how to deal with a site.

Exhibit 3.4 Progress in addressing our recommendation to identify and assess contaminated sites is satisfactory

Recommendation	Progress
Department of Fisheries and Oceans, Indian and Northern Affairs Canada, National Defence, and Transport Canada should complete the identification and assessment of contaminated sites under their responsibility. (2002 Report of the Commissioner of the Environment and Sustainable Development, Chapter 2, see paragraph 2.73)	Satisfactory

Satisfactory—Progress is satisfactory, given the significance and complexity of the issue, and the time that has elapsed since the recommendation was made.

Unsatisfactory—Progress is unsatisfactory, given the significance and complexity of the issue, and the time that has elapsed since the recommendation was made.

Departments are putting significant effort into managing contaminated sites

3.34 In spring 2007, we found that since our 2002 audit, Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, and Transport Canada had done the following to deal with their contaminated sites:

- undertaken additional care and maintenance activities on approximately 10 sites,
- completed remediation of approximately 340 sites,
- undertaken risk management activities on approximately 650 sites, and
- started remediation of approximately 480 sites.



Colomac Mine

3.35 Indian and Northern Affairs Canada has also put significant effort into dealing with contamination in abandoned mines North of 60°. In 2002, we noted that serious issues needed to be addressed in the Colomac, Faro, Giant, and Mount Nansen mines (see the case study in the 2002 Report of the Commissioner of the Environment and Sustainable Development, Chapter 3, Abandoned Mines in North).

3.36 In this follow-up audit, we found evidence of additional care and maintenance and some remediation activities that address urgent issues at these four mine sites. The Department reported to us on its goals and major activities, including the funds spent, since our 2002 audit; highlights are included in Exhibit 3.5.



Faro Mine



Giant Mine

Commitments and action plans need to reflect government objectives

3.37 In 2002, Environment Canada and the four custodial departments accepted our recommendation to make a firm commitment—including developing an action plan and timetable—to complete assessments, rank sites, and remediate or manage all known contaminated sites in a timely manner. The Treasury Board of Canada Secretariat partially agreed with this recommendation.

3.38 The Federal Contaminated Sites Action Plan sets government-wide objectives to

- reduce the risks posed by contaminated sites to human health and the environment, and
- effectively eliminate the financial liability associated with its known contaminated sites by 2020.

3.39 As part of this plan, a list of projects to be undertaken at contaminated sites is compiled every year, so priorities can be set and additional funding can be allocated. This government-wide plan requires custodial departments seeking additional funding to develop three-year contaminated sites management plans. These plans set out targets, timeframes, activities, and expected funding requirements and are to be updated annually.

3.40 When we reviewed the management plans of the four custodial departments, we noted that some plans included a limited number of time-bound commitments to

- assess the remaining properties,
- determine whether there is contamination, and
- increase the number of contaminated sites under remediation or risk-management.

3.41 These activities are intended to reduce the risks to human health and the environmental risks from contaminated sites. However, with the exception of National Defence, it was not clear how the planned actions of individual government departments will ensure that the federal government meets its objective to effectively eliminate the financial liability of its known contaminated sites.

Exhibit 3.5 Summary of Indian and Northern Affairs Canada's efforts to deal with contamination at four abandoned mines

Mine	Developments since 2002	Major activities since 2002	Current financial liability estimate ¹	Goals
Colomac	<p>Indian and Northern Affairs submitted its remediation plan to the Mackenzie Valley Land and Water Board on 31 March 2004. In December 2005, a contract was awarded for completion of the remediation work.</p> <p>Spending since 2002: about \$72 million</p> <p>Planned spending for 2007–08 to 2011–12: about \$28 million</p>	<p>Ongoing care and maintenance includes water treatment, seepage collection, and water diversion.</p> <p>The remediation of hydrocarbon contaminated soils occurred and a program for hazardous and non-hazardous waste disposal continues.</p> <p>The risk of dam failure identified in the 2002 audit was mitigated.</p>	\$27.3 million	<p>Remediate the Colomac Mine by 2008–09 and continue ongoing site monitoring for five years.</p> <p>Once the remediation is complete, the dam will be inspected periodically.</p>
Giant	<p>The mine site was turned over to the federal government in 1999. The Giant Remediation Plan was completed in August 2006.</p> <p>Spending since 2002: about \$47 million</p> <p>Planned spending for 2007–08 to 2011–12: about \$41 million</p>	<p>Ongoing care and maintenance includes mine water management, water treatment, and dust suppression.</p> <p>The Giant project has been primarily focused on technical studies and consultations related to dealing with stored arsenic trioxide at the site.</p> <p>A preferred alternative has been selected and a remediation plan developed. Water licence application is scheduled to begin in fall 2007.</p>	\$333 million	<p>Start remediation work by 2010, if appropriate regulatory approvals are received, and remediate to industrial standards by 2020.</p> <p>Mine water will need to be continually pumped and treated to remove arsenic for years after 2020.</p>
Faro	<p>More than 75 investigative studies were completed to enable the development and design of a final closure and reclamation plan.</p> <p>Spending since 2002: about \$70 million</p> <p>Planned spending for 2007–08 to 2011–12: about \$55 million</p>	<p>Ongoing care and maintenance includes water treatment operation such as maintaining dams.</p> <p>Some site remediation has also occurred. The greatest risk, a possible dam breach, was mitigated in 2004.</p> <p>Closure alternatives have been developed and refined and are subject to independent peer reviews.</p>	\$523 million	<p>Have a closure plan in place by spring 2009.</p> <p>The closure may take up to 20 years to complete, and contaminated water will need to be treated for several hundred years.</p>

Exhibit 3.5 Summary of Indian and Northern Affairs Canada’s efforts to deal with contamination at four abandoned mines (continued)

Mine	Developments since 2002	Major activities since 2002	Current financial liability estimate ¹	Goals
Mount Nansen	In 2004, the owner of the mine was successfully placed into receivership. Preparations then began for the closure planning process. Spending since 2002: about \$7 million Planned spending for 2007–08 to 2011–12: about \$19 million	Ongoing care and maintenance includes treatment of tailings pond water. Some legal issues related to ownership of property on the mine site still need to be resolved to provide the legal certainty required to move ahead with remediation.	\$12.3 million	A closure plan will be finalized and is expected to be implemented in March 2009. Once the remediation is complete, ongoing monitoring will be required.

¹Liability estimates are based on the lowest cost option to clean up the site and excludes monitoring costs.



Mount Nansen Mine

3.42 Of the departmental contaminated sites management plans we examined, National Defence’s plan was the only one that included a clear objective to contribute to the broader government objective of effectively eliminating the known liability related to contaminated sites by 2020. In its 2003 sustainable development strategy, National Defence made a commitment to reduce its contaminated sites financial liability by four percent per year. In 2006, we audited the Department’s remediation expenditures and found that it had reduced its financial liability by about 11 percent in the 2004–05 fiscal year. This is consistent with what the Department reported to Parliament in its 2004–05 *Departmental Performance Report*. The Department has since made a commitment to reduce its financial liability by seven percent per year, which will help the federal government meet its commitment to effectively eliminate the federal financial liability for known sites by 2020.

3.43 During the course of our audit, the Treasury Board of Canada Secretariat issued updated guidelines to departments on what to include in their next round of management plans. The Secretariat now requires departments to indicate how their management strategy will help them meet the long-term objectives of the Federal Contaminated Sites Action Plan program (Exhibit 3.6). The Treasury Board of Canada Secretariat needs to ensure that departmental management plans align with the government objective to effectively eliminate the financial liability of known contaminated sites by 2020.

Exhibit 3.6 Progress in addressing our recommendation to establish a firm commitment to deal with federal contaminated sites is satisfactory

Recommendation	Progress
Treasury Board of Canada Secretariat and Environment Canada, in conjunction with Department of National Defence, Fisheries and Oceans Canada, Indian and Northern Affairs Canada, and Transport Canada, 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. (2002 Report of the Commissioner of the Environment and Sustainable Development, Chapter 2, see paragraph 2.75)	Satisfactory

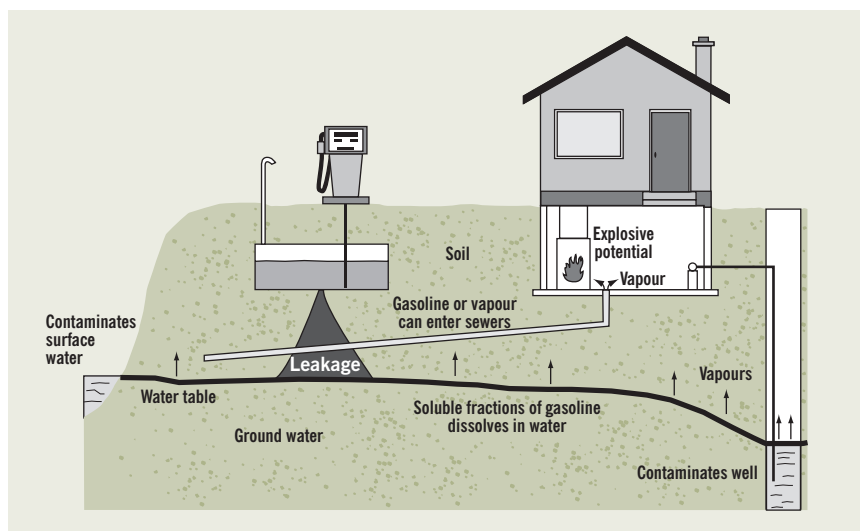
Satisfactory—Progress is satisfactory, given the significance and complexity of the issue, and the time that has elapsed since the recommendation was made.

Unsatisfactory—Progress is unsatisfactory, given the significance and complexity of the issue, and the time that has elapsed since the recommendation was made.

Petroleum storage tanks

3.44 Petroleum is a major source of contamination on federal lands. In 2002, Environment Canada estimated that petroleum products can be found in about 66 percent of contaminated sites under federal responsibility. Spills and leaks from petroleum storage tanks have contaminated groundwater and soil. This can have a negative impact on human health and the environment. Depending on the surrounding environment and the amount and type of petroleum products that have spilled or leaked, the impact could be very significant (Exhibit 3.7). For example, one litre of gasoline can render one million litres of water unfit for human consumption.

Exhibit 3.7 Leaking underground petroleum storage tanks can cause a number of problems



Source: Environment Canada

New regulations are not in place

3.45 The government has stated that preventive measures are needed to protect human health and the environment from leaking petroleum storage tanks on federal lands. In 2002, the federal government estimated that the average cost to clean up a site with a leaking underground petroleum storage tank was \$500,000.

3.46 In our 2002 report, we noted that there were significant gaps in the 1997 Federal Registration of Storage Tank Systems for Petroleum Products and Allied Petroleum Products on Federal Lands or Aboriginal Lands Regulations. The 1997 regulations did little, if anything, to reduce contamination caused by spills and leaks.

3.47 During our 2002 audit, Environment Canada informed us that it expected to publish updated regulations in the *Canada Gazette*, Part I, by March 2003. These regulations are still not in place.

The federal government did not follow its own existing regulations

3.48 Not all federal petroleum storage tanks were registered, as required in the 1997 regulations. Indian and Northern Affairs Canada expects to have a complete list of its storage tanks by the 2009–10 fiscal year. Fisheries and Oceans Canada could not tell us when it would have a complete list of its storage tanks. In 2004 and 2005, Environment Canada hired consultants to develop a costing model and estimate the compliance costs of the proposed regulations. Part of this analysis included estimating the number of petroleum storage tanks under federal responsibility.

3.49 Environment Canada has done limited inspections of petroleum storage tanks on federal facilities to ensure that departments were registering them, as required under the 1997 regulations. A total of 39 on-site inspections were carried out between April 2000 and May 2007 and Environment Canada noted five non-compliance issues. Warning letters were sent to the responsible managers.

Proposed regulations allow high-risk storage tanks to remain in service

3.50 When Environment Canada estimated what the proposed regulations would cost to implement, it assumed that petroleum storage tanks that were installed before 1987 (or had unknown dates of installation) were leaking. Current inventories, provided by the four

custodial departments, listed approximately 2,600 storage tanks that were installed before 1987 (or had unknown dates of installation). Some of those tanks were installed as early as 1950—well before current standards to prevent leaking were established.

3.51 New regulations were proposed in April 2007 to address the shortcomings of the 1997 regulations. Among other things, the proposed new regulations would require

- immediate withdrawal of leaking tanks from service,
- regular leak detection testing, and
- design and installation of new storage tank systems or components of a new system that is based on specific technical requirements.

The proposed regulations would also require that high-risk storage tank systems be permanently removed from service within four years of the regulations becoming law.

3.52 Department officials indicated that the regulations were delayed because the cost-benefit analysis took longer than initially anticipated; they now expect the regulations to be in place by February 2008.

3.53 High-risk storage tanks—those that are more likely to leak—could remain in service up to four years after the regulations are put in place. The Treasury Board has a policy that requires that federal property be managed in an environmentally responsible manner. This means that petroleum storage tanks under federal responsibility need to be dealt with in a responsible and timely manner. In this instance, the government has failed to meet its commitments to lead by example and green its own operations (Exhibit 3.8).

Exhibit 3.8 Progress in addressing our finding on petroleum storage tank regulations is unsatisfactory

Finding	Progress
Storage tanks—Environment Canada officials informed us that they expect to publish updated regulations in the <i>Canada Gazette</i> , Part I, by March 2003. (2002 Report of the Commissioner of the Environment and Sustainable Development, Case Study: Storage tanks—Significant gaps exist in current regulations)	Unsatisfactory

Satisfactory—Progress is satisfactory, given the significance and complexity of the issue, and the time that has elapsed since the finding was made.

Unsatisfactory—Progress is unsatisfactory, given the significance and complexity of the issue, and the time that has elapsed since the finding was made.

Accounting for costs of dealing with contaminated sites

3.54 In 2002, we found that the federal government had not fulfilled its commitment to recognize the costs of dealing with its contaminated sites, as required by the government's Policy on Accounting for Costs and Liabilities Related to Contaminated Sites. We recommended that it fulfill its commitment by determining and reporting these costs. The Treasury Board of Canada Secretariat agreed with our recommendation.

Departments are determining and reporting the cost of dealing with contaminated sites under their responsibility

3.55 Assessments of potential contaminated sites are key to estimating the costs of dealing with contaminated sites under federal responsibility. The Policy on Accounting for Costs and Liabilities Related to Contaminated Sites, effective 1 April 2002, requires departments to identify the estimated costs of managing and remediating known contaminated sites and to report those costs as liabilities. Departments are also required to submit to the Secretariat detailed information about environmental liabilities, such as new expenses and payments made to clean up sites as well as information about environmental assessment activities. The Secretariat uses this information to determine the total environmental liability amount for the government.

3.56 The Secretariat reviews and reconciles the financial information that departments submit to the Federal Contaminated Sites Inventory with the departments' financial records. It also monitors the differences between the two sources of information and addresses any discrepancies with the departments. For example, during the 2005–06 fiscal year, the Secretariat found differences resulting from

- a lack of understanding of what information was required,
- incomplete information provided by departments and agencies, and
- some conversion and input errors.

3.57 Each year that our office has audited the government's summary financial statements, which include environmental liabilities for contaminated sites, it has been the opinion of the Auditor General that the financial statements presented fairly, in all material respects, the financial position of the government. We also examined amounts paid for clean-up costs, new assessment data, and newly identified sites, and we reviewed a selection of sites to determine if the assessment is complete and all costs have been considered.

3.58 In 2003, the federal government began to include the estimated cost of dealing with contaminated sites under federal responsibility in the government's summary financial statements. On 31 March 2007, the government reported that contaminated sites under its responsibility represent a financial liability of about \$3.1 billion (this excludes approximately \$2.9 billion to decommission nuclear facilities). In addition, as of the 2005–06 fiscal year, departments began to publish unaudited financial statements in their departmental performance reports and to include information on environmental liabilities (Exhibit 3.9).

Exhibit 3.9 Progress in addressing our recommendation to determine and report costs of dealing with contaminated sites is satisfactory

Recommendation	Progress
<p>The Treasury Board of Canada Secretariat, in conjunction with all federal departments and agencies responsible for contaminated sites, 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. (2002 Report of Commissioner of the Environment and Sustainable Development, Chapter 2, see paragraph 2.60)</p>	<p>Satisfactory</p>

Satisfactory—Progress is satisfactory, given the significance and complexity of the issue, and the time that has elapsed since the recommendation was made.

Unsatisfactory—Progress is unsatisfactory, given the significance and complexity of the issue, and the time that has elapsed since the recommendation was made.

Conclusion

3.59 The federal government has made satisfactory progress in dealing with contaminated sites under its responsibility. Since our 2002 audit, the Treasury Board of Canada Secretariat and Environment Canada have provided central leadership to rank priority contaminated sites, on a government-wide basis. In addition, in 2005, the federal government initially allocated \$1.5 billion over five years to deal with its contaminated sites, as a first instalment of its \$3.5 billion budget announcement.

3.60 The Treasury Board of Canada Secretariat, in conjunction with all federal departments and agencies responsible for contaminated sites, has estimated the costs of dealing with known contaminated sites. In addition, the Treasury Board of Canada Secretariat has reported the costs in the federal government's summary financial statements.

3.61 Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, and Transport Canada have made progress in identifying and assessing the contaminated sites under their responsibility. The federal government has identified about 17,800 known or suspected contaminated sites that it must now deal with—this is over six times more than was known at the time of our 2002 audit.

3.62 A federal government objective is to effectively eliminate the federal liability of its known sites by 2020. However, with the exception of National Defence, departmental action plans did not reflect how this would be achieved. The Treasury Board of Canada Secretariat has issued additional guidance that requires departments to indicate how their management plans will help to meet the long-term objectives of the Federal Contaminated Sites Action Plan program.

3.63 It is far less costly to prevent contamination than to manage it later. In 2002, the federal government found that contamination from petroleum products is found in about 66 percent of its contaminated sites. Regulations to deal with the federal petroleum storage tank problem were promised for March 2003, but are now scheduled for February 2008. The proposed regulations will allow high-risk storage tanks—those that are more likely to leak—to remain in service for up to four years after the regulations are put in place. This could cause additional contamination—which is not in keeping with federal government commitments to lead by example by greening its own operations.

About the Audit

Objectives

The objective of our audit was to determine whether Environment Canada, Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, Transport Canada, and the Treasury Board of Canada Secretariat have made satisfactory progress in implementing selected key recommendations and addressing a finding made in prior years with respect to managing selected aspects of contaminated sites.

Our sub-objectives were to determine whether satisfactory progress has been made by

- the Treasury Board of Canada Secretariat and Environment Canada, in providing central leadership to deal with these sites;
- Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, and Transport Canada, in identifying and assessing contaminated sites under their responsibility;
- the Treasury Board of Canada Secretariat and Environment Canada—with Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, and Transport Canada—in committing to deal with contaminated sites in a timely manner;
- Environment Canada, in developing regulations to prevent contamination caused from spills or leaks from petroleum storage tanks; and
- the Treasury Board of Canada Secretariat—with all federal departments and agencies responsible for contaminated sites—in determining the costs of dealing with all known contaminated and suspected sites, and the Secretariat, in reporting them in the federal government's financial statements.

Scope and approach

This follow-up audit examined selected issues from the 2002 audit of Federal Contaminated Sites. Issues that we examined in this audit were selected based on their current level of relevance and significance.

We issued a questionnaire on the management of contaminated sites under federal responsibility, to Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, and Transport Canada. These departments, which collectively are responsible for approximately 89 percent of the contaminated sites under federal responsibility (excluding the decommissioning of nuclear facilities), all responded. We analyzed the responses and obtained supporting documentation. We reviewed files to verify certain responses, and we interviewed the staff involved in managing contaminated sites, to confirm facts and gain additional information.

For each department, we reviewed records of their known and suspected contaminated sites. As of March 2007, the population sizes for contaminated sites at Fisheries and Oceans Canada, Indian and Northern Affairs Canada (Northern and Southern programs), National Defence, and Transport Canada were 4,126, 2,417 (100 and 2,317), 1,476, and 762, respectively. Random sample sizes of 34, 63 (29 and 34), 34, and 34, respectively, were combined to provide a level of accuracy of +/- 1.9 percent, 19 times out of 20. Departments were able to locate approximately 91 percent (209 out of 229) of the supporting documents we requested. Supporting documentation was requested from each site. Sites reviewed met the criteria of undertaking assessment, care and maintenance, risk-management, or remediation work.

We examined Treasury Board of Canada Secretariat and Environment Canada's central leadership in dealing with contaminated sites by reviewing files and conducting interviews.

We also followed up on a case study from our 2002 CESD Report—Chapter 3, Abandoned Mines in the North—to assess progress at the Colomac, Faro, Giant, and Mount Nansen mines. Collectively, these four mines represent about 30 percent of the federal contaminated sites' financial liability. We visited the four mine sites and reviewed files at Indian and Northern Affairs Canada that included engineering reports and reviewed the funds spent to deal with these sites since 2002. We also interviewed staff at the mines and at headquarters.

We used the conclusions for each audited issue, and our professional judgment, to determine whether the entity has made satisfactory or unsatisfactory progress against each of the original recommendations and against the finding that we followed up on.

Criteria

The criteria for this audit were derived from recommendations and a finding in our 2002 CESD Report, Chapter 2, The Legacy of Federal Contaminated Sites.

We expected that the Treasury Board of Canada Secretariat and Environment Canada would have provided central leadership by

- ranking the high-risk contaminated sites on a government-wide basis, and
- ensuring long-term stable funding to deal with sites under federal responsibility.

We expected that for the contaminated sites under their responsibility, Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, and Transport Canada would have

- identified sites requiring an assessment, and
- made progress in conducting site assessments.

We expected that the Treasury Board of Canada Secretariat and Environment Canada—with Fisheries and Oceans Canada, Indian and Northern Affairs Canada, National Defence, and Transport Canada—would have made a firm commitment that includes an action plan and timetable to

- complete assessments,
- rank sites, and
- clean up or manage all known contaminated sites in a timely manner.

We expected that the Treasury Board of Canada Secretariat, with all federal departments and agencies responsible for contaminated sites, would have

- determined the cost of dealing with all known contaminated and suspected sites, and
- reported the cost in the federal government's financial statements.

We expected that Environment Canada developed regulations to prevent contamination caused by spills or leaks from petroleum storage tanks.

Audit work completed

The audit work for this chapter was substantially completed on 30 October 2007.

Audit team

Principal: Richard Arseneault

Directors: Steven Morgan, Robert Pelland, Caroline Smallman, Tammy Squires

Alison Mudge

François Pelletier

Leslie Lapp

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

Status Report of the Commissioner of the Environment and Sustainable Development to the House of Commons—March 2008

Main Table of Contents

The Commissioner's Perspective—2008 Main Points—Chapters 1 to 14 Appendices

Chemicals Management

- Chapter 1** Substances Assessed Under the *Canadian Environmental Protection Act, 1999*
Chapter 2 Pesticide Safety and Accessibility
Chapter 3 Federal Contaminated Sites

Ecosystems

- Chapter 4** Federal Protected Areas for Wildlife
Chapter 5 Protection of Species at Risk
Chapter 6 Control of Aquatic Invasive Species
Chapter 7 Areas of Concern in the Great Lakes Basin

Management Tools and Government Commitments

- Chapter 8** International Environmental Agreements
Chapter 9 Strategic Environmental Assessment
Chapter 10 Greening of Government Operations

Previous Audits of Responses to Environmental Petitions

- Chapter 11** Insurance for Nuclear Operators
Chapter 12 Listing of Species at Risk
Chapter 13 Military Dumpsites
Chapter 14 Genetically Engineered Fish

