2005

Report of the

Commissioner of the Environment and Sustainable Development

to the House of Commons

Chapter 4

Safety of Drinking Water: Federal Responsibilities

Office of the Auditor General of Canada

The 2005 Report of the Commissioner of the Environment and Sustainable Development comprises eight chapters, and The Commissioner's Perspective—2005 and Main Points. The main table of contents is found at the end of this publication.

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Chapter

4

Safety of Drinking Water
Federal Responsibilities

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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Safety of Drinking Water
Federal Responsibilities

Main Points

What we examined

In Canada, the responsibility for ensuring the safety of drinking water is shared. The provincial and territorial governments have the main legislative responsibility for regulating the provision of safe drinking water to the public. The federal government has responsibilities for the safety of drinking water provided in First Nations communities; at military bases, national parks, and federal facilities; and on transportation conveyances, such as passenger trains, aircraft, and cruise ships travelling between provinces and internationally. A related area under federal leadership is the development of the Guidelines for Canadian Drinking Water Quality.

This audit examined the process the federal government uses to develop the Guidelines for Canadian Drinking Water Quality. It also looked at whether the government is complying with its legal obligation under the *Canada Labour Code* to make sure the drinking water provided to its employees meets these guidelines. To do this, we assessed whether six key federal departments and agencies comply with requirements to test drinking water for bacteria, as this testing is critical to protect human health. In addition, we examined Health Canada's inspection of drinking water on transportation conveyances.

Chapter 5 of this Report focusses on drinking water in First Nations communities.

Why it's important

Federal responsibilities for drinking water can have an impact on millions of people, including employees and travellers. Safe drinking water is free of microbiological contaminants and contains chemical contaminants at levels that do not harm human health. Contaminated drinking water can have potentially dire consequences for public health, as became tragically evident in Walkerton, Ontario in 2000.

The Guidelines for Canadian Drinking Water Quality are important for protecting the health of Canadians because they set out the contaminants that every water system (public, semi-public, and private) should strive to eliminate or reduce to acceptable levels in order to provide the cleanest, safest, and most reliable supply of

drinking water possible. The Guidelines establish acceptable limits on chemical, microbiological, physical, and radiological characteristics of potable water.

What we found

- To develop the Guidelines for Canadian Drinking Water Quality, Health Canada leads a process with the provinces and territories that is based on risk, science, consultation, and transparency. However, this process is consistently slow. It often takes five years or more to develop new guidelines or to review existing ones. In the 2002 Speech from the Throne, the government made a commitment to accelerate its work with the provinces on improving the Guidelines. Of 83 existing chemical and physical guidelines, about 50 may need to be updated to reflect current science. At the present pace, however, it could take at least 10 years to deal with this backlog. Should emerging contaminants be added to this list, the backlog could worsen.
- Although the six federal departments and agencies we looked at are all subject to the *Canada Labour Code,* they have different policies, procedures, and requirements for safe drinking water that vary from comprehensive to incomplete or unclear. The result is a mix of bacteriological testing regimes at the 35 sites we selected for our audit. Such a range of compliance with the Guidelines for Canadian Drinking Water Quality points to the lack of central guidance in areas of federal responsibility. At sites where bacteriological testing detected contamination, the responsible departments have taken remedial action.
- Under the Potable Water Regulations for Common Carriers, Health Canada has the obligation to inspect water quality on passenger trains, aircraft, and cruise ships. We found that the Department inspects potable water on cruise ships and trains but not on aircraft, due to funding issues. Therefore, Health Canada cannot assure the millions of Canadian travellers that potable water on aircraft is safe.
- The 2004 Federal Water Framework is a first step toward a coherent federal approach to dealing with water matters, including those related to human health. However, even though in 2003 the government declared water to be a sustainable development priority, the current status of the Federal Water Framework is unclear and its future is uncertain. Senior officials who prepared the Framework have not met for over a year, and the next steps for its use have not been clearly established.

The departments have responded. All the departments included in this audit agreed to our recommendations. All departments except one provided satisfactory responses describing future actions needed to address our recommendations. However, the response provided by Environment Canada on the Federal Water Framework does not fully address the specifics of our recommendation.

Introduction

Importance of safe drinking water

4.1 A safe, clean, and reliable supply of drinking water is critical to public health. In many parts of the world, drinking water is still untreated and carries water-borne diseases causing human illnesses and death. In Canada and other industrialized countries, purification of municipal drinking water has largely eliminated water-borne diseases. However, there is no room for complacency, as was evidenced in Walkerton, Ontario in 2000, and in North Battleford, Saskatchewan in 2001. In these communities, people became ill after consuming water contaminated with dangerous micro-organisms. Some of the health consequences were long-term or even fatal. Boil-water advisories still occasionally affect municipalities across Canada.

Boil-water advisory—A recommendation that water destined for human consumption be submitted to a rolling boil of at least one minute to destroy harmful micro-organisms.

What constitutes safe drinking water?

4.2 Safe drinking water must be free of microbiological contaminants, and its chemical contaminants must be kept at levels that are not harmful to health. To achieve this, the various components of the water supply system—from protection at the source to treatment and distribution of drinking water to consumers—must be understood and managed as a whole. This is the basis of Canada's "multi-barrier approach," which recognizes the links between health and environmental issues and promotes the integration of efforts to improve public health with those efforts to protect the natural environment. The main goal of this approach is to reduce the risk of contaminating the drinking water by placing protective systems, such as source protection measures and water treatment and monitoring, between the water consumer and both actual and potential sources of contamination.

To be safe for drinking, water must be free of microbiological pathogens, and other contaminants must be kept at acceptable levels.

Federal role in drinking water

4.3 **Shared responsibility.** In Canada, ensuring the safety of drinking water is a shared responsibility. The legislative responsibility for regulating the provision of safe drinking water to the public generally falls under provincial or territorial jurisdiction. Municipalities usually oversee the day-to-day operation and maintenance of water treatment facilities and distribution infrastructure.

4.4 The federal government has responsibilities for the safety of drinking water provided in First Nations communities; at military bases, national parks and historic sites, federal correctional

institutions, ports of entry, Canadian missions abroad, and other federal facilities; and on passenger trains, aircraft, and cruise ships travelling between provinces and internationally. These responsibilities can have an impact on millions of people, including employees and travellers. The Canadian Food Inspection Agency is responsible for enforcing the *Food and Drug Act* with respect to the quality of bottled water (bottled water was not examined as part of this audit). In addition, the federal government supports the provinces and territories in a number of ways—in particular, through science and research, the development of national water guidelines, funding for municipal infrastructures, and strategies for preventing water pollution.

Did you know?

- The percentage of Canadians who receive municipal drinking water: **About 75 percent**
- The number of municipal water treatment facilities in Canada that treat water from lakes, rivers, and groundwater sources: **About 4,000**
- The number of water-borne disease outbreaks reported in Canada between 1974 and 1996: **160 (involving about 8,000 people)**
- The number of boil-water advisory days in municipalities across Canada: **2,494 in 1993 and 3,100 in 1998—an increase of 24 percent**

4.5 **Guidelines for Canadian Drinking Water Quality.** Health Canada leads the development of the Guidelines for Canadian Drinking Water Quality by providing scientific expertise and co-ordination with the provinces and territories. The Federal-Provincial-Territorial (FPT) Committee on Drinking Water is mandated to update the Guidelines and develop new guidelines identified through risk assessments. This committee has been in place in one form or another since the mid-1970s.

Guideline—A specification of the maximum acceptable concentration of a contaminant in drinking water. The supporting documentation for a guideline includes a description of sources of exposure, detection methods, contaminants that can be removed using available treatment technology, and potential health effects.

4.6 The **Guidelines** cover 165 microbiological, physical, chemical, and radiological contaminants in drinking water that need to be eliminated or reduced to acceptable levels to ensure the protection of human health. The Guidelines are a tool used by purveyors of drinking water in Canada and are an important part of the multi-barrier approach to protecting drinking water.

4.7 **The federal government's obligation for ensuring safe drinking water.** The federal government is responsible for drinking water at military bases, national parks, and other federal facilities. Its obligation to provide potable water for federal employees stems from the *Canada Labour Code* and its regulations. Under the Code, potable water is defined as water that meets the Guidelines for Canadian Drinking Water Quality.

National Joint Council—A forum in which members, such as the public service bargaining agents and the Treasury Board of Canada Secretariat, take joint ownership of broad labour relations issues and develop collaborative solutions to workplace-related issues.

4.8 In 1989, through the **National Joint Council**, the Treasury Board of Canada Secretariat issued a Sanitation Directive that reiterates the requirement for the Guidelines to be met in buildings owned by the federal government and occupied by federal public service employees. For buildings not owned by the federal government but where federal employees work, the Sanitation Directive specifies that the Guidelines shall be applied to the "maximum extent that is reasonably practicable."

4.9 The federal government's responsibility for drinking water on transportation conveyances. Under the *Department of Health Act*, Health Canada has the duty and function to protect the health of Canadians on passenger trains, aircraft, and cruise ships and in their ancillary services, such as train stations and airports. The Potable Water Regulations for Common Carriers address the provision and treatment of water for drinking and culinary purposes on **conveyances** operated by **common carriers**. According to these regulations, Health Canada has the authority and obligation to inspect the quality of potable water provided on conveyances that are under the legislative authority of Parliament.

Conveyance—Any aircraft, train, vessel, motor vehicle, or other mode of transportation used in international traffic, interprovincial traffic, and traffic on the sea or a coast of Canada, on salt water bays, gulfs, and harbours of Canada, and on the Great Lakes and inland waters of Canada.

Common carrier—An owner of a conveyance, or any employee or agent that operates or manages it.

Previous audits

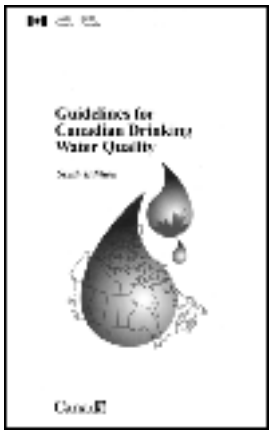
4.10 The Commissioner of the Environment and Sustainable Development conducted two previous audits that made recommendations on the quality of drinking water. The 2001 audit of the Great Lakes and St. Lawrence River Basin recommended that Health Canada clearly state its responsibility for protecting human health in the Basin from potential contaminants in drinking water. The 2003 audit of the safety and accessibility of pesticides recommended that Health Canada and Environment Canada ensure that they identify the need for and support the development of up-to-date water quality guidelines for the pesticides that pose the greatest risks to Canadians and their environment.

4.11 In addition, an environmental petition submitted under Section 22 of the *Auditor General Act* asked the federal Minister of Health and the Minister of the Environment to review the drinking water guideline for trichloroethylene (TCE) and to immediately address the problem of TCE contamination of drinking water in Beckwith Township, Ontario. The Commissioner audited and reported on the federal response to this petition in the 2001 and 2003 Environmental Petitions chapters.

Focus of the audit

4.12 The objectives of our audit were to answer the following questions:

- Are the Guidelines for Canadian Drinking Water Quality developed according to a process that is science- and risk-based, transparent, consultative, and timely?
- Is the federal government complying with its legal obligation to make sure the drinking water for its employees meets the Guidelines?



Booklet published by Health Canada

- How is the federal government managing and monitoring the quality of drinking water on interprovincial and international conveyances—that is, passenger trains, aircraft, and cruise ships?
- Are selected departments making progress in meeting the commitments on drinking water that they made in their sustainable development strategies? What is the status of the Federal Water Framework (a federal initiative on water)?
- Has Health Canada made progress in responding to selected recommendations and key observations from previous audits?

4.13 Our assessment of progress on sustainable development strategy commitments related to drinking water is discussed throughout the chapter and is summarized in Appendix A.

4.14 Issues on drinking water in First Nations communities are covered in Chapter 5 of this Report. Because our audit focussed on issues related to the quality of potable water, we did not audit the performance of the federal government in enforcing provisions of the *Food and Drug Act* for the quality of bottled water.

4.15 For more information about the audit objectives, scope, approach, and criteria, see **About the Audit** at the end of the chapter.

Observations and Recommendations

Developing the Guidelines for Canadian Drinking Water Quality

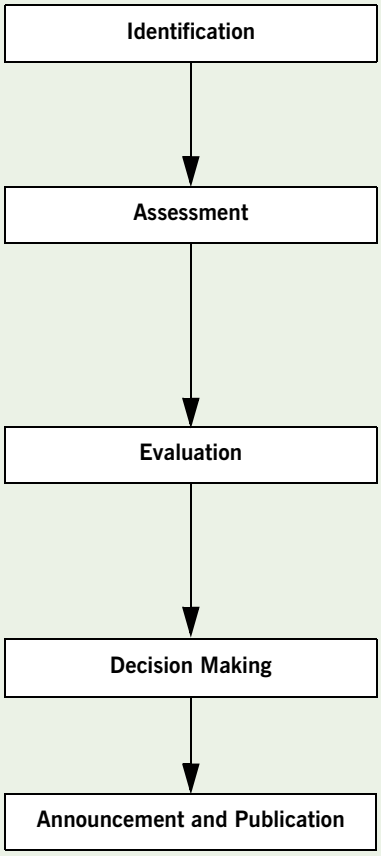
4.16 The Guidelines for Canadian Drinking Water Quality provide purveyors of potable water in Canada with maximum acceptable levels of contaminants, which they can use as treatment targets for clean, safe, and reliable drinking water for human consumption. Health Canada leads the development of the Guidelines. It uses available science and a consultative approach to assess the exposure of Canadians to contaminants present in water, determine the impacts of those contaminants on human health, and recommend efficient alternatives for water treatment. The Department reiterated its intentions to continue this work in its 2004 Sustainable Development Strategy.

4.17 **Health Canada supports the provinces and territories.** In its role as the technical secretariat of the FPT Committee on Drinking Water, Health Canada works with the provinces and territories to reach consensus on the Guidelines for Canadian Drinking Water Quality. They can then apply the Guidelines in their respective contexts. The Department reported that the provinces and territories

use the Guidelines in a variety of ways. Some use them as general guidance, while others use them as water quality objectives to be attained; still others use them as standards to be met under their laws. Some provinces have adopted the Guidelines in full, while others have adopted specific guidelines that meet their needs.

4.18 Are the Guidelines reliable? Health Canada has established a comprehensive process for developing new guidelines and reviewing existing ones that require an update (Exhibit 4.1). The process is consultative, transparent, and based on risk and science (Exhibit 4.2).

Exhibit 4.1 Health Canada's process for developing and reviewing the Guidelines for Canadian Drinking Water Quality



- **Identification**
  - Health Canada determines the availability of scientific literature and federal monitoring data on the contaminant.
  - Provincial and territorial jurisdictions provide monitoring data.
  - Health Canada establishes a schedule for the guideline.
- **Assessment**
  - Health Canada prepares the risk assessment for the contaminant.
  - Health Canada prepares the supporting document for the guideline, including a proposed guideline value (maximum acceptable concentration of the contaminant).
  - The supporting document undergoes a peer review.
- **Evaluation**
  - Health Canada submits a consultation document to the Federal-Provincial-Territorial (FPT) Committee on Drinking Water.
  - The FPT Committee discusses the feasibility of implementing the guideline.
  - Public consultation is carried out.
  - Health Canada compiles and incorporates consultation feedback into the supporting document.
- **Decision Making**
  - Health Canada submits the final supporting document to the FPT Committee.
  - The FPT Committee approves the guideline.
  - The senior committee on national health and environmental issues makes final approval decisions.
- **Announcement and Publication**
  - The guideline is published on Health Canada's Web site.

Source: Adapted from Health Canada

Exhibit 4.2 Our observations on Health Canada's process for developing and reviewing the Guidelines for Canadian Drinking Water Quality

Observations
Risk assessment
• Health risk assessments consider toxicological (animal) and epidemiological (human) studies on health effects, including cancer, and reproductive and developmental effects.
• The documentation produced for each guideline identifies health risks, potential sources of exposure, and the level of removal of contaminants that can be achieved by using available technology.
Science review
• Each guideline is subject to an extensive literature review and data search that describe aspects such as sources of the contaminant in the environment, national exposure data, detection methods, and treatment technology.
• Health Canada validates its science assessment through a peer review process and feedback from organizations such as the Canadian Water and Wastewater Association, the U.S. Environmental Protection Agency, and the World Health Organization.
• Health Canada and Environment Canada have active mechanisms in place to exchange scientific information pertaining to water.
Transparency
• Health Canada administers two Web sites to inform Canadians of current drinking water and health issues (*It's Your Health* and *Water Talk).*
• Health Canada uses its Web site to post information on the Guidelines for Canadian Drinking Water Quality, such as discussions, debates, and decisions of the FPT Committee, supporting documentation on guidelines, and requests for public consultation.
• Canadians can subscribe to an electronic newsletter and receive the latest news on the Guidelines by e-mail.
Consultation
• Health Canada develops the Guidelines in continuous consultation with provincial and territorial stakeholders.
• Health Canada submits the health risk assessment of each guideline to external experts for review.
• Each guideline is subject to a public consultation.

The process for developing and reviewing guidelines is slow

4.19 According to Health Canada, a guideline should take two to three years to develop or review, from identification to final approval and publication. However, we found that it took four years to review the guideline for aluminum and seven years to review the guideline for *Escherichia coli* (E. coli). Further, after eight years on the FPT

Committee's agenda, the guideline for arsenic is still at the public consultation stage.

4.20 In its 2001 Sustainable Development Strategy, Health Canada committed to developing or updating at least six guidelines by the end of March 2004. The Department's interpretation of this commitment was that by that time it would have completed the assessment phase of the guidelines and would be ready for public consultation; after that point in the process (Exhibit 4.1), the FPT Committee mainly determines approval of the guidelines. Based on this interpretation, we found that Health Canada met its deadline of March 2004 for completing the assessment phase of six guidelines. However, the assessment phase for five of the six guidelines started between 1994 and 1999—long before the 2001 commitment. In fact, the assessment phase for those guidelines, which represents only a portion of the process, spanned over a period of three to seven years. This phase alone exceeds the two to three-year time frame that Health Canada set to carry out the entire process. Moreover, the consultation period, together with the decision making and approval by the FPT Committee, further delayed publication of the guidelines by up to an additional four years.

4.21 The Department indicated that it has not yet set clear internal timelines to complete the assessment of guidelines. In our view, the process for developing guidelines remains consistently slow, delaying the development of new guidelines and the review of existing ones for contaminants that Health Canada and the FPT Committee have identified as posing a risk to human health.

4.22 **Recommendation**. Health Canada should set clear internal timelines for the development and review of drinking water guidelines and should continue to work with the Federal-Provincial-Territorial Committee to develop options to accelerate the process of approval of these guidelines. Factors impeding the approval and publication of guidelines should be made fully transparent to Canadians.

Health Canada's response. Health Canada has streamlined the guideline development process over the past two years to meet a target of developing between five and seven guidelines per year. This is based on a timeline of two to three years required to develop, review, and approve a guideline, and on the increased number of scientists currently conducting evaluations. A range, rather than a fixed length, of time is appropriate as there are many factors that influence the time needed to complete a guideline (for example, single or multiple forms of a particular contaminant, limited or many

potential health implications, and single or multiple exposure pathways). A multi-year work plan that reflects the two to three-year timeline for developing individual guidelines will be prepared for approval of the Federal-Provincial-Territorial Committee on Drinking Water.

The streamlined process also includes measures already being implemented to accelerate the approval process. These measures focus on the defining of milestones and targets for all guidelines being assessed, development and implementation of standard operating procedures and best practices, ongoing communication between committee members to ensure early identification and resolution of concerns, and approvals of guidelines outside of regularly scheduled committee meetings. Health Canada will monitor this process and propose changes, if necessary, to ensure timely development and approval of guidelines.

In addition, the status of guidelines under development, including reasons for any delays, such as new information (scientific, technological) or the need to develop and apply new methodology in the risk assessment, will be posted on the Health Canada Web site.

4.23 **The case of trichloroethylene**. A guideline for trichloroethylene (TCE) was first published in 1987. In 1993, TCE was declared a toxic substance under the *Canadian Environmental Protection Act*, putting it on the priority list of substances that Health Canada must review. However, the Department did not give a higher priority to reassessing the TCE guideline until May 2000.

4.24 In October 2000, we received an environmental petition (Petition No. 25) requesting an update of the maximum allowable concentration for TCE. The Minister of Health responded to the petition and committed to speeding up the review of the guideline for TCE. In 2003, we followed up on the petition and found that Health Canada took two years to complete the assessment of the guideline. Further evaluation by the FPT Committee delayed the approval of the guideline. In May 2005, after 12 years on the agenda, the guideline for TCE was finally approved by the FPT Committee.

4.25 **Follow-up on guidelines for pesticides**. Pesticide use in Canada has resulted in contamination of drinking water. The Guidelines for Canadian Drinking Water Quality currently cover 30 pesticides registered in Canada. In 2003, we reported that the development of guidelines for pesticides lagged behind the registration and use of new pesticides and recommended that Health Canada develop guidelines

for the pesticides that pose the greatest risks to Canadians. In its response to the recommendation, Health Canada committed to establishing a ranking of pesticides that have the greatest potential to contaminate surface and ground waters, to consider in the priority-setting process for the Guidelines.

4.26 This audit was an opportunity to follow up on progress made to fulfill this commitment. Health Canada indicated that this work is under way and is to be completed by the end of 2005.

A backlog of guidelines to be reviewed

4.27 The types of guidelines that Health Canada develops for drinking water consist of microbiological, chemical, physical, and radiological guidelines. Microbiological guidelines are the highest priority, and as such, the Department reviews them continually. In contrast, the review of other types of guidelines is triggered by new data on health and exposure risks. However, Health Canada has been unable to review chemical and physical guidelines on a timely basis. About 50 of the 83 chemical and physical guidelines are older than 15 years and may need to be updated to reflect current science and to protect the health of Canadians. In our view, this backlog of guidelines is unacceptable.

International organizations co-operate in developing guidelines for drinking water

Like Health Canada, agencies such as the United States Environmental Protection Agency and the World Health Organization (WHO) develop guidelines and standards for water quality.

Health Canada takes health risk data compiled by its international counterparts into consideration when developing the Guidelines for Canadian Drinking Water Quality. The Department also participates in the development of the WHO drinking water guidelines.

4.28 Health Canada acknowledges the backlog and has already taken action to streamline the assessment of guidelines. For example, the Department uses templates and checklists to ensure the consistency of guideline documentation and is implementing standard operating procedures to facilitate the evaluators' work. To make the most of available resources, Health Canada produced a priority list of contaminants to be addressed, based on health risks, exposure, and recent developments in water analysis and treatment. In addition, the FPT Committee has reduced the public consultation period where appropriate. However, we believe this may not be sufficient to address the current backlog in a timely manner.

4.29 In the 2002 Speech from the Throne, the federal government committed to accelerating its work with the provinces to improve national water quality guidelines. Despite this commitment, Health Canada has indicated that the budget of the unit tasked to develop the Guidelines for Canadian Drinking Water Quality has decreased from $3.38 million to $2.70 million—a 20 percent reduction between 2001 and 2005.

4.30 Health Canada currently has 13 evaluators tasked to both develop new guidelines and address the current backlog of about 50 chemical and physical guidelines that need to be reassessed. At the current pace, it will take at least 10 years to deal with this backlog. Should emerging contaminants be added to this list, the backlog could worsen.

4.31 **Recommendation**. Health Canada should produce and implement a work plan to address the backlog of about 50 drinking water guidelines that may need to be updated to reflect current science, clearly indicating which guidelines are to be reviewed, their priority ranking, revision targets, and related timelines.

Health Canada's response. In 2004, Health Canada completed a comprehensive review of all the Guidelines for Canadian Drinking Water Quality, regardless of the age of the guidelines and including those developed over 15 years ago (referred to as backlog). This process has identified the existing guidelines requiring revision, and priorities for developing new and existing guidelines will be defined based on risk to public health, rather than on the age of a guideline. This comprehensive review will be conducted biennially to identify guidelines to be revised.

Over half of the guidelines older than 15 years have been reaffirmed, as they are protective of human health. The list of reaffirmed guidelines will be posted on the Department's Web site, along with a list of guidelines that are candidates for revision.

The remaining guidelines older than 15 years and other more recent guidelines are either scheduled for revision in the current work plan or will be considered for revision in a multi-year work plan to be developed and approved by the Federal-Provincial-Territorial Committee on Drinking Water.

Health Canada needs to continue its efforts to promote the Guidelines

4.32 The Guidelines for Canadian Drinking Water Quality do not include a priority rating for contaminants that could guide the efforts of involved parties in monitoring contaminants and implementing protective measures. As committed in its 2004 Sustainable Development Strategy, Health Canada recently produced *From Source to Tap: Guidance on the Multi-Barrier Approach to Safe Drinking Water.* This approach recognizes that not every potential hazard requires the same degree of attention and that resources should be directed to address the greatest risks.

4.33 To build upon this guidance, Health Canada is leading an initiative to develop a list of high-risk contaminants that would enable purveyors of drinking water with limited capacities to better focus their monitoring efforts. We encourage Health Canada to pursue this initiative.

Federal compliance with the Guidelines for Canadian Drinking Water Quality

4.34 The *Canada Labour Code* requires the Guidelines for Canadian Drinking Water Quality to be applied by all federally regulated employers. To assess if the federal government is complying with its legal obligation to provide drinking water that meets the Guidelines, we selected a sample of six federal departments and agencies that are the custodian of several facilities and/or serve a large population. These were the Canada Border Services Agency, Correctional Service Canada, Foreign Affairs Canada, the Department of National Defence, Public Works and Government Services Canada, and the Parks Canada Agency. From these six departments and agencies, we looked at 35 sites that reflect the diversity of federal facilities. They included national parks and historic sites, military bases, federal correctional institutions, ports of entry, Canadian missions abroad, and federal office buildings.

The federal government is responsible for drinking water at military bases, national parks, and other federal facilities.

Departmental procedures are inconsistent

4.35 The six departments and agencies we audited either had developed or were developing management or control procedures for drinking water at their sites and facilities. In examining the procedures, we focussed on two elements that are essential to providing safe drinking water: risk assessment and testing requirements.

4.36 **Importance of conducting a risk assessment.** The management of drinking water is a complex domain. To ensure the safety of drinking water provided at their facilities, departments and agencies need to consider several factors, such as the following:

- water source (municipal or non-municipal, surface or groundwater);
- the size and location of the water treatment system (small or big, accessible or remote);
- the water treatment regime (disinfection or filtration);
- the distribution system's design (old or new, simple or complex); and
- the operational requirements (frequency of monitoring and testing, maintenance, certification of staff).

Variability in these factors will determine the level of risk of the water system and the effort needed to ensure the safety of the drinking water. This includes the extent of the treatment, monitoring procedures, sampling and testing frequency, and other management actions.

4.37 Of the six departments and agencies we looked at, three of them—National Defence, Correctional Service Canada, and Public Works and Government Services Canada—provided guidance on how to manage the level of risk posed by their water sources. We asked officials from 18 sites of these three organizations if they had indeed conducted risk assessments; the majority had not. The Canada Border Services Agency took a different approach by conducting site-specific risk assessments for facilities receiving water from a non-municipal source. However, testing regimes implemented by the Agency's headquarters are not fully risk-based.

4.38 The departments and agencies we audited acknowledged their responsibilities under the *Canada Labour Code* to provide potable water to their employees and are aware of their obligations to meet the Guidelines for Canadian Drinking Water Quality. Thus, we expected departmental procedures to include testing requirements that are consistent with the Guidelines. What we found is a patchwork of procedures, ranging from comprehensive (National Defence, Correctional Service Canada, and Public Works and Government Services Canada) to incomplete (Canada Border Services Agency and Parks Canada Agency) or unclear (Foreign Affairs Canada).

Mix of bacteriological testing regimes at selected sites

4.39 Although drinking water that is safe for human consumption must meet all chemical, physical, microbiological (including bacteriological), and radiological guidelines described in the Guidelines for Canadian Drinking Water Quality, we specifically examined the testing for bacteriological parameters at all of the sites since they constitute the most critical element that could pose an imminent risk to human health.

4.40 Testing regimes depend on a number of factors, such as the size of the population served and the source of water (municipal or non-municipal). The number of test samples can be reduced if the risk of contamination has been found to be low. For example, sites receiving water from a municipal source normally would not need to test as frequently as sites receiving water from a non-municipal source.

Testing the microbiological quality of water

Microbiological water quality is currently determined mostly by testing for two parameters—total coliform bacteria and faecal coliform bacteria, using the species E. coli as an indicator of the latter. The Guidelines for Canadian Drinking Water Quality specify that routine water testing for E. coli is important since its presence is also an indication that other harmful micro-organisms, such as viruses or protozoa, could be present. Guidelines specify that no sample should contain E. coli or other coliform bacteria.

Gastrointestinal illness can be life-threatening

The most common disease attributable to water-borne disease-causing micro-organisms is gastrointestinal illness or diarrhea. Although gastrointestinal illness is generally considered to be non-life threatening in healthy adults, mortality can occur in sensitive subpopulations, such as infants, the elderly, and individuals with weak immune systems.

4.41 We found a mix of testing regimes, both within an organization and between organizations. This mix reflected highly variable levels of compliance with the Guidelines, ranging from non-compliance to exceeded compliance. We found 10 sites that were not testing the water at all. In our view, although 9 of these sites had their water provided by a municipal source, some testing is still necessary based on an analysis of risk.

4.42 **Testing for E. coli at federal sites.** The presence of E. coli, a definite indicator of faecal water contamination, can pose an imminent risk to human health. As recommended in the Guidelines, its detection should trigger an immediate boil-water advisory. We looked to see if all facilities receiving water from a non-municipal source were testing for E. coli and, in cases where E. coli was detected, if the facility issued an immediate boil-water advisory as recommended in the Guidelines. Of the 15 sites we looked at that receive water from a non-municipal source, we found one that did not test for E. coli and another that did not know if testing for E. coli was being done. We also found five cases of confirmed presence of E. coli in tap water. In all cases, immediate action was taken to remediate the situation. However, of the five cases reported, two did not issue an immediate boil-water advisory as recommended by the Guidelines.

Need for clear central guidance

4.43 The variable compliance we found in the departmental procedures and in the testing regimes at the sites we looked at points to the need for clearer central guidance. Although federal departments and agencies are all subject to the *Canada Labour Code,* they have different policies, procedures, and requirements for safe drinking water. This has resulted in the government's inconsistent compliance with the federal Guidelines and, in some cases, exposure of employees to potential health risks. The current information provided in the *Canada Labour Code* and in the Sanitation Directive, issued by the Treasury Board of Canada Secretariat through the National Joint Council, is not sufficient to provide guidance to departments and agencies. It does not clearly outline the steps of a risk-based approach to ensure that drinking water is safe and meets the Guidelines.

4.44 In its 2004 Sustainable Development Strategy, Health Canada recognized the need to provide additional guidance to federal departments and agencies on how to meet the requirements of the Guidelines. It has committed to working with other federal departments and agencies to develop a compliance framework for drinking water quality in areas of federal jurisdiction.

Did you know?

- The estimated number of visitors to national parks and national marine conservation areas in 2003–04: **About 12 million**
- The number of people employed in the federal public service in 2004: **366,664**
- The number of inmates in federal correctional institutions in 2003–04: **About 12,000**

4.45 **Comprehensive, risk-based draft guidance document.** To fulfil this sustainable development strategy commitment, Health Canada established an interdepartmental working group comprising 11 other departments and agencies and produced a draft guidance document. This document is comprehensive, covering all aspects of a drinking water system, and it provides guidance on drinking water issues faced by departments and agencies, including sampling and testing requirements, assessment of the water source, and operational standards. The document is also risk-based: It stipulates that the level of effort to ensure the safety of drinking water depends on site-specific factors and indicates the frequency of sampling and testing for specific conditions. Further, the document applies to all federal government organizations providing drinking water to federal employees, as well as to inmates, visitors, and clients, because departments and agencies are accountable for the safety of the water provided at their facilities.

4.46 **Recommendation.** Health Canada should finalize and issue to all deputy heads, the guidance it has developed for providing safe drinking water in areas of federal jurisdiction. It should also update the guidance as needed and promote its use by federal organizations.

Health Canada's response. The document *Guidance for Providing Safe Drinking Water in Areas of Federal Jurisdiction* was finalized and approved by the Interdepartmental Working Group on Drinking Water in June 2005, after consultations with each of the departments involved.

The guidance document will be posted on the Health Canada Web site, and Health Canada's Deputy Minister will inform all deputy heads of the posting of the document. The Department will review and update the guidance document on a periodic basis, in consultation with the Interdepartmental Working Group. Health Canada and the co-chairs of the Interdepartmental Working Group will collaborate with the Treasury Board on adoption of the guidance document as per recommendation 4.47.

4.47 **Recommendation.** The Treasury Board of Canada Secretariat, through the National Joint Council, should adopt the guidance for providing safe drinking water in areas of federal jurisdiction, as a requirement under the Sanitation Directive.

Treasury Board Secretariat's response. When the National Joint Council opens the directive for renegotiation, the Treasury Board Secretariat will table wording recommending the guide be entrenched in the Sanitation Directive.

Drinking water on passenger trains, aircraft, and cruise ships

Did you know?

- The number of passengers who travelled on Via Rail in 2004: **About 3.9 million**
- The number of passengers who travelled on cruise ships docked at major Canadian ports in 2004: **About 1.3 million**
- The number of passengers who travelled on domestic, transborder, and international flights in Canada in 2004: **About 60 million**

4.48 Each year, millions of Canadians and international visitors travel on passenger trains, aircraft, and cruise ships that originate from or transit through Canada. If the water systems in place are not adequate, the health of passengers travelling on these modes of transportation could be at risk from contaminated water used for drinking, making ice, and preparing food and beverages. We assessed the mechanisms used by Health Canada to protect the travelling public, including the legislative framework and the inspection process.

4.49 **Legislative framework.** Through the Potable Water Regulations for Common Carriers, Health Canada has the authority and obligation to board and inspect the drinking water and drinking water systems provided by common carriers on conveyances and in their ancillary services. Under the Regulations, common carriers are responsible for ensuring the provision of potable water on their conveyances by sterilizing and maintaining potable water systems. The responsibilities of common carriers to self-monitor are also outlined in Health Canada's inspection programs and are shared through Health Canada's agreements with common carriers.

4.50 **Potable water regulations are dated.** Adopted in 1954, the Potable Water Regulations do not refer to the Guidelines for Canadian Drinking Water Quality, unlike the regulations under the Canada Labour Code that govern the quality of drinking water. We understand that ancillary services include facilities inside and on the grounds of stations, airports, and terminals that are used to service railways, ships, aircraft, and other conveyances. However, the Potable Water Regulations do not clearly define what is included in ancillary services for common carriers, thereby creating a grey area for inspection responsibilities. Further, the penalties for violating the provisions in the Regulations (a fine not exceeding $200 or imprisonment of three months) may need to be reconsidered.

4.51 **Inspection programs.** Health Canada has been conducting inspections on conveyances for more than 30 years. In the mid-1990s, following a major evaluation of departmental programs, direct funding for Health Canada's inspection program was removed. Since then, Health Canada has been recovering inspection costs from inspected common carriers under voluntary agreements. Health Canada currently has inspection agreements with two major common carriers for trains; for cruise ships, it has a harmonized inspection process with the United States Centers for Disease Control and Prevention (Exhibit 4.3).

Exhibit 4.3 Health Canada's inspection process for passenger trains and cruise ships

- Health Canada's environmental health officers examine the potable water and potable water systems, including records of testing and illness on passenger trains and cruise ships. Inspections also include examining food preparation and general sanitation.
- Inspections take place one or two times per year.
- A scoring system is used for all items examined to form an overall assessment, with critical items that could pose an imminent health risk being given a higher point rating.
- The total score is used to determine passing or failure of the inspection.
- The captain or manager of the conveyance is notified of the score and of necessary corrective actions immediately following the inspection.
- Common carriers are suggested to promptly provide Health Canada with a statement describing the corrective actions taken.
- If an imminent health risk is found on a cruise ship, Health Canada can recommend that it not sail. The Department can also issue a travel advisory if violations found on a conveyance may pose a danger to public health.

No potable water inspections on aircraft

4.52 Health Canada does not have any agreements with airlines. As a result, it is not conducting inspections of potable water on any aircraft. While the Department has developed draft inspection procedures and guidelines for aircraft, negotiations to implement these inspection procedures under voluntary agreements have not been successful. Thus, Health Canada cannot provide assurance on the quality of potable water provided by airlines in Canada. In comparison, the United States currently has agreements with 12 airlines, and is negotiating separate agreements with two additional airlines to increase monitoring of water quality testing, conduct regular disinfection of water systems, and abide by strengthened requirements for public notification (these 14 airlines represent the majority of U.S. aircraft transporting the public). In studies conducted in 2004, the United States Environmental Protection Agency tested water supply tanks on 327 domestic and international passenger aircraft. The tests revealed that about 15 percent of the aircraft tested carried water contaminated with coliform bacteria.

4.53 **Recommendation.** Health Canada should take measures to clearly assure Canadians that potable water on aircraft is safe on a continuing basis, including recommencing routine inspections.

Health Canada's response. Health Canada has had ongoing negotiations with the airline industry for the last four years. The industry, represented by the Air Transport Association of Canada, has stated it is unwilling to pay for inspections by Health Canada. The Department will continue to work with the airlines to bring them into Health Canada's voluntary, cost-recovered inspection program.

Health Canada will continue to inspect aircraft in the case of a complaint, emergency, or other event where there is evidence of a public health risk. The Department will examine funding options to ensure that the airline industry is subject to routine potable water inspections, taking into account inequities that may be incurred with other conveyances that already pay to participate in the voluntary, cost-recovered program.

Gaps and inconsistencies in Health Canada's inspection approach

4.54 We recognize that Health Canada has comprehensive inspection protocols for cruise ships and is working with two major train companies toward a similar comprehensive management system. However, we identified a series of gaps and inconsistencies in the Department's current inspection approach.

- Overall, the majority of cruise ships inspected receive high passing scores. However, for passenger trains and cruise ships, the consequences for critical violations and inspection failures are unclear. For example, a cruise ship that received failing inspection scores in two consecutive years continued to sail despite these failures (see Example of inspection failure of a cruise ship, page 22). Health Canada informed us that it does not have the authority to stop a ship from sailing.

- The rationale for the frequency of train inspections has not been given (the number of inspections is small relative to the thousands of trips that occur each year). The rationale for the frequency of water testing on trains is also unclear.

- We recognize that Health Canada is currently improving the way it tracks inspections, critical violations, and corrective action statements by developing and expanding a centralized information system. However, inspection reports are not comprehensive. For example, reports do not systematically include descriptions of immediate corrective action witnessed by inspectors while on board cruise ships.

- Gaps in communication exist within Health Canada. Corrective action statements are not systematically posted within the information tracking system; thus, they may not be available for review by inspectors.
- There are also gaps in communication to the public. Inspection scores and findings for train companies are currently not made available to the public. Communication of the results of cruise ship inspections to passengers is not timely or comprehensive, and Health Canada does not have a formal mechanism to ensure that inspection failures are communicated to passengers. In contrast, the U.S. Vessel Sanitation Program Web site lists both inspection scores and detailed findings.
- Health Canada inspectors indicated to us that increased training was needed to achieve a uniform understanding of inspection criteria nationwide and ensure understanding of increasingly complex water systems on cruise ships.

Example of inspection failure of a cruise ship

In 2001, a cruise ship was inspected and received a failing score of 43 out of 100. A passing score for a cruise ship is 86 out of 100. Critical violations found related to water included the following:

- Potable water could not be chlorinated or brominated to the minimum required level during water uptake.
- Disinfection was inadequate at the most distant point in the water system.
- Chart recorders for potable water systems were not present on the ship.
- Backflow preventors or non-return valves were not installed in several areas on the ship.
- Potable water uptake equipment was not stored and marked in accordance with prescribed methods.

Health Canada officials deemed these deficiencies as serious concerns that could pose potential health problems. On returning to a Canadian port in 2002, the cruise ship received a failing score of 64 out of 100, with critical water violations contributing to the failing score once again. Health Canada communicated with the ship's common carrier about necessary corrective action. However, the ship continued to sail, demonstrating a lack of consequences for critical violations and inspection failures.

Source: Adapted from Health Canada

4.55 Recommendation. Health Canada should revise the Potable Water Regulations for Common Carriers to include reference to the Guidelines for Canadian Drinking Water Quality, a clear definition for ancillary services, and more appropriate penalties for non-compliance.

Health Canada's response. Health Canada acknowledges the need for updated legislation to address public health risks on conveyances and is proposing a more comprehensive approach. A new comprehensive regulation for conveyances and their ancillary services (to replace the Potable Water Regulations for Common Carriers) will address penalties, definitions, and referencing of the Guidelines for Canadian Drinking Water Quality. It will also address risks associated with potable water as well as food, air quality, and general sanitation. This regulation would support Health Canada's commitments under the new *Quarantine Act* and the recently revised International Health Regulations (World Health Organization).

Status of the Federal Water Framework

4.56 In addition to its responsibilities for ensuring safe drinking water, the federal government has numerous other water-related responsibilities concerning boundary waters, navigable waters, Arctic waters, fisheries, project environmental assessments, and other areas. At least 19 federal departments and agencies are involved in a web of activities related to water; thus, a coherent and co-operative approach is necessary. Over the years, the government has attempted to accomplish this in various ways, including through the Federal Water Policy.

4.57 **A stagnant federal water policy.** In 1987, the federal government issued its Federal Water Policy following a comprehensive consultation on water in Canada. The policy sketched broad courses of action for Canada's freshwater resources that would be further developed in time. It proposed five strategic objectives: realistic pricing, science leadership, integrated planning, legislative renewal, and public awareness. These objectives were supported by policy commitments in 25 areas of federal concern. The policy was considered to be one that would evolve with changing priorities and viewpoints. Two progress reports were issued—in 1990 and 1994—but no other report was produced afterwards. Furthermore, during the early 1990s, there were major cutbacks in federal water programs.

4.58 **Renewed federal interest in water.** Since 2000, there has been a renewed interest in water issues, partially triggered by the tragic events of Walkerton, Ontario. The federal government declared water as a sustainable development priority in 2003. A senior-level interdepartmental committee, co-chaired by Environment Canada and Health Canada, was given a mandate to develop a Federal Water Framework to address issues related to freshwater quality and quantity. The committee spent time, money, and effort to develop the Federal Water Framework, which was approved by its parent committee at the deputy minister level in February 2004. The Framework begins with a

vision: "Clean, safe, and secure water for people and ecosystems." Associated with this vision are five ultimate outcomes encompassing the scope of federal activity on water. These outcomes relate to protecting human health through safe drinking water, ecosystem health, sustainable use and economy, hazards and environmental prediction, and the global dimension.

4.59 The federal departments and agencies dealing with water issues are involved in a number of ways, from their internal operations through to Canadian assistance abroad. In light of this broad scope and in support of the Federal Water Framework, the Treasury Board Secretariat made a commitment in its 2004 Sustainable Development Strategy to catalogue current federal water activities. Although the Secretariat was not able to meet its targeted completion date of February 2004, it did collect information from all departments and agencies involved, except for one department that still has not provided all the requested information.

4.60 **Unclear next steps.** The Federal Water Framework is a first step toward a coherent approach to dealing with water at the federal level. However, both senior-level committees responsible for overseeing the development of the Federal Water Framework have been inactive since the spring of 2004. Thus, the status of the Federal Water Framework is currently unclear and its future is uncertain.

4.61 **Recommendation.** Environment Canada, in collaboration with other federal departments and agencies, should establish clear next steps on what the Federal Water Framework will be used for, particularly in relation to its five ultimate outcomes.

Environment Canada's response. In September 2004, the Minister of the Environment launched a process to develop a Competitiveness and Environmental Sustainability Framework for Canada (CESF). The purpose of the Framework is to attain the highest level of environmental quality as a means to enhance the health and safety of Canadians, preserve our natural environment, and advance our long-term competitiveness.

The Federal Water Framework will help to reaffirm federal water policy priorities through the CESF. Some 19 federal departments completed the water framework task to describe their activities along five ultimate outcomes. The Water Framework serves as a tool to assist in identifying strengths and gaps in the departments' activities to address a full spectrum of water issues. Environment Canada will continue to promote the intent of the framework for priority setting and integrating water-related activities across the government.

As key next steps, outcomes of the Federal Water Framework will be integrated into the broader CESF along the following lines:

Federal Water Framework outcomes	CESF outcomes
Human health Hazards and environmental prediction	Health and safety of Canadians
Ecosystem health	Natural environment
Sustainable use and economy	Long-term competitiveness

The primary strategies for achieving the outcomes of the Federal Water Framework will be used in developing elements of the CESF related to water. A round-table discussion on water through the Deputy Ministers' Policy Committee on Environment and Sustainability will help to reaffirm federal water priorities and align water-related activities across mandates with the CESF. This round-table discussion and the above-noted alignments are planned for the fall of 2005.

Conclusion

4.62 The Guidelines for Canadian Drinking Water Quality are developed through a process led by Health Canada that is based on risk, science, consultation, and transparency. Despite a commitment by the federal government to accelerate work with the provinces to improve the Guidelines, the process remains very slow, and there is a backlog of about 50 guidelines that may need to be updated to reflect current science.

4.63 All six federal departments and agencies we looked at are subject to the *Canada Labour Code* but have different internal policies, procedures, and requirements in place for safe drinking water; half are comprehensive while others are incomplete or unclear. We also observed a mix of testing regimes at the 35 selected sites, resulting in the government's inconsistent compliance with the federal Guidelines. This patchwork points to the need for central guidance in order to better protect human health in areas of federal jurisdiction. However, for sites where testing is conducted, remedial action was taken in cases where bacteriological contamination was detected.

4.64 There are weaknesses in Health Canada's inspection approach for passenger trains, aircraft, and cruise ships. The Department does not know if potable water on aircraft is safe because it does not conduct any water inspections. The inspection protocols for cruise ships are comprehensive, and Health Canada is working with two major train companies toward a similar comprehensive management system. However, we identified some gaps and inconsistencies—the most significant being dated regulations.

4.65 The 1987 Federal Water Policy sketches broad courses of action for Canada's freshwater resources. Following two progress reports in the 1990s, the policy became stagnant. In 2003, the federal government stated that freshwater is one of its sustainable development priorities. Senior government officials have spent considerable time, money, and effort to develop the Federal Water Framework, which was approved by deputy ministers in 2004. However, its status is currently uncertain and its function has never been clearly defined.

4.66 Overall, Health Canada and the Treasury Board Secretariat have made satisfactory progress on selected commitments related to drinking water in their sustainable development strategies.

About the Audit

Objectives

The audit's three objectives were the following:

- Determine whether the federal government develops and provides guidelines for protecting drinking water quality, based on a credible process.
- Determine the extent that the federal government provides potable water at federal facilities and on Crown lands, in compliance with the Guidelines for Canadian Drinking Water Quality, and assess its management and monitoring systems for potable water provided by common carriers.
- Assess progress made by selected federal government departments and agencies toward meeting sustainable development strategy commitments and responding to key observations and recommendations by the Commissioner of the Environment and Sustainable Development relevant to water management and the protection of drinking water.

Scope and approach

We had three lines of enquiry, corresponding with our objectives.

Guideline development process

We examined whether Health Canada had defined clear roles and responsibilities for developing the Guidelines for Canadian Drinking Water Quality and fulfilled its mandate as the technical secretariat of the Federal-Provincial-Territorial Committee on Drinking Water. We expected Health Canada to have developed a process for developing guidelines that is transparent, timely, and based on risk, science, and consultation. We investigated the development of three drinking water guidelines (aluminum, arsenic, and E. coli) and followed up on past key observations and recommendations from previous audits (trichloroethylene and pesticides). We assessed whether Health Canada and Environment Canada had mechanisms in place to exchange water-related scientific information. We also assessed if Health Canada had analyzed the degree of application of the Guidelines by provinces and territories.

Federal compliance and common carriers

We assessed the extent of the federal government's compliance with requirements to provide potable water at selected federal facilities and Crown lands.

Six departments and agencies were selected to reflect the diversity (urban and remote, large and small) of sites and facilities where the federal government provides drinking water, the populations served (employees, clients, and visitors), as well as geographic coverage. They were the Canada Border Services Agency, Correctional Service Canada, Foreign Affairs Canada, National Defence, Public Works and Government Services Canada, and the Parks Canada Agency.

For each of the selected departments and agencies, we conducted field visits or requested that they complete an on-line survey on the provision of drinking water at the sites. We gathered data and examined supporting documentation for 35 federal sites, which we selected using a purposeful approach. That is, we selected sites representing different types of federal operations across the country and served by municipal or non-municipal sources of drinking water, in order to provide an indication of the state of federal compliance.

We examined central, internal procedures and instructions provided by departments and agencies, as well as government-wide policy and guidance documents produced by Health Canada and the Treasury Board of Canada Secretariat.

We also examined Health Canada's Workplace Health and Public Safety Program's effectiveness in monitoring compliance on conveyances (passenger trains, aircraft, and cruise ships).

Progress by selected departments in meeting strategy commitments on drinking water and follow-up on previous key audit observations and recommendations on drinking water.

Sustainable development strategy commitments. We examined the following:

- Health Canada's work to develop or update at least six drinking and recreational water quality guidelines (2001 strategy);
- Health Canada's work to develop the Guidelines for Canadian Drinking Water Quality; we also assessed its progress in developing an integrated source-to-tap approach to drinking water quality in Canada (2004 strategy);
- Health Canada's work to develop a compliance framework for drinking water quality in areas of federal jurisdiction (2004 strategy);
- the Treasury Board Secretariat's work to catalogue current federal water activities in support of the Federal Water Framework (2004 strategy); we also assessed the status of the Federal Water Framework.

Follow-up on previous audit work. We examined the following:

- Health Canada's work to develop a guideline for TCE (Chapter 7 of our 2001 Report and Chapter 4 of our 2003 Report).
- We examined Health Canada's work to support the development of up-to-date water quality guidelines for pesticides that pose the greatest risks to Canadians and their environment (Chapter 1 of our 2003 Report).

Some quantitative information in this chapter is based on data drawn from various federal and other sources. We are satisfied with the reasonableness of the data, given their use in our chapter. However, the data have not been audited, unless otherwise indicated in the chapter.

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Appendix A Progress in meeting sustainable development strategy commitments on drinking water

We assessed the progress made by selected federal government departments in meeting their sustainable development strategy (SDS) commitments on water management and protection of drinking water. The numbers in parentheses, under Observations, indicate the paragraphs where the topic is discussed.

Commitment	Progress	Observations
Treasury Board of Canada Secretariat Lead the collection of policy and program information related to water from all involved federal departments. (2004 strategy)	●	Water is an issue that involves at least 19 federal departments. The Treasury Board Secretariat was not able to meet its targeted completion date of February 2004. Nevertheless, the Secretariat collected information from all departments and agencies involved, except for one department. (4.59)
Health Canada Continue to develop the Guidelines for Canadian Drinking Water Quality. (2004 strategy)	●	Health Canada, as the technical secretariat of the FPT Committee on Drinking Water, continues developing science-based guidelines for drinking water quality. (4.16)
Develop an integrated, source-to-tap approach to drinking water quality in Canada. (2004 strategy)	●	Health Canada, in collaboration with Environment Canada and the provinces and territories, produced two documents: *The multi-barrier approach to safe drinking water* (2002) and *From source to tap: Guidance on the multi-barrier approach to safe drinking water* (2004). (4.32)
Work with other federal departments to develop a compliance framework for drinking water quality in areas of federal jurisdiction. (2004 strategy)	◓	Health Canada, in fulfilling its commitment, has established an interdepartmental working group comprising 11 other departments and agencies. It has also produced a draft guidance document that is comprehensive and risk-based but is still at the draft stage. (4.44-4.45)
Develop or update at least six drinking and recreational water quality guidelines, in collaboration with the provinces and territories. (2000 strategy)	●	Health Canada developed the following six drinking water quality guidelines: bacteriological quality, boil-water advisory, cyanobacterial (microcystin lr), turbidity, virus, and trichloroethylene (TCE). (4.20)

● Commitment met ◓ Some progress ○ Limited or no progress

Appendix B List of recommendations

The following is a list of recommendations found in Chapter 4. The number in front of the recommendation indicates the paragraph where it appears in the chapter. The numbers in parentheses indicate the paragraphs where the topic is discussed.

Recommendation	Department's response
Developing the Guidelines for Canadians Drinking Water Quality	
4.22 Health Canada should set clear internal timelines for the development and review of drinking water guidelines and should continue to work with the Federal-Provincial-Territorial Committee to develop options to accelerate the process of approval of these guidelines. Factors impeding the approval and publication of guidelines should be made fully transparent to Canadians. **(4.19–4.21)**	Health Canada has streamlined the guideline development process over the past two years to meet a target of developing between five and seven guidelines per year. This is based on a timeline of two to three years required to develop, review, and approve a guideline, and on the increased number of scientists currently conducting evaluations. A range, rather than a fixed length, of time is appropriate as there are many factors that influence the time needed to complete a guideline (for example, single or multiple forms of a particular contaminant, limited or many potential health implications, and single or multiple exposure pathways). A multi-year work plan that reflects the two to three-year timeline for developing individual guidelines will be prepared for approval of the Federal-Provincial-Territorial Committee on Drinking Water. The streamlined process also includes measures already being implemented to accelerate the approval process. These measures focus on the defining of milestones and targets for all guidelines being assessed, development and implementation of standard operating procedures and best practices, ongoing communication between committee members to ensure early identification and resolution of concerns, and approvals of guidelines outside of regularly scheduled committee meetings. Health Canada will monitor this process and propose changes, if necessary, to ensure timely development and approval of guidelines. In addition, the status of guidelines under development, including reasons for any delays, such as new information (scientific, technological) or the need to develop and apply new methodology in the risk assessment, will be posted on the Health Canada Web site.

Recommendation	Department's response
4.31 Health Canada should produce and implement a work plan to address the backlog of about 50 drinking water guidelines that may need to be updated to reflect current science, clearly indicating which guidelines are to be reviewed, their priority ranking, revision targets, and related timelines. **(4.27–4.30)**	In 2004, Health Canada completed a comprehensive review of all the Guidelines for Canadian Drinking Water Quality, regardless of the age of the guidelines and including those developed over 15 years ago (referred to as backlog). This process has identified the existing guidelines requiring revision, and priorities for developing new and existing guidelines will be defined based on risk to public health, rather than on the age of a guideline. This comprehensive review will be conducted biennially to identify guidelines to be revised. Over half of the guidelines older than 15 years have been reaffirmed, as they are protective of human health. The list of reaffirmed guidelines will be posted on the Department's Web site, along with a list of guidelines that are candidates for revision. The remaining guidelines older than 15 years and other more recent guidelines are either scheduled for revision in the current work plan or will be considered for revision in a multi-year work plan to be developed and approved by the Federal-Provincial-Territorial Committee on Drinking Water.
Federal compliance with the Guidelines for Canadian Drinking Water Quality	
4.46 Health Canada should finalize and issue to all deputy heads, the guidance it has developed for providing safe drinking water in areas of federal jurisdiction. It should also update the guidance as needed and promote its use by federal organizations. **(4.43–4.45)**	The document *Guidance for Providing Safe Drinking Water in Areas of Federal Jurisdiction* was finalized and approved by the Interdepartmental Working Group on Drinking Water in June 2005, after consultations within each of the departments involved. The guidance document will be posted on the Health Canada Web site, and Health Canada's Deputy Minister will inform all deputy heads of the posting of the document. The Department will review and update the guidance document on a periodic basis, in consultation with the Interdepartmental Working Group. Health Canada and the co-chairs of the Interdepartmental Working Group will collaborate with the Treasury Board on adoption of the guidance document as per Recommendation 4.47.
4.47 The Treasury Board of Canada Secretariat, through the National Joint Council, should adopt the guidance for providing safe drinking water in areas of federal jurisdiction, as a requirement under the Sanitation Directive. **(4.43–4.45)**	When the National Joint Council opens the directive for renegotiation, the Treasury Board Secretariat will table wording recommending the guide be entrenched in the Sanitation Directive.

Recommendation	Department's response
4.53 Health Canada should take measures to clearly assure Canadians that potable water on aircraft is safe on a continuing basis, including recommencing routine inspections. **(4.52)**	Health Canada has had ongoing negotiations with airline industry for the last four years. The industry, represented by the Air Transport Association of Canada, has stated it is unwilling to pay for inspections by Health Canada. The Department will continue to work with the airlines to bring them into Health Canada's voluntary, cost-recovered inspection program. Health Canada will continue to inspect aircraft in the case of a complaint, emergency, or other event where there is evidence of a public health risk. The Department will examine funding options to ensure that the airline industry is subject to routine potable water inspections, taking into account inequities that may be incurred with other conveyances that already pay to participate in the voluntary, cost-recovered program.
4.55 Health Canada should revise the Potable Water Regulations for Common Carriers to include reference to the Guidelines for Canadian Drinking Water Quality, a clear definition for ancillary services, and more appropriate penalties for non-compliance. **(4.54)**	Health Canada acknowledges the need for updated legislation to address public health risks on conveyances, and is proposing a more comprehensive approach. A new comprehensive regulation for conveyances and their ancillary services (to replace the Potable Water Regulations for Common Carriers) will address penalties, definitions, and referencing of the Guidelines for Canadian Drinking Water Quality. It will also address risks associated with potable water as well as food, air quality, and general sanitation. This regulation would support Health Canada's commitments under the new *Quarantine Act* and the recently revised International Health Regulations (World Health Organization).
Status of the Federal Water Framework	
4.61 Environment Canada, in collaboration with other federal departments and agencies, should establish clear next steps on what the Federal Water Framework will be used for, particularly in relation to its five ultimate outcomes. **(4.56–4.60)**	In September 2004, the Minister of the Environment launched a process to develop a Competitiveness and Environmental Sustainability Framework for Canada (CESF). The purpose of the Framework is to attain the highest level of environmental quality as a means to enhance the health and safety of Canadians, preserve our natural environment, and advance our long-term competitiveness. The Federal Water Framework will help to reaffirm federal water policy priorities through the CESF. Some 19 federal departments completed the water framework task to describe their activities along five ultimate outcomes. The Water Framework serves as a tool to assist in identifying strengths and gaps in the departments' activities to address a full spectrum of water issues. Environment

Recommendation	Department's response

Canada will continue to promote the intent of the framework for priority setting and integrating water-related activities across the government.

As key next steps, outcomes of the Federal Water Framework will be integrated into the broader CESF along the following lines:

Federal Water Framework outcomes	CESF outcomes
Human health Hazards and environmental prediction	Health and safety of Canadians
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Sustainable use and economy	Long-term competitiveness

The primary strategies for achieving the outcomes of the Federal Water Framework will be used in developing elements of the CESF related to water. A round-table discussion on water through the Deputy Ministers' Policy Committee on Environment and Sustainability will help to reaffirm federal water priorities and align water-related activities across mandates with the CESF. This round-table discussion and the above-noted alignments are planned for the fall of 2005.

Report of the Commissioner of the Environment and Sustainable Development to the House of Commons—2005

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