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Report of the

Commissioner of the Environment and Sustainable Development

to the House of Commons

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Chapter 1
Managing Air Emissions

Office of the Auditor General of Canada

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Chapter

1

Managing Air Emissions

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.

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Managing Air Emissions

Main Points

What we examined

Air emissions are the release into the atmosphere of pollutants, many of which have global effects such as greenhouse gases. The sources of air emissions range from industry, electric power generation, and transportation to agricultural production and individual households.

To manage and control air emissions, the federal government uses a "menu" or "tool box" of approaches. We looked at examples of four types of tools and assessed whether the government knows what results the tools have achieved or are expected to achieve.

We examined a Pollution Prevention Plan implemented under the *Canadian Environmental Protection Act, 1999* (CEPA 1999) to manage acrylonitrile, a substance used to manufacture synthetic rubber and other products. We examined how Environment Canada manages regulations governing gasoline and diesel fuel content, as well as regulations that limit the flow of gasoline during refuelling of vehicles at the pump. We also looked at the Clean Air and Climate Change Trust Fund and the Public Transit Tax Credit, two economic measures intended to reduce greenhouse gas emissions. Both were included in the government's Climate Change Plan, issued in response to the *Kyoto Protocol Implementation Act*. Finally, we examined three of the federal government's voluntary agreements with industry associations, which were intended to reduce emissions that contribute to smog and climate change.

Why it's important

Besides contributing to smog and climate change, air emissions have harmful health effects such as asthma, lung irritation, and cardiovascular disease; individuals who are young, sick, or elderly are particularly vulnerable. Benzene, a component of gasoline, is a known carcinogen that may lead to cancers such as leukemia. Acrylonitrile is also a known carcinogen, unsafe at any level of exposure. Both substances have been designated as toxic substances by Environment Canada and Health Canada under various iterations of the *Canadian Environmental Protection Act*.

The federal government has entered into international agreements and national initiatives to combat air emissions—examples are the Kyoto Protocol and the Canada-US Air Quality Agreement at the international level and, at the national level, *Turning the Corner* (a plan to regulate greenhouse gas emissions and air pollutants). Key elements of both the Kyoto Protocol and *Turning the Corner* are the commitment to "real, measurable, and verifiable results."

What we found

- The federal government cannot demonstrate that the results it has reported for the policy tools we examined have actually been achieved or that processes are in place to verify the results reported by the private sector.
- Environment Canada has indicated that the Pollution Prevention Plan Notice it published in 2003 for acrylonitrile (requiring a company that was using the substance to implement a plan for reducing emissions) has been successful, based on the results reported by the company. The Department did not validate the results. Furthermore, no other emitters of acrylonitrile were subject to the Notice. Total air emissions of acrylonitrile saw a rapid increase from 2003 to 2006. While activities by Environment Canada contributed to a reduction in emissions between 2006 and 2007, total national emissions are still almost three times higher than in 2000 when the substance was declared toxic.
- Environment Canada states that compliance with the regulations limiting the content of benzene in gasoline and of sulphur in diesel fuel is high. However, it has not assessed whether its enforcement approach is sufficient to support this assertion. In comparison, it has carried out almost no enforcement of a third regulation, the Gasoline and Gasoline Blend Dispensing Flow Rate Regulations, governing the release of carcinogenic benzene and other volatile substances into the air at gas pumps across Canada. As a consequence, it does not know whether this regulation is achieving results.
- Environment Canada lowered its initial estimate of annual reductions in greenhouse gas emissions from 220,000 tonnes to about 35,000 tonnes expected as a result of the Public Transit Tax Credit—a reduction that will have a negligible impact on Canada's greenhouse gas emissions, despite the $635 million reported in the 2007 Budget as the cost of the Tax Credit.
- Environment Canada used flawed analyses to establish the 80-megatonne reduction in greenhouse gas emissions it expects from 2008 to 2012 as a result of the Clean Air and Climate Change Trust Fund ($1.519 billion in federal funds transferred to

the provinces and territories). Further, although the 80 megatonnes are included as part of the total reductions the federal Climate Change Plan will achieve, the Trust Fund has no conditions that allow the federal government to monitor the provinces' results by requiring the provinces to report to it on how they use the funds. Therefore, it is very unlikely that Environment Canada will be able to report real, measurable, and verifiable results.

- The three voluntary agreements we assessed meet many of the general expectations for what a voluntary agreement should include. However, the government has not completed the key step of verifying the results reported by the private sector.

The Department has responded. The Department agrees with all of our recommendations. Its detailed responses follow each recommendation throughout the chapter.

Introduction

Power generation at facilities like this thermal power plant is a major source of greenhouse gas emissions in Canada.

Photo: Bastiaan Kalt

Smog—A haze in the air consisting of gases and particles. It forms when natural and human sources release pollutants into the lower atmosphere. The largest sources of pollutants are the burning of fossil fuels for transportation, power generation, industry, and heating and cooling. The two primary pollutants in smog are ground-level ozone and particulate matter. Ground-level ozone is produced by a reaction between nitrogen oxides and volatile organic compounds in the atmosphere in the presence of sunlight. Particulate matter is a collection of airborne particles in solid or liquid form. Some examples are smoke and ash from burning wood. Other components of smog include sulphur dioxide, volatile organic compounds, and carbon monoxide.

Criteria air contaminants—A group of air pollutants that cause smog, acid rain, and other forms of air pollution. They occur mostly when fossil fuels are burned. Criteria air contaminants include sulphur oxides, nitrogen oxides, volatile organic compounds, carbon monoxide, ammonia, and particulate matter.

Volatile organic compounds—Volatile organic compounds such as benzene are key causes of ground-level ozone and particulate matter in the atmosphere, which are the main ingredients of smog. Major sources of volatile organic compounds include the transportation sector, industry, and solvents.

Air quality is important to the health of Canadians and the environment

1.1 Air quality has a direct influence on our health and the environment. Poor air quality has been linked to asthma, lung cancer, cardiovascular disease, and allergies. Sick and elderly people and young children are particularly vulnerable to air pollution. Poor air quality has a negative impact on the environment, including forests and other ecosystems. Environment Canada has stated that poor air quality causes heavy economic costs, with billions of dollars spent on health care and environmental remediation.

1.2 Air pollution problems such as **smog** are caused by the emission of pollutants into the atmosphere. Air pollutants include **criteria air contaminants** (nitrogen oxides, **volatile organic compounds**, sulphur oxides, carbon monoxide, particulate matter, and ammonia), as well as toxic substances such as benzene and acrylonitrile. The main sources of air pollutants are transportation, power generation, industry, and heating and cooling.

1.3 Another class of atmospheric emissions consists of greenhouse gases, including carbon dioxide, methane, and nitrous oxide. They play a key role in climate change—that is, the long-term shift in the global climate. Canadians are among the world's highest emitters of greenhouse gases per capita. The main sources of emissions are power generation, transportation, and industrial processes. According to the Intergovernmental Panel on Climate Change, climate change is likely to increase the frequency of severe weather events such as droughts, floods, and storms.

1.4 The federal government has stated that it is committed to acting on air pollution and greenhouse gas emissions to improve Canadians' health and the environment. It has committed itself to national initiatives (such as *Turning the Corner*) and international agreements (such as the Canada–United States Air Quality Agreement and the Kyoto Protocol) to achieve this goal. At the federal level, Environment Canada has responsibility for air pollution matters, while the departments of Health, Transport, Natural Resources, and others play important roles. Environment Canada and other departments protect Canadians' health and the environment through such means as regulations, guidelines, codes of practice, economic instruments, voluntary agreements, and pollution prevention plans.

Industry is a major source of volatile organic compound emissions in Canada.

Focus of the audit

1.5 Our audit sought to determine whether the responsible departments of the Government of Canada know if selected policy tools that are key to controlling air emissions are achieving results. The audit assessed each selected tool individually. We did not compare the different tools.

1.6 We examined four types of policy tools for the audit:

- pollution prevention plans, specifically, the *Notice for Pollution Prevention Plans in Respect of Acrylonitrile*;
- fuels regulations, specifically, the Benzene in Gasoline Regulations, Sulphur in Diesel Fuel Regulations, and Gasoline and Gasoline Blend Dispensing Flow Rate Regulations;
- economic measures, specifically, the Clean Air and Climate Change Trust Fund and the Public Transit Tax Credit; and
- voluntary agreements with industry, specifically, the Railway Association of Canada, Canadian Chemical Producers' Association, and Air Transport Association of Canada.

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

Observations and Recommendations

Pollution prevention plans

1.8 Under the *Canadian Environmental Protection Act, 1999* (CEPA 1999), the Minister of the Environment can publish in the *Canada Gazette* a notice requiring persons to prepare and implement a **pollution prevention plan** to manage toxic substances identified under CEPA 1999. To date, eight notices for pollution prevention plans have been published in the *Canada Gazette*. Five of the notices concern air emissions. The first notice was published in 2003 and addressed releases of **acrylonitrile** associated with the manufacturing of synthetic rubber.

Pollution prevention plan—A systematic and comprehensive plan that commits to ways of using processes, practices, materials, products, substances, or energy that avoid or minimize the creation of pollutants and waste, and reduce the overall risk to the environment or human health.

Acrylonitrile—A substance used to manufacture synthetic rubber, structural foam, and other products. It was declared toxic in 2000 under CEPA 1999 because of its cancer-causing potential and the probability of harm at any level of exposure. A particular concern was the higher relative levels of exposure to outdoor air emissions, especially for people living near industrial sources.

1.9 A person or company subject to a notice must prepare and implement a pollution prevention plan and file specified documents by the dates prescribed, reporting the actions taken and the results achieved from implementation of the plan. However, the party is not legally bound to meet the notice's targets. According to Environment Canada, its officials

- inform all those affected by the notice of their obligations;

- review plan documents to ensure they are complete and reasonable;
- contact the party to request that it clarify or amend information, if necessary;
- conduct site visits, if warranted; and
- take enforcement action, if warranted.

According to Environment Canada, pollution prevention plans have never been identified as a priority for enforcement by the Department, as such, enforcement activities have been reactive in terms of following up on late or missing reports. Environment Canada has conducted few on-site inspections to ensure that parties have implemented their pollution prevention plans.

1.10 For this audit, we examined Environment Canada's processes relating to reviewing and reporting on the *Notice Requiring the Preparation and Implementation of Pollution Prevention Plans in Respect of Acrylonitrile,* published in the *Canada Gazette* in May 2003. We expected Environment Canada to have measured and verified the results achieved through the implementation of this notice.

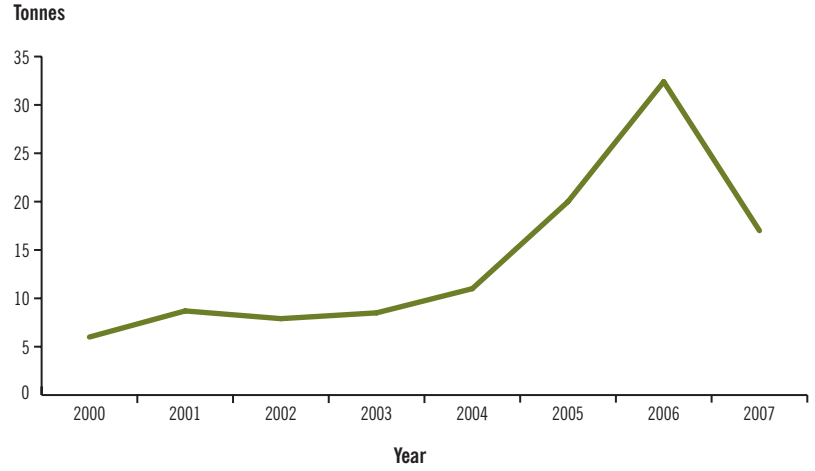
No final independent assessment was conducted on the plan's results

1.11 The May 2003 notice published in the *Canada Gazette* concerned a company that was producing synthetic rubber through a manufacturing process that used acrylonitrile and released the substance into the environment. The notice required the company to prepare and implement a pollution prevention plan that would reduce acrylonitrile releases to the lowest possible levels by December 2005. Environment Canada's risk management strategy indicated that a single facility was responsible for the bulk of acrylonitrile air emissions in Canada. The notice specifically targeted this facility.

1.12 The original risk management strategy did not take into account how emissions from other sources should be addressed and pollution prevented. According to Environment Canada's **National Pollutant Release Inventory**, total air emissions of acrylonitrile saw a rapid increase from 2003 to 2006. Efforts by Environment Canada over the past few years to work with the sources of increased air emissions have reversed the upward trend by almost 50 percent in 2006–07. Nonetheless, the total acrylonitrile emissions in 2007 were still about three times higher than they were when the substance was first declared toxic under CEPA 1999 and 8.5 tonnes higher than when the Notice was published in 2003 (Exhibit 1.1).

National Pollutant Release Inventory—A publicly accessible Canadian database containing information on annual on-site releases of specific substances to the air, water, and land, as well as disposals and off-site transfers for recycling that originate from industrial and institutional sources. The Inventory is managed by Environment Canada and currently tracks 367 substances and groups of substances.

Exhibit 1.1 **Acrylonitrile air emissions in Canada have increased overall but show recent reductions**



Source: Environment Canada

1.13 **Recommendation.** Environment Canada should review and revise its risk management strategy for acrylonitrile and ensure control measures are in place to deal with significant sources.

The Department's response. Environment Canada accepts this recommendation. Under Canada's 2006 Chemical Management Plan (CMP), 4,300 substances have been identified as posing a potential risk to human health and the environment. Five hundred of these substances are deemed to be of the highest priority. Given the significance of this challenge, it is essential to devote resources to management activities in a manner commensurate with the risks involved.

Acrylonitrile, a substance emitted in the gaseous form from plastic industry facilities, would have been part of the highest priority group if early risk management actions had not been taken in 2003. Risk management instruments have been put in place to cover the two facilities that have been responsible for over 99 percent of acrylonitrile emissions.

In early 2000, when Environment Canada developed the chemical management program, now known as the CMP, various *Canadian Environmental Protection Act, 1999* science-based instruments were considered and assessed to ensure that their use would be aligned with the risks to be managed. Pollution prevention plan notices are one such instrument, and are generally used in select situations where independent validation of data would not necessarily result in any

increased level of environmental protection. Environment Canada believes that it has fulfilled its intended role for the oversight of this instrument.

Furthermore, in Canada, jurisdiction over the environment is shared with provinces and territories. Therefore, interventions at the federal level with respect to particular pollutants have to be scientifically driven and of national concern. Otherwise, the best approach is to collaborate with the provinces/territories directly concerned by the issue.

In the case of the first plant, which was covered by the Acrylonitrile Pollution Prevention Plan Notice, it was necessary for the federal government to intervene, as the province had not yet developed its own standards. In the case of the second plant, where the provincial government was in a position to use its own tools to address the same issue, the federal government agreed to the use of the provincial instrument. In both situations, the environmental outcome is reduced atmospheric emissions of acrylonitrile to the lowest economically achievable levels.

As the CMP unfolds and lessons are learned from the numerous science-based interventions that are now being undertaken, the federal government will continue to refine its strategies for risk management. Relative to acrylonitrile, the 2002 Risk Management Strategy will be reviewed and updated based on current emissions from Canadian facilities with the objective of limiting releases from significant industrial sources to the lowest levels technically and economically achievable.

To achieve this intended outcome, the 2002 Risk Management Strategy update will incorporate consideration of the current emission profiles, best available technologies economically available and an examination of the existing controls at the provincial and federal levels.

The performance of the 2002 Risk Management Strategy will be measured through the achievement of any targeted reductions from significant sources of acrylonitrile emissions.

Environment Canada will undertake the implementation of the updated Risk Management Strategy by December 2009 and it will be carried out in collaboration and after consultation with other implicated parties and/or jurisdictional authorities.

1.14 Final independent assessment of plan results has not been undertaken. The single largest user of acrylonitrile in Canada when the notice was issued was Bayer Inc., which subsequently sold its facility to LANXESS Inc. The company reported that it had been reducing its acrylonitrile emissions for several years. According to Environment Canada, through implementation of its pollution prevention plan, the facility succeeded in reducing air emissions of acrylonitrile from 6.8 tonnes in 2003 to 3.2 tonnes in 2006 and eliminating transfers to other sites for incineration. The Department accepted the company's reports of success.

1.15 Environment Canada states that its knowledge of the industrial sector, its visits to the facility, desk reviews of industry reports, its public reporting requirements, and the penalties for false reporting provide the necessary assurance that the information supplied by the company is accurate. Environment Canada's August 2007 draft guide for risk managers on pollution prevention plans does not address how data reported by industry is to be assessed. Good management practices would have required one further step to demonstrate the success of the plan—the independent assessment of the accuracy of the final results. Environment Canada did not take this step and relied exclusively on the results reported by the facility.

Fuels regulations

1.16 At the federal level, the *Canadian Environmental Protection Act, 1999* (CEPA 1999) protects Canadians' health and our environment by preventing and managing the health and environmental risks posed by toxic substances and other substances deemed to present a risk. **Regulations** are key tools in managing these risks. Of 43 regulations currently listed under CEPA 1999, 7 relate to fuels. Environment Canada is responsible for all of them.

Regulations—Measures that impose restrictions on an activity related to a substance or that set limits on the amount of a substance allowed to be used, released to the environment, or contained in a product.

Source: Environment Canada

1.17 Compliance with the regulations under CEPA 1999 is mandatory. Environment Canada is responsible for securing compliance through two main types of activity: compliance promotion and enforcement. Steps taken to promote compliance include providing annual information to the community being regulated, and responding to inquiries and requests. Enforcement activities include inspections to verify compliance; investigations of suspected violations; and measures to compel compliance, such as warnings, tickets, or environmental protection compliance orders. Environment Canada's annual plans to assess compliance with the regulations are based on national and regional priorities. These are identified through consultations involving the Department's compliance promotion staff, enforcement staff, headquarters, and regional offices.

1.18 For this audit we focused on three fuels regulations:

- the Benzene in Gasoline Regulations;
- the Sulphur in Diesel Fuel Regulations; and
- the Gasoline and Gasoline Blend Dispensing Flow Rate Regulations (referred to subsequently as the Flow Rate Regulations).

1.19 We expected that Environment Canada would have procedures in place enabling it to know whether requirements are being met concerning the content of fuels and the way fuels are dispensed. We also expected Environment Canada to publish reports about progress on compliance with the three regulations.

Environment Canada has not assessed overall implementation for the Benzene and Sulphur Regulations

Benzene—A substance found naturally in crude oil and released into the environment from sources such as vehicle emissions. In 1994, it was declared toxic because there is no known safe level of exposure and because benzene may cause cancers such as leukemia. As a volatile organic compound it also contributes to smog.

1.20 The Benzene in Gasoline Regulations came into force on 6 November 1997. The objective of the regulations is to reduce emissions of **benzene** from gasoline-powered vehicles by setting limits on benzene content in gasoline (1.5 percent by volume at the service station pump and 1.0 percent by volume when supplied by producers or importers) and establishing a limit on other gasoline contents based on predicted tailpipe emissions. Regulated importers and producers must maintain records and submit regular reports to the Minister of the Environment. They can comply with the regulations using a yearly pool average or a flat per-litre assessment; in the first case, they must meet more administrative requirements.

Sulphur—A substance that may occur in crude oil. Its presence in fuel products depends on the source of the crude and the refining process. High sulphur levels in fuels increase emissions of a number of pollutants from vehicles and contribute significantly to air pollution.

1.21 The Sulphur in Diesel Fuel Regulations came into force on 1 January 2003. As of 1 June 2006, the regulations limited the **sulphur** content in diesel fuel for use in on-road vehicles to a maximum of 15 milligrams per kilogram. Changes in 2006 set limits for off-road, rail, and marine diesel fuel. The regulations require importers and producers of diesel fuel to maintain records and submit regular reports to the Minister of the Environment on diesel fuel volumes and sulphur content. A key purpose of the regulations is to ensure that the level of sulphur in diesel fuel will not interfere with the operation of emission-control technologies such as particulate matter filters. In combination with low-sulphur fuels, these technologies are designed to reduce harmful emissions such as sulphur oxides, nitrogen oxides, volatile organic compounds, and particulate matter.

1.22 The Benzene in Gasoline Regulations and the Sulphur in Diesel Fuel Regulations were identified as national enforcement priorities

The benzene and sulphur content of fuels in Canada is subject to specific regulated limits. Environment Canada inspects fuels at refineries, blending facilities, import points and other locations in order to verify whether industry is meeting the limits.

from fiscal years 2003–04 to 2007–08. Environment Canada uses off-site inspections (for example, verification of a report submitted by a company) and on-site inspections (for example, visits to a refinery to sample fuels) to verify compliance with these regulations. Although inspections and other compliance and enforcement activities undergo an annual planning process, Environment Canada did not prepare an overall assessment as to how these activities might be designed and resourced such that conclusions about compliance would have a high level of confidence.

1.23 Environment Canada indicates compliance for both fuel content regulations is high. For both regulations, Environment Canada has indicated that compliance is high. Its finding is part of the Department's justification for removing the regulations from its list of high priorities in 2008. From 1 April 2002 to 31 March 2008, Environment Canada reports an overall compliance level of 99 percent for both regulations based on the inspections and investigations undertaken. This includes compliance with both administrative and fuel content requirements. In addition, reporting by industry on the Benzene in Gasoline Regulations indicates few violations of the fuel content requirements. For example, in 2006, there was only one reported case where the benzene limits were exceeded. For certain compliance options, these industry reports must be audited by an independent certified auditor. The Sulphur in Diesel Fuel Regulations do not require industry to report directly on exceedances.

1.24 Environment Canada has not assessed the sufficiency of its enforcement approach. Environment Canada does not know how sufficient its overall approach is to enforcing the regulations, including the inspection of fuel contents and the verification of reports prepared by industry. For example, the Department has not determined whether it inspects refineries and other suppliers frequently enough and where the gaps are. As well, it has focused inspection resources on refineries, blending facilities, and importers but conducted few inspections at service stations and wholesalers. The Department has justified this aspect of its approach by saying that inspection of upstream sources of fuels (such as refineries) will provide evidence of compliance at downstream outlets (such as service stations). It has not conducted an overall assessment of the sufficiency of its enforcement approach, although this could support the Department's assertions about compliance rates and identify gaps in the approach.

1.25 Quality assurance of the enforcement process. Two of Environment Canada's tools for assuring quality and consistency of the enforcement process and data nationwide are the Fuels Regulations Working Group and the enforcement database.

- The Fuels Regulations Working Group is an example of a good practice. Its mandate is to ensure consistency in the way regulations dealing with fuels are applied across Canada. Established in 1999, the Working Group consists of Environment Canada program and enforcement staff from Ottawa and the regions, as well as laboratory personnel.

- The enforcement database is a shared national structure for recording and reporting on the Department's enforcement work and the results achieved. Environment Canada notes that the database promotes consistency and quality in reporting and case management.

1.26 The Department has undertaken other projects to improve quality and consistency of enforcement activities. However, it has not conducted an overall assessment of the operations in the five regions to determine their quality and consistency.

1.27 Recommendation. Environment Canada should conduct an assessment of its implementation of the Benzene in Gasoline Regulations and the Sulphur in Diesel Fuel Regulations to

- determine the acceptable compliance rate for each regulation for all sectors of the regulated community;

- determine and implement compliance promotion and enforcement activities that need to be conducted: (a) to achieve the acceptable compliance rate, and (b) to provide assurance that there is a high level of statistical confidence in any compliance rate reported;

- develop and publicly report on performance indicators; and

- determine what has gone well and which areas require improvement.

The Department's response. Environment Canada agrees with the recommendation that an assessment of all departmental activities under the Benzene in Gasoline Regulations and the Sulphur in Diesel Fuel Regulations will support a more integrated approach to the implementation of these regulations.

The Enforcement Branch, Compliance Promotion and Analysis Division and the Energy and Transportation Directorate will work on identifying performance measures and on a 2009–2010 compliance strategy, which will be completed by March 2009. The 2009–2010 compliance strategy will outline performance measures and will determine what compliance promotion and enforcement activities need to be conducted. There are new performance measures and requirements within the Cabinet Directive on Streamlining Regulations and these will be considered when reviewing and updating the compliance strategy for these regulations. The compliance strategy and the performance measures are designed to achieve the expected outcomes in line with departmental enforcement and compliance promotion priorities. These priorities are determined based on an assessment of the real and potential risks to the environment and health using tools such as environmental scanning to gather and analyze data on trends, patterns, modi operandi, and events that could have a negative impact on the environment or human health. The performance measures that are part of the 2009–2010 compliance strategy could include the compliance rate and the number of compliance promotion and enforcement activities.

Environment Canada will continue to develop and publicly report annually on performance indicators such as the number of regulatees identified, and the number of inspections and investigations conducted. Concerning the high level of statistical confidence in any derivation of performance indicators, the Environmental Enforcement Division is already addressing this issue via various alternative measures, including the development and implementation of the National Data Input Standards for NEMISIS Files that will guide enforcement officers in the entry of data in the NEMISIS database and is expected to be implemented on or before December 2008. Also, the NEMISIS National Quality Assurance and Quality Control Committee, which meets quarterly, is mandated to provide assurance that there is a high level of statistical confidence in all compliance data reported.

Environment Canada has done little to enforce the Flow Rate Regulations for gasoline

1.28 On 1 February 2001, the Gasoline and Gasoline Blend Dispensing Flow Rate Regulations came into effect, setting limits on the flow of gasoline or gasoline blends during the refuelling of on-road vehicles. When the flow rate of fuel into a vehicle exceeds the vehicle's capacity to receive fuel, vapours of benzene and other volatile organic compounds are emitted into the air. At the time the regulations came

The Gasoline and Gasoline Blend Dispensing Flow Rate Regulations set limits on how quickly fuel flows from the pump. This is intended to reduce the exposure of Canadians to benzene and other air pollutants.

into effect, Environment Canada estimated that pumping of gasoline into cars was responsible for about 6 percent of the daily benzene intake by adult Canadians who are not regularly exposed to cigarette smoke. The regulations prohibit retailers and wholesale purchasers/consumers (such as private pumps at a taxi stand) from using a nozzle to dispense regulated fuels if the flow rate exceeds 38 litres per minute. The Department's analysis indicates that the impact of the regulations will represent an annual decrease of about 1,500 tonnes of volatile organic compounds in the atmosphere, including about 15 tonnes of benzene.

1.29 Community to be regulated by the Flow Rate Regulations not yet completely identified. Seven years have passed since the Flow Rate Regulations came into effect. Environment Canada has still not completely identified the community to whom the regulations apply. Nationally known companies and major independent retailers are probably aware of the regulations as a result of the annual compliance promotion package they receive from Environment Canada and letters sent when the regulations were first published and when they came into force. However, other retailers and wholesalers in Canada may not know about the regulations. Environment Canada is aware of the deficiency.

1.30 Almost no enforcement of the Flow Rate Regulations to date. The Flow Rate Regulations have not been a priority for Environment Canada and the Department has done little to enforce them. Recently, Environment Canada's Ontario Region conducted two studies of gasoline retailers and wholesale purchasers/consumers to get a preliminary idea of compliance rates in the province. For the samples tested, the studies noted that independent retail stations and those located in rural communities were less likely to be in compliance with the regulations. Environment Canada does not know what the compliance rate in the rest of Canada might be.

1.31 Recommendation. Environment Canada should identify the community of retailers and wholesalers subject to the Gasoline and Gasoline Blend Dispensing Flow Rate Regulations and conduct compliance promotion and enforcement activities targeting members of the community.

The Department's response. Environment Canada agrees with the recommendation that the Department should identify the community of retailers and wholesalers subject to the Gasoline and Gasoline Blend Dispensing Flow Rate Regulations, and conduct compliance promotion activities targeting members of the community.

Environment Canada has identified the Gasoline and Gasoline Blend Dispensing Flow Rate Regulations as a priority for compliance promotion activities in 2008–09. A survey has already been initiated to identify the regulatory community affected by these regulations and is expected to be completed by November 2008. After the survey results have been analyzed, a fact sheet will be developed and disseminated, by December 2008, to increase awareness of the requirements of these regulations.

The Enforcement Branch, Compliance Promotion and Analysis Division and the Energy and Transportation Directorate will work closely together to develop a compliance strategy and compliance promotion plan for 2009–2010 and future years, by March 2009, that is in line with departmental enforcement and compliance promotion priorities. These priorities are determined based on an assessment of the real and potential risks to the environment and human health, using tools such as environmental scanning to gather and analyze data on trends, patterns, various modi operandi, and events that could have a negative impact on the environment or human health.

The compliance strategy and compliance promotion plan will foster the coordination and provide consistency during the implementation phase should this regulation be identified as a departmental enforcement and compliance promotion priority. The compliance strategy will outline the best methods of implementing and measuring the compliance promotion and enforcement required to ensure the subject community complies with the regulations. The compliance strategy will identify performance measures and strategic considerations, including intensity of compliance promotion and enforcement, and will provide an overall description and analysis (size, location, composition, etc.) of the regulatees. The strategy will also outline performance indicators that could include rate of compliance, number of enforcement activities carried out (e.g. inspections and investigations) and the number of responses to alleged violation (e.g. warning letters, environmental protection compliance orders and prosecutions).

1.32 Environment Canada reports on enforcement activities and fuel content. Every year, Environment Canada publishes statistics on its website about inspections, investigations, enforcement measures, and other activities connected with regulations under the *Canadian Environmental Protection Act, 1999*. At the conclusion of our audit, the most recent publicly available enforcement data was for the 2004–05 fiscal year. Environment Canada also publishes two reports entitled *Sulphur in Liquid Fuels* and *Benzene in Canadian Gasoline.* These present

annual summary data on fuel volume and content, as reported by producers and importers. The latest benzene report published is for 2006. Environment Canada expected the sulphur report for 2006 to be released in the summer of 2008.

Economic measures

1.33 In June 2007, Parliament passed the *Kyoto Protocol Implementation Act* to ensure that Canada meets its climate change obligations under the Kyoto Protocol. The Act requires the Minister of the Environment to prepare an annual Climate Change Plan that sets out measures to reduce greenhouse gas (GHG) emissions as well as the expected yearly reductions resulting from each measure. In subsequent plans, the Department must also report on progress since the previous year, including the results achieved by each measure. Environment Canada published the government's first plan under the Act in August 2007 and a second plan in May 2008.

1.34 For this audit, we examined the expected reductions in greenhouse gas emissions related to two economic measures included in Environment Canada's 2007 Climate Change Plan: the **Clean Air and Climate Change Trust Fund**, and the Public Transit Tax Credit. We expected that the responsible departments would have used adequate analyses to determine the expected emission reductions to be achieved, and that the departments would have adequate monitoring and verification processes in place to ensure that these results were being achieved.

The Clean Air and Climate Change Trust Fund–A trust is created when one party, the settlor, transfers legal ownership of property including funds to another party, the trustee, for the benefit of a third party, the beneficiary. In the Clean Air and Climate Change Trust Fund, the federal government (the settlor) has transferred $1.519 billion to a trustee. In turn, the trustee has been instructed to disburse to the provinces and territories (the beneficiaries) their portion of the trust fund.

Estimates of greenhouse gas emission reductions under the Trust Fund are flawed and unverifiable

1.35 In its March 2007 Budget, the federal government announced a transfer of $1.519 billion to provincial and territorial governments under the Clean Air and Climate Change Trust Fund. The Trust Fund is an element of *Turning the Corner,* a government initiative described by Environment Canada as "Canada's plan to reduce greenhouse gas emissions and air pollution." Both the 2007 Budget and *Turning the Corner* state that the Trust Fund will yield real reductions in greenhouse gas emissions and other air pollutants. No expected reductions from the Trust Fund were quantified in these documents.

1.36 The Trust Fund was included in Environment Canada's Climate Change Plan with respect to the *Kyoto Protocol Implementation Act* in 2007 and again in 2008. In both years, the Plan states that the Trust Fund is expected to reduce GHGs by 16 megatonnes annually from 2008 through 2012, for a total of 80 megatonnes.

1.37 Expected emission reductions for the Trust Fund in the 2008 Plan are contradictory. The Trust Fund's 16 megatonnes of annual expected GHG emission reductions presented in the 2008 Plan account for a significant proportion of the expected emission reductions from all measures presented in the Plan. However, the government also excludes the Trust Fund's expected reductions from the calculation of Canada's total future emissions levels, effectively assuming a zero result from the Trust Fund. The 2008 Plan did not highlight or explain this specific contradiction. The 2008 Plan does not clearly explain what emission reductions Canadians can expect to be achieved with the $1.519 billion already transferred to the Trust Fund.

1.38 Environment Canada included a statement of the expected reductions from the Trust Fund in the Plan because it is required by the Act to report on expected reductions for each measure included in the Plan. In subsequent plans, Environment Canada is required to report on the implementation of the measures, which includes reporting on the results—the actual GHG emission reductions achieved. The figures quoted for the Trust Fund are significant. Given that expected emission reductions from some other measures decreased in the 2008 Plan, the Trust Fund now accounts for around 80 percent of the total expected emission reductions for all quantified measures in the first year of the 2008 Plan and around 26 percent of expected reductions for all quantified measures in the 2008 to 2012 time period.

1.39 Analysis supporting Environment Canada's expected greenhouse gas emission reductions is weak. There are problems in how the 80 megatonnes of expected reductions against the Trust Fund for the years 2008 to 2012 were derived. The Department conducted almost no analysis to support that figure, and did not perform key types of analysis. The little analysis it did undertake is based on flawed assumptions—for example, that all provinces and territories face identical opportunities, challenges, and economic conditions for achieving emission reductions. Since the basis for the estimate is flawed, we cannot determine what a reasonable range of expected results should have been.

1.40 Environment Canada cannot monitor or verify the Trust Fund results. In our December 2008 Auditor General's Report, Chapter 1, A Study of Federal Transfers to the Provinces and Territories, we note that the provinces and territories frequently have no legal obligation to spend sums transferred to them through a trust fund for the purpose announced by the federal government. Provinces and territories also frequently have no legal obligation to report to the federal government on how the money was spent and what was achieved. Environment

Canada has acknowledged that the provincial and territorial governments are accountable only to their own constituencies for expenditures and results under the Trust Fund, not to the federal government. The Department has not developed and implemented even a voluntary system for monitoring greenhouse gas emission reductions under the Trust Fund. Nevertheless, Environment Canada made a claim of expected results in 2007 and repeated it in 2008, knowing that the nature of the Trust Fund makes it very unlikely that the Department can report real, measurable, and verifiable results.

Expected environmental impacts for the Public Transit Tax Credit are supported by poor analysis

1.41 In its 2006 Budget, the federal government announced the Public Transit Tax Credit (Exhibit 1.2). The measure is intended to ease traffic congestion in urban areas and to improve the environment through the use of public transit. The measure is also intended to allow eligible transit users to save on their taxes if they claim the tax credit. The government indicated that the cost, in foregone tax revenue, for fiscal years 2006–07 through 2008–09 would be $635 million. The Department of Finance Canada states that it cannot report on the actual cost of the program at this time because the required income tax data for 2007, the first full year of the credit, will not be available until 2009.

The Public Transit Tax Credit is intended to ease traffic congestion in urban areas and to improve the environment through the use of public transit. Eligible Canadians can save on their taxes by claiming the credit.

Exhibit 1.2 Why is the government giving a tax credit for public transit?

"Canadians are concerned about traffic congestion and the harmful greenhouse gas emissions that come with it. Increasing the use of public transit, including buses, subways, commuter trains and ferries, will help ease traffic congestion in our urban areas and reduce air pollution that dirties our air and affects our health. The tax credit for public transit makes public transit more affordable for Canadians and provides clean air in our communities. Encouraging greater use of public transit is one element of the Government of Canada's environmental agenda to reduce greenhouse gas emissions and promote clean air."

Source: Government of Canada

1.42 In its 2007 Climate Change Plan under the *Kyoto Protocol Implementation Act*, Environment Canada stated that the Tax Credit is expected to result in emission reductions of 220,000 tonnes each year from 2008 through 2012. This was approximately double Finance Canada's estimate of the resulting emission reductions in its strategic environmental assessment. In its 2008 Plan, Environment Canada amended the figure for expected reductions to an average of 35,000 tonnes per year—about 16 percent of the original estimate. Given the lowered figure, the Tax Credit will have a negligible impact

on Canada's greenhouse gas emissions. Many factors influence public transit ridership, including the price of gasoline. The result is that it is almost impossible to measure actual greenhouse gas emission reductions attributable to the tax credit. With regard to other air emissions, Environment Canada could not provide any analysis to support the assertion that the Tax Credit would result in measurable impacts.

1.43 Environment Canada and Finance Canada to jointly monitor greenhouse gas emission reduction results—methodology for monitoring not yet developed. Environment Canada has indicated that it is responsible for providing an estimate of greenhouse gas emission reductions for each year up to 2012 and that monitoring and reporting on results of the Public Transit Tax Credit would be undertaken by Finance Canada. The methodology by which emission reductions will be monitored and estimated has not yet been developed. Finance Canada states that its annual monitoring is limited to providing estimates and projections for tax expenditures, including the Public Transit Tax Credit, based on data available from the Canada Revenue Agency. In addition, Finance Canada has confirmed that a full evaluation of the Tax Credit against all of the policy objectives stated in Budget 2006 will be undertaken starting in 2011, as income tax data relating to the credit becomes available. Finance Canada confirmed that this evaluation will include consideration of Environment Canada's estimated results for the Tax Credit in reducing greenhouse gas emissions.

1.44 Finance Canada cannot demonstrate that it has assessed the design of the Tax Credit using its own framework. In 2005, Finance Canada published *A Framework for Evaluation of Environmental Tax Proposals*, for use in assessing the integration of economic and environmental considerations (such as impacts on greenhouse gases and other air emissions) in the development of new environmental tax proposals. The Framework states, "Where a clear goal is established, proposed tax measures must be assessed against a set of criteria that must also guide the evaluation of alternative forms of intervention." Finance Canada did not provide documentation that it had assessed the key environmental and economic impacts of the Public Transit Tax Credit in accordance with the Framework. The Department claimed that this analysis only existed within a ministerial briefing note, which we requested for audit purposes and which Finance Canada declined to provide. According to Finance Canada, this information could not be provided to us because it was a Cabinet confidence. The Department provided a copy of its

Strategic Environmental Assessment—The Government of Canada's *Cabinet Directive on the Environmental Assessment of Policy Plan and Program Proposals* (or Strategic Environmental Assessment) says that an assessment must be conducted for any policy, plan or program proposal that is submitted to a Minister or to Cabinet for approval and whose implementation may result in important environmental effects, either positive or negative. According to the Privy Council Office, departments are accountable for adhering to the directive and for the quality of their analysis.

strategic environmental assessment but was unable to show how it was integrated into the Department's overall analysis under the Framework, since it too constituted a Cabinet confidence.

1.45 A consultant's report commissioned by Finance Canada prior to the Tax Credit's approval dismissed an alternative proposal because the cost to government would be excessive ($800 per tonne of greenhouse gases reduced) and the reduced fares would have little impact on transit usage. For the Public Transit Tax Credit as announced, Finance Canada estimated that the cost through tax revenue loss would be much higher, ranging from around $2,000 to $3,000 per tonne of greenhouse gases reduced between 2006 and 2010. Based on this estimated cost and the lowered expectations for the GHG emission reductions in the 2008 Plan, the cost per tonne will be even higher.

Voluntary agreements

1.46 A voluntary agreement involves one or several governments, one or several companies, and/or industry sector associations. The agreement commits industry to specific challenges or performance levels. According to Environment Canada, these agreements are possible when the parties involved share common objectives and can each derive benefits from addressing a particular environmental issue. Industry is interested in this type of agreement because it is flexible and allows businesses to enhance their public image or improve relations with the government. According to Environment Canada, failure to carry out a signed agreement could harm a business's public image and relations with the government. Some companies indicate that voluntary agreements provide an opportunity to improve their environmental performance.

1.47 For this audit, we examined three voluntary agreements that focus on reducing atmospheric emissions of pollutants or greenhouse gases. Each agreement involved an industry sector association:

- the Railway Association of Canada,
- the Canadian Chemical Producers' Association, and
- the Air Transport Association of Canada.

1.48 In developing and implementing these agreements, we expected that the responsible departments would have applied the design elements, including measuring, reporting, and verifying results, described in Environment Canada's *Policy Framework for Environmental Performance Agreements*.

Regulations to address air pollutants and greenhouse gas emissions from railways are not expected to be in place before 2011. For the short term, the government has negotiated a Memorandum of Understanding with the Railway Association of Canada to deliver action on these issues.

The voluntary agreements we examined meet many of the requirements

1.49 **Railway Association of Canada agreement.** In 2007, the Government of Canada (represented by Environment Canada and Transport Canada) and the Railway Association of Canada signed a memorandum of understanding to reduce emissions of criteria air contaminants and greenhouse gases resulting from the operation of railway locomotives by Canadian railway companies. According to the government, this voluntary agreement delivers action to address air pollutants and greenhouse gas emissions from railways in the short term. Regulations under the *Railway Safety Act* will not be effective until 2011.

1.50 The agreement meets many of the requirements for a voluntary agreement: it sets out clearly defined objectives and targets, and provides for the reporting of results. Under the agreement, Environment Canada and Transport Canada are to assist the Association's members in sharing knowledge about and identifying ways to decrease greenhouse gas emissions. For example, the two departments convened the May 2008 Rail Conference in Toronto, with sessions on the control of air emissions, emissions trading, innovations, and technological advancements.

1.51 The agreement requires that a qualified auditor periodically assess the Association's reports, processes, and supporting documentation. This is to provide assurance to Environment Canada and Transport Canada that methodology and baseline data are reasonable and accurate. The Association's annual report on the agreement for 2006 was the first to include results. We would have expected the reported results to be audited. The departments cannot provide any indication that an audit took place, and they are currently searching for an auditor.

1.52 **Canadian Chemical Producers' Association agreement.** Under a memorandum of understanding with the Government of Canada (represented by Environment Canada, Industry Canada, and Health Canada), the Government of Ontario, the Government of Alberta, and the Canadian Chemical Producers' Association undertook to reduce atmospheric releases of volatile organic compounds from the chemicals sector by 25 percent between 1997 and 2002. This was a follow-up to a previous agreement that focused on reducing emissions of toxic substances by chemical manufacturers. The agreement was originally to take effect in 1998 and expire in 2002. Because of delays in approval, it did not come into effect until 2001 and expired in 2005.

However, there was no change to the target of a 25-percent emission reduction by the end of 2002.

1.53 The agreement met many of the requirements for a voluntary agreement: it set clearly defined objectives and targets, and provided for the reporting of results. Data from Environment Canada and the Association show success in meeting the agreement's target of a 25-percent reduction in emissions for volatile organic compounds by the end of 2002. According to Environment Canada, the Association has processes in place to verify reported results that meet the requirements for regular, credible verification. However, a systematic, documented assessment by the Department to support this assertion is lacking. Environment Canada did not undertake a formal evaluation of the agreement when it ended.

1.54 **Air Transport Association of Canada agreement.** In June 2005, the Government of Canada (represented by Transport Canada) and the Air Transport Association of Canada signed a memorandum of understanding to limit or reduce emissions of greenhouse gases from aviation in Canada. Under the agreement, the Association is to encourage its members to improve efficiency and thus reduce overall GHG emissions from their fleet. Transport Canada is assessing the impact of recent membership changes in the Association on the agreement.

Air transportation is a major source of greenhouse gas emissions in Canada. The Memorandum of Understanding with the Air Transport Association of Canada seeks to improve efficiency and reduce the overall emissions of the industry.

1.55 The agreement meets many of the requirements for a voluntary agreement: it sets out clearly defined objectives and targets, and provides for the reporting of results. However, the baseline was not clearly defined and there is limited documentation about consultations undertaken prior to the signing of the agreement. The agreement requires that a qualified auditor periodically assess the Association's reports, processes, and supporting documentation. This is to provide assurance to Transport Canada that methodology and baseline data are reasonable and accurate. The Association's annual report on the agreement for 2006 was the first to report results. We would have expected the reported results to be audited. The Department cannot provide any indication that an audit took place. The Department has indicated that the results of the 2007 report, scheduled to be released later in 2008, will be audited. However, to date, an auditor has not been appointed.

Conclusion

1.56 For the four types of policy tools we examined, the government cannot demonstrate that the results it has reported have actually been achieved, or that processes are in place to verify the results reported by the private sector.

1.57 Environment Canada has not conducted a final assessment of the results to confirm the stated success of the pollution prevention plan for acrylonitrile, instituted in response to a formal notice published by the Department in May 2003. In addition, the notice addressed one source of acrylonitrile air emissions, but overall emissions increased substantially between 2003 and 2006. Efforts by Environment Canada over the past few years to work with the sources of increased air emissions have reversed the upward trend by almost 50 percent in 2006–07; however, total emissions in 2007 are still almost three times higher than in 2000, when the substance was declared toxic.

1.58 Environment Canada claims that the fuel content limits set out in the Benzene in Gasoline Regulations and the Sulphur in Diesel Fuel Regulations are being met; however, it has not undertaken an overall assessment that would support a high level of confidence in its conclusions. The Department has put little effort into implementing the Gasoline and Gasoline Blend Dispensing Flow Rate Regulations. It does not know whether the Flow Rate Regulations are being complied with and achieving results.

1.59 Estimates by Environment Canada indicate that the Public Transit Tax Credit will lead to negligible reductions in Canada's greenhouse gas emissions. Equally questionable is the impact of the Clean Air and Climate Change Trust Fund, which transfers over $1.519 billion to the provinces and territories to help them lower greenhouse gas emissions. Environment Canada has estimated that the initiative will lead to emission reductions totalling 80 megatonnes from 2008 to 2012. However, it has arrived at that figure on the basis of flawed analyses. The government has stated that it does not intend to monitor whether targets are achieved because it does not have access to the necessary information and cannot control what the recipient governments do with the funding. Environment Canada made a claim of expected results in 2007 and repeated it in 2008, knowing that the nature of the Trust Fund makes it very unlikely that the Department can report real, measurable, and verifiable results.

1.60 Transport Canada and Environment Canada met many of the major criteria—such as setting clear objectives and targets, and providing for monitoring and reporting on results—when they set up voluntary agreements with the Railway Association of Canada, the Canadian Chemicals Producers' Association (CCPA), and the Air Transport Association of Canada. The agreements focused on reducing atmospheric emissions of pollutants or greenhouse gases. Environment Canada claims success in meeting the targets of the CCPA agreement, now ended. However, the Department has not documented the assessment it used to confirm the credibility of the verification process used by the Association and relied on for this agreement. The other two agreements identify key processes—measuring, reporting, and verifying of results—but some have not yet been implemented. Preliminary results have been reported by the associations but they have yet to be audited for verification purposes.

About the Audit

Objectives

Our overall audit objective was to determine whether the responsible departments of the Government of Canada know if certain key policy tools used by the government to control air emissions are achieving actual results. Our audit work included four sub-objectives:

- to determine whether Environment Canada knows if selected pollution prevention plans implemented under the *Canadian Environmental Protection Act, 1999* (CEPA 1999) are reducing emissions of pollutants into the air;
- to determine whether Environment Canada knows if compliance limits set by selected regulations under CEPA 1999 are being met;
- to determine whether selected departments can demonstrate that, for air emission reduction targets related to selected economic policy instruments, (a) expected reductions have been adequately designed, and (b) procedures are in place to know whether the expected reductions are being achieved; and
- to determine whether responsible departments can demonstrate that they have complied with requirements for implementing selected voluntary agreements.

Scope and approach

Air emissions have an impact on the health of Canadians and the environment. The policy tools used by the federal government to manage air emissions include pollution prevention plans, regulations under the *Canadian Environmental Protection Act, 1999*, economic measures, and voluntary agreements with industry. The policy tools examined in this audit were selected based on their materiality, auditability, and significance, as well as reference to them in the responses to environmental petitions submitted to the Auditor General of Canada. We also sought to make a selection covering different types of measures, pollutants, and industry sectors. Our audit work focused on three government organizations: the departments of Environment, Transport, and Finance Canada.

For each of the audit sub-objectives, we interviewed key departmental officials in Ottawa and regions across the country, as well as representatives of non-governmental organizations and industry. We selected non-governmental organizations and industry associations that could provide perspective on one or more of the policy tools included in our audit. Information from departmental officials helped us understand their organizations' policies and procedures used to develop, implement, and monitor the results of the various policy tools. Industry representatives provided feedback on the challenges and success factors for some of the policy tools included in our audit. For each of the audit sub-objectives, we undertook extensive reviews of documentation supplied to us by the departments.

To help in determining whether compliance targets are being met for regulations under the *Canadian Environmental Protection Act, 1999*, we selected occurrence, inspection, and investigation files from the 2005–06 and 2006–07 fiscal years in all five of Environment Canada's regional offices (Pacific and Yukon, Prairie and Northern, Ontario, Quebec, and Atlantic). We chose files to cover a range of companies, facility types, case officers, compliance options, and inspection types. We selected 128 files (aiming for 25 from each region) to assess how procedures were applied during inspections and investigations connected with the Benzene in Gasoline Regulations and the Sulphur in Diesel Fuel Regulations. Because there had been no enforcement activity in those two years for the Gasoline and Gasoline Blend Dispensing Flow Rate Regulations, this regulation was not included in the file review. The results of our file review did not allow us to generalize for each region individually or Canada as a whole. However, the file review enabled us to understand the procedures in place and the ways they are being applied.

Criteria

Listed below are the criteria that were used to conduct this audit and their sources.

Criteria	Sources
Pollution Prevention Plans	
With regards to the Pollution Prevention Plans, we expect that Environment Canada is measuring and verifying the results achieved through the application of Pollution Prevention Plans under the *Canadian Environmental Protection Act*, 1999.	• *Canadian Environmental Protection Act* (1999), Part 4—Pollution Prevention • Treasury Board of Canada Secretariat, Preparing and Using Results-based Management and Accountability Frameworks (2005), sections 1.1 and 1.3 • Treasury Board of Canada Secretariat, Results for Canadians: A Management Framework for the Government of Canada (2000), pages 5 and 6
Fuels Regulations	
We expect that for each of the three regulations (benzene in gasoline, sulphur in diesel fuel, and gasoline flow rates), Environment Canada has put in place procedures to know if compliance limits are being met.	• Treasury Board of Canada Secretariat, Preparing and Using Results-based Management and Accountability Frameworks, Treasury Board of Canada Secretariat, 2005, sections 1.1 and 1.3 • Treasury Board of Canada Secretariat, Results for Canadians: A Management Framework for the Government of Canada (2000), pages 5 and 6 • Environment Canada Compliance and Enforcement Policy for CEPA 1999 (2001)
For each of the three regulations (Benzene in Gasoline, Sulphur in Diesel Fuel, and Gasoline Flow Rate), we expect that Environment Canada is publishing reports on progress and providing public information on compliance with the regulations.	• *Canadian Environmental Protection Act* (1999), Part 11: Miscellaneous Matters—Report to Parliament • Treasury Board of Canada Secretariat, Preparing and Using Results-based Management and Accountability Frameworks (2005), Section 1.1 • Treasury Board of Canada Secretariat, Results for Canadians: A Management Framework for the Government of Canada (2000), pages 5 and 6

Criteria	Sources
Economic Measures	
For two economic measures (Public Transit Tax Credit and Trust Fund), we expect that the results-based targets Environment Canada has developed in response to the *Kyoto Protocol Implementation Act* are based on adequate analyses.	• *Kyoto Protocol Implementation Act,* 2007, Section 10 • Treasury Board of Canada Secretariat, Preparing and Using Results-based Management and Accountability Frameworks, Treasury Board of Canada Secretariat, 2005, Section 1.1 • Treasury Board of Canada Secretariat, Results for Canadians: A Management Framework for the Government of Canada, 2000, pages 5 and 6
For two economic measures (Transit Pass Tax Credit and Trust Fund), we expect that Environment Canada has monitoring and verification processes in place.	• *Kyoto Protocol Implementation Act,* 2007, Section 5(b) • Treasury Board of Canada Secretariat, Preparing and Using Results-based Management and Accountability Frameworks, Treasury Board of Canada Secretariat, 2005, Section 1.1 • Treasury Board of Canada Secretariat, Results for Canadians: A Management Framework for the Government of Canada, 2000, pages 5 and 6
Voluntary Agreements	
For each of the three agreements (Air Transport Association of Canada, Railway Association of Canada, Canadian Chemicals Producers' Association), we expect that the departments have applied the expected design elements in developing and implementing voluntary performance agreements. These include the following: • clearly identified environmental objectives, • clear baselines, • measurable targets with timelines, • clear performance measures, • consultations with affected and interested stakeholders, • regular reporting requirements, • credible third-party verification of results achieved, and • regular evaluation.	• Environment Canada Policy Framework for Environmental Performance Agreements, 2001, pages 6 and 7 • Treasury Board of Canada Secretariat and Industry Canada, Voluntary Codes: A Guide for their Development and Use

Audit work completed

Audit work for this chapter was substantially completed on 6 June 2008.

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Appendix List of recommendations

The following is a list of recommendations found in Chapter 1. The number in front of the recommendation indicates the paragraph number where it appears in the Chapter. The numbers in parentheses indicate the paragraph numbers where the topic is discussed.

Recommendation	Response
Pollution prevention plans	
1.13 Environment Canada should review and revise its risk management strategy for acrylonitrile and ensure control measures are in place to deal with significant sources. **(1.8–1.12)**	Environment Canada accepts this recommendation. Under Canada's 2006 Chemical Management Plan (CMP), 4,300 substances have been identified as posing a potential risk to human health and the environment. Five hundred of these substances are deemed to be of the highest priority. Given the significance of this challenge, it is essential to devote resources to management activities in a manner commensurate with the risks involved. Acrylonitrile, a substance emitted in the gaseous form from plastic industry facilities, would have been part of the highest priority group if early risk management actions had not been taken in 2003. Risk management instruments have been put in place to cover the two facilities that have been responsible for over 99 percent of acrylonitrile emissions. In early 2000, when Environment Canada developed the chemical management program, now known as the CMP, various Canadian Environmental Protection Act, 1999 science-based instruments were considered and assessed to ensure that their use would be aligned with the risks to be managed. Pollution prevention plan notices are one such instrument, and are generally used in select situations where independent validation of data would not necessarily result in any increased level of environmental protection. Environment Canada believes that it has fulfilled its intended role for the oversight of this instrument. Furthermore, in Canada, jurisdiction over the environment is shared with provinces and territories. Therefore, interventions at the federal level with respect to particular pollutants have to be scientifically driven and of national concern. Otherwise, the best approach is to collaborate with the provinces/territories directly concerned by the issue.

Recommendation	Response
	In the case of the first plant, which was covered by the Acrylonitrile Pollution Prevention Plan Notice, it was necessary for the federal government to intervene, as the province had not yet developed its own standards. In the case of the second plant, where the provincial government was in a position to use its own tools to address the same issue, the federal government agreed to the use of the provincial instrument. In both situations, the environmental outcome is reduced atmospheric emissions of acrylonitrile to the lowest economically achievable levels. As the CMP unfolds and lessons are learned from the numerous science-based interventions that are now being undertaken, the federal government will continue to refine its strategies for risk management. Relative to acrylonitrile, the 2002 Risk Management Strategy will be reviewed and updated based on current emissions from Canadian facilities with the objective of limiting releases from significant industrial sources to the lowest levels technically and economically achievable. To achieve this intended outcome, the 2002 Risk Management Strategy update will incorporate consideration of the current emission profiles, best available technologies economically available and an examination of the existing controls at the provincial and federal levels. The performance of the 2002 Risk Management Strategy will be measured through the achievement of any targeted reductions from significant sources of acrylonitrile emissions. Environment Canada will undertake the implementation of the updated Risk Management Strategy by December 2009 and it will be carried out in collaboration and after consultation with other implicated parties and/or jurisdictional authorities.

Recommendation	Response
Fuels regulations	
1.27 Environment Canada should conduct an assessment of its implementation of the Benzene in Gasoline Regulations and the Sulphur in Diesel Fuel Regulations to • determine the acceptable compliance rate for each regulation for all sectors of the regulated community; • determine and implement compliance promotion and enforcement activities that need to be conducted: (a) to achieve the acceptable compliance rate, and (b) to provide assurance that there is a high level of statistical confidence in any compliance rate reported; • develop and publicly report on performance indicators; and • determine what has gone well and which areas require improvement. **(1.16–1.26)**	Environment Canada agrees with the recommendation that an assessment of all departmental activities under the Benzene in Gasoline Regulations and the Sulphur in Diesel Fuel Regulations will support a more integrated approach to the implementation of these regulations. The Enforcement Branch, Compliance Promotion and Analysis Division and the Energy and Transportation Directorate will work on identifying performance measures and on a 2009–2010 compliance strategy, which will be completed by March 2009. The 2009–2010 compliance strategy will outline performance measures and will determine what compliance promotion and enforcement activities need to be conducted. There are new performance measures and requirements within the Cabinet Directive on Streamlining Regulations and these will be considered when reviewing and updating the compliance strategy for these regulations. The compliance strategy and the performance measures are designed to achieve the expected outcomes in line with departmental enforcement and compliance promotion priorities. These priorities are determined based on an assessment of the real and potential risks to the environment and health using tools such as environmental scanning to gather and analyze data on trends, patterns, modi operandi, and events that could have a negative impact on the environment or human health. The performance measures that are part of the 2009–2010 compliance strategy could include the compliance rate and the number of compliance promotion and enforcement activities.

Recommendation	Response
	Environment Canada will continue to develop and publicly report annually on performance indicators such as the number of regulatees identified, and the number of inspections and investigations conducted. Concerning the high level of statistical confidence in any derivation of performance indicators, the Environmental Enforcement Division is already addressing this issue via various alternative measures, including the development and implementation of the National Data Input Standards for NEMISIS Files that will guide enforcement officers in the entry of data in the NEMISIS database and is expected to be implemented on or before December 2008. Also, the NEMISIS National Quality Assurance and Quality Control Committee, which meets quarterly, is mandated to provide assurance that there is a high level of statistical confidence in all compliance data reported.

Recommendation	Response
1.31 Environment Canada should identify the community of retailers and wholesalers subject to the Gasoline and Gasoline Blend Dispensing Flow Rate Regulations and conduct compliance promotion and enforcement activities targeting members of the community. **(1.28–1.30)**	Environment Canada agrees with the recommendation that the Department should identify the community of retailers and wholesalers subject to the Gasoline and Gasoline Blend Dispensing Flow Rate Regulations, and conduct compliance promotion activities targeting members of the community. Environment Canada has identified the Gasoline and Gasoline Blend Dispensing Flow Rate Regulations as a priority for compliance promotion activities in 2008–09. A survey has already been initiated to identify the regulatory community affected by these regulations and is expected to be completed by November 2008. After the survey results have been analyzed, a fact sheet will be developed and disseminated, by December 2008, to increase awareness of the requirements of these regulations. The Enforcement Branch, Compliance Promotion and Analysis Division and the Energy and Transportation Directorate will work closely together to develop a compliance strategy and compliance promotion plan for 2009–2010 and future years, by March 2009, that is in line with departmental enforcement and compliance promotion priorities. These priorities are determined based on an assessment of the real and potential risks to the environment and human health, using tools such as environmental scanning to gather and analyze data on trends, patterns, various modi operandi, and events that could have a negative impact on the environment or human health. The compliance strategy and compliance promotion plan will foster the coordination and provide consistency during the implementation phase should this regulation be identified as a departmental enforcement and compliance promotion priority. The compliance strategy will outline the best methods of implementing and measuring the compliance promotion and enforcement required to ensure the subject community complies with the regulations. The compliance strategy will identify performance measures and strategic considerations, including intensity of compliance promotion and enforcement, and will provide an overall description and analysis (size, location, composition, etc.) of the regulatees. The strategy will also outline performance indicators that could include rate of compliance, number of enforcement activities carried out (e.g. inspections and investigations) and the number of responses to alleged violation (e.g. warning letters, environmental protection compliance orders and prosecutions).

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