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Report of the  
**Commissioner of the  
Environment and  
Sustainable Development**

**DECEMBER**

**Chapter 1**  
Transportation of Dangerous Products



Office of the Auditor General of Canada

*The December 2011 Report of the Commissioner of the Environment and Sustainable Development comprises The Commissioner's Perspective, Main Points—Chapters 1 to 5, an appendix, and six chapters. The main table of contents for the Report is found at the end of this publication.*

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Chapter

# 1

Transportation of Dangerous Products

## Performance audit reports

This report presents the results of a performance audit conducted by the Office of the Auditor General of Canada under the authority of the *Auditor General Act*.

A performance audit is an independent, objective, and systematic assessment of how well government is managing its activities, responsibilities, and resources. Audit topics are selected based on their significance. While the Office may comment on policy implementation in a performance audit, it does not comment on the merits of a policy.

Performance audits are planned, performed, and reported in accordance with professional auditing standards and Office policies. They are conducted by qualified auditors who

- establish audit objectives and criteria for the assessment of performance;
- gather the evidence necessary to assess performance against the criteria;
- report both positive and negative findings;
- conclude against the established audit objectives; and
- make recommendations for improvement when there are significant differences between criteria and assessed performance.

Performance audits contribute to a public service that is ethical and effective and a government that is accountable to Parliament and Canadians.

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# Transportation of Dangerous Products

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## Main Points

### What we examined

Dangerous products, as defined by federal legislation, play a key part in Canada's economy, whether exported directly, like gas and oil, or used by industry—for example, natural gas in the plastics industry and explosives in the mining and construction industries.

Shipments of dangerous products transported throughout Canada each year by road, rail, air, and ship number in the tens of millions and are subject to the *Transportation of Dangerous Goods Act, 1992* and its regulations administered by Transport Canada. The crude oil, petroleum products, natural gas liquids, and natural gas that move through approximately 71,000 kilometres of Canada's interprovincial and international oil and gas pipelines are subject to the *National Energy Board Act* and its regulations administered by the National Energy Board.

Both Transport Canada and the National Energy Board aim to promote the prevention of spills and releases of dangerous products and preparedness for incidents and emergencies that may arise. They do this by monitoring and enforcing compliance with legislation and standards and by taking actions to ensure that regulated organizations have appropriate and effective mechanisms in place to respond if an emergency does occur. In 2011–12, regulatory oversight activities accounted for about 63 staff and \$7.3 million at the National Energy Board and 74 staff and \$6.7 million at Transport Canada's Transportation of Dangerous Goods Directorate.

We examined how Transport Canada and the National Energy Board determine whether regulated organizations have complied with established legislation and standards in transporting dangerous products and whether they have prepared emergency response plans. We did not look at emergency response and recovery activities that would take place following an incident.

While this chapter contains references to various private sector companies, it must be noted that our conclusions about management practices and actions refer only to those of Transport Canada and the National Energy Board. We did not audit the records of the private

sector organizations. Consequently, our conclusions cannot and do not pertain to any practices that regulated organizations followed.

Audit work for this chapter was completed on 30 June 2011.

### Why it's important

Dangerous products are a necessary element in the daily lives of Canadians. They range from gasoline used in motor vehicles to substances such as lead and mercury used in manufacturing electronics products. Industries that manufacture and use dangerous products provide jobs to Canadians.

While major spills and releases involving dangerous products are rare, they can have significant consequences for Canadians' health, the economy, and the natural environment. The shipment of dangerous products must be managed well to reduce the risk and impact of spills and releases.

### What we found

- Transport Canada lacks a consistent approach to planning and implementing compliance activities. As a consequence, it cannot ensure that sites are inspected according to the highest risk.
- Transport Canada has not ensured that corrective action has been taken on instances of non-compliance. In the sample of completed inspection files we reviewed, 53 percent identified instances of non-compliance and, of those files, 73 percent contained incomplete or no evidence that corrective action had been taken.
- Transport Canada has given only temporary, interim approval for nearly half of the emergency response assistance plans put in place by regulated organizations. As a consequence, many of the most dangerous products regulated under the Act have been shipped for years without the Department having completed a detailed verification of plans for an immediate emergency response.
- Many of the issues our audit identified in Transport Canada are not new; an internal audit identified these same concerns over five years ago. The Department has yet to correct some of the key weaknesses in its regulatory oversight practices.
- While the National Energy Board has identified gaps and deficiencies through its verification of compliance for the companies it regulates, there is little indication that it has followed up to ensure that these deficiencies have been corrected. In our audit sample of completed compliance verification activities, 64 percent of the files identified gaps and deficiencies and, of those files, only 7 percent contained evidence that the Board had followed up to determine if corrective action had been taken.



- The National Energy Board has yet to review the emergency procedures manuals of 39 percent of regulated companies. As a consequence, it has not determined whether those manuals meet its established expectations. In our sample of manuals that it had reviewed, the Board identified deficiencies in all 30 cases but communicated those to only 3 of the regulated companies, and in only 1 case did it check to ensure that the noted deficiencies had been corrected.

**The entities have responded.** The entities agree with all of our recommendations. Their detailed responses follow the recommendations throughout the chapter.



## Introduction

**Dangerous products**—Chemicals such as sulphuric acid, gasoline, and oil, that when spilled or released have the potential to negatively impact the health of Canadians or the environment. The *Transportation of Dangerous Goods Act, 1992* refers to these products as “dangerous goods.”



In February 2011, a gas pipeline exploded near Beardmore in Northern Ontario.

Photo: Kimberley Brunet



On 2 February 2001, a train derailment in Red Deer, Alberta, caused the release of nearly 72 tonnes of anhydrous ammonia (used in fertilizers and refrigeration, among other things). One person died and 34 people were hospitalized after exposure to the vapours. Anhydrous ammonia is toxic to fish and wildlife, and disperses easily in water.

Photo: Transportation Safety Board of Canada

**1.1 Dangerous products** play a key part in Canada’s economy. Products classified by the federal government as dangerous range from products like gas and oil that are consumed or exported to products used by industry, such as natural gas in the plastics industry, explosives in the mining and construction industries, and sulphuric acid and lithium in the manufacture of batteries. According to Transport Canada, there are tens of millions of dangerous product shipments each year. By tonnage, these products are transported by road (45 percent), rail (39 percent), ship (15 percent), and air (less than 1 percent). In 2008, the value of chemical product shipments was approximately \$47 billion. In 2009, the value of crude oil, petroleum products, and natural gas shipped by pipeline was approximately \$75 billion.

**1.2** The safe use and transportation of dangerous products is important to Canadian society. Industries that manufacture, ship, and use dangerous products provide jobs to Canadians. Dangerous products are a necessary element in the daily lives of Canadians. Their use ranges from gasoline to power motor vehicles to substances such as lead and mercury used in the manufacture of electronic products.

**1.3** If the movement of dangerous products is not handled correctly or accidents occur, it can result in injury or death. For example, acids coming into contact with skin can cause severe burns, and chlorine gas if inhaled can cause death. The transport of dangerous products can also adversely affect Canada’s economy and the environment. For example, spills and releases of products such as acids and oils can result in the death of wildlife and the contamination of ecosystems.

**1.4** Incidents can occur via any mode of transport. Recent incidents resulting in the release of dangerous products include

- March 2007—A train derailment spilled sulphuric acid into the Blanche River just north of Englehart in Northern Ontario.
- May 2011—A pipeline spill of 238,500 litres of crude oil occurred about 50 kilometres south of Wrigley in the Northwest Territories.
- February 2011—A gas pipeline explosion near Beardmore in Northern Ontario led to the voluntary evacuation of homes.
- March 2011—A train derailment near Port Hope in Southern Ontario resulted in the evacuation of homes and businesses and a fire involving a number of dangerous products, including propane, aviation fuel, and sulphuric acid.

### **Roles and responsibilities of organizations in the transport of dangerous products**

**1.5** A variety of organizations have key roles to play in ensuring the safe transportation of dangerous products or in responding to incidents if they occur. The organizations' responsibilities apply throughout the process of preventing and responding to spills or releases of dangerous products.

- The federal government is responsible for regulating the domestic and international movement of dangerous products by road, rail, air, and ship. It is responsible for regulating the movement of dangerous products via pipeline across provincial and territorial borders and across international borders. It is also responsible, along with other organizations, for responding to spills or releases of dangerous products during their transport. The two federal organizations most involved are Transport Canada, which is responsible for overseeing compliance with legislation for the transport of dangerous goods via road, rail, air, and ship, and the National Energy Board, which regulates the transport of oil and gas and other petroleum products via international and interprovincial pipelines.
- Companies and other organizations transporting dangerous products have an obligation to ensure they comply with legislation, regulations, and standards.
- First responders such as fire and police are among the first ones on the scene of a spill or release and play a key role in minimizing the harmful effects.
- Provincial and territorial governments play a role in ensuring that federal regulations for the transport of dangerous products are implemented. They have also established their own laws to regulate the transport of dangerous products by road within each province and territory, and by pipeline, where applicable.

**1.6** There are four key steps that are followed in the prevention of and response to a spill or release of a dangerous product:

- Prevention and mitigation measures aim either to prevent an incident from occurring or to mitigate the effects of a potential incident. Federal government measures include developing regulations and standards (such as emergency preparedness and response standards) and ensuring that organizations comply with them by, for example, conducting inspections and audits.
- Preparedness involves regulated organizations preparing an emergency response plan to ensure that a suitable response capability exists to minimize the impacts on human health and the environment should an incident or emergency occur.

- Response to an incident or emergency when it occurs may involve regulated organizations and first responders activating and using the emergency response plan to address the incident.
- Recovery involves restoring the area affected to normal conditions.

### Focus of the audit

**1.7** Our audit focused on whether Transport Canada and the National Energy Board have designed and implemented a risk-based approach to determine whether regulated organizations transport dangerous products in accordance with established legislation and standards. We also looked to see whether Transport Canada and the National Energy Board had designed and implemented practices and procedures to monitor whether regulated organizations had prepared emergency response plans according to established legislation and standards.

**1.8** Our audit focused on the prevention of spills and releases through inspections, audits, and other compliance verification activities conducted by the regulators. It also focused on Transport Canada's and the National Energy Board's review of emergency response plans submitted by regulated organizations to direct their responses in the event of a spill or release.

**1.9** Our audit covered the period of January 2007 to June 2011. Sampled files were drawn from within this period to ensure sufficient coverage over multiple years. In certain cases, such as emergency response assistance plans and emergency procedures manuals, documentation outside of this time period was used to supplement the work undertaken.

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

## Observations and Recommendations

### Transport Canada

**1.11** Transport Canada is responsible for the regulatory oversight of domestic and international shipping of dangerous goods via road, rail, air, and marine transportation. The Department's mandate is set out in the *Transportation of Dangerous Goods Act, 1992* and its regulations. These responsibilities include

- developing and updating regulations;
- monitoring compliance with and enforcing the Act and regulations;

- reviewing and approving emergency response assistance plans;
- developing means of containment standards (the container, packaging, or any part of the means of transport that can be used to contain a dangerous good);
- providing and developing inspector training (national, provincial, and territorial);
- providing a 24-hour-a-day bilingual emergency advisory information service (Exhibit 1.1); and
- attending and compiling data on accidents or incidents involving dangerous goods (Exhibit 1.2).

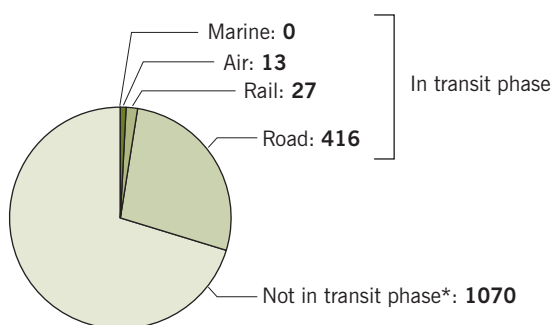
#### Exhibit 1.1 The Canadian Transport Emergency Centre

Transport Canada's Canadian Transport Emergency Centre (CANUTEC) provides expert information on a variety of subjects, including

- the chemical, physical, and toxicological properties of dangerous goods, as well as incompatibilities among dangerous goods;
- health hazards and first aid;
- hazards from fires, explosions, spills, or leaks;
- remedial actions for the protection of life, property, and the environment;
- safe distances for evacuations; and
- personal protective clothing and decontamination.

In 2009, the Centre received 23,670 calls, of which 940 were in response to an emergency. The Centre sends reports to Transport Canada inspectors to help them improve their technical knowledge about emergencies.

#### Exhibit 1.2 Reportable accidents from 2007–10 involving dangerous goods by mode and phase of transport



\* Not in transit accidents are those that take place at facilities where the goods are prepared for transport (handled prior to loading or unloading), unloaded, or stored in the course of transport. In transit accidents include those that occur during transport.

Note: Accidents involving dangerous goods are "reportable" when the quantity of dangerous goods released exceeds the amount listed in the table contained in Part 8 of the *Transportation of Dangerous Goods Regulations*.

Source: Adapted from Transport Canada data.

**Site**—An actual building or premises where dangerous goods to transport are being manufactured, prepared for shipping, shipped from, detained (in transit), or received (destination). It represents a geographical location as opposed to a vehicle (train, truck, ship, or plane). An organization may have more than one site.

**1.12** Within Transport Canada, the Transportation of Dangerous Goods (TDG) Directorate is responsible for administering the *Transportation of Dangerous Goods Act, 1992*. The TDG Directorate is responsible for promoting and enforcing compliance with the Act and regulations through a national awareness, inspection, investigation, and enforcement program and the coordination of activities by TDG inspectors. The Directorate assesses and approves emergency response assistance plans prepared by those importing, offering for transport, handling, or transporting dangerous goods in a quantity or concentration that is specified by regulations. The national program is delivered through headquarters in Ottawa and in five regional offices across Canada: Atlantic, Quebec, Ontario, Prairie and Northern, and Pacific. According to Transport Canada, it conducts more than 2,000 compliance inspections a year of **sites** involved in the transport of dangerous goods. According to the TDG Directorate, it has a staff of 74 and a budget of \$6.7 million.

**1.13** Our audit examined whether the Department had

- developed a risk-based approach to conduct its monitoring of regulated organizations,
- carried out its monitoring program to determine if regulated organizations are in compliance with the Act and regulations,
- developed performance measures that allow it to provide assurance to Canadians that regulated organizations are in compliance with the Act and regulations, and
- reviewed and approved emergency response assistance plans.

**1.14** Our recommendation to Transport Canada concerning compliance inspections and emergency response assistance plans appears at the end of this section, in paragraph 1.45.

### **There is no national risk-based compliance inspection plan**

**1.15** We examined the management processes and practices used by Transport Canada to establish its monitoring priorities for the year and to direct the work of its inspectors. This included policies, procedures, and manuals as well as the plans prepared by the Department's five regional offices.

**1.16** According to the Treasury Board's Framework for the Management of Risk, a risk-based management process focuses efforts on those areas of significant risk. In monitoring compliance with the Act and regulations, a national, risk-based approach to inspection planning is necessary in order to determine the geographic areas,

transportation modes, or goods that pose the greatest risk, and to ensure that the regulations are applied fairly. Understanding overall risks in terms of their significance and the factors that influence those risks is a critical part of deploying scarce resources to the most significant areas, and establishing goals for the inspection program.

**1.17** Some elements of a risk framework are in place. The Transportation of Dangerous Goods (TDG) Directorate has a compliance strategy to guide how inspections should be prioritized based on a ranking attributed to sites. According to this strategy, locations where the dangerous goods first enter the transportation system (such as manufacturers of large quantities of dangerous goods) should be categorized as top priority, and top-priority sites should be inspected regularly. However, this strategy is missing important elements needed to ensure that a coherent risk-based approach is used across Canada. For example, the strategy has not defined how frequently inspections must be done or indicated how to consider other types of risks, such as an organization's compliance history, in prioritizing inspections.

**1.18** We found that Transport Canada does not have a national risk-based process for determining the sites that should be the highest priority for inspection. The regional offices are responsible for preparing compliance inspection plans. However, they use inconsistent processes, and the link between these processes and the sites selected for inspection is not clear. As a consequence, these plans lack details on what is being inspected or why it is being inspected.

**1.19** For example, the Atlantic region's plans include a risk assessment matrix to identify and prioritize issues, such as training, within the regulated community and outline general tasks to address these issues; however, there is no indication of how many inspections will be carried out or which organizations will be inspected during the year. The Pacific region's plans contain a proposed number of inspections to be conducted by inspectors together with a list of organizations to be inspected; however, the plans do not contain supporting information on how these were selected. In the Prairie and Northern region, no documentation was provided to show that inspection plans have been prepared.

**1.20** Information necessary for inspectors to effectively plan or conduct their work is missing or incomplete. Transport Canada does not have a complete picture of the organizations transporting dangerous goods. According to the TDG Directorate, there are about 25,875 active organization sites in its inspection database. However, the Directorate has not analyzed the quality of its inventory of organizations to support its assertion that the highest-risk organizations have been identified and



are being inspected. Further, the Directorate's own analysis finds that the database is not current: many of the organizations listed as "active" no longer carry dangerous goods or have closed. While the Directorate has other databases for the subset of organizations that require emergency response assistance plans (ERAPs) and for organizations that have reported incidents involving releases of dangerous goods, it has not evaluated whether these databases contain consistent information. For example, for one company that was closed in 2008, the inspection database shows that the company is inactive, but the ERAP database still shows that the company is active.

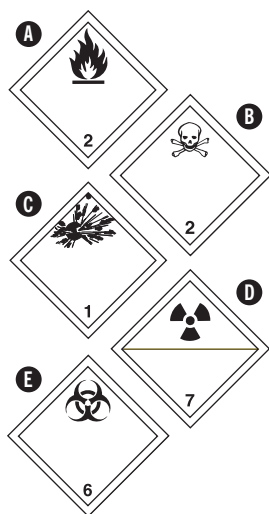
**1.21** Without a national risk-based planning process and an accurate and reliable inventory of organizations posing the greatest risk in transporting dangerous goods, Transport Canada cannot ensure that sites are inspected according to the highest risk and that its resources are being allocated to areas of greatest concern.

#### There is a lack of follow-up by Transport Canada on identified deficiencies

**1.22** We examined the activities that Transport Canada undertakes to monitor whether organizations shipping dangerous goods were in compliance with the *Transportation of Dangerous Goods Act, 1992* and regulations. We looked at the Department's compliance monitoring and enforcement activities for the period from 1 April 2008 to 1 April 2010. This included an examination of inspection files as well as the policies, procedures, and guidance established by the Department.

**1.23** The Act and regulations set out the requirements that must be followed by organizations in the transport of dangerous goods and give Transport Canada the powers to conduct inspections and monitor compliance. Regulations prescribe key aspects such as labelling requirements, how substances are transported, and transport prohibitions.

**1.24** Inspection and compliance monitoring is essential for the Department to know whether regulated organizations are complying with the Act and regulations and whether the interests of Canadians are adequately safeguarded. For example, an inspector can verify that the shipper of dangerous goods is using warning placards that indicate the type of substance being transported. These warning placards provide critical information for first responders at the scene of an accident—flammable goods like gasoline require a different response than corrosive goods like sulphuric acid. General compliance inspections can also include verifying that employees are trained to



Examples of types of placards used when dangerous goods are transported. Numbers in placards indicate class of dangerous goods, such as gases.

The placards above are presented for illustrative purposes only and are not exact representations. Regulations prescribe the particular design, colour, and text for each required placard.

- A. Flammable gases such as propane
- B. Toxic gases such as chlorine
- C. Explosives such as dynamite
- D. Radioactive materials such as uranium
- E. Infectious substances such as viruses

Source: Adapted from Transport Canada



Dangerous goods can be transported by ship.

Photo: Rodolfo Arpia/Shutterstock.com



Dangerous goods can be transported by air.

Photo: vm/Shutterstock.com

handle dangerous goods, or that adequate means of containment are used for the goods transported.

**1.25** We examined a random selection of 49 compliance inspection files carried out during the 2008–09 and 2009–10 fiscal years. We looked at the nature and extent of work carried out in conducting these inspections as well as other supporting files.

**1.26** Supporting documentation is critical to demonstrate that inspectors have properly discharged their duties to verify organizations' compliance with regulations for the transport of dangerous goods. Transport Canada's Inspectors' Manual requires that good documentation be kept. We found that about 70 percent of the files we reviewed did not indicate the scope of the inspection, such as which regulatory requirements were assessed during the inspection. Without clearly laying out the inspection scope, anyone reviewing or following up on the inspection would have no way of knowing the requirements that had been evaluated.

**1.27** We also found that of the files we reviewed, 53 percent noted instances of non-compliance with the Act and regulations. Examples of violations included missing information on shipping documents, missing training certificates for handling dangerous goods, missing and inadequate labelling, and problems with containers used to transport dangerous goods. In these files that identified instances of non-compliance, we noted that for the majority (73 percent) there was no, or incomplete, evidence that Transport Canada had determined whether the organizations had taken corrective actions. For example, we noted that the records for one company contained nine inspection reports over the last 11.5 years. All nine reports noted deficiencies; some of them repeated violations. Only three of the nine reports contained evidence that the organization had taken corrective actions. Violations included containers not meeting standards and a lack of proper warning placards, meaning there was an increased risk of a release of a dangerous good or risk that responders would not have the information needed to ensure the most appropriate response in case of an accident. A sound management practice should include follow-up with the organization to ensure corrective actions have been taken.

**1.28** One factor contributing to these deficiencies is a lack of guidance for inspectors. We examined the procedures and guidance materials provided to inspectors. Transport Canada does not have clear procedures and guidelines on how to document the scope of the inspection or what supporting evidence should be collected on items verified during an inspection. When violations are identified, there are



Dangerous goods can be transported by train.

Photo: Mayskyphoto/Shutterstock.com



Dangerous goods can be transported by truck.

Photo: Samuel Acosta/Shutterstock.com

no clear procedures and guidelines on how to differentiate between major and minor violations and on how follow-up activities should be conducted to ensure that corrective actions have been taken. For example, in one of the files we examined, the inspector issued a \$630 fine to a company for missing warning placards. The company requested key pieces of evidence supporting the allegation, such as photos of the labelling infractions. However, the file contained little supporting evidence. The fine was later withdrawn.

**1.29** Procedures and guidance materials are critical to ensure that inspectors have sufficient information to carry out their inspections and to ensure that inspections are carried out fairly and consistently across Canada. The procedures and guidance are also critical to ensure that sufficient evidence is collected and documented so government can prosecute organizations that do not comply.

### **Transport Canada does not know the extent to which organizations transporting dangerous goods are complying with regulations**

**1.30** We examined whether Transport Canada developed performance measures to determine rates of regulatory compliance in order to be able to report to senior management on departmental performance in administering the *Transportation of Dangerous Goods Act, 1992* and its regulations.

**1.31** The Department is making efforts to estimate the extent of compliance by conducting inspections based on a random selection of organizations' sites. Over a six-year period (2005 to 2010), these random inspections found that an average of 40 percent of the inspected sites were not compliant with the Act or regulations. However, Transport Canada has stated that it requires additional work to improve the method it uses to measure compliance. We noted that the Department has for seven years been developing an indicator to measure compliance.

**1.32** Without a means of measuring performance, it is impossible to determine the extent to which organizations are following the rules for the safe transport of dangerous goods and whether compliance is improving or worsening from year to year.

**1.33** We also noted that although the Transportation of Dangerous Goods (TDG) Directorate has overall responsibility for administering the *Transportation of Dangerous Goods Act, 1992*, responsibility for monitoring compliance under the Act and regulations is shared with the provinces and territories, other federal departments, and other directorates within Transport Canada. The TDG Directorate conducts compliance activities, including inspections at the sites of

organizations that manufacture, ship, import, handle, and offer dangerous goods for transport, including rail companies. Two other groups at Transport Canada, the Civil Aviation Directorate and the Marine Safety Directorate, conduct inspections for shipments made by air and marine transport, respectively.

**1.34** The TDG Directorate does not collect or evaluate information on compliance monitoring and enforcement activities carried out by the civil aviation and marine safety directorates or by provinces and territories, and other federal departments. As well, the TDG Directorate has no comprehensive picture of the nature and extent of monitoring and enforcement being conducted for air, road, and marine transport. However, Transport Canada has indicated that these directorates, along with provinces and territories, present their findings through national stakeholder meetings twice a year. We further noted that the memoranda of agreement that govern the division of responsibilities within Transport Canada date back to 1983 and refer to federal organizations that no longer exist and do not specify performance reporting requirements.

#### **Transport Canada does not conduct an adequate, timely review when approving emergency response assistance plans**

**1.35** Emergency response assistance plans (ERAPs) are required for the most dangerous goods regulated under the *Transportation of Dangerous Goods Act, 1992* and its regulations. The purpose of such plans is to ensure that the equipment and expertise are available to immediately respond to an emergency.

**1.36** The Act requires Transport Canada to review and approve ERAPs. Under the Act, organizations that transport dangerous goods requiring an ERAP must prepare a plan and must have approval from Transport Canada before they can import, offer for transport, handle, or transport dangerous goods. When the organization applies to Transport Canada for approval, the Department reviews the application and provides either an **interim** or an **indefinite approval**, which allows the organization to transport a particular good over an identified period of time.

**Interim approval**—Transport Canada grants interim approval for a specified period before it has completed its investigation of an organization's preparedness to respond to an emergency and where it has no reason to suspect that the plan cannot be implemented or will be ineffective.

**Indefinite approval**—Transport Canada approves plans for a specified period, when it has concluded that a plan can be implemented and will be effective in responding to a release of a dangerous good.

**1.37** We assessed the practices used by Transport Canada to review and approve ERAPs. We looked at the Department's ERAP approval activities for the period from 1 April 2007 to 1 April 2011 along with some information dating back as far as 1994.

**1.38** According to the Act, interim approvals are to be a temporary measure until indefinite approval can be given. The reviewer is to

check whether the information included in the application is reasonable and to verify that the telephone number for ERAP activation is correct. Interim approval can be given even if information is missing from the application, and provided that the reviewer has no reason to believe that information in the application is incorrect.

**1.39** We found that of the 926 ERAPs in place, 473 have received indefinite approval from Transport Canada and 453 have received interim approval. Of the 453 ERAPs with interim approval, almost 50 percent of these approvals were provided over 5 years ago and about 15 percent of these were provided over 10 years ago. For example, one company transported shipments of at least 3,000 litres of flammable propane gas for over 13 years with only interim approval of its plan. The Department has not determined the risks associated with these delays, and therefore it cannot determine an appropriate risk-based review cycle or evaluate its resource needs.

**1.40** Transport Canada's guidance for staff conducting ERAP assessments is insufficient to ensure that assessments are fair and consistent, a concern echoed by some of the staff conducting these reviews. Deficiencies included

- inadequate guidance to determine whether an organization is required to prepare or activate an ERAP;
- a lack of criteria to judge whether elements of ERAPs are acceptable—for example, what would be an effective communication strategy in the event of an emergency;
- no definition of what constitutes a “major” and a “minor” deficiency, even though the remedy for a major deficiency is to halt shipments; and
- little guidance on how ERAPs for organizations with **cooperative response agreements** should be assessed.

**Cooperative response agreements—** Organizations transporting dangerous goods for which common response equipment and expertise would be needed to respond to an incident may enter into mutual aid or cooperative agreements to pool their resources (for example, maintaining response teams to cover part of a geographical area in which these goods are transported).

**1.41** We reviewed a representative sample of 49 files—5 national and 44 regional—where ERAPs had received indefinite approval. Guidance calls for staff to collect and review inspection reports as a step in all regional ERAP reviews. Inspection reports had not been considered in any of them. There were numerous examples of shortcomings in review, approval, follow-up, and documentation. These examples included cases where Transport Canada was concerned about whether ERAPs were adequate, but it did not undertake timely follow-up. In some cases, no follow-up was done. In our opinion, Transport Canada is not able to demonstrate that it has exercised diligence in providing approvals.

**Management has not acted on long-standing concerns regarding inspection and emergency plan review practices**

**1.42** In September 2006, Transport Canada's internal audit group reported the results of an audit of inspection practices for the transport of dangerous goods. The audit made a number of observations and recommendations to strengthen management practices in the Transportation of Dangerous Goods (TDG) Directorate. Senior management accepted the audit's observations and recommendations and committed to make changes by April 2008.

**1.43** Since then, based on information prepared by the TDG Directorate, the Department determined that it had implemented the management plan established in response to the recommendations and that further monitoring of progress against the recommendations was not necessary.

**1.44** Despite this, we found that some of the key issues identified by Transport Canada in its 2006 internal audit remain unresolved.

- Transport Canada has not evaluated the risk associated with an incomplete inventory of regulated organizations. It has stated that its existing databases include the higher-risk organizations that transport dangerous goods, but no evaluation was conducted to support this assertion.
- The number of emergency response assistance plans with interim approval status (453) remains about the same as in 2006, but there has been an increase in the delay in reviewing these plans.
- The TDG Directorate committed to develop a risk assessment framework to provide a rationale for site selection and inspection. The framework has yet to be developed.
- The Transport Canada internal audit noted that there was an inconsistent approach to inspections and recommended new reporting procedures that should include elements such as documenting the scope of inspection and the manner of follow-up. There is still no clear guidance on documenting the scope or how to follow up on instances of non-compliance.

**1.45 Recommendation.** Transport Canada should establish and implement a clear action plan that sets out specific corrective steps to be taken to address our audit findings and the time frames within which the corrective actions will be taken. In particular, the action plan should ensure that

- a national risk-based inspection planning process is developed and implemented,



- compliance monitoring and follow-up activities are properly documented,
- gaps in guidance for compliance monitoring and follow-up activities are addressed,
- roles and responsibilities for monitoring compliance with the Act and regulations are clarified,
- a performance measurement system that allows the Department to report on the rate of regulatory compliance is implemented,
- requirements for the review and approval of emergency response assistance plans are clarified,
- guidance to review emergency response assistance plans is developed, and
- a plan and timeline to complete emergency response assistance plan reviews is developed and implemented.

The action plan should indicate the staff responsible for each item and provide resources necessary to make the required change.

**The Department's response.** Agreed. Transport Canada will undertake the following actions to address audit findings:

- Complete a risk assessment by January 2012 that will serve as the basis for inspection schedules to be conducted by staff in each Transport Canada regional office. Managers and inspectors will be trained on the risk-based inspection schedule before its implementation in April 2012.
- Strengthen compliance monitoring guidance, tools, and processes and document follow-up procedures by June 2012; train managers and inspectors on both enhanced monitoring and follow-up procedures by October 2012; and, to support the review of Transport Canada inspection activities, introduce a quality assurance program by April 2013.
- Clarify and document roles and responsibilities of the various departmental modal groups involved in the inspection of dangerous goods, in updated memoranda of understanding by June 2012.
- Update and implement a performance measurement strategy for the Transportation of Dangerous Goods Program by December 2012. The strategy will inform ongoing data collection practices on the rate of regulatory compliance and will support performance reporting.

- Review the Emergency Response Assistance Plan Program's policies and procedures for approvals by 1 June 2012; develop enhanced guidance material for staff by 31 December 2012; and train staff and implement by 1 April 2013.

## National Energy Board

**1.46** The National Energy Board is an independent federal agency established in 1959 to promote safety and security, environmental protection, and economic efficiency in regulating those pipelines that cross provincial, territorial, or national boundaries. The Board's regulatory oversight applies to the entire life cycle of a pipeline (and related infrastructure) or facility project, including construction, operation, and abandonment. The Board is a quasi-judicial federal tribunal that operates as a court of record and reports to Parliament through the Minister of Natural Resources.

**1.47** The Board regulates approximately 71,000 kilometres of pipelines. Oil and gas pipelines go through and near major communities throughout Canada. Major gas pipelines that have been recently approved include the Mackenzie Valley pipeline and the Deep Panuke pipeline, while the Vantage pipeline is a major gas pipeline that is proposed but not yet approved. Keystone XL is a major oil pipeline that was recently approved (in Canada only), while other major oil pipelines proposed, but not yet approved, include the Northern Gateway pipeline and the Bakken pipeline (Exhibit 1.3). As more pipelines are approved and begin to operate, the National Energy Board will have increased regulatory oversight responsibilities.

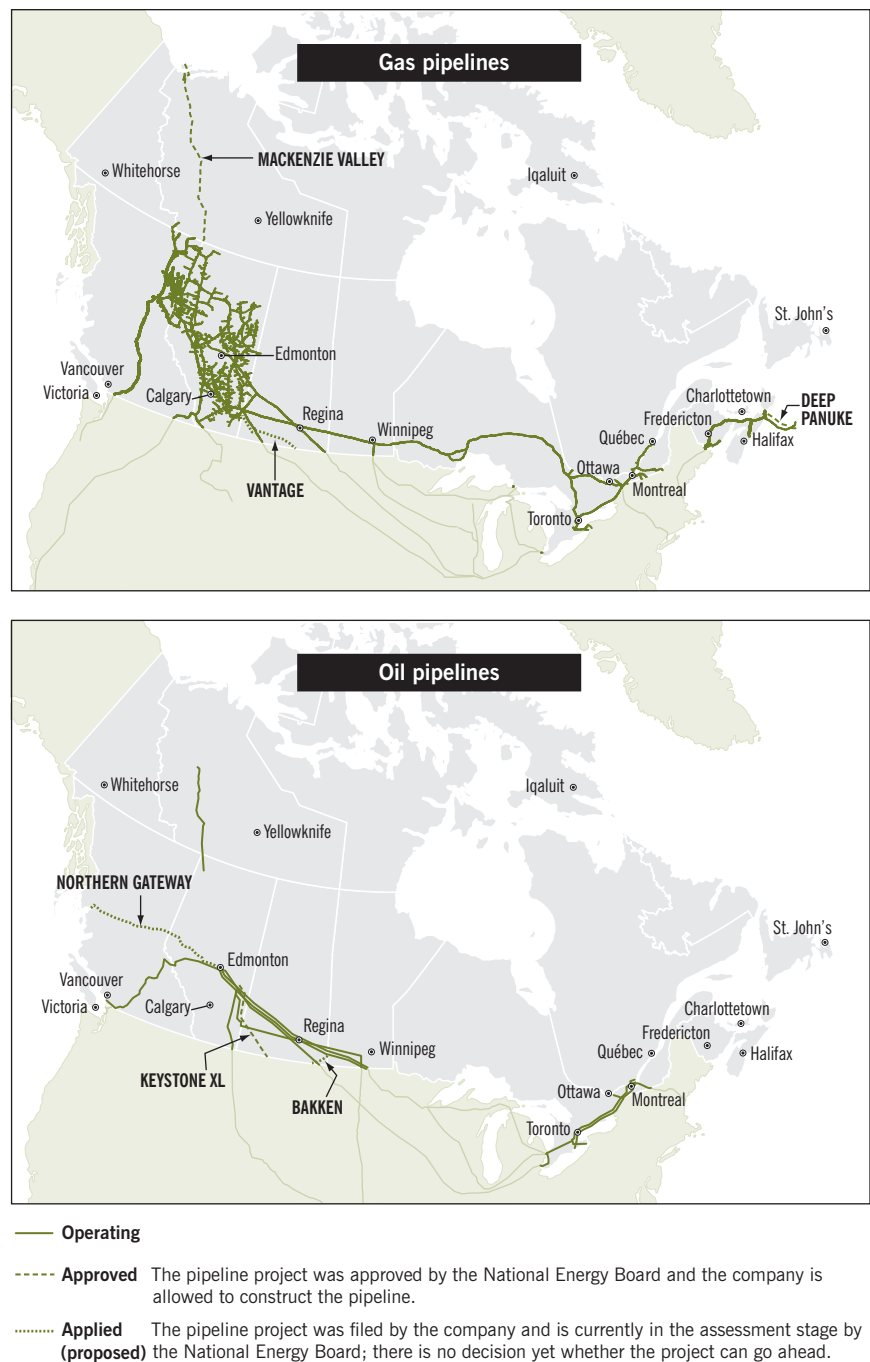
**1.48** These pipelines, which are located in both rural and urban areas and across different terrains, require ongoing surveillance and maintenance to ensure that they continue to operate according to the *National Energy Board Act*, its regulations, and standards such as the Canadian Standards Association's Oil and Gas Pipeline Systems standard. Pipeline incidents, such as gas leaks and oil spills, have occurred across Canada (Exhibit 1.4). The ages of these pipelines range from newly built to some that were constructed in the 1950s (Exhibit 1.5).

**1.49** The National Energy Board is responsible for administering the *National Energy Board Act* and its regulations, namely the *Onshore Pipeline Regulations*, 1999 and the *National Energy Board Processing Plant Regulations*. The Act and regulations identify obligations for regulated pipeline companies and the Act gives the Board enforcement and oversight responsibilities. According to the Board, it promotes safety and security, environmental protection, and economic efficiency



for the regulation of pipelines, energy development, and trade. The Board states that in carrying out this purpose, it takes proactive steps to clearly define its expectations, through regulations and other means,

**Exhibit 1.3** Operating, approved, and proposed gas and oil pipelines under the oversight of the National Energy Board



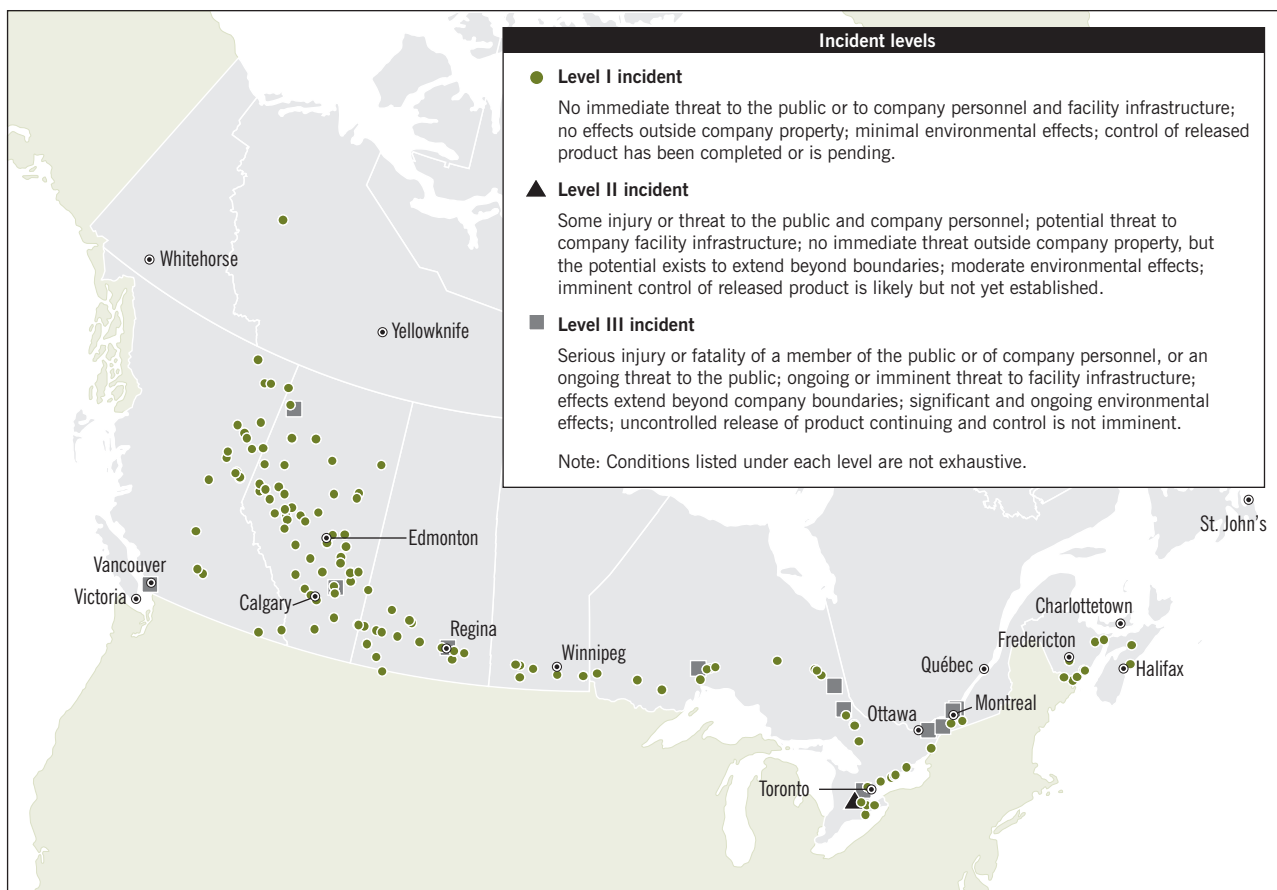
Source: Adapted from National Energy Board data

and to hold regulated companies accountable for actions that affect public safety and the environment. For the 2011–12 fiscal year, according to the Board, it has a budget of approximately \$7.3 million and a staff of 63 to conduct its compliance verification activities, such as inspections and audits.

**1.50** Our audit examined whether the National Energy Board had appropriately

- carried out its compliance verification activities in a manner that would allow it to determine if regulated companies adhered to legislation, standards, and Board expectations;
- reviewed the emergency procedures manuals of the regulated companies; and
- designed and implemented a risk-based approach as part of its monitoring of regulated companies.

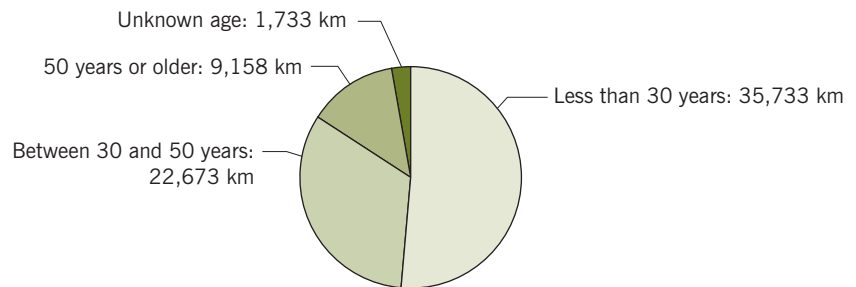
**Exhibit 1.4** Location of incidents on pipelines regulated by the National Energy Board, January 2009 to March 2011



Source: Adapted from National Energy Board data

**1.51** Our recommendation to the National Energy Board concerning compliance verification and emergency procedures manuals appears at the end of this section, in paragraph 1.78.

**Exhibit 1.5** Age of pipelines regulated by the National Energy Board, as of July 2011



Note: This chart includes kilometres for only approved and operating pipelines. It does not include the kilometres for pipelines categorized as deactivated, deactivation in progress, or decommissioned.

Source: Adapted from National Energy Board data.

### There is a lack of follow-up by the Board on identified deficiencies

**1.52** We examined the National Energy Board's compliance verification activities, such as inspections and audits, for the period between 2007 and 2010. We looked to see whether the Board had monitored the regulated companies in a manner that would allow it to determine if the companies were meeting the requirements to transport dangerous products by pipeline according to established legislation, standards, and Board expectations.

**1.53** Under the *National Energy Board Act*, the Board has responsibilities to promote the safety and security of pipelines, including providing for the protection of the environment. The Board may also make regulations governing the design, construction, operation, and abandonment of a pipeline.

**1.54** Compliance verification activities are critical for ensuring that regulated pipeline facilities are safe, secure, and built and operated in a manner that promotes the safety of Canadians and protects the environment. For example, regulations under the Act require regulated companies to have a pipeline integrity management program in place to provide for periodic assessment of the pipelines' structural integrity, to guide regular maintenance, and to help prevent a spill or release. Compliance verification of regulated companies includes activities such as inspections, audits of management systems and programs, compliance meetings, and evaluations of companies' emergency response exercises.

**1.55** We selected a representative sample of 56 compliance verification activities that the Board conducted between 2007 and 2010 and examined whether the Board carried out its responsibilities according to established legislation and standards. (The results of our examination of this sample are found in Exhibit 1.6.) These activities were planned by the Board based on its risk-based approach that prioritizes compliance monitoring activities that it plans to conduct (see paragraph 1.73). We also examined whether the Board has adequate guidance for staff to ensure that regulated companies complied with the regulations and standards.

**1.56 Cancellation of compliance verification activities.** We noted that of the 56 planned high-risk compliance verification activities selected for review, 11 (20 percent) were later cancelled by the Board (Exhibit 1.6). A rationale was provided for the cancellation in 7 of the 11 cases. For 4 of the 11 cancelled activities, there was no evidence that they would be rescheduled or addressed through another compliance activity despite the fact that they were identified by the Board through its risk prioritization process as being high risk.

**1.57 Information regarding nature and extent of reviews.** Of the 45 planned compliance activities not cancelled, we found that files for 6 of these (13 percent) did not contain key documentation on the nature and result of compliance verification activities, and therefore we were unable to determine whether these activities were completed or whether there may have been any gaps or deficiencies identified (Exhibit 1.6).

**Exhibit 1.6** The National Energy Board did not follow up on deficiencies it identified through the compliance verification activities

Number of compliance verification activities we examined*	56
• Activities that were cancelled	11
• Activities that resulted in no gaps or deficiencies	10
• Activities that were missing key documentation As a result, we were unable to determine whether these activities were completed or if there were any gaps or deficiencies.	6
• Activities that identified gaps or deficiencies No evidence of follow-up to ensure that gaps or deficiencies were addressed in 27 of these 29 cases.	29

\* Representative sample selected from a population of 253 activities conducted between 2007 and 2010 for the program areas and compliance activities that we examined.



Exposing a pipeline for an integrity inspection

Photo: National Energy Board

**1.58 Required follow-up on gaps and deficiencies.** We noted that 29 of the 45 compliance activities (64 percent) identified multiple gaps and deficiencies with regulated companies' systems and processes designed to ensure safety, pipeline integrity, and protection of the environment (Exhibit 1.6). Of concern is that in 27 of these 29 cases (93 percent), we found no evidence that the Board followed up with the companies to determine whether the gaps and deficiencies had been addressed. As a consequence, we have concluded that the Board has not exercised a key element of regulatory monitoring: ensuring that identified weaknesses have been corrected by the regulated companies. Documenting the nature and extent of a completed compliance activity is essential to demonstrate that the Board is meeting its regulatory responsibilities. Inadequately documenting the results of compliance activities and the verification of actions taken also makes it extremely difficult for staff to follow up on those activities, which is especially critical whenever there is high employee turnover.

**1.59 Guidance on conducting compliance verification activities.** In addition to noting a weakness in follow-up procedures, we also noted weaknesses in guidance on how to conduct compliance activities. Overall, we found that guidance for Board staff conducting the compliance verification activities was unclear in a number of important areas. Specifically, we found that there was limited guidance concerning

- what follow-up procedures should be undertaken and documented when a gap or deficiency is identified through each type of compliance activity;
- how to ensure that corrective actions required of companies were in fact implemented, or whether they were implemented in a timely manner;
- how to determine whether an identified gap represents a major or minor deficiency; and
- when to have senior sign-off or review of the results of a compliance verification activity and who must conduct the sign-off or review.

With limited guidance, and unclear direction for Board staff as to what their response should be when a gap or deficiency is identified, it is difficult to ensure that all regulated companies are treated consistently.

**Oversight of emergency procedures manuals is deficient**

**1.60** Under the *National Energy Board Act* and its regulations, regulated companies are required to submit emergency procedures manuals and any subsequent updates to manuals for any pipelines they operate. In a 2002 letter to regulated companies, the Board set out its expectations for the contents for the manuals—at a minimum, the manuals should include information about 22 subjects, including environmental areas requiring special consideration or protection, description and location of emergency response equipment, and lists of persons in emergency planning zones.

**1.61** The Act allows the Board to examine and evaluate company emergency plans, procedures, and practices. This allows the Board to determine the appropriateness and effectiveness of a company's emergency preparedness response program, which includes emergency procedures manuals. After assessing the manuals, if Board staff find gaps or deficiencies against Board expectations, they are required to inform the pipeline company of the gaps or deficiencies and can request corrections to the manuals. Staff are then to record any follow-up actions to be taken to correct the manuals and ensure they are updated accordingly.

**1.62** A thorough and timely review of the manuals submitted is essential for ensuring that in the event of an incident or emergency, such as an explosion in a gas pipeline or a leak in an oil pipeline, there is an established and effective response plan that can be implemented immediately to help mitigate the effects.

**1.63** As part of our audit, we examined the procedures established by the National Energy Board to review and assess the emergency procedures manuals of the regulated companies according to the legislation, standards, and guidelines. To do so, we looked at whether the Board had

- received all required emergency procedures manuals and updates,
- reviewed all manuals received,
- communicated any deficiencies identified in its review of the manuals to the regulated company, and
- assessed whether identified deficiencies had been corrected in the manuals.

**1.64 Proportion of emergency procedures manuals reviewed.**

According to Board records, the Board requires emergency procedures manuals for 83 regulated companies. We found that of the 83 regulated



Pipeline right-of-way during construction

Photo: National Energy Board

companies, the Board had conducted a review of manuals for only 51 of the companies (61 percent). The average time for review was almost three years after the manuals were submitted to the Board, with 16 manuals from 9 companies taking five or more years to be reviewed.

**1.65** Emergency procedures manuals for the remaining 32 regulated companies (39 percent) had yet to be reviewed. The average length of time that these companies' manuals have gone without a review by the Board is over three and half years, with 18 manuals from 12 companies waiting to be reviewed for four or more years.

**1.66** The review of emergency procedures manuals by the Board is typically conducted within one day by reviewing the manual contents against a checklist of required items. This is, however, a cursory review for the presence or absence of information, and it does not assess the validity or accuracy of the information contained in the manuals.

**1.67** We selected a representative sample of 30 companies from the 51 companies whose manuals were reviewed by the Board. We examined the Board's manual reviews to determine whether they were conducted in a manner consistent with established Board guidance and whether the Board had advised regulated companies of any deficiencies. We also examined whether the Board followed up to ensure that regulated companies had corrected the deficiencies.

**1.68** We noted that the Board identified deficiencies in all of the emergency procedures manuals that we reviewed. Deficiencies that were noted included

- no identification of the hazards posed by the operation of the facilities,
- no assessment of the risks posed by the hazards identified,
- no list of residents in a potential accident zone,
- no map of the nearby residences or evacuation routes,
- no description or location of emergency response equipment,
- no description of any environmentally sensitive areas potentially affected by an incident, and
- no explanation of governmental roles in an emergency response.

**1.69** Notwithstanding that all 30 manuals had deficiencies, only 3 of the 30 files (10 percent) contained evidence that the identified deficiencies had been communicated to the regulated companies. Only 1 of the 30 files contained evidence that the Board had checked to ensure that the deficiencies noted had been corrected.



**1.70 Staff training and guidance to complete the reviews.** As part of our audit we reviewed the formal training and guidance provided to Board staff who review emergency procedures manuals. Training and guidance is essential to ensure that staff understand what is expected of them and to ensure they understand the steps that must be taken to properly review emergency procedures manuals.

**1.71** We found that training for those undertaking the manual reviews consisted of providing a checklist to be completed when reviewing the manual. We noted that the checklist contained few instructions and little supporting explanation or guidance for each of the elements that were to be reviewed.

**1.72** During the course of the audit, the Board revised the review process and prepared a new review checklist that contains additional guidance for those completing the reviews. The Board has indicated that the revised process will include verification of certain critical information, such as confirming that a company's emergency contact number is correct and that all of a company's facilities are listed in its emergency procedures manual. However, the Board indicated that not all of the critical information will be verified when a company initially submits an emergency procedures manual, or an update to it. Companies selected for a more thorough examination, such as through an emergency management system audit, would be chosen through the Board's risk-based monitoring approach.

**The Board has designed a sound risk-based monitoring approach, but improvements are needed in its implementation**

**1.73** We examined whether the Board has designed a risk-based approach as part of its monitoring system that will allow it to determine whether regulated companies are meeting the requirements to transport dangerous products according to established legislation and standards. We also examined implementation of the risk-based approach as part of the sampling of the Board's compliance monitoring activities and reviews of emergency procedures manuals.

**1.74** We found that, overall, the Board has designed a sound risk-based approach to monitor regulated companies' adherence to established regulations, standards, and Board expectations. Every year, the Board evaluates regulated companies by level of risk in six program areas: security, safety, environment, pipeline integrity, damage prevention, and emergency management. Risk assessments from all areas and companies are evaluated, and then an overall risk-based plan is prepared for the compliance verification activities for the coming



year. The Board prioritizes resources available for compliance verification activities, and it focuses on companies requiring higher levels of regulatory compliance oversight (the top one third of prioritized companies).

**1.75** However, some improvements are needed to better implement the risk-based approach. In particular, the accuracy and validity of the risk scores assigned to companies are currently affected by several factors:

- The cursory review of companies' emergency procedures manuals does not provide an accurate assessment of a company's level of risk for this aspect of emergency preparedness (see paragraph 1.66). In addition, the Board has also not reviewed the emergency procedures manuals for 39 percent of regulated companies (see paragraph 1.65), which means that information to assess those companies' level of risk is missing.
- Where reviews of emergency procedures manuals have been conducted, the Board largely failed to follow up to confirm that identified deficiencies were corrected (see paragraph 1.69), and therefore the Board is missing key information that could affect the evaluation of companies' risk.
- The incomplete documentation of other compliance verification activities and the lack of follow-up to ensure that identified deficiencies have been addressed (see paragraphs 1.55–1.58 and Exhibit 1.6) mean the Board is missing some information upon which to base its assessment of company risk.

**1.76** The Board has also conducted limited analyses to determine whether its risk-based approach is resulting in the right type, number, or frequency of compliance verification activities to ensure that the Board is meeting a minimum level of regulatory oversight. For example, the Board's 2002 letter providing guidance to regulated companies (see paragraph 1.60) notes that each company should, at least once every three years, conduct a full-scale emergency exercise involving all agencies with whom a company would interact in the event of an emergency, including the Board. With 83 regulated companies, that would mean an average of 27 full-scale emergency exercises conducted each year. From 2007 to 2011, Board records indicate that the Board evaluated a total of only 9 full-scale exercises. While a risk-based approach may not require the Board to evaluate all the full-scale emergency exercises each year, the Board's analysis of its risk-based approach is required in order to determine if the right type and number of compliance verification activities are being done to ensure that an adequate level of oversight is being carried out.

**1.77** Lastly, the risk-based approach is also affected by limited guidance for staff in carrying out some compliance verification activities. For example, when a gap or deficiency is identified through an audit, there is limited guidance on how to determine if it is major or minor, therefore making it difficult to assign an accurate level of risk. There is also limited guidance to assist staff in identifying the timelines by which companies are required to fix gaps and deficiencies. This means that if deficiencies go unaddressed for many years, then a company's risk level could remain high. The Board has also not identified its tolerances for risks resulting from what is not included in its compliance verification plan or from planned compliance verification activities that are not completed. For example, if the Board carries out compliance verification for only the top 33 percent of prioritized risks, there is a chance that some companies' management systems that have significant risks may go without examination.

**1.78 Recommendation.** The National Energy Board should establish and implement a clear action plan that sets out specific corrective steps to be taken to address the audit findings and the time frames within which the corrective actions will be taken. In particular, the action plan should ensure that

- improved guidance to assist staff in carrying out their compliance verification activities (including the review of emergency procedures manuals) is developed and implemented;
- compliance verification activities are properly documented to demonstrate that due diligence has been exercised;
- follow-up of identified gaps and deficiencies, to verify that regulated companies have implemented corrective actions, is carried out and documented in a timely manner;
- all the emergency procedures manuals and updates for companies are checked to ensure that critical information is included and is satisfactory and that the results of that review are used to update companies' risk profiles; and
- the assessment of company risk is based on accurate and sufficient information.

The action plan should indicate the staff responsible for each item and provide resources necessary to make the required change.

**The Board's response.** Agreed. The National Energy Board will establish and implement a clear action plan to address the audit findings.

The Board supports continual improvement and in the 2010–11 fiscal year enhanced its compliance verification process to require justification and senior-level approvals before cancelling a compliance verification activity (CVA). Additionally, the process to evaluate emergency exercises and review emergency procedure manuals (EPMs) now requires follow-up and documentation to address gaps and deficiencies. The emergency exercise process also requires review and senior-level sign-off of all reports.

The Board is further enhancing its oversight of company EPMs, and by January 2012 will assess critical information in all EPMs. By March 2012, the Board will follow up and document where critical information is missing and address any gaps or deficiencies.

By April 2012, the Board will strengthen its compliance verification process to make sure that timely follow-up actions are undertaken to address gaps and deficiencies, and are appropriately documented. The Board will develop criteria to differentiate between major and minor deficiencies. Criteria for senior-level review and sign-off of CVAs will also be developed. Staff will be trained on all updated processes.

Finally, by April 2012, the Board will enhance its risk-based planning by creating a process to evaluate the effectiveness of its risk model.

## Conclusion

### Transport Canada

**1.79** Transport Canada has not designed and implemented the management practices needed to effectively monitor regulatory compliance with the *Transportation of Dangerous Goods Act, 1992*. Key elements that are missing include a national risk-based regulatory inspection plan and necessary guidance for inspectors. In many instances, the nature and extent of the inspections carried out are not documented. We noted that there was little indication that the Department had followed up on identified instances of non-compliance to ensure that regulated organizations transporting dangerous goods had corrected the problems identified.

**1.80** Transport Canada is not adequately reviewing and approving the emergency response assistance plans submitted by regulated organizations. Nearly half the plans submitted have been provided only an interim approval. Many of the organizations shipping dangerous goods have operated with an interim approval for over 5 years, and some for over 10 years.

**1.81** Some of the issues contained in this report are not new. A 2006 departmental internal audit identified similar issues. Five years later, the Department has yet to address the identified weaknesses in its management practices.

### **National Energy Board**

**1.82** The National Energy Board has designed a sound risk-based monitoring system that it uses to determine whether regulated companies are meeting the requirements to transport oil, gas, and other dangerous products by pipeline. However, improvements to the implementation of the risk-based approach are required that would allow for a more accurate assessment and prioritization of the risks associated with regulated companies.

**1.83** While the National Energy Board's compliance verification processes identify deficiencies in the practices used by regulated companies, in the files we examined there is little indication that the Board takes steps to ensure that the identified deficiencies are corrected.

**1.84** The National Energy Board has not appropriately monitored whether regulated companies have prepared emergency procedures manuals according to established legislation, standards, and Board expectations. The emergency procedures manuals have yet to be reviewed for about 39 percent of companies. For those that have been reviewed, we noted that in almost all instances identified, deficiencies were not communicated to the regulated companies, and in only one case did the Board check to ensure that the deficiencies had been corrected. We have concluded that the Board's oversight of companies' emergency procedures manuals is deficient.

## About the Audit

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.

### Objectives

The objective of the audit was to determine whether Transport Canada and the National Energy Board have designed and implemented risk-based monitoring systems to determine whether regulated organizations transport dangerous products in accordance with established legislation and standards and have designed and implemented practices and procedures to monitor whether regulated organizations have prepared emergency response plans in accordance with established legislation and standards.

In support of this objective, the two sub-objectives for the audit were to determine whether

- Transport Canada and the National Energy Board have designed and implemented a risk-based monitoring system to determine whether regulated entities are meeting the requirements to transport dangerous products according to established legislation and standards; and
- Transport Canada and the National Energy Board have implemented practices and procedures to monitor whether regulated entities have prepared emergency response plans according to established legislation and standards to respond to releases of dangerous products.

### Scope and approach

For each audit sub-objective, the audit consisted of interviews with key departmental officials and the review of departmental policies and procedures related to the transport of dangerous products and the review or approval of emergency response plans. Interviews of departmental officials and our review of departmental policies and procedures provided us with an understanding of the practices implemented by Transport Canada and the National Energy Board to determine whether regulated organizations are meeting the requirements to transport dangerous products in accordance with established legislation and standards. A similar approach was used to identify the mechanisms used by the Department and the Board to determine whether regulated companies have prepared emergency response plans in accordance with established legislation and standards.

With regard to our audit work at Transport Canada, the audit examined a random selection of files pertaining to general compliance inspections (from a population of 3,551 sites inspected), rail inspections (from a population of 495), and approvals for emergency response plans to determine whether the monitoring system is adequate to allow Transport Canada to know whether dangerous products are transported according to established legislation and standards.

With regard to our audit work at the National Energy Board, the audit included an examination of a random selection of compliance verification activities carried out by the National Energy Board to allow it to determine whether regulated companies are in compliance with the established legislation and

standards. We selected our sample from a population of 253 compliance verification activities conducted between 2007 and 2010 and that were in three program areas; integrity management, safety management, and damage prevention management. The audit also included an examination of a random sample of emergency procedures manuals to determine whether the Board has ensured that the manuals submitted by regulated companies are in compliance with the legislation and standards. We did not audit the National Energy Board's pipeline application or approval processes.

Where representative sampling was used, sample sizes are sufficient to conclude on the sampled population with a confidence level of 90 percent and a margin of error of 10 percent.

## Criteria

To determine whether Transport Canada has designed and implemented a risk-based monitoring system to determine whether regulated organizations are meeting the requirements to transport dangerous products according to established legislation and standards, we used the following criteria:	
Criteria	Sources
Transport Canada has designed a risk-based monitoring system that will allow it to determine whether regulated organizations are in compliance with the legislation and standards.	<ul style="list-style-type: none"> <li>• <i>Transportation of Dangerous Goods Act, 1992</i></li> <li>• Framework for the Management of Risk, Treasury Board, 2010</li> </ul>
Transport Canada carries out its monitoring in a manner consistent with the system as designed.	<ul style="list-style-type: none"> <li>• <i>Transportation of Dangerous Goods Act, 1992</i></li> <li>• Framework for the Management of Risk, Treasury Board, 2010</li> </ul>
Transport Canada knows the extent of compliance and has implemented procedures to follow up on incidences of non-compliance and to improve compliance.	<ul style="list-style-type: none"> <li>• <i>Transportation of Dangerous Goods Act, 1992</i></li> <li>• Management Accountability Framework, Treasury Board of Canada Secretariat, 2009</li> </ul>
To determine whether Transport Canada has implemented practices and procedures to monitor whether regulated organizations have prepared emergency response plans according to established legislation and standards to respond to releases of dangerous products and approved emergency response plans that Transport Canada has determined are in compliance with the Act, we used the following criteria:	
Criteria	Sources
Transport Canada has defined the requirements that regulated organizations must adhere to in preparing emergency response assistance plans (ERAPs) and has designed a risk-based monitoring approach for prioritizing its review of ERAPs.	<ul style="list-style-type: none"> <li>• <i>Transportation of Dangerous Goods Act, 1992</i></li> <li>• Framework for the Management of Risk, Treasury Board, 2010</li> <li>• CAN/CSA Z731-03 (Reaffirmed 2009) Emergency Preparedness and Response, Canadian Standards Association, 2003</li> <li>• CAN/CSA Q850-97 (Reaffirmed 2009) Risk Management: Guideline for Decision Makers, Canadian Standards Association, 1997</li> </ul>
Transport Canada assesses and approves the ERAPs prepared by organizations in accordance with Transport Canada review procedures.	<ul style="list-style-type: none"> <li>• <i>Transportation of Dangerous Goods Act, 1992</i></li> <li>• CAN/CSA Z731-03 (Reaffirmed 2009) Emergency Preparedness and Response, Canadian Standards Association, 2003</li> <li>• CAN/CSA Q850-97 (Reaffirmed 2009) Risk Management: Guideline for Decision Makers, Canadian Standards Association, 1997</li> </ul>

Transport Canada knows the extent of ERAP adequacy and has implemented procedures to follow up on gaps and deficiencies identified in the review of ERAPs.	<ul style="list-style-type: none"> <li>• <i>Transportation of Dangerous Goods Act, 1992</i></li> <li>• Management Accountability Framework, Treasury Board of Canada Secretariat, 2009</li> </ul>
<b>To determine whether the National Energy Board has designed and implemented a risk-based monitoring system to determine whether regulated companies are meeting the requirements to transport dangerous products according to established legislation and standards, we used the following criteria:</b>	
Criteria	Sources
The National Energy Board has designed a risk-based monitoring system that will allow it to determine whether regulated companies are in compliance with the legislation and standards.	<ul style="list-style-type: none"> <li>• Framework for the Management of Risk, Treasury Board, 2010</li> <li>• Management Accountability Framework, Treasury Board of Canada Secretariat, 2009</li> <li>• Integrated Risk Management and Corporate Risk Profile, National Energy Board, 2010</li> <li>• <i>National Energy Board Act</i></li> <li>• <i>Onshore Pipeline Regulations, 1999</i></li> </ul>
The National Energy Board carries out its monitoring in a manner consistent with the system as designed.	<ul style="list-style-type: none"> <li>• Enforcement Procedures, National Energy Board</li> <li>• Inspections Procedures, National Energy Board</li> <li>• Framework for the Management of Risk, Treasury Board, 2010</li> <li>• Management Accountability Framework, Treasury Board of Canada Secretariat, 2009</li> </ul>
The National Energy Board has implemented procedures to follow up on incidences of non-compliance and to improve compliance.	<ul style="list-style-type: none"> <li>• <i>National Energy Board Act</i></li> <li>• Management Accountability Framework, Treasury Board of Canada Secretariat, 2009</li> <li>• Preparing and Using Results-based Management and Accountability Frameworks, Treasury Board of Canada Secretariat, 2005</li> </ul>
<b>To determine whether the National Energy Board has implemented practices and procedures to monitor whether regulated companies have prepared emergency response plans according to established legislation and standards to respond to releases of dangerous products, we used the following criteria:</b>	
Criteria	Sources
The National Energy Board has defined the requirements that regulated companies must adhere to in preparing emergency procedures manuals and has designed a risk-based monitoring approach for its review of these manuals prepared by companies.	<ul style="list-style-type: none"> <li>• <i>National Energy Board Act</i></li> <li>• National Energy Board letter to all Oil and Gas Companies/ Security and Emergency Preparedness and Response Programs, 2002</li> <li>• CAN/CSA Z662-07 Oil and Gas Pipeline Systems, Canadian Standards Association, 2007</li> <li>• CAN/CSA Z731-03 (Reaffirmed 2009) Emergency Preparedness and Response (referenced within CSA Z662-07), Canadian Standards Association, 2003</li> </ul>

<p>The National Energy Board has reviewed the emergency procedures manuals prepared by companies to ensure they have been prepared according to the Board's legislation and standards.</p>	<ul style="list-style-type: none"> <li>• <i>National Energy Board Act</i></li> <li>• CAN/CSA Z662-07 Oil and Gas Pipeline Systems, Canadian Standards Association, 2007</li> <li>• CAN/CSA Z731-03 (Reaffirmed 2009) Emergency Preparedness and Response (referenced within CSA Z662-07), Canadian Standards Association, 2003</li> <li>• National Energy Board letter to all Oil and Gas Companies/ Security and Emergency Preparedness and Response Programs, 2002</li> </ul>
<p>The National Energy Board has implemented procedures to follow up on gaps and deficiencies identified in the review of emergency procedures manuals.</p>	<p>Management Accountability Framework, Treasury Board of Canada Secretariat, 2009</p>

Management reviewed and accepted the suitability of the criteria used in the audit.

### Period covered by the audit

This audit covers the period from 1 January 2007 to 30 June 2011. Certain tests related to time periods in which emergency response assistance plans used information dating back to 1994. Audit work for this chapter was substantially completed on 30 June 2011.

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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
<b>Transport Canada</b>	
<p><b>1.45</b> Transport Canada should establish and implement a clear action plan that sets out specific corrective steps to be taken to address our audit findings and the time frames within which the corrective actions will be taken. In particular, the action plan should ensure that</p> <ul style="list-style-type: none"> <li>• a national risk-based inspection planning process is developed and implemented,</li> <li>• compliance monitoring and follow-up activities are properly documented,</li> <li>• gaps in guidance for compliance monitoring and follow-up activities are addressed,</li> <li>• roles and responsibilities for monitoring compliance with the Act and regulations are clarified,</li> <li>• a performance measurement system that allows the Department to report on the rate of regulatory compliance is implemented,</li> <li>• requirements for the review and approval of emergency response assistance plans are clarified,</li> <li>• guidance to review emergency response assistance plans is developed, and</li> </ul>	<p><b>The Department's response.</b> Agreed. Transport Canada will undertake the following actions to address audit findings:</p> <ul style="list-style-type: none"> <li>• Complete a risk assessment by January 2012 that will serve as the basis for inspection schedules to be conducted by staff in each Transport Canada regional office. Managers and inspectors will be trained on the risk-based inspection schedule before its implementation in April 2012.</li> <li>• Strengthen compliance monitoring guidance, tools, and processes and document follow-up procedures by June 2012; train managers and inspectors on both enhanced monitoring and follow-up procedures by October 2012; and, to support the review of Transport Canada inspection activities, introduce a quality assurance program by April 2013.</li> <li>• Clarify and document roles and responsibilities of the various departmental modal groups involved in the inspection of dangerous goods in updated memoranda of understanding by June 2012.</li> <li>• Update and implement a performance measurement strategy for the Transportation of Dangerous Goods Program by December 2012. The strategy will inform ongoing data collection practices on the rate of regulatory compliance and will support performance reporting.</li> <li>• Review the Emergency Response Assistance Plan Program's policies and procedures for approvals by 1 June 2012; develop enhanced guidance material for staff by 31 December 2012; and train staff and implement by 1 April 2013.</li> </ul>

Recommendation	Response
<ul style="list-style-type: none"> <li>• a plan and timeline to complete emergency response assistance plan reviews is developed and implemented.</li> </ul> <p>The action plan should indicate the staff responsible for each item and provide resources necessary to make the required change. (1.11–1.44)</p>	
<p><b>National Energy Board</b></p> <p><b>1.78</b> The National Energy Board should establish and implement a clear action plan that sets out specific corrective steps to be taken to address the audit findings and the time frames within which the corrective actions will be taken. In particular, the action plan should ensure that</p> <ul style="list-style-type: none"> <li>• improved guidance to assist staff in carrying out their compliance verification activities (including the review of emergency procedures manuals) is developed and implemented;</li> <li>• compliance verification activities are properly documented to demonstrate that due diligence has been exercised;</li> <li>• follow-up of identified gaps and deficiencies, to verify that regulated companies have implemented corrective actions, is carried out and documented in a timely manner;</li> <li>• all the emergency procedures manuals and updates for companies are checked to ensure that critical information is included and is satisfactory and that the results of that review are used to update companies' risk profiles; and</li> </ul>	<p><b>The Board's response.</b> Agreed. The National Energy Board will establish and implement a clear action plan to address the audit findings.</p> <p>The Board supports continual improvement and in the 2010–11 fiscal year enhanced its compliance verification process to require justification and senior-level approvals before cancelling a compliance verification activity (CVA). Additionally, the process to evaluate emergency exercises and review emergency procedure manuals (EPMs) now requires follow-up and documentation to address gaps and deficiencies. The emergency exercise process also requires review and senior-level sign-off of all reports.</p> <p>The Board is further enhancing its oversight of company EPMs, and by January 2012 will assess critical information in all EPMs. By March 2012, the Board will follow up and document where critical information is missing and address any gaps or deficiencies.</p> <p>By April 2012, the Board will strengthen its compliance verification process to make sure that timely follow-up actions are undertaken to address gaps and deficiencies, and are appropriately documented. The Board will develop criteria to differentiate between major and minor deficiencies. Criteria for senior-level review and sign-off of CVAs will also be developed. Staff will be trained on all updated processes.</p> <p>Finally, by April 2012, the Board will enhance its risk-based planning by creating a process to evaluate the effectiveness of its risk model.</p>

Recommendation	Response
<ul style="list-style-type: none"><li>the assessment of company risk is based on accurate and sufficient information.</li></ul> <p>The action plan should indicate the staff responsible for each item and provide resources necessary to make the required change.</p> <p>(1.46–1.77)</p>	



# Report of the Commissioner of the Environment and Sustainable Development—December 2011

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