Environment

4

Main points

The chapter reports the result of our work to assess the Department of Environment's (Ministry) processes to regulate contaminated sites at August 31, 2007. The Ministry had adequate processes to regulate contaminated sites except it needs to:

- establish an adequate system for tracking contaminated sites
- complete its risk assessments for contaminated sites and rank them in terms of priority
- complete its written guidance for monitoring contaminated sites
- prepare a communication plan for internal and external reporting on the status of contaminated sites

Introduction

The Department of Environment (Ministry) is responsible for managing, enhancing, and protecting the Province's natural and environmental resources and sustaining them for future generations. Information about the Ministry is available on its website (www.environment.gov.sk.ca/). Effective November 2007, the Department of Environment has been restructured and is known as the Ministry of Environment.

Our 2007 Report – Volume 3 includes the results of other audit work during 2007 at the Ministry and its special purpose funds and Crown agencies. This chapter reports the results of our audit of the Ministry's processes to regulate contaminated sites.

Regulating contaminated sites

The Ministry is responsible to protect and manage provincial environmental and natural resources to maintain a high level of environmental quality, ensure sustainable development, and provide economic and social benefits for present and future generations.[1] The Ministry is also responsible to promote stewardship of the air, water, and land in Saskatchewan and minimize the impact of pollution on the air, water, and land.

The Ministry recognizes that clean air to breath, clean water to drink, and clean land to support the people of Saskatchewan are the building blocks to a healthy Saskatchewan. Uncontaminated land is essential for human health, clean water, and safe food production.

Controlling potential impacts of contaminated sites helps minimize their harmful effect. Under *The Environmental Management and Protection Act, 2002* (the Act) and the related regulations, the Ministry has responsibility to control and direct how best to manage a contaminated site.

Regulating contaminated sites is necessary to prevent, minimize, or mitigate damage to human or ecosystem[2] health. The Ministry is

[1] 2006-07 Saskatchewan Environment Annual Report, p. 6.
[2] System involving interaction between organisms and the non-living environment.

responsible to identify contaminated sites, assess risks to human and ecosystem health, and determine who was responsible for contaminating the sites. It then must ensure appropriate remediation of the contaminated sites.

The Ministry uses a risk assessment approach and current standards to determine if an area of land is contaminated. As a regulator, the Ministry uses the principle of "Polluter Pays." Under this principle, the Ministry requires those who contaminate a site to do the remediation.[3] The remediation process begins with site assessments to identify the risks, the impacts, and the appropriate remedial action and monitoring. The Ministry's role is to approve the remedial plans and ensure the identified polluter completes work in accordance with the approved plan. The Ministry also undertakes site assessments for abandoned sites on provincial land to determine their impact and the remedial action required.

Between January 1 and August 31, 2007, the Ministry responded to over 300 reportable hazardous spills and over 100 hazardous substances site remediation plans or assessments. At August 31, 2007, the Ministry regulated many potentially contaminated sites including 75 abandoned mines in northern Saskatchewan, 862 municipal landfills, and 629 sewage lagoons. In the year ended March 31, 2007, the Ministry spent $225,000 to develop a five year abandoned mines remediation strategy and to conduct a site characterization[4] of one high-risk abandoned mine site, $30,000 to acquire spill equipment and training, $160,000 to manage hazardous substances site management, and $415,000 for grants to municipalities to support regional waste management.

What is a contaminated site?

Under the Act, the Ministry is required to regulate a site (e.g., lagoon, landfill, abandoned mine, industrial site) if it has contaminants at a level that may cause or has caused an impairment or damage to the environment or human health. Site operators are required to control and contain contaminants to avoid impairment or damage to the environment or human health. Contaminants include any solid, liquid, particulate, or

[3] Examples of remediation include containment, excavation, and various physical, chemical, and biological treatments.
[4] Site Characterization is a detailed on-site assessment at a known or suspected contaminated site to determine the extent and type(s) of contamination.

gases (e.g., mercury, oil, zinc, arsenic, uranium, mine tailings) that could harm the environment or living organisms. Regulations under the Act require mining and petroleum companies to have plans and financial assurances to help clean any contamination on land when they close operations permanently. Also, the Ministry's policy requires new industrial operations besides mining and petroleum companies to provide decommissioning plans and financial assurances to ensure the clean up of the site.

What risks do contaminated sites pose?

Ineffective regulation of contaminated sites could result in contamination of the air, water, and land. Contamination of the, air, water, and land could result in the environment and humans being exposed to high levels of hazardous substances. Also, contaminated sites can cause economic harm as valuable land may not be useable. It is far easier and less costly to prevent damage to human health and the environment than to try to correct it after contamination has occurred.[5]

Lack of adequate processes to identify, assess site risks, track, remediate, and monitor contaminated sites increases the risk that the Ministry may not be able to regulate contaminated sites promptly and effectively.

Our audit objective and criteria

The objective of our audit was to assess whether the Ministry of Environment had adequate processes to regulate contaminated sites at August 31, 2007.

We used criteria, set out in the exhibit below, to assess the Ministry's processes. We based our criteria on related work, reviews of literature including reports of other auditors, and consultations with management. The Ministry agreed with the criteria.

Throughout our audit, we followed *The Standards for Assurance Engagements* established by The Canadian Institute of Chartered Accountants.

[5] 2002 Report of the Commissioner of the Environment and Sustainable Development to the House of Commons, Chapter 2 The Legacy of Federal Contaminated Sites, p. 2.

Exhibit—Audit Criteria

To adequately regulate contaminated sites, the Ministry should have processes to:

1. **Identify potential contaminated sites**
   - 1.1 Obtain the expertise to identify potential contaminated sites
   - 1.2 Maintain written guidance to identify potential contaminated sites
   - 1.3 Maintain an updated listing of current and potential contaminated sites
2. **Assess the risks sites pose**
   - 2.1 Determine who was responsible for contaminating a site
   - 2.2 Use accepted standards and guidelines to assess risks
   - 2.3 Evaluate risk assessments
   - 2.4 Prioritize contaminated sites based on risk assessments
3. **Direct remediation of sites**
   - 3.1 Maintain written guidance for staff to oversee management of contaminated sites
   - 3.2 Request remedial plans based on current and potential risks
   - 3.3 Evaluate and approve remedial plans (e.g., cleanup or mitigation)
   - 3.4 Monitor remedial activities (e.g., inspect contaminated sites)
4. **Monitor and report on the status of sites**
   - 4.1 Monitor sites at risk to ensure levels of contamination remain acceptable
   - 4.2 Implement communication plan to educate operators/owners of sites when and how to report contamination of sites
   - 4.3 Maintain communication plan to inform the public about contaminated sites

Our conclusion and findings

The Ministry of Environment had adequate processes at August 31, 2007 to regulate contaminated sites except the Ministry needs to implement processes for assessing, monitoring, tracking, and reporting the status of contaminated sites.

Key findings by criterion

The following describes, for each criterion, our expectations (in italics), our detailed findings for each criterion, and our recommendations.

Identifying potential contaminated sites

We expected that the Ministry would have processes to identify potential contaminated sites including:

- *obtaining adequate expertise to identify potential sites*
- *maintaining adequate written guidance to assist staff in identifying potential sites*
- *maintaining an updated listing of current and potential contaminated sites*

The Ministry has processes that help ensure it has appropriate expertise to identify contaminated sites. The Ministry hires employees with professional qualifications. For external resources, such as consultants, the Ministry is knowledgeable about the limited number of companies that have the necessary expertise to assess contaminated sites. The Ministry supports employees through development plans and training. For example, the Ministry requires its less-experienced employees to work closely with experienced employees. Also, the Ministry has a leadership training program to help develop and retain employees.

The Ministry has adequate written guidance to assist its employees in identifying contaminated sites. Employees are knowledgeable about the Act and regulations that outline how to identify and regulate contaminated sites.

It is challenging for any regulator of contaminated sites to identify all potential contaminated sites. The Ministry regulates potential contaminated sites by issuing permits to operators of commercial and industrial sites, lagoons, and municipal landfills. The Act requires operators to report any spill of a contaminant that may cause an adverse effect to the environment or pose a risk to public health or safety. Immediate reporting would allow the Ministry to communicate to first response teams and the responsible party to act quickly to protect humans and the environment. However, with self-reporting requirements, there is always the risk that the Ministry may not know about all hazardous spills.

The Ministry uses a computer system to manage some information about contaminated sites such as landfills and spills. However, employees do not always use or update the system appropriately. As a result, the system does not have accurate, up-to-date information. For example, employees did not update the database that records reported spills for about three months. Delays in updating data could result in delays in monitoring contaminated sites and remedial actions. Also, the Ministry's manual records relating to contaminated sites are not adequate. Without a complete and accurate tracking system for contaminated sites, the Ministry cannot effectively manage such sites.

1. We recommend the Ministry of Environment establish an adequate system for tracking contaminated sites.

In November 2007, management told us the Ministry is in the process of providing additional guidance to staff regarding the computer system for managing information about contaminated sites.

Assessing the risks of contaminated sites

We expected that the Ministry would have processes to:

- *determine who was responsible for contaminating a site*
- *use accepted standards and guidelines in assessing risks*
- *evaluate risk assessments and prioritize sites based on its risk assessments*

The Ministry follows the Act to determine who was responsible for contaminating a site. When the Ministry has identified who is responsible for the contaminant, the Ministry may require the site owner/operator to prepare and provide a formal risk assessment. However, the Ministry did not always receive the required risk assessments promptly. For example, the Ministry requested a site owner to provide a risk assessment in October 2005. At September 2007, the Ministry had not received the assessment and had not determined what remedial action might be required.

Risk assessments document the condition of sites, contaminants found, toxicity levels, health and human safety issues, and identify risks that require remedial action. The Ministry evaluates risk assessments using guidelines established by the Canadian Council of Ministers of the Environment.

The Ministry has ranked the various risks it faces including those from contaminated sites. Also, the Ministry has begun a process of assessing and ranking the risks of individual sites. For example, a risk assessment and ranking has been done for all lagoons and some landfills. The Ministry has not formally assessed and prioritized other potential contaminated sites such as industrial and commercial operations (e.g., storage facilities of hazardous substances). To manage sites that pose the greatest risks, the Ministry should complete its assessment of the risks and then rank sites in terms of priority.

For abandoned mines, the Ministry has performed a high-level risk review and ranking and physically secured some sites for public safety. The Ministry is responsible for assessing the risks and remediating non-uranium abandoned mines on provincial land. However, the Ministry has not done detailed risk assessments for the non-uranium abandoned mines.

2. We recommend the Ministry of Environment complete its risk assessments for identified contaminated sites and rank them in terms of priority.

In November 2007, management told us the Ministry has prepared a draft long-term strategy for assessing the risks of some non-uranium abandoned mines.

Remediating contaminated sites

We expected that the Ministry would have processes to:

- *maintain written guidance to oversee management of contaminated sites*
- *request remedial plans based on current and potential risks*
- *evaluate and approve remedial plans*
- *monitor remedial activities*

The remediation process may be triggered by any one of a number of events such as spills of pollutants, decommissioning activities, regulatory inspections, monitoring, and complaint investigations. The Ministry maintains written guidance such as internal documents, risk assessments, and regulations to help oversee remediation. Employees use this written guidance. For example, when dealing with petroleum-based contaminated sites, employees evaluate a remediation plan based on an internal document, *Risk-Based Corrective Actions for Petroleum Hydrocarbon Impacted Sites*, and the regulations under the Act. Also, employees evaluate the plan's ability to satisfy clean-up requirements related to the risk assessment performed on the site. *Risk-Based Corrective Actions for Petroleum Hydrocarbon Impacted Sites* provides the Ministry with a site management process specifically for soil and groundwater contamination originating from existing or former petroleum storage facilities and other petroleum-impacted sites.

The Ministry reviews and approves remediation plans prepared by operators of the land. Site-specific risk assessments determine the operators' remediation plans. The plans help the Ministry to determine the resources it needs to oversee planned remediation and the potential future uses of sites. The Ministry monitors clean up activities, focusing its resources on larger sites.

Monitoring and reporting on the status of sites

We expected the Ministry to have processes to:

- *monitor the status of contaminated sites depending on the level of contamination*
- *educate operators/owners of sites on when and how to report contamination of sites*
- *maintain a communication plan to inform the public about contaminated sites*

The Ministry does not monitor all contaminated sites. Rather it strives to monitor those sites where it determines the risk of harm to humans and the environment is higher. However, the Ministry has not documented its reasons for monitoring sites differently. For example, the Ministry issues permits to and monitors only some operators. As a result, the Ministry is not monitoring levels of contamination at some sites.

As stated earlier, for effective monitoring of contaminated sites, the Ministry needs to improve its processes for assessing and prioritizing risks. The Ministry should then complete its written guidance for employees for monitoring high-risk contaminated sites. The Ministry has written guidance for monitoring mines and mills including federal monitoring guides. It also has written guidance for monitoring lagoons and landfills. When the Ministry has completed its assessment of risks and written guidance, it can direct greater efforts towards those sites that pose the highest risks. Without complete guidance, the Ministry may not be properly monitoring contamination risks and preventing contamination. For example, the Ministry approved a permit with conditions for a potentially contaminated site. The Ministry, however, did not monitor the site to ensure the operator met the conditions of the permit. The operator spilled a petroleum product that ended up in Wascana Lake in the spring of 2007 requiring remedial action.

The Ministry needs a system to record relevant and up-to-date information about all contaminated sites. This system would help employees to evaluate and prioritize risks of all sites. It would also help employees to monitor the sites. Also, an adequate system would provide better information to management.

The Ministry makes operators and owners of potential contaminated sites aware of the requirements to prevent contamination of sites and when to report contamination. It does this through permits and guidance on its website, e.g., landfill management guidelines. The Ministry has a 24-hour spill line that allows site operators to report spills of contaminants.

The Ministry does not have a communication plan to report publicly on the status of contaminated sites. For example, there is no strategy on when and how to inform the public about the risks of contaminated sites. Management told us that the Ministry is developing a communication plan for contaminated sites.

The Ministry shares information on reportable spills with the public on a website (www.saskspills.ca). However, the information on the website is not up to date.

3. We recommend the Ministry of Environment complete its written guidance for monitoring contaminated sites.

4. We recommend the Ministry of Environment prepare a communication plan for internal and external reporting on the status of contaminated sites.

In November 2007, management told us that the Ministry had drafted a contaminated sites/spills communication plan.

Selected references

2002 Report of the Commissioner of the Environment and Sustainable Development to the House of Commons. Chapter 2. *The Legacy of Federal Contaminated Sites.* Ottawa. Author.

Annual Report of the Auditor General of Alberta 2002-2003. Edmonton: Author.

Auditor General of British Columbia (2002) Report 5. *Managing Contaminated Sites on Provincial Lands.* Victoria: Author.

Auditor General of Manitoba (2005). *Environmental Audits, Review of the Province of Manitoba's Management of Contaminated Sites.* Winnipeg: Author.

Saskatchewan Environment (2006). *2005-2006 Annual Report*. Regina: Author.

Saskatchewan Environment (2006). *Risk-Based Corrective Actions for Petroleum Hydrocarbon Impacted Sites* EFB 344. Regina: Author.

Saskatchewan Petroleum Industry/Government Environment Committee (SPIGEC) *Saskatchewan Upstream Petroleum Sites Remediation Guidelines*. Guideline No. 4 – Update 1, September 1, 2000.