

Chapter 3

Ministry of Northern Development and Mines

Section 3.11

Mines and Minerals Program

1.0 Background

1.1 Overview

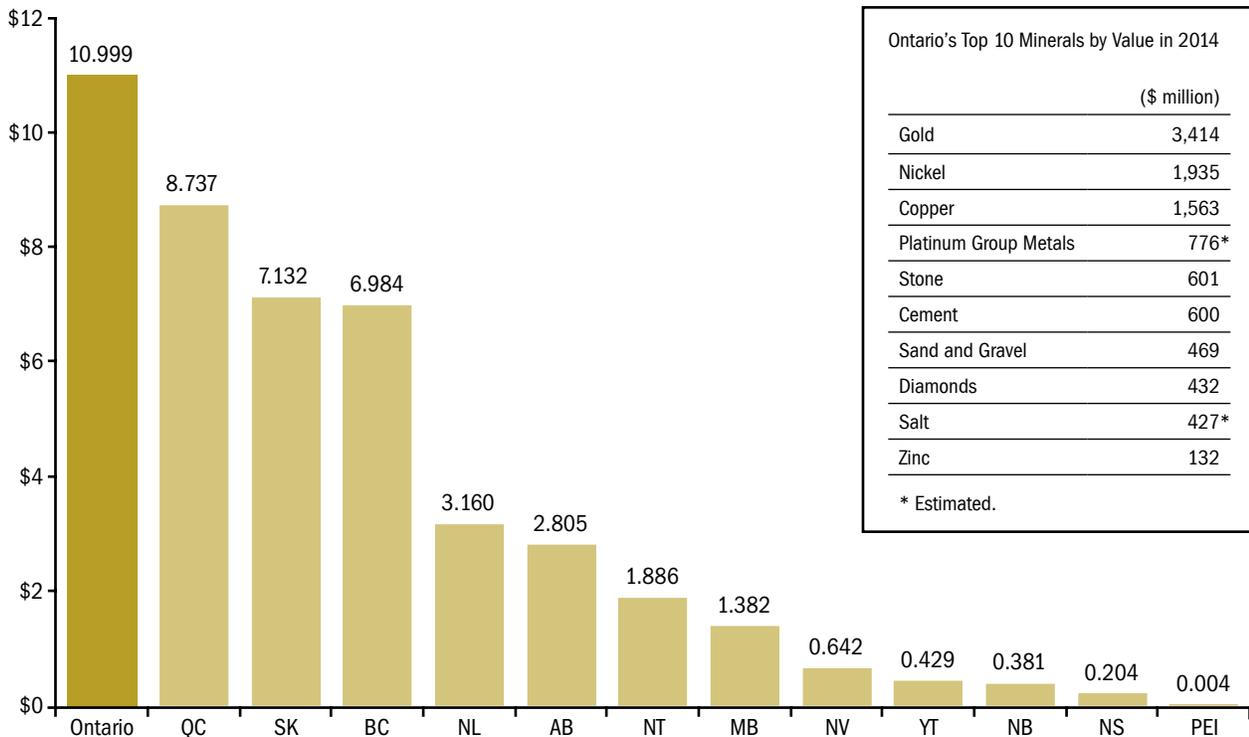
Ontario is the largest mineral producer in Canada, accounting for 24.6% of the total share of Canadian mineral production. Its mineral production was

valued at almost \$11.0 billion in 2014. **Figure 1** shows Ontario's mineral production in comparison to other Canadian provinces and territories, and its top 10 minerals by production value.

The Ministry of Northern Development and Mines (Ministry) is responsible for overseeing the province's minerals sector, in accordance with the *Mining Act (Act)*. The Act's rules and regulations

Figure 1: Value of Canada's Mineral Production, 2014 (\$ billion)

Source of data: Ministry of Northern Development and Mines



are intended to encourage the development of Ontario’s mineral resources. Mineral development occurs in five stages:

- exploration;
- evaluation;
- development;
- production; and
- closure and monitoring.

Appendix 1 provides an overview of these stages and the activities in each stage. Under the Act, these activities must be conducted in a way that recognizes existing Aboriginal and treaty rights, and minimizes adverse effects on public health and safety and on the environment.

The Ministry’s specific responsibilities are to:

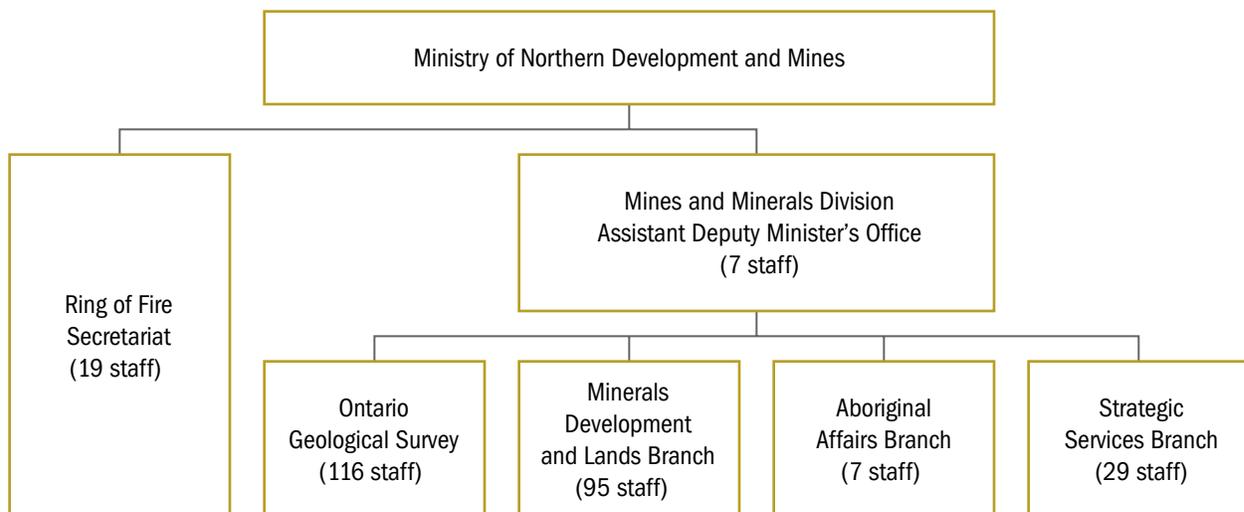
- collect and disseminate geosciences (earth science) information to attract investors to the mineral sector and guide their investments, and to support land-use planning;
- encourage and facilitate Aboriginal participation in Ontario’s economy in a way that recognizes and is respectful of Aboriginal rights and culture;

- encourage, promote and facilitate sustained economic benefits from Ontario’s mineral resources;
- ensure that mining activity is performed responsibly and sustainably, with minimal disruption to the environment;
- inspect mines for compliance with the Act’s rules and regulations, and oversee mine rehabilitation (including collecting and holding funds to ensure private mine owners rehabilitate their mine sites) and abandoned mines; and
- oversee and ensure equitable public access to Crown lands so that the mineral resources in them can be explored and developed if possible.

These responsibilities are carried out by the Ministry’s Mines and Minerals Division, and its Ring of Fire Secretariat, responsible to oversee the development of the Ring of Fire mineral deposit in Northern Ontario. In 2014/15, the Ministry had over 270 full-time employees and spent \$41 million. See **Figure 2** for details on the Ministry’s organizational structure.

Figure 2: Ministry of Northern Development and Mines Organizational Structure, 2014/2015

Prepared by the Office of the Auditor General of Ontario based on information provided by the Ministry of Northern Development and Mines



1.2 What Happens Before a Mine Opens

In Ontario, approximately 70 million hectares of Crown lands are available to prospectors and mining companies to explore, evaluate and develop to produce minerals.

The first step in exploration is for licensed prospectors to stake a mining claim. This means the prospectors mark an area of land on which they want to claim the exclusive right to explore for minerals. Marking the land physically involves planting posts around the borders, and blazing trees and cutting underbrush along the claim boundaries. The Ministry also allows prospectors to “map stake” claims on lands in southern Ontario that have been subdivided into territories or townships—that is, in an application form, indicate the outlines of the claim on a map.

A claim can range in size from 16 hectares (a one-unit claim) to 256 hectares (a 16-unit claim).

In the last few years, metal and mineral prices have dropped significantly because of lower global demand. This has had a direct impact on mining activities in the province. As shown in **Figure 3**, exploration spending peaked in 2011 but has declined dramatically since. The number of active claim units has also declined since 2011.

It can take 10 years or longer from early exploration for a mine to open, and in fact, most exploration work never moves to the production stage. Given this, mining companies are continuously exploring land looking for mining opportunities.

To promote the province’s mineral potential and attract exploration investment, the Ministry:

- provides industry with access to an online warehouse of geological data, including over 18,000 Ontario Geological Survey maps, reports and datasets, and over 80,000 exploration work reports submitted by the private sector;
- monitors the investment climate, and analyzes industry health and trends; and

- develops initiatives and policies to respond to those trends.

The Ministry also attends trade shows and conferences on mineral exploration and development to showcase Ontario’s mineral potential and to promote investment in the province. As well, it relies on the Ministry of Economic Development, Employment and Infrastructure and the Ministry of Citizenship, Immigration and International Trade to promote the mining sector in Ontario on trade missions and media tours.

1.3 What Happens After a Mine Closes

Mining activities can have a significant impact on the surrounding environment. They can affect groundwater and surface water, aquatic life, soil, vegetation, wildlife and air quality. The changes mining makes to the environment can have serious implications for public safety and health. Therefore, under the *Mining Act*, all land affected by mining must be rehabilitated when mining ends.

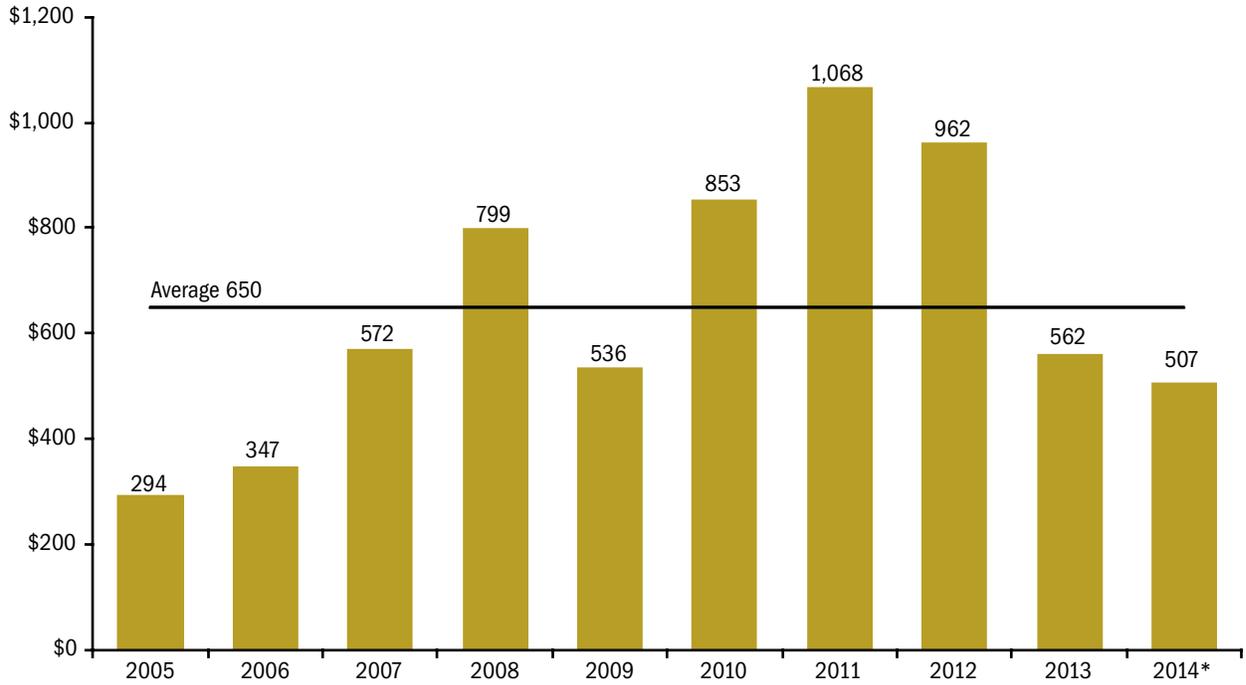
Before they can start building a mine, mining companies must prepare the mine’s closure plan. This plan outlines how the affected land will be rehabilitated and how much rehabilitation will cost. Plans must be certified by company executives to ensure they meet the standards prescribed in one of the *Mining Act*’s regulations. This regulation also requires certifications from qualified professional engineers. The Ministry must review and accept the plans before development can begin. As well, the Ministry can inspect the company’s exploration work and operations to ensure they remain in compliance with the filed plans.

To ensure that the company will be able to follow through with the plan, the Ministry obtains financial assurance or security from the mining company. This is an amount of money, equal to the estimated cost of the rehabilitation work, that is to be held by the Ministry to ensure adequate funds are available to carry out the rehabilitation of a mine if the company fails to do so. Alternatively,

Figure 3: Exploration Spending by Industry and Active Mining Claim Units in Ontario, 2005–2014

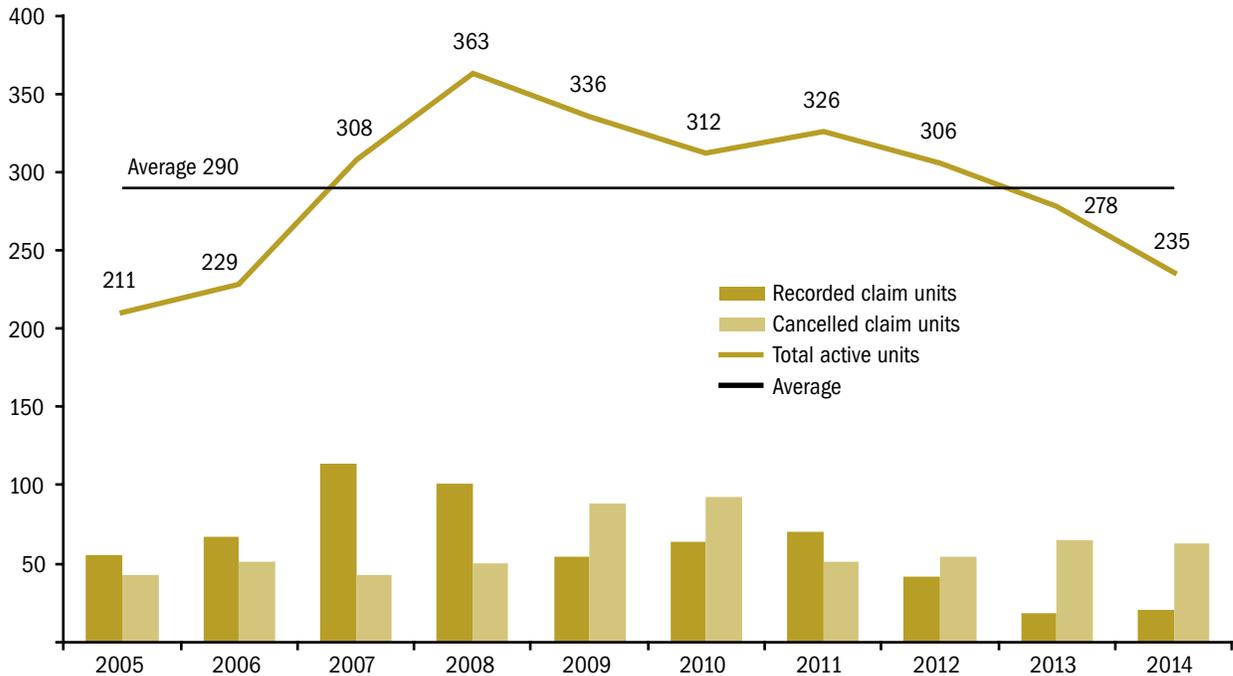
Source of data: Ministry of Northern Development and Mines

Exploration Spending by Industry (\$ million)



* Based on preliminary data.

Active Mining Claim Units (000)



Note: Vertical dark bars on the left represent claim units recorded during the year; the light bars on the right represent claim units cancelled during the year.

companies that meet certain criteria (as described in **Figure 4**) can self-assure to meet the financial assurance obligations. This means that they do not need to submit funds in advance to the Ministry because the Ministry anticipates that the companies will have sufficient funds to rehabilitate the mines when needed.

As shown in **Figure 4**, as of August 2015, the Ministry had received 157 closure plans, with about \$1 billion of associated financial security (cash, bonds, and letters of credit). As well, the *Mining Act* permitted companies that passed the Corporate Financial Test to self-assure 10 closure plans, estimated to cost \$654 million, and allowed the pledge of assets for two closure plans.

1.4 Abandoned Mines

Prospecting and mining in Ontario dates back to the 1800s. The requirement for rehabilitating land after mining activities end came into effect in 1991 with an amendment to the *Mining Act*, and applied to all operating mines at the time. Therefore, many

mines that had ceased operations before 1991 are not closed out in accordance with current legislation and standards. This has left mine hazards on the land that could now pose risks to public health and safety and the environment.

These hazards can be physical, such as shafts, trenches and buildings, or environmental, such as acid rock drainage, metal leaching and tailing dams (tailings are fine-grain material left over from the processing of mineral ores; tailings are held in place by earth-filled dams). Rehabilitation of these sites can range from just closing small mine shafts to rehabilitating major chemical contamination, which could cost millions of dollars.

All known existing mine sites that were not in operation in 1991 (when the requirement for rehabilitating land when mining activities cease came into effect) have been classified as abandoned mines by the Ministry. There are currently about 4,400 known abandoned mines in Ontario containing over 15,000 mine hazards known to the Ministry. **Figures 5** and **6** present an overview

Figure 4: Financial Assurances, August 2015

Source of data: Ministry of Northern Development and Mines

Form of Pledge	Description	# of Plans	Amount (\$)
Letter of Credit	A document from a bank guaranteeing receipt of payment in full. Must be received from a bank named in Schedule 1 of the <i>Bank Act</i> or a bank acceptable to the Ministry.	90	853,691,658
Cash		52	18,052,309
Surety Bond	A bond of an insurer licensed under the <i>Insurance Act</i> to write surety and fidelity insurance.	15	132,022,661
Subtotal of more secure pledges		157	1,003,766,628
Corporate Financial Test	Companies that have a single A- rating (Standard & Poor's) or better are able to fully self-assure for the life of the mine. Companies with a BBB- rating will be able to fully self-assure for the first half of the life of the mine if this first half is at least four years. Companies with ratings lower than BBB- cannot self-assure.	10	654,183,803
Pledge of Assets	Collateral pledged by the company that the Ministry has the right to seize if the company defaults on obligation.	2	4,256,467
Subtotal of less secure pledges		12	658,440,270
Total		169	1,662,206,898

Note: The number of filed closure plans is 162. Some closure plans have more than one financial assurance instrument.

Figure 5: Mines in Ontario, August 2015

Prepared by the Office of the Auditor General of Ontario, based on information provided by the Ministry of Northern Development and Mines

Description	# of Mines		
	Private	Crown	Total
Developed Mines			
Mines currently in production	43	–	43
Mines not currently in production	78	–	78
Total	121	–	121
Closed-out Mines			
Mines in the process of closing out	11	–	11
Mines closed out, but under environmental monitoring	7	–	7
Mines completely closed out	4	–	4
Total	22	–	22
Abandoned Mines			
Abandoned mines with contamination meeting public-sector-accounting criteria for liability recognition ¹	19	37	56
Abandoned mines with contamination not meeting public-sector-accounting criteria for liability recognition ²	291	15	306
Abandoned mines with physical hazards only	1,678	2,372	4,050
Subtotal	1,988	2,424	4,412
Abandoned mines being rehabilitated by other ministries ³	–	3	3
Total	1,988	2,427	4,415

1. See Section 3.10 of this Annual Report for more details on the PSAB 3260 Liability for Contaminated Sites.

2. According to the Ministry of Northern Development and Mines, either the contamination on these sites does not exceed the environmental standard required for the reporting of a liability or these sites have mine closure plans to address the contamination.

3. Ministry of Natural Resources and Forestry – Steep Rock Mine and Adams Mine; Ministry of the Environment and Climate Change – Deloro Mine.

of all mines in Ontario and the associated hazards located on the abandoned mine sites.

These abandoned mines are either privately held or owned by the Crown. The Crown took ownership in cases where:

- the land was forfeited due to unpaid rent or taxes;
- the land was surrendered back to the Crown;
- the mining lease expired;
- the private owner died; or
- the mining company was dissolved.

The Ministry is responsible for the rehabilitation of hazards in abandoned mines owned by the Crown. It is also responsible for monitoring and enforcing the rehabilitation of privately owned abandoned mines and to ensure these mines do not revert back to the Crown without first being

rehabilitated. In cases where the private owners have failed to address mine hazards that pose immediate and dangerous adverse effects on public health and safety and the environment, the Ministry has to take emergency measures to rehabilitate these hazards and then attempt to recover the money from the private owners.

1.5 Mining Revenue

Ontario's *Mining Tax Act* imposes a mining profit tax on mineral production. The tax is meant to compensate the province for the extraction and sale of non-renewable mineral resources from Crown and private land. All minerals mined in Ontario are subject to mining profit tax except for diamonds, which are subject to royalty payments under the *Mining*

Figure 6: Abandoned Mine Hazards in Ontario, August 2015

Source of data: Ministry of Northern Development and Mines

Type of Abandoned Mine Hazard	# of Hazards Present at						Total
	Contaminated Sites Meeting Criteria for Liability Recognition		Contaminated Sites Not Meeting Criteria for Liability Recognition		Sites with Physical Hazards Only		
	Crown	Private	Crown	Private	Crown	Private	
At or near the surface (e.g., shafts, open pits)	165	112	86	1,781	5,261	4,387	11,792
Structures (e.g., buildings, mills)	112	73	102	435	229	406	1,357
Underground (e.g., stopes*, lateral workings)	26	14	15	323	271	297	946
Waste (e.g., rock piles, tailings)	68	58	48	424	232	403	1,233
Unknown	1	0	2	19	8	21	51
Total	372	257	253	2,982	6,001	5,514	15,379

* Stopes are openings in the ground made in the process of extracting ore from a mine.

Act. All annual taxable profits over \$500,000 are taxed at a rate of 10%.

A reduced rate of 5% applies to profits from operations that the Ministry has designated as remote (that is, there are at least 30 kilometres between the mine pit's mouth and the nearest road or railway used by the mine for transportation).

In most years, the mining profit tax accounts for 90% of total mining revenue.

The *Mining Act* outlines the rates to be charged for the use of Crown land, including rental fees on mining leases and licences, and mining land tax (formerly acreage tax) on privately owned land.

Mining revenue received from these various sources is presented in **Figure 7**. Over the last 20 years, from 1995 to 2014, mining revenue fluctuated considerably and dropped to its lowest point in 20 years in 2014 (to \$18.6 million, from a high of \$236.7 million in 2008). Mining revenue is impacted by fluctuations in the global demand and commodity prices for the minerals, and in the last few years, lower commodity prices and global demand have resulted in lower mining revenue for the province.

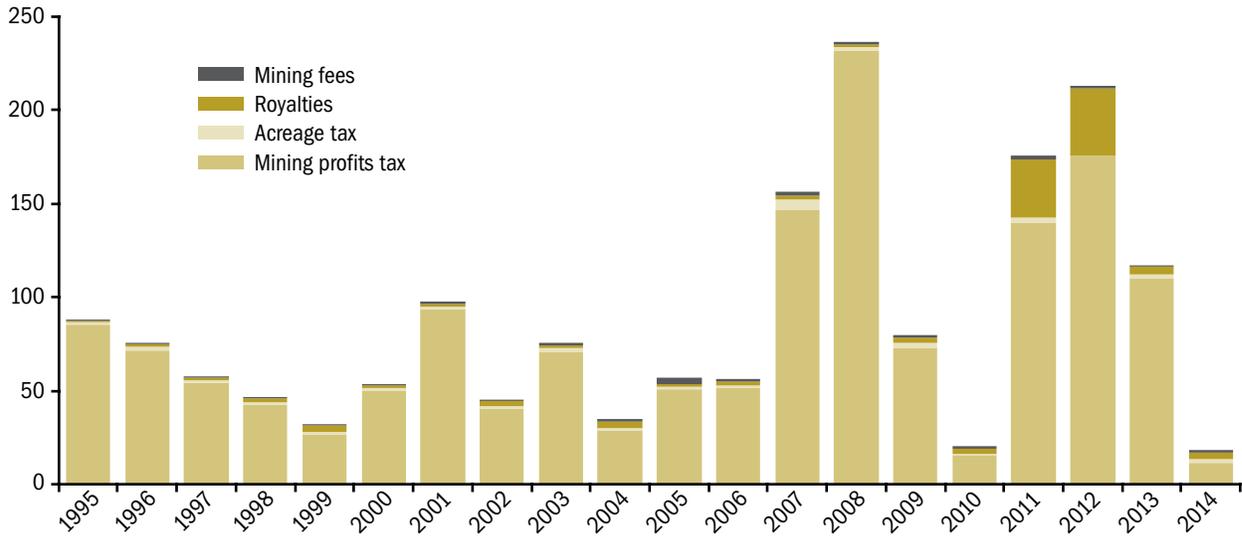
1.6 Ring of Fire

The Ring of Fire is a mineral-rich area located in Northern Ontario in the James Bay Lowlands, about 500 kilometres northeast of Thunder Bay. This is a remote area with no infrastructure linking the region to existing roads, rail or electricity. The area is approximately 5,000 square kilometres, with most mineral discoveries to date located within a 20-kilometre-long strip. See **Appendix 2** for the geographical location of the Ring of Fire.

Early exploration in the region in 2001 identified significant deposits of nickel, copper, zinc and platinum. However, it was the discovery of North America's first commercial quantities of chromite in 2008 that attracted more intense interest to the area. Chromite is a mineral used to make ferro-chrome, an alloy that is essential in making stainless steel, which is in high demand worldwide. It is estimated that the chromite deposits hold at least 220 million tonnes, which would make it one of the richest deposits in the world. The chromite and nickel deposits alone in the region are estimated to have a potential value of \$60 billion.

Figure 7: Ontario Mining Revenue, 1995–2014 (\$ million)

Source of data: Ontario Public Accounts



1.6.1 Ring of Fire Secretariat

In 2010, the government established the Ring of Fire Secretariat to work and consult with Aboriginal Peoples, northern Ontarians and the mining community to encourage the sustainable development of the Ring of Fire. The Secretariat has 19 full-time staff working in offices in Sudbury, Thunder Bay and Toronto. Since it was established in 2010, the Secretariat has incurred over \$13.2 million in operating expenditures. It has also distributed \$15.8 million in transfer payments to Aboriginal communities for capacity building (for example, operational support, and education and training initiatives to develop their ability to participate in the mining sector) and other funding support. This other support includes funding a local liaison position on the reserves, as well as funding the negotiation of the Regional Framework agreement between the province and the nine Matawa First Nations impacted by resource development in the area. This Regional Framework agreement outlines how the province and these nine First Nations communities are to work together on shared priorities, including long-term environmental monitoring, infrastructure planning, social and economic development, and resource revenue sharing.

1.6.2 ROF Infrastructure Development Corporation

In response to the infrastructure challenge of the Ring of Fire, the government also created the ROF Infrastructure Development Corporation in August 2014. Its objective is to bring Aboriginal communities and the public and private sectors together to:

- create partnerships to encourage exploration and development in the Ring of Fire;
- make decisions about investments for building transportation infrastructure (including how to best use the \$1 billion that Ontario committed for Ring of Fire infrastructure in its 2014 budget); and
- promote and foster economic development for Aboriginal and non-Aboriginal peoples in the Ring of Fire.

2.0 Audit Objective and Scope

The objective of our audit was to assess whether the Ministry of Northern Development and Mines

(Ministry) has effective systems and processes in place to:

- support the sustainable and responsible exploration and development of Ontario's mineral resources;
- ensure compliance with relevant legislation and ministry policies; and
- measure and report on its effectiveness in encouraging the development and use of the province's mineral resources while minimizing the impacts of mining activities on public health and the environment.

Senior management at the Ministry reviewed and agreed with our objective and associated criteria.

The majority of our audit work was conducted at the Ministry's head office in Sudbury, with visits to the two largest regional offices, in Thunder Bay and Timmins, between November 2014 and April 2015. We interviewed key staff directly involved in:

- the promotion of mining opportunities in Ontario;
- the administration of land tenures (including staking and claims management);
- the collection and dissemination of geological information;
- the review of closure plans and financial assurance;
- monitoring and rehabilitation of abandoned mines; and
- capacity building and relations with First Nations.

We also reviewed pertinent documents associated with the various areas of work by the Ministry.

In addition to our work at the Ministry, we interviewed key staff at the Ministry of Finance on their administration of the *Mining Tax Act* and diamond royalties, and we had discussions with staff at the Ministry of the Environment and Climate Change and the Ministry of Natural Resources and Forestry to gain an understanding of their inspection processes on operating mines and their roles in the development of the Ring of Fire.

We met with First Nations, including the Matawa First Nation Council, to get their perspective on the development of the Ring of Fire. We also visited the Webequie First Nation reserve and met with their leadership and members to get an understanding of their perspective on the work undertaken by the Ring of Fire Secretariat to facilitate development in the area.

We also met with a number of industry associations to obtain their insights on the mining sector in Ontario, and conducted research on the practices of other jurisdictions in the mining sector.

Our audit also included a review of the relevant audit reports issued by the province's internal audit division in determining the scope and extent of our audit work.

Mining pits and quarries related to the mining of aggregate resources such as gravel, sand, clay, granite, and stone, are regulated by the Ministry of Natural Resources and Forestry under the *Aggregate Resources Act*, and thus were not within the scope of this audit.

3.0 Summary

Our audit found that the Ministry has not been effective in encouraging timely mineral development in the province. While a drop in mineral prices in recent years has had an impact on mining activities in the province, Ontario is ranked near the bottom in Canada with respect to attracting mining-sector investments. According to the 2014 edition of a Fraser Institute annual survey of mining and exploration companies, Ontario ranked ninth among Canadian provinces and territories in investment attractiveness in mineral exploration, even though it has one of the lowest mining tax rates on income from mining operations in Canada. Ontario has a marginal effective mining tax rate of 5.6%, compared to a national average of 8.6%. Exploration spending in Ontario peaked in 2011, and has since dropped by over 50%.

Discovery of the rich Ring of Fire mineral deposit in a remote area of Northern Ontario is one of the province's greatest mining opportunities in recent years. We noted that the Ministry has worked diligently to establish a Regional Framework agreement with Aboriginal communities that lays out a community-based negotiations process for development in the Ring of Fire, and has been funding education and training initiatives to build the capacity of Aboriginal communities to fully participate in future opportunities in the mining sector. However, the area is still not close to being ready for production since its discovery in 2008, and we found the Ministry has no detailed plan or timeline for developing the region.

We also noted the Ministry lacks adequate processes to manage mine closure plans and the rehabilitation of abandoned mines. In particular, closure plans are neither properly reviewed when first submitted, nor subsequently updated on a regular basis to reflect current costs and standards.

In addition, the lack of updated information on existing hazards and rehabilitation costs, and a lack of consistent funding, made it difficult for the Ministry to develop a comprehensive rehabilitation strategy for abandoned mines.

Among our specific findings:

- **Ministry's marketing strategies may be ineffective:** While the Ministry attends about five trade and investment events a year, and relies on other ministries for some of its other marketing activities, it has undertaken no assessment of the effectiveness of these activities in attracting investors. For example, although performance targets are set for generating contacts and meetings to discuss investment opportunities in the province, the Ministry has not consistently tracked whether these meetings or contacts led to any significant investments in the province.
- **Ministry is slow to make geosciences information available to mining industry:** We reviewed the Ministry's list of mapping projects scheduled to be completed by 2014,

and found that over one-third were behind by an average of 19 months. In addition to publishing its own geological maps and reports, the Ministry also makes available to the public all geological assessment information submitted by prospectors. However, at the time of our audit, we noted that over 1,250 geological assessments dating back to 2013 had not yet been made publicly available online through a searchable database. As a result, this technical information was not easily accessible to potential developers to help them identify opportunities for mineral exploration and development.

- **Lack of clarity on duty to consult with Aboriginal communities slows investment:** Potential investors have to provide Aboriginal communities with information on the impact of mining projects, and ensure that any concerns raised by the communities are addressed. Mining industry associations told us this delegation to the private sector can discourage investments because of the high cost of travelling to many remote Aboriginal communities, and because it was not possible to anticipate either the length of time required to complete consultations, or the outcome of those consultations.
- **Little infrastructure development of the Ring of Fire to date:** The remoteness of the Ring of Fire requires significant infrastructure investment to open access to it and to encourage development in the region. There are also more than 10 First Nation communities or reserves in the region that that must be consulted on any development of the Ring of Fire. In 2010, the Ministry established the Ring of Fire Secretariat to lead the overall development of the region, including co-ordination of infrastructure development and Aboriginal consultation. In addition, in 2014, the provincial government committed \$1 billion to infrastructure in the region, contingent on matching funds from the federal government.

However, the federal government did not commit to match the funding due to the lack of detailed plans for development. It directed the provincial government to apply to the New Building Canada Fund once it has plans for specific infrastructure projects in the region. The province remains committed to spending \$1 billion in the region, but none of the committed funding has been spent to date and, in any case, the provincial commitment alone will not be enough to meet the region's infrastructure needs.

- **No minerals yet extracted from the Ring of Fire:** In 2013, a large international mining company that held the rights to explore and potentially develop the chromite deposits in the Ring of Fire pulled out and sold most of those rights to a Canadian junior mining company. The Canadian company has no current plans to develop these chromite holdings. Other potential investors cannot mine most of the chromite in the region unless the Canadian company agrees to sell its rights.
- **Mine closure plans lack sufficient technical review:** Ministry staff who review mine-closure plans lack the technical expertise to assess plans regarding mines that pose high risks to the environment. Staff can pass these cases on to the Ministry's rehabilitation specialists for review, but we noted the Ministry has no guidelines for when the specialists should be consulted. Our review of a sample of closure plans found that some high-risk threats were not forwarded to the specialists, even though such reviews may have been warranted.
- **Mining-company financial assurances may be insufficient to cover mine close-outs:** A third of mine-closure plans had not had their financial assurances updated since the early 2000s. We applied a conservative inflation adjustment to existing assurances, and determined that the Ministry has a potential risk of \$63 million that is not covered by any financial security. The province could be liable

for this amount if private owners are unable to undertake rehabilitation. Also, one company with 10 mine sites has been allowed under the *Mining Act* to self-assure estimated close-out costs totalling \$654 million.

- **Ministry lacks estimates for abandoned mine cleanup costs:** The Ministry has not estimated the total cost of rehabilitating the 4,400 abandoned mine sites in Ontario since 1993 and therefore does not know the current cost for doing so. It also does not have a long-term plan for rehabilitating these sites. These sites may pose risks to public health and safety and the environment. In the last four years, the Ministry allocated annual funding of only \$4 million plus any budget surpluses from other ministry programs to clean up these sites. The Ministry recently determined rehabilitation costs for 56 highest-risk contaminated sites alone to be \$372 million. However, it has no plans to carry out a detailed cost estimate for the remaining sites. At the time of our audit, the Ministry's opinion was that the potential cost of rehabilitating these other sites could range from \$163 million to \$782 million.
- **Few inspections or follow-ups on abandoned mines:** The Ministry conducts minimal inspection and follow-ups on abandoned mines. In the past five years, the Ministry has inspected only about 6% (248) of abandoned mines to ensure that they do not pose a risk to public health and the environment. Of 362 mines that are considered high-risk, only 142 have been inspected.
- **Ontario has collected very little in royalties from its only diamond mine:** The only diamond mine operating in Ontario extracted over \$2.5 billion in diamonds between the time it opened in 2008 and 2014—but paid the province under \$20 million in royalties over the same period. This represents less than 1% of the value of diamonds the company has extracted to date.

This report contains 13 recommendations, consisting of 28 actions, to address the findings noted during this audit. Of the 28 actions, nine are similar to recommended actions in our 2005 audit of this program.

OVERALL MINISTRY RESPONSE

The Ministry of Northern Development and Mines (Ministry) appreciates the Auditor General's report and recommendations. We will move forward to implement a number of the recommendations in the near future, and to determine the path forward on those recommendations where additional work and analysis is needed to help the Ministry determine next steps.

Ontario's rich and long mining heritage has helped to build our province, and will continue to do so in the face of a changing social and economic landscape. Our Ministry is committed to maintaining Ontario's place as a leading jurisdiction for mineral investment while promoting environmental sustainability and Aboriginal participation in the mineral sector and further developing the Ring of Fire. All of these priorities were identified in Premier Wynne's 2014 mandate letter to the Honourable Michael Gravelle, Minister of Northern Development and Mines. The Ministry acknowledges that to maintain our competitive position, we must continue to work in collaboration with industry, Aboriginal people and other stakeholders. In this regard, we are renewing our Mineral Development Strategy to strengthen the mineral sector in Ontario.

In addition, the Ministry has taken important steps to modernize and strengthen the mineral sector in Ontario, including modernizing Ontario's *Mining Act* to better balance industry, Aboriginal and environmental interests. To further address issues identified in this audit, the Ministry also created the positions of Closure Plan Co-ordinator and Surface Water Specialist to ensure a consistent review of all

closure plans. All sites with closure plans will be inspected according to a five-year inspection schedule, and we will develop short- and long-term operational and financial plans to clean up the highest priority mine sites that pose a threat to human health and safety or the environment.

Ontario continues to work in partnership with industry and communities to support development in the Ring of Fire and ensure its tremendous potential can be realized for First Nations, Ontario and Canada. In March 2014, Ontario signed a historic framework agreement with the Matawa member First Nations to guide negotiations related to development in the Ring of Fire. The 2014 Budget included up to \$1 billion for strategic infrastructure development in the Ring of Fire region, and in August 2014, Ontario established the ROF Infrastructure Development Corporation to move forward in a smart, sustainable and collaborative way with First Nations, the private sector and communities.

4.0 Detailed Audit Observations

4.1 Ontario Could Do Better to Attract Mining Investment

Exploration spending and active claims peaked in 2011, but have since declined dramatically in Ontario from 2011 to 2014 (see **Figure 3**). While a drop in mineral prices in the last few years has had an impact on mining activities in the province, the 2014 edition of an annual Fraser Institute survey of mining and exploration companies ranked Ontario ninth among Canadian provinces and territories in investment attractiveness in mineral exploration, down three spots from 2013.

Three factors may be affecting the province's effectiveness in attracting investment to its mining sector:

- the Ministry has not assessed the effectiveness of its marketing strategies;
- the Ministry has been slow to produce geosciences data that investors could rely on to identify mineral potential; and
- the Ministry is creating uncertainty for the mining industry by delegating to private companies the duty to consult with Aboriginal communities on proposed mining activities.

4.1.1 Marketing Strategies Not Assessed for Effectiveness

The Ministry's 2012 marketing strategy for the Mines and Minerals Division (Division) identified a number of marketing activities to promote Ontario as the premier destination internationally for mineral exploration, development and investment. These activities include:

- building relations with the industry and other stakeholders to identify issues and address communication and information gaps;
- engaging the media to spread the message that Ontario is actively seeking new mineral investments;
- creating a presence at international and domestic events and trade shows that align with marketing objectives;
- developing direct marketing campaigns to key mining, financial and bank executives;
- building an online community for the sector to engage target audience(s) in sharing of information and opinions; and
- creating benefits-focused promotional and information materials.

However, we noted that the majority of the Division's marketing efforts are focused on participating in about five selected trade and investment marketing events annually to promote awareness of mining opportunities in Ontario and to promote the availability of geosciences discovery work and databases.

The Division also relies on the Ministry of Economic Development, Employment and

Infrastructure, and the Ministry of Citizenship, Immigration and International Trade, to deliver certain components of its strategy, including promotion of mining in Ontario during trade missions and media tours, creation of promotional and branding materials for marketing events, and maintenance of an online mining presence as part of the overall promotion of investments in Ontario.

The Ministry has not assessed the effectiveness of its current marketing efforts; nor has it attempted to determine if it is pursuing the right mix of activities to maximize its exposure to potential investors. For instance, although performance targets are set for generating a certain number of investment contacts and meetings at trade shows and marketing events to discuss investment opportunities in Ontario, the Ministry has not consistently tracked whether these contacts and meetings resulted in any significant investments or interest in the province.

In the last two years, the Ministry collected over 350 contacts at these events, but it was unclear whether the Ministry had adequately followed up on a timely basis with these contacts to ensure their information needs were met. In many cases, Ministry tracking simply identified that additional information was provided to these contacts at the events.

4.1.2 Uploading of Geosciences Data for Online Sharing with Industry Is Not Timely

Using information collected through geological surveys and field visits, the Ministry produces geological maps and reports that describe the structure, attributes, chemical composition and physical properties of land in Ontario. The mining industry uses this information to identify areas of mineral potential, and to select mineral exploration targets. As such, the quality and timeliness of this geosciences information is important to identify mineral opportunities and attract exploration and development to the province.

In the seven months from January to July 2015 alone, 3,500 ministry online publications of geological maps and reports had been downloaded a total of 328,000 times. Reports were mostly downloaded from China, followed by Canada, the United States, Germany, France and other countries. While mining industry associations we met with were generally satisfied with the quality of the Ministry's geological information, we noted two areas of concern:

- *Many mapping projects were not being completed on a timely basis.* We reviewed the Ministry's list of mapping projects scheduled to be completed by 2014, and found that 36% of the projects that were to be completed were still ongoing as of December 2014. These projects were behind by an average of 19 months. Of the projects that had been completed between January 2012 and December 2014, 30% had been delayed by an average of 11 months. We were informed that these delays were mainly due to reasons such as staff on leave, increase in project scope, and shifting priorities within the Ministry. According to the Ministry, portions of raw data and other components of the projects, such as descriptions of observations made during fieldwork, results of any lab work, and high-level maps, were released two to 30 months prior to project completion to ensure the industry had access to the data without having to wait for the final report. However, access to a partial dataset does not provide companies with complete geological information to allow them to efficiently identify areas of mineral potential for exploration.
- *The Ministry is slow to upload geological assessment reports for online access.* In addition to publishing its own geological maps and reports, the Ministry makes available to the public all geological assessment information submitted by prospectors. The Ministry receives copies of the prospectors' assessment reports and uploads the reports online to make them searchable and more easily

accessible to other potential prospectors. In the seven months from January to July 2015 alone, 6,500 assessment reports had been downloaded 514,000 times in total. However, at the time of our audit work in April 2015, we noted over 1,250 exploration reports dating back to 2013 had not yet been uploaded. As a result, this technical information was not easily accessible to potential investors in identifying mineral exploration and development opportunities. The Ministry has since used temporary staffing to help reduce this backlog, as well as releasing some of the 2015 reports in its monthly geologist reports to the public. However as of June 2015 about 1,000 reports remain outstanding to be uploaded to the searchable database.

4.1.3 Unclear Duty-to-consult Process with Aboriginal Communities Impedes Investment

Before mineral exploration or mine development begins, the Crown has the legal obligation to first determine if the planned activities trigger the Crown's legal duty to consult. In cases where exploration or mine development on Crown land have an adverse effect on existing Aboriginal or treaty rights, the province has the legal duty to consult with those communities. This consultation typically involves a process of information exchange that focuses on the proposed activity and its potential to adversely affect treaty and Aboriginal rights. The degree of the potential impact on the communities and the nature of the Aboriginal and treaty rights in question determine the level and amount of consultation needed to meet the legal obligation. Generally, activities that are more complex and bring greater impacts require more consultation.

The Ministry identifies the Aboriginal communities that need to be consulted, but delegates certain aspects of the consultation process to the companies that propose to explore or operate mines. The companies have to provide the communities with

information on the impact of projects, and ensure that any concerns raised by the communities are addressed or minimized.

Mining industry associations raised concerns with us that delegating the Aboriginal consultation process to the private sector discourages investments in the province's mining sector because of the high costs of travel to many of these communities in Northern Ontario, and because the length of time to complete the consultation process cannot be controlled.

In addition, a 2014 Fraser Institute report noted that one reason for Ontario's low ranking among Canadian jurisdictions in the investment attractiveness of its mining sector is the lack of clarity and understanding around the Aboriginal consultation process by all parties involved. In comparison to other provinces and territories, Ontario has delegated more aspects of the consultation process to the private sector, and is less directly involved in the process than other jurisdictions. For instance, British Columbia and Quebec have kept full responsibility for the consultation process and its related procedural aspects, and Manitoba takes the lead and manages the consultation process with Aboriginal communities, and delegates only certain information-sharing requirements to the private sector.

The Ministry has indicated that it is assessing the possibility of taking on more of a leadership role in the consultation process by addressing concerns directly with the Aboriginal communities for early exploration work and only requesting the mining industry's involvement when details about their proposed projects are required.

RECOMMENDATION 1

To attract more investment in the province's mining sector, the Ministry of Northern Development and Mines should:

- fully evaluate the cost-effectiveness of its current investment-marketing activities and determine if new, more appropriate strategies should be implemented (we made a

similar recommendation in our *2005 Annual Report*);

- complete geological mapping projects and upload the final reports, including geological assessment reports from prospectors, on a timely basis to better facilitate the use of this information by potential prospectors; and
- ensure that the requirements surrounding its Aboriginal consultation process are clarified and can be easily understood by potential investors and Aboriginal communities with serious consideration of the province assuming more of a leadership role.

MINISTRY RESPONSE

The Ministry has integrated the Trade and Investment Marketing activities of both the Mines and Minerals Division and the Northern Development Division. One of the key deliverables of this initiative is the development of a multi-year Trade and Investment Marketing Strategy that reflects the vision and the competitive and innovative objectives of the Northern Ontario Growth Plan and the Mineral Development Strategy. This strategy will be delivered in collaboration with the Ministry of Economic Development, Employment and Infrastructure. The new strategy will be greatly influenced by our consultations with key industry and government stakeholders and direct feedback and evaluations from Trade and Investment Marketing mission participants.

Geological mapping projects will continue to be managed to enhance value to clients, which, from time-to-time, requires extending project deadlines for field work and final report release to accommodate extraordinary and unforeseen technical and administrative situations. Those project extensions will be rigorously documented.

Regarding the assessment file backlog, the Ministry will continue to deliver those files using two online distribution channels, OGS

Earth and Geology Ontario. Our target is to eliminate the file backlog by the end of December 2015, by serving backlog files through the OGS Earth Channel. To mitigate the impact of project extensions on clients, we adjust the project delivery schedule to ensure that clients receive primary project data quickly through a variety of channels and periodic data releases.

The renewed Mineral Development Strategy will address aspects related to growth and prosperity. In addition, the Ministry continues to review and evaluate its approach to Aboriginal consultation, and will consider the recommendations made by the Auditor General to improve the Aboriginal consultation process.

4.2 Ring of Fire Development Has Been Slow

The discovery of the Ring of Fire is considered one of Ontario's most promising mineral development opportunities in a century. However the remoteness of the area requires significant infrastructure investment to develop the deposits. There is currently no infrastructure linking the region to existing roads, rail or electricity. There are also more than 10 First Nation communities around the region that have to be consulted regarding any development of the Ring of Fire.

4.2.1 Little Development of the Ring of Fire to Date

The Ring of Fire region attracted a lot of attention with the discovery of chromite in 2008. The provincial government described it as the discovery of the century, with the potential to create thousands of jobs and enhance the prosperity of Ontario and Canada.

At the height of interest in the area, there were over 2,500 claims covering about 530,000 hectares of land. By 2015, this has dropped to fewer than 1,000 claims covering about 200,000 hectares as mining companies gave up claims, either because

they did not contain viable deposits, or because the companies saw little prospect of achieving production in the near future given the lack of progress on infrastructure development.

The strategic significance of the chromite discoveries to the North American steel industry attracted an international mining and natural resources company to the region. In 2010, this international company acquired the mineral rights to three of the known chromite deposits in the region for \$350 million, and started feasibility and environmental assessment studies to pursue development of these deposits. However, the company suspended its work indefinitely in 2013, citing an uncertain timeline and risks associated with the development of the infrastructure necessary to further this project. It subsequently sold its interests in the region in 2015 to a Canadian mining company for US\$27.5 million—a fraction of what it paid for them—when its parent company was experiencing financial difficulties. The Canadian company now has ownership of, or a controlling interest in, all the major discoveries to date in the region. While the Canadian company is currently pursuing development of its nickel deposits in the region, and its goal is to establish the commercial production of nickel within three years of obtaining the necessary mining and environmental permits, it currently has no plans to develop the chromite holdings. The company plans to undertake a preliminary economic analysis for all of the development options for the Ring of Fire chromite projects.

4.2.2 Province Lacks Detailed Plan or Timeline to Develop Ring of Fire

The government announced and launched a number of initiatives to develop the Ring of Fire region. In 2010, the Ring of Fire Secretariat was established to lead the overall development of the region, including co-ordination of infrastructure needs, economic development, the environmental assessment process, and Aboriginal engagement/consultation.

In its 2014 Budget, the government committed \$1 billion to infrastructure in the region. However, this commitment was not based on a detailed assessment of the region's infrastructure needs. To oversee the infrastructure development, the government also created the ROF Infrastructure Development Corporation and signed a negotiation framework with the region's Aboriginal communities.

However, the government's development initiatives have few defined timelines for completion and, where target completion dates do exist, they have been missed. The industry has identified this uncertainty as a barrier to attracting development and investment to the region.

Secretariat Missing Deadlines, Lacks Performance Measures to Assess Effectiveness in Aiding Development

Since its establishment in 2010, the Ring of Fire Secretariat has grown to three regional offices, in Sudbury, Toronto, and Thunder Bay, with 19 staff and total operating expenditures of \$13.2 million over the last five years. However, there are no performance measures to gauge and report on the effectiveness of the activities it has undertaken to facilitate development in the region.

We noted that the Secretariat has continuously missed milestones established by the government for the development of the Ring of Fire. For instance, by establishing the Secretariat, the government had hoped that development would start in the Ring of Fire by 2015. However, mine development cannot begin until land-use planning (under the Ministry of Natural Resources and Forestry) and environmental assessments (under the Ministry of the Environment and Climate Change) are complete. Environmental assessment approvals were targeted for completion by December 2012, but are still outstanding. In this regard, we noted that the terms of reference, the first of the two approvals required for environmental assessments, were submitted in October 2012 by the Canadian

company that plans to start mining nickel, but were not approved by the government until June 2015.

Similarly, land-use planning in the region was to be completed by 2015, but is now delayed for two years. According to the Ministry, the delays are due to the time it has taken to consult with Aboriginal communities.

Ontario's Funding Pledge to Ring of Fire Insufficient to Develop Necessary Infrastructure

In the 2014 Budget, the government announced a commitment of up to \$1 billion to develop strategic all-season industrial and community transportation infrastructure in the Ring of Fire, contingent on a matching investment by the federal government.

The provincial commitment alone is not enough to meet the region's infrastructure needs. However, the federal government did not commit to matching the provincial funding, citing the lack of a detailed Ontario plan to develop the region. Instead, the province will have to develop plans for specific infrastructure projects in the Ring of Fire, and then apply to the federal New Building Canada Fund. The federal government wants funds to be directed toward identified projects with specific goals, and is waiting for the province to submit a proposal for specific priorities. The province has indicated that it will move forward with the infrastructure commitment regardless of whether the federal government provides matching funding.

As of July 2015, the Ministry had not set any timelines for infrastructure projects in the Ring of Fire that could be funded from the government's \$1-billion commitment.

Stakeholders Not Engaged in the ROF Infrastructure Development Corporation

The concept of a joint development corporation was first discussed in April 2012 between the province and the international company with mineral rights to the chromite deposits in the Ring of Fire. Discussions centred on plans to share the cost of a

300-kilometre road connecting the company's proposed mine to existing transportation corridors.

In the 2014 Budget, the government announced plans for a multi-stakeholder development corporation—the ROF Infrastructure Development Corporation (Corporation)—to accelerate infrastructure development in the region. The Corporation is intended to bring together both private and public sectors, including key mining companies, Aboriginal communities, and the federal government, to create partnerships and facilitate investment decisions in the transportation infrastructure. The Corporation is to be responsible for constructing, financing, operating and maintaining infrastructure to open access to the Ring of Fire.

The Corporation was created in August 2014; however, at the time of our audit, there was no representation on its Board of Directors from any stakeholder group, such as First Nations, industry, or the federal government. The current Board is composed of five senior bureaucrats from the Ontario government. In addition, there were no set timelines for when stakeholders would be engaged. The Corporation has cost \$550,000 to set up thus far, and is anticipated to have annual operating expenditures of \$4 million, including \$2.5 million for staffing, once it becomes operational.

Regional Negotiation Has No Targeted Milestones or Established Timeline for Completion

There are nine Matawa First Nation communities impacted by resource development in the Ring of Fire region, and in March 2012, the government directed the Ministry to engage these Aboriginal communities in negotiations for future development. They were to discuss issues related to socio-economic activities to prepare them for mineral development.

In March 2013, the Chiefs of the Matawa Tribal Council, representing the nine First Nation communities, requested a community-based regional process of negotiation with the government. The

government hired former Supreme Court of Canada Justice Frank Iacobucci to represent it, while the Matawa communities hired former Ontario Premier Bob Rae as their key negotiator. Expenses for these negotiations are paid by the Ring of Fire Secretariat. As of March 2015, \$6.9 million had been spent, primarily to facilitate participation by the nine Aboriginal communities in the negotiation process, and on remuneration for the two negotiators.

The negotiation resulted in the signing of a Regional Framework Agreement in March 2014, the purpose of which is to establish a protocol for negotiations between the communities and the province on shared priorities such as enhanced participation in environmental assessment processes, resource-revenue sharing, economic supports, and regional and community infrastructure.

Phase 2 of the negotiation has begun. It aims to have the province and the Aboriginal communities plan for the shared priorities identified in the Framework Agreement, such as resource-revenue sharing. However, there is no targeted completion date for this phase.

RECOMMENDATION 2

To help ensure the timely development of the Ring of Fire, the Ministry of Northern Development and Mines should:

- establish a detailed plan with measurable outcomes, and regularly assess and report on progress in achieving them;
- continue to engage all stakeholders, including the federal government, in the funding and development of the region; and
- work to expedite negotiations with Aboriginal communities.

MINISTRY RESPONSE

Project plans and key milestones for the Ring of Fire were previously prepared and tied to industry targets. In 2010, project plans were developed with a project development timeline

of 2015/16. Since then, the landscape for development has shifted.

The Ministry agrees with the recommendation to develop a revised and measurable plan, with progress reports and regular assessments, that will focus on those areas where Ring of Fire Secretariat plays a co-ordinating role. As with the initial timelines established in 2010 for development of the region, revised timelines will be based on current conditions and can be subject to change due to any number of external factors and interdependencies beyond the Ministry's control. Public reporting of certain information may also be subject to limitations due to business or other confidentiality requirements.

The Ministry agrees with the Auditor General's recommendation that we should continue to engage all stakeholders, including the federal government, in the funding and development of the region. Ontario has reached out to the federal government, including welcoming federal participation in the ROF Infrastructure Development Corporation and seeking federal support for the cost of infrastructure in the region. In addition, Ontario and the federal government are jointly funding a First Nation-led all-season-access corridor study, examining options for an all-weather transportation corridor system connecting remote Matawa First Nations and the Ring of Fire with existing roadways. This would further position the communities to realize economic benefits from the region and other development opportunities, and improve socio-economic conditions.

The Ministry is working to further negotiations with Matawa-member communities through phase 2 of the Regional Framework Agreement process, which will continue to focus on making progress on key milestones related to enhanced participation in environmental assessment processes, regional long-term environmental monitoring, improving socio-economic development supports, options for regional

infrastructure development and resource revenue sharing.

In addition to work under the Regional Framework Agreement process, the Ministry continues to work with individual First Nations and organizations to build capacity to participate in and fully benefit from future opportunities.

4.2.3 Few Controls over Funds Provided to Aboriginal Communities for Capacity Building

The Ring of Fire Secretariat has a number of transfer payment agreements with the nine Matawa First Nations impacted by development in the Ring of Fire that are intended to help build capacity within the communities to prepare for, and respond to, mining development within the region.

Capacity-building resources have funded training workshops on negotiations, project management, the development of partnerships with mining companies, increasing community engagement, and the procurement of communications hardware such as radio equipment.

Since its inception, the Ring of Fire Secretariat has transferred about \$16 million to the nine communities in the region. The communities are required to provide reports for the payments they receive, including progress reports, expense reports, and audited financial statements.

However, we noted that these reports were not submitted on a timely basis, and the reports that were submitted contained little supporting documentation to show whether the funds were spent according to the transfer-payment agreements. For example, while communities can claim expenses such as staff travel, meals and accommodation, and professional and legal fees, few invoices were submitted to support the amounts claimed in the expense reports.

RECOMMENDATION 3

The Ring of Fire Secretariat should ensure that transfer payments made to Aboriginal communities in the Ring of Fire are used in accordance with the transfer-payment agreements by obtaining the requisite reporting (progress reports, expense reports and audited financial statements) on a timely basis. The reports submitted should be detailed enough to show how the funds are spent.

MINISTRY RESPONSE

One of the challenges in addressing concerns related to timely and effective reporting is the lack of financial and project capacity by the First Nations to respond to the additional provincial and federal reporting requirements associated with Ring of Fire-related transfer-payments agreements. Ontario and Canada are working together to address these challenges through funding for additional financial resources and staff, as well as for training in financial management and accountability. Through the Ring of Fire Secretariat, Ontario is continuing direct engagement with First Nations to facilitate the completion of reporting requirements and identify their training and resource needs. The Ministry has also asked the Ontario Internal Audit Division to provide advice on approaches to Aboriginal transfer payments. Ontario is also piloting different delivery mechanisms for funding agreements, including using of Tribal Councils to provide additional administrative support.

4.3 Staking and Claims System Needs Improvement to Ensure Exploration Work Continues Responsibly

As of April 2015, there were about 33,000 registered claims covering about 4.1 million hectares of Crown land.

To maintain a claim in good standing, the holder must perform a minimum of \$400 worth of eligible exploration work annually for each claim unit (one claim unit is 16 hectares of land) and report these activities to the Ministry for approval.

The Ministry annually verifies a sample of the eligible exploration expense reported by holders of claims. Amounts spent in excess of the minimum can be applied against future years, and on other connected claims. A claim would be considered forfeit, and be reopened for staking, if this requirement is not met.

In 2014, prospectors reported \$110 million of exploration work to the Ministry. The Ministry annually verifies the expenses of around 10% of the exploration work reports they receive from claim holders for eligibility, and rejects those that are unreasonable.

In the following subsections, we examine the process surrounding mining claims and mineral exploration, and outline weaknesses noted in the process.

4.3.1 A Claimholder Can Effectively Re-stake the Same Land Indefinitely without Intending to Explore for Minerals

When mining claims are forfeited because current claimholders have not performed the minimum exploration work, they are reopened to the public for staking. The Ministry allows the re-staking of mining claims by prospectors that have previously forfeited their claims. This allows prospectors to maintain their claims indefinitely without performing the required exploration work, and could negatively impact the discovery of mineral resources.

The Ministry informed us that it is difficult to determine which land has been cancelled and re-staked by the same person because it is unable to identify individual plots, and land is assigned a new identifier each time it is re-staked. Also, once a claim is cancelled and the land becomes open for re-staking, the prospector can change the size of

the area, making it difficult to determine if it is the same plot of land being re-staked.

However, when we compared a sample of claims that had been forfeited and re-staked in the last three years, we identified a number of claims that had been re-staked by the same prospectors whose claims were previously forfeited because of a lack of eligible exploration—often within one day of the claim being reopened. The Ministry has no policy to prevent someone with a poor record of conducting exploration work from re-staking the same land, or even staking new claims.

4.3.2 No Existing Ministry Plan to Inspect Sites to Ensure They Have Been Sufficiently Rehabilitated

The *Mining Act* requires rehabilitation of sites where exploration work has impacted the environment.

In 2012, the Ministry started requiring prospectors who perform low-impact assessment work to submit an exploration plan listing the exploration activities to be undertaken. Those who perform moderate-impact assessment work were required to apply for an exploration permit, the details of which are posted on the public Environmental Registry for public comments.

Provincial standards require any rehabilitation work to be completed prior to the expiry of the applicable plan or permit. However, the Ministry's inspection of sites to ensure that they have been sufficiently rehabilitated from early exploration work was limited.

In 2013 and 2014, the Ministry performed just 41 inspections, representing only 6% of the sites that had an active plan or permit in December 2014. In our review of the inspection reports, we noted that the Ministry identified a high rate of non-compliance, such as uncontained drill fluids, lack of fencing around pitches, and fuel containers that had been improperly disposed of, confirming a need for the Ministry to inspect sites where mineral exploration had taken place.

Although the Ministry inspected sites while exploration work was still ongoing, sites should ideally be inspected when the exploration work is nearing completion. In addition, there is no requirement for prospectors to notify the Ministry when exploration work has been conducted on claims and, as a result, inspection efforts are often wasted on sites where no exploration has taken place. In 2013 and 2014, we noted a number of cases in which the inspectors visited sites to perform an inspection, but exploration had not yet begun.

As seen in **Figure 8**, a large number of plans and permits are scheduled to expire in 2015, 2016 and 2017. However, the Ministry currently does not have a plan to inspect these sites before the prospectors leave.

Figure 8: Exploration Plans and Permits Expiration, as of August 2015

Source of data: Ministry of Northern Development and Mines

	2013	2014	2015	2016	2017	2018
Plans	0	0	192	91	86	0
Permits	4	4	6	230	125	85
Total	4	4	198	321	211	85

RECOMMENDATION 4

To ensure continual exploration on claimed land, and proper rehabilitation of sites where exploration has taken place, the Ministry of Northern Development and Mines should:

- disallow forfeited claims from being re-staked by the same owners until an appropriate period has passed (we made a similar recommendation in our *2005 Annual Report*); and
- develop a risk-based plan to inspect sites undergoing exploration work with the potential to have a negative impact on the environment.

MINISTRY RESPONSE

The issue of forfeited claims being re-staked by the same owners will be brought to our industry

and stakeholder advisory group for their consideration and input. In addition, all permitted exploration sites will be assessed for inspection prioritization on a case-by-case basis.

4.4 Financial Assurance May Be Insufficient to Cover Mine Close-out Costs

The *Mining Act* requires a mining company to submit a closure plan and financial assurance for the estimated cost to rehabilitate a site before it commences advanced exploration activities or mining operations. Mining companies must certify that the closure plan was prepared by an expert where required, and that it complies with current legislation. The financial assurance acts as a guarantee and is returned once a site is deemed to have been appropriately rehabilitated.

In the following subsections, we highlight our concerns relating to the Ministry's review of closure plans and the financial assurance that companies have provided for the rehabilitation costs of sites that have undergone mining activities.

4.4.1 Closure Plans Not Properly Reviewed and Updated

The Ministry has 13 in-house Mineral Exploration and Development Consultants who are responsible for overseeing and reviewing the industry's mine closure plans, and for assessing whether the amount of the financial assurance provided by mining companies will be sufficient to rehabilitate sites when advanced exploration or mineral development activities cease.

These consultants have no technical training to assess the adequacy of the plans they oversee. They use checklists to ensure completeness of the files, and they rely on self-certification by each mining company that it complies with the standards set out in the Ontario regulations, including the mining company's use of qualified professionals in the preparation of the closure plan, where required.

However, the consultants can choose to pass along certain high-risk components of the plans for technical review by the Ministry's three rehabilitation specialists, who have technical expertise in different mine hazards such as tailings, and acid and metal leaching into the environment.

With respect to the consultants' review of closure plans, we noted the following:

- The consultants responsible for ensuring compliance with the requirements for mine closure plans and assessing the adequacy of financial assurances provided by mining companies are also responsible for promoting mineral exploration and development in Ontario by helping the industry through the regulatory process required to develop mining projects. These roles inherently conflict with one another. We observed a number of instances where the consultants did not recommend the more stringent rehabilitation requirements on the industry as advised by ministry specialists or inspectors because they felt the requirements created hardship for mining companies. For example, in some mine closure plans, the consultants:
 - accepted a financial assurance for land re-vegetation at a cost that was 10 times lower than the cost recommended;
 - did not enforce the recommended assessment of the long-term stability of the structures that support an underground mine;
 - did not request tests to be performed as recommended to determine the likelihood of acid leaching into the environment; and
 - did not enforce the requirement for additional financial assurance for the rehabilitation of a water-diversion tunnel.

The result of these less stringent requirements is that mining companies may not be providing sufficient financial assurances for the rehabilitation work, especially where the land may be contaminated. If the mining companies are unable to properly close out mines at the end of their productive life, the

government may have to take responsibility for these costs.

- There are no guidelines on when certain components of closure plans should be subject to technical review. Although consultants can escalate high-risk components of the closure plans to the Ministry's rehabilitation specialists for review, the Ministry did not have guidelines as to when this expertise should be sought. It was up to the consultants to determine whether certain components should be escalated for review. In our review of a sample of closure plans, only 30% of the files had any evidence that specialists' input had been sought. We noted a number of closure plans for mines that had tailings and/or the potential for acid leaching into the environment that may have warranted review by a specialist but were not forwarded.
- The Ministry does not regularly conduct site inspections to ensure that closure plans for mines accurately reflect the mining activities that are taking place. The Ministry is to perform physical inspections of mines to ensure that closure plans accurately reflect mine development and may request an amendment of the plans and/or additional financial assurance if it so deems. Of the 162 closure plans on file as at August 2015, 16 had not been inspected in the last five years, and 10 of these sites had never been inspected since the submission of their respective closure plans to the Ministry in 2001/02. For those sites that it had inspected, the Ministry found a high rate of non-compliance in the closure plans. Of the 62 sites it visited in 2013 and 2014, nearly 45% of the closure plans were either non-compliant (for example, not all existing mine hazards were addressed in the closure plans, or rehabilitation work was not professionally certified), or were identified as needing an adjustment to the financial assurance on file. In these cases, the inspectors only identified the potential need for an adjustment to the

financial assurance, and it was up to the companies to undertake the necessary assessment to determine how much additional financial assurance they needed to submit to the Ministry. As of August 2015, only one company had provided additional financial assurance, while another responded that no adjustment was required.

RECOMMENDATION 5

To ensure submitted closure plans are adequately reviewed and reflect activities that are taking place on a mine site, the Ministry of Northern Development and Mines should:

- segregate the responsibility for the promotion of mineral exploration and development in Ontario from those responsible for the oversight of mine-closure plans;
- develop specific guidelines on when high-risk components of closure plans should be subjected to expert review;
- inspect sites that have a closure plan in place on a regular basis to ensure the plan accurately reflects current mining activities on the sites; and
- enforce the rehabilitation requirements recommended by ministry specialists and inspectors and take proactive measures to ensure that the financial assurance is adjusted accordingly on a timely basis.

MINISTRY RESPONSE

Beyond the mandate to “encourage” contained in section 2 of the *Mining Act*, Mineral Exploration and Development Consultants do not have the responsibility for promotion of mineral exploration and development. Their role is to facilitate and assist with the regulatory process, including consultation, and to review the mine closure plans. Promotion is primarily the role of the Resident Geologist staff within the Ontario Geological Survey. The Ministry will work with

staff to ensure that they are clear on their roles and responsibilities, and how to apply them.

In order to ensure a more thorough and consistent review of closure plans, a Closure Plan Co-ordinator position was created in late 2014 and filled in early 2015. This position is staffed by a professional engineer/technical specialist, and was created to work directly with Mineral Exploration and Development Consultants to ensure appropriate technical review of all closure plans by technical specialist(s).

The Ministry has a five-year inspection schedule that will ensure that all sites with closure plans will be inspected in this time frame. The Ministry has increased its inspection contingent in the last three years to ensure that this inspection schedule and follow-up activities can be met. The number of inspection staff was increased from two to four in 2009, and then increased again to nine in 2011. We also added the Supervisor of the Inspection Unit in 2012. The five-year inspection schedule was implemented when the additional inspection staff were hired four years ago. The Ministry will ensure all closure plans are inspected in accordance with the schedule.

The Ministry will continue to ensure that all closure plans and closure plan amendments are thoroughly reviewed, and that recommendations from ministry specialists and inspectors are thoroughly considered and implemented appropriately with required adjustments to financial assurance.

In the last year the Ministry has expanded its capacity for technical review and increased staff from three to five by hiring a Surface Water Specialist and the Closure Plan Co-ordinator/Technical Specialist.

4.4.2 Financial Assurance Retained by the Ministry May Not Reflect Actual Costs to Close Out Mines

Prior to opening a mine, a company is required to submit financial assurance to the Ministry for the estimated cost to properly close out the mine when production ceases. This cost is estimated based on market costs on the day the closure plans are submitted to the Ministry. There is currently no requirement for mining companies to subsequently update their estimated costs to reflect changing market conditions and changes to rehabilitation standards over the life of the mine. Changes to the financial assurance balance are made only through voluntary amendments filed by the mining companies or ordered by the Ministry through its inspection work.

A third of the closure plans were filed or last amended in the 1990s and early 2000s. Applying a simple inflation adjustment to all closure plans using the Bank of Canada Consumer Price Index results in a potential \$63-million shortfall in financial assurance net of any interest earned by the Ministry. This means that the province could be liable for this shortfall if the private owners are unable to undertake the necessary rehabilitation work because the province does not hold sufficient funds to cover the rehabilitation costs.

Quebec amended its *Mining Act* in 2013 to require the Ministry of Natural Resources to publish annually the rehabilitation and restoration plans approved by the Minister for its mining companies and the total amount of the financial guarantee required.

Ministry Has Not Acted to Ensure Updates

In addition, the Ministry has taken no action to ensure that companies update any closure plans and related close-out costs that are not compliant with current standards. We found that over 20% of the plans filed with the Ministry predate the rehabilitation standards implemented by the Ministry in 2000, and that two-thirds of these plans

were submitted during a period when the Ministry had no technical experts on staff to review the plans. For example, some current mine closure plan requirements, such as the need for a professionally certified surface water monitoring plan and a ground water contamination study, did not exist prior to 2000. As such, their financial assurance may not be sufficient to be in compliance with current standards.

As well, three mine sites have been without closure plans or financial assurances since 1991, and one since 2003. At two of the three sites (Geco Mine in the Thunder Bay District and Mattabi Mine in the Kenora District) where closure plans had been outstanding since 1991, the mining company is challenging the Ministry's position to only allow a portion of the financial assurance to be secured by a guarantee from its parent company. The company argued that it should be allowed to secure the entire financial assurance requirement with the parent's guarantee. The Ministry's estimate of the closure costs for these two sites is over \$30 million. This case has been forwarded to the Office of Mining and Lands Commissioner (OMLC) for a decision. The OMLC is an independent judicial and administrative tribunal responsible for hearing and deciding matters under legislation administered by the Ministry of Natural Resources and Forestry and the Ministry of Northern Development and Mines.

A third site (Carshaw-Malga Mine and Mill in the Timmins District) has been without a closure plan or financial assurance since 1991. Under the *Mining Act*, the Minister of Northern Development and Mines may appoint one or more ministry employees as Directors of Mine Rehabilitation. These employees would have the power to order private mine owners to comply with the *Mining Act*. The Ministry issued a Director's Order in August 2013 to enforce the requirement for a closure plan, but the company has not complied with the order. The Ministry is currently evaluating its options to address this situation.

At the site where a closure plan has been outstanding since 2003 (Canadaka in the Cobalt

District), the company started the closure plan submission process in October 2014, but the Ministry has yet to receive any financial assurance for this site.

4.4.3 Financial Assurance Returned without Adequate Inspection of Mine Sites

A financial assurance is security that is held by the Ministry to carry out the rehabilitation of a mine if the company fails to do it itself, and is returned to a mine operator once a site is deemed to have been appropriately rehabilitated. Over the life of a mine or exploration activities, companies can request the return of portions of the financial assurance after they have undertaken progressive rehabilitation work (rehabilitation done in phases during the entire period that a project or mine hazard exists).

Financial assurances are returned when the rehabilitation work is accepted by the Ministry following an inspection of the site. We noted that while the Ministry has undertaken inspections of rehabilitation work prior to returning the associated financial assurance, it only visually inspects hazards that are above ground, and would not detect any contamination below the surface.

In 2010, the Ministry returned \$500,000 to a mining company after the company had completed progressive rehabilitation work. However, the company failed to inform the Ministry of a known contamination below the surface for which it had not provided financial assurance in its closure plan. The Ministry subsequently became liable for the cleanup of this contamination, at an estimated cost of \$2 million, when the company filed for bankruptcy in 2012. The Ministry stated that because the contamination was below surface at a depth of about a metre, it could not be identified through its normal inspections.

4.4.4 Allowing Companies to Self-assure Mine Close-out Costs Has Risks

If a mining company's credit rating meets or exceeds two of the following credit ratings, the company is allowed to fully self-assure mine close-out costs for the entire life of the mine and is not required to provide any other form of security to the Ministry:

- A (low) from the Dominion Bond Rating Service Limited;
- A3 from Moody's Investors Services Inc., and
- A- from Standard and Poor's Inc.

If the company's credit rating meets or exceeds two of the following credit ratings, the company is allowed to self-assure for the first half of the life of a mine if that first half is at least four years:

- BBB (low) from the Dominion Bond Rating Service Limited;
- Baa3 from Moody's Investors Services Inc.; or
- BBB- from Standard and Poor's Inc.

If, as a result of a credit rating downgrade or credit watch, the company no longer qualifies to self-assure, it is required to provide the Ministry with an accepted form of security within 30 days of the downgrade.

Currently in Ontario, there is one company (Vale Canada Limited) with 10 mine sites that is allowed to self-assure its estimated close-out costs of \$654 million for the first half of the life of its sites. For this company's sites, the Ministry has no recourse if this company is unable to fulfill its obligation to rehabilitate the land because the Ministry holds no form of security for these sites.

In our review, we noted that one of the sites passed the first half of the life of the mine in January 2015 and therefore the company is no longer eligible to self-assure the close-out costs for this site. However, as of August 2015, the Ministry had not yet collected other forms of financial security from the company. The Ministry informed us that it is in discussion with the company in this regard.

Acceptance of self-assurance by the Ministry as permitted under the *Mining Act* exposes the

government to some financial risks because if the companies are unable to meet their obligations, rehabilitation costs become the province's responsibility. Manitoba is the only other province in Canada that specifically allows mining companies to self-assure if the companies' credit rating meet specific criteria.

RECOMMENDATION 6

To ensure that the amount of the financial assurance collected by the Ministry of Northern Development and Mines (Ministry) provides sufficient security against potential liabilities related to mine close-out costs, the Ministry should:

- require mining companies to regularly update their estimated mine close-out costs and the related financial assurance to reflect changing market conditions and changes to rehabilitation standards (we made a similar recommendation in our *2005 Annual Report*);
- verify when it inspects progressive rehabilitation prior to returning a portion of the financial assurance whether mine development is still in line with the existing closure plan, and that no other hazards exist on site which the Ministry was not previously aware of; and
- reassess its practice of allowing certain companies to self-assure mine close-out costs (we made a similar recommendation in our *2005 Annual Report*).

MINISTRY RESPONSE

The financial assurance for all closure plans is reviewed as part of the inspection. The Ministry has implemented a five-year inspection schedule to ensure that all closure plans are reviewed and updated on a regular basis. The Ministry will assess the need for a requirement to have companies update their financial assurance amounts

regularly to reflect market and regulatory changes as needed.

The Ministry currently inspects all progressive rehabilitation prior to the return of financial assurance and, in addition, the Ministry, through a review of the closure plan, also takes into account the amount of financial assurance required to conduct the remaining rehabilitation required on the site, and returns only the financial assurance that is surplus to that amount. In the last year, the Ministry has expanded its capacity for technical review by hiring a Surface Water Specialist and a Closure Plan Co-ordinator/Technical Specialist. These positions will assist the inspectors and other technical experts to ensure all potential hazards are assessed, including the undertaking of testing where necessary.

The Ministry will continue to review the existing financial assurance regime. However, any change to allowing companies that meet the corporate financial test to self-assure mine close-out costs would require amending legislation. Ontario will continue to closely monitor self-assured companies to ensure compliance with existing legislative requirements.

RECOMMENDATION 7

To inform the public on the potential liabilities related to mine close-out costs, the Ministry of Northern Development and Mines should annually publish the approved mine closure plans (for rehabilitation and restoration), including the estimated closure cost and associated financial assurance held by the Ministry.

MINISTRY RESPONSE

The Ministry is committed to Open Government and will consider the Auditor General's recommendation and explore approaches for informing the public about potential liabilities.

4.4.5 Provincial Environmental Assessment Not Mandatory for Mining Projects

Ontario is the only province in Canada that does not require a provincial environmental assessment to be performed for mining projects. An environmental assessment is a process undertaken to identify, predict and mitigate any effects that a proposed project may have on the environment before the project begins. The assessment typically includes a description of the project and its impact on the existing environment, and the proposed actions to address or manage the environmental effects. Provincial environmental assessments, if performed, are submitted to the Ministry of the Environment and Climate Change for review and approval under the Ontario *Environmental Assessment Act* (Act).

The Act applies only to provincial ministries and agencies, municipalities and public bodies such as conservation authorities, and generally does not apply to the private sector, including mining projects proposed by the private sector. However, if a mine project includes certain components, such as construction of power generation or transmission facilities, or establishment of waste management facilities, this may trigger the requirement for an environmental assessment.

In Ontario, the *Mining Act* only requires mining companies to submit closure plans prior to the development of the mine outlining how the affected land would be rehabilitated and the estimated costs to do so. Private companies may, however, voluntarily go through an environmental assessment for their proposed projects. In other provinces in Canada, larger mining projects automatically trigger a provincial environmental assessment.

RECOMMENDATION 8

The Ministry of Northern Development and Mines should work with the Ministry of Environment and Climate Change to assess the benefits of larger mining projects in Ontario undergoing a provincial environmental assessment similar

to the environmental assessments conducted in other Canadian provinces.

MINISTRY RESPONSE

The Ministry will explore the consideration of new provincial environmental assessment approaches for larger mining projects with the Ministry of the Environment and Climate Change.

4.5 Abandoned Mines Pose Significant Financial Risks to Ontario

As seen in **Figure 5**, about 2,400 abandoned mines are held by the Crown and another 2,000 are privately held.

The province is responsible for the cleanup of any hazards in abandoned mines held by the Crown, and for monitoring and enforcing the rehabilitation of those that are privately held. Privately held mines revert to the Crown if the owners, for example, have unpaid rent or taxes. In these cases, the province would also be responsible for the cleanup of these mines.

In the last five years, 63 privately held abandoned mines have reverted to the Crown, and the Ministry has reported in the Public Accounts that it will cost an estimated \$40 million to rehabilitate four of these abandoned mines that have contamination. These mines are the Lake Shore Tailings mine in the Kirkland District, the Long Lake Mine in the Sudbury District, and the Reeves Mine and Canadian Jamieson Mine in the Timmins District.

4.5.1 Ministry Has No Current Estimate of the Cost of Rehabilitating All Abandoned Sites

The Ministry does not have a current estimate of the total cost of, or a long-term plan for, rehabilitating physical hazards and contamination on all abandoned mine sites in Ontario. It last commis-

sioned an estimate of the cost of rehabilitating all abandoned mines in the province in 1993.

At the time, the Ministry, as part of an inter-ministerial committee made up of five ministries along with the Ontario Mining Association, estimated the cost of cleaning up all abandoned mine sites at \$300 million, not including the cost to clean up any chemical contamination, which can be considerable. For instance, over the last 15 years, the cleanup cost of one of the high-risk sites (Kam Kotia in the Porcupine District) containing chemical contamination has been \$75 million so far, with another \$20.7 million estimated to complete the rehabilitation, plus annual maintenance costs totaling about \$750,000 to continually treat water in a tailing dam associated with the mine.

While the Ministry has not undertaken another exercise to estimate the rehabilitation cost for all abandoned mines in Ontario, it did complete site assessments in 2008 on 95 high-risk sites with tailing dams, which are storage areas for mine wastes. It estimated that approximately \$208 million would be required to rehabilitate these sites.

Ministry Identified Liability of \$303 Million on 44 Abandoned Mines

In 2015, in response to a new accounting standard for public-sector reporting on liabilities for contaminated sites, the Ministry recorded a liability of \$303 million for 44 contaminated abandoned mine sites that the government is, or would likely be, responsible for rehabilitating, and reported a contingent liability of \$69 million for 12 abandoned mine sites that may become the government's responsibility to rehabilitate in the future. This standard only requires the reporting of a liability for contaminated sites that meet all of the following criteria:

- an environmental standard exists;
- contamination exceeds the environmental standard;
- the government is directly responsible or accepts responsibility;

- it is expected that future economic benefits will be given up; and
- a reasonable estimate of the amount can be made.

The Ministry informed us that it currently has no plans to do a detailed cost estimate to rehabilitate the remaining abandoned mine sites in Ontario that have physical hazards but do not meet the criteria for recording a liability (that is, no contamination or the level of contamination is below the environmental standards) because it is a costly process and any estimate becomes outdated very quickly.

At the time of our audit, the Ministry revised its 1993 cost estimate by updating the number of physical hazards and the cost associated with rehabilitating these hazards, and estimated that the cost to rehabilitate these sites could range from \$163 million to \$782 million. However, costs associated with environmental assessments, site accessibility, or distance of sites from rehabilitation resources are not included in the Ministry's revised estimate. Only a detailed assessment of the sites would yield a more precise cost estimate to rehabilitate these sites.

In 1999, the Ministry established the Abandoned Mines Rehabilitation Program (Program) to manage the clean-up of physical and environmental hazards at abandoned mine sites on Crown land. The Program has received a total \$138 million over the last 16 years, and it has completed full or partial rehabilitation of 75 abandoned mine sites. **Figure 9** shows the amounts spent on rehabilitation and other activities such as the ongoing maintenance costs of rehabilitated sites (for example, lime

and water-treatment costs), planning costs (for example, environmental assessments), and costs related to responding to emergency situations over the last five years.

However, going forward there is no fixed-base funding dedicated to the rehabilitation of the abandoned mine sites. In the last four years, the Program received annual funding of only \$4 million, plus any budget surplus from other programs at the Ministry to cover all its costs. Surpluses received over the last four years ranged from nothing to \$10.6 million a year, and totalled \$24.4 million.

4.5.2 Ministry Inspections of Abandoned Mines Insufficient to Identify and Address Hazards to Public Health or the Environment

The Ministry conducts minimal inspection and follow-up activities on abandoned mine sites to ensure that these mines do not pose a threat to human health or the environment.

In the past five years, the Ministry has only inspected about 6% (248) of the approximately 4,400 abandoned mines on both Crown and privately held sites (see **Figure 5**). A number of the sites not inspected are considered high-risk sites containing tailing dams with high levels of arsenic, cobalt, uranium and other metals that can contaminate the surrounding area if they are not properly managed. Of the 362 high-risk sites, only 142 (39%) have been inspected at least once in the last five years by the Ministry.

Figure 9: Rehabilitation Program Expenditures, 2010/11–2014/15 (\$ 000)

Source of data: Ministry of Northern Development and Mines

Expenditures	2010/11	2011/12	2012/13	2013/14	2014/15
Rehabilitation costs	879	6,904	734	5,669	2,277
Operating costs					
Operating and maintenance expenses for one mine	606	677	431	1,005	972
Administrative expenses	65	–	49	26	95
Emergency costs	114	–	884	87	91
Total	1,664	7,581	2,098	6,787	3,435

With respect to the inspections that the Ministry does conduct, follow-up action is often not timely. For example, 29 inspections completed in 2014 on privately held mines identified 17 that required follow-up action. Issues identified during these inspections included broken fencing, unprotected open surfaces such as shafts and vent raises, tailings areas that had not been re-vegetated in accordance with the related code, chemical and physical instability of ore stockpile, and unauthorized changes on a site that could destabilize a tailings area.

As of May 2015, none of the issues identified in the 17 inspection reports had been resolved. In fact, the Ministry had not followed up with 10 of the 17 private owners after the inspection reports were mailed to them. The Ministry indicated the lack of follow-up was due to multiple internal staffing changes that led to it falling behind on inspection-related activities.

Under the *Mining Act*, if the private owners do not comply with the requested rehabilitation work identified by site inspections, the Ministry has the authority to issue orders to private owners to enforce compliance and to lay charges if the private owners do not comply. Failure to comply with an order can result in a fine of \$30,000 a day and/or imprisonment for up to two years.

However, the Ministry has rarely exercised this authority, relying more on voluntary compliance by the private owners. In the past five years, only three such orders were issued by the Ministry to force private owners to undertake rehabilitation work or to submit a closure plan, and only one charge was laid, resulting in a fine of about \$10,000.

In 2000, as part of its update to the *Mining Act*, the Ministry began requiring private owners to take all reasonable steps to progressively rehabilitate mines, including abandoned mines on their sites, and to report such activities to the Ministry within 60 days of completing the work if the work is not already covered in a closure plan.

A review of the abandoned mines database showed that only 45 rehabilitation reports had been submitted as of May 2015 for the nearly 2,000

abandoned mines in private hands. The Ministry is unaware of whether any rehabilitation work has been done on those sites it had not inspected, or those where no rehabilitation reports were received from the private owners.

The Ministry informed us that private mine owners are not always aware of the responsibility to rehabilitate their sites and submit rehabilitation reports. Although it is aware of this, the Ministry has not done everything it could to build awareness of the requirement to rehabilitate abandoned mines.

We noted British Columbia took a more proactive approach to promote compliance with its rehabilitation requirements by performing outreach activities, conducting media campaigns, and developing guidelines and education materials to increase awareness, educate, and motivate voluntary compliance.

RECOMMENDATION 9

To protect public health and safety and the environment from the risks posed by abandoned mines, the Ministry of Northern Development and Mines should:

- as soon as possible inspect all high-risk abandoned mines that have not been inspected in the last five years to determine if these sites pose risks to public safety;
- adopt a risk-based process to regularly monitor and inspect previously inspected abandoned mines to ensure that the conditions at the sites are not posing a risk to human health or the environment (we made a similar recommendation in our *2005 Annual Report*); and
- develop an operational and financial short- and long-term plan to clean up mine sites posing a threat to human health and safety or the environment (we made a similar recommendation in our *2005 Annual Report*).

MINISTRY RESPONSE

Based on our current prioritization system, the Ministry will develop a plan to inspect high-risk abandoned sites that have not been inspected in the last five years.

The Ministry has adopted a risk-based process to inform our inspection schedule for abandoned mine sites. The Ministry will ensure these previously inspected mines are regularly monitored and inspected.

In addition, the Ministry develops short and long-term plans for our high-priority sites based on our annual budget allocation. The Ministry will continue to develop operational and financial short and long-term plans to clean up the highest priority mine sites that pose a threat to human health and safety or the environment.

RECOMMENDATION 10

To ensure that the owners of privately held abandoned mines take all reasonable steps to reduce potential health and environmental risks, the Ministry of Northern Development and Mines (Ministry) should:

- take timely follow-up actions to ensure that private owners are complying with ministry inspection results; and
- develop a strategy to make private owners aware of the requirement to rehabilitate abandoned mines on their land.

MINISTRY RESPONSE

The Ministry will review processes for following up on inspection-report compliance and will take appropriate action.

The Ministry will also develop a strategy to increase private owner awareness of the requirements to rehabilitate abandoned mines on their land.

4.5.3 Information Reported in Ministry's Abandoned Mines Information System Is Incomplete and Outdated

The Abandoned Mines Information System (AMIS) was developed and implemented in 1988/89 to create a centralized way to track all abandoned mines in Ontario.

The purpose of AMIS is to capture data about all known abandoned mine sites and their associated hazards so that the Ministry can prioritize these sites for rehabilitation. In addition, AMIS was to allow the Ministry to track any activities undertaken on the sites—including any updated site assessment work, changes to the known hazards, identification of new hazards—and the progress of any work undertaken at the sites.

However, we noted in our review of the AMIS a number of limitations that impede its full utilization for the intended purposes:

- *Information in the system is outdated.* The information on abandoned mines within AMIS comes primarily from site assessments completed in 1993 and 2000 on all then-known sites. Since then, the Ministry has not undertaken another comprehensive assessment to update the information in the system. Information updates to the system have generally come from the limited inspections conducted by the Ministry, a special-purpose site assessment completed in 2003 on 86 high-risk sites with tailing dams, and another assessment in 2008 on 95 high-risk sites with tailings.
- *A key system functionality is not producing accurate information.* Although AMIS can rank the sites according to a public safety and environmental score, this capability is not functioning properly and is therefore not used. There is an error in the system formula so that the score is not calculated properly, rendering the scores unusable. As a result, the Ministry has to maintain separate tracking of the sites outside of the system. This prevents

the Ministry from efficiently determining the rehabilitation priority of each abandoned mine.

Without complete and accurate information on the mine sites, it would be difficult for the Ministry to effectively manage the rehabilitation of abandoned mines in Ontario.

RECOMMENDATION 11

The Ministry of Northern Development and Mines should:

- update the information on abandoned mines in Ontario and their associated mine hazards in its Abandoned Mines Information System (AMIS); and
- improve the functionality in AMIS to identify sites for rehabilitation that pose the greatest risk to public health and safety, and to the environment.

MINISTRY RESPONSE

The Ministry will update the information on abandoned mines in AMIS.

In addition, the Ministry will work to improve the prioritization functionality in AMIS. However, until an upgrade is completed, we will continue to use our manual prioritization process.

4.6 Provincial Revenue from Mining Low in Relation to Significant Value of Mineral Resources Extracted

4.6.1 Ontario Has One of the Lowest Mining Profit Tax Rates in Canada

The amount of mining taxes and royalties that the province has collected from mining companies over the last 20 years has averaged less than 2% of the value of minerals extracted.

Ontario mining profit tax is levied at a rate of 10% (down from 20% in 2000) on annual taxable

profits in excess of \$500,000 (corporations with substantially common ownership cannot use the same deduction). A reduced rate of 5% is applied to remote mines in Northern Ontario opened after May 7, 1996, and certified by the Ministry as remote.

In addition, new mines, or those undergoing major expansion, are eligible for a mining tax exemption on up to \$10 million of profit earned in the first three years for a non-remote mine and in the first 10 years for a remote mine.

This tax regime has been in place since 2004, and is now one of the lowest in Canada. According to a 2013 University of Calgary research paper and its addendum, updated to 2015, Ontario's marginal effective mining tax rate was only 5.6%, considerably lower than the national average of 8.6%, as of September 2015.

In 2012, a review commissioned by the government on the Reform of Ontario's Public Services noted that while the low mining tax rates were designed to encourage investment in the province when corporate tax rates were high, there has since then been significant improvement in Ontario's international tax competitiveness. The review also stated that the provincial resource tax credit provided to mining companies, calculated as 25% of adjusted resource profits, is unnecessary given the improved taxation environment and should be eliminated.

In its 2015 Budget, the Ontario government proposed to harmonize with the federal government and other provinces by eliminating the Ontario Resource Tax Credit and the Additional Tax on Crown Royalties, and instead provide a deduction for royalties and mining taxes actually paid, effective April 23, 2015. The government expects to receive additional revenue of \$6 million to \$7 million per year for at least the next three years as a result of this change. Even with this additional revenue, however, Ontario's mining tax rate remains one of the lowest in Canada.

Ontario Has Collected Low Royalties from Province's Only Diamond Mine

Under the *Mining Act*, all diamond mines in Ontario are subject to royalty payments as prescribed in *Ontario Regulation 323/07 – Royalty on Diamonds*. The royalty is calculated on the net profits of the mine less allowed deductions for exploration, development and operating expenses, and it mostly parallels diamond royalty structures in the Northwest Territories and Nunavut, the two other Canadian jurisdictions with diamond mines. However, the province also has a number of deductions that the other jurisdictions don't offer, including:

- 100% deduction for qualifying expenditures made under agreements with local or Aboriginal communities;
- 100% deduction for qualifying donations in Ontario of a charitable, educational or benevolent nature; and
- an additional 15% allowance for the cost of establishing and operating a diamond mine, limited to 20% of annual net profit.

The Ministry of Finance has stated that these additional deductions are designed to encourage the long-term sustainability and global competitiveness of diamond production in Ontario, and to support investments in diamond mining communities, particularly in northern and Aboriginal communities. The province has not undertaken a formal assessment of its current diamond royalty regime since it was introduced in 2007 to determine its benefits and whether it should continue its current system.

Ontario's sole operating diamond mine opened in 2008. The mining company had extracted over \$2.5 billion worth of diamonds up to 2014, but paid under \$20 million in royalties to the province, representing less than 1% of the value of diamonds extracted. In calculating its royalty payments, the mining company claimed almost \$70 million of Ontario-specific deductions as allowed under the *Mining Act*. The Ministry of Finance has indicated that starting in 2014, higher royalty payments are expected because the mining company will have used up most of its available deductions in calculating the royalty payments. However, the mine is expected to be depleted by 2019, leaving only six years of potentially higher royalty payments. As of October 2015, the Ministry expects to receive a royalty total of 4–5% of the production value over the life of the mine.

Ontario Mining Lease Rates among Lowest in Canada, and Collection Not Always Enforced

Mining companies are required to pay mining land taxes on private land and rental fees for mining leases and licences on Crown land.

Ontario Regulation 45/11 – General prescribes the annual rental rates for mining leases/licences and mining land-tax rates. The Ministry collects approximately \$3.1 million in rental fees and land taxes annually, and deposits them into the province's Consolidated Revenue Fund.

The current rates shown in **Figure 10** were last revised in 1994. In 2014, the Ministry completed a

Figure 10: Rental Rates and Mining Land Taxes

Source of data: Ministry of Northern Development and Mines, December 2014

Type of Land Tenure	# of Holders	Land Volume (hectares)	Rate (cost/hectare) per Year
Unpatented mining claims	33,930	3,770,128	None. Requires \$400 of assessment work to be performed annually per claim
Patented mining claims	18,864	467,745	\$4/hectare
Mining leases	3,097	256,000	\$3/hectare
Mining licences of occupation	1,047	20,000	\$5/hectare

jurisdictional scan of rental rates for mining leases across Canada, and found that Ontario's rate is the second-lowest in Canada after Prince Edward Island. The Ministry informed us that as part of the Mining Act Modernization, a new fee schedule was to be developed in fall 2015.

If payments of rents or taxes are not made, the Ministry has the right under the *Mining Act* to declare the privately owned land forfeit and to terminate the mining leases and licences. However, we noted that the Ministry has not taken timely action on collecting outstanding payments.

As of March 31, 2015, accounts receivable related to rent and taxes totalling \$1.7 million had been in arrears over two years. The Ministry informed us that some of these properties have not been forfeited because of liabilities associated with mine hazards on the land.

Liabilities on these sites range from \$150,000 to \$850,000, which the Ministry would have to assume if the properties are forfeited to the Crown. The Ministry issued an order in 2013 for the submission of a closure plan on only one of these properties, and was still waiting for voluntary compliance from the others at the time of our audit.

Some of these arrears have been outstanding for more than 10 years. When the Ministry does not forfeit these claims, it means these lands are not available to any other prospectors for potential mining development.

RECOMMENDATION 12

To ensure that Ontarians receive a fair share of the province's mineral resources while remaining competitive to attract mining investments to the province, the Ministry of Northern Development and Mines should:

- review and update where necessary the province's current mining lease rate, mining profit tax, and diamond royalty regimes (we made a similar recommendation relating to mining fees in our *2005 Annual Report*); and

- take timely collection actions for amounts owing that are in arrears (we made a similar recommendation in our *2005 Annual Report*).

MINISTRY RESPONSE

The Ministry appreciates the Auditor General's review of the diamond royalty regime. The Ministry expects the diamond royalty modeling over the life of a mine to have larger future payments. The Ministry is considering the modernization of all fees and revenues related to mining, including working with the Ministry of Finance where necessary.

The Ministry will also review processes for following up on delinquent accounts to ensure more timely collection.

4.7 Performance Measures Do Not Address Ministry Goals and Responsibilities

The goal of the Ministry's Mines and Minerals Program is to build a provincial minerals sector that is healthy, competitive and sustainable. The *Mining Act* requires the development of mineral resources to be carried out in a manner consistent with the recognition and affirmation of existing Aboriginal and treaty rights, including the duty to consult, and to minimize the impact of mining activities on public health and safety and on the environment. In addition, the 2014 mandate letter from the Premier to the Minister of Northern Development and Mines specifically identified promoting Ontario's mining sector and developing the Ring of Fire as two of its key priorities.

While the Ministry has some indicators to assess certain aspects of the operations of the program (for example, percentage of sites with closure plans inspected, and abandoned mine sites rehabilitated annually), it has yet to develop indicators to help it assess its effectiveness in achieving its overarching goals and objectives.

RECOMMENDATION 13

The Ministry of Northern Development and Mines should develop more comprehensive measures to assess its effectiveness in meeting its goals of developing the province's mining sector, while minimizing the impact of development on public health and safety, and on the environment, and regularly report to the public its progress in meeting its goals (we made a similar recommendation in our *2005 Annual Report*).

MINISTRY RESPONSE

The Ministry is currently developing new comprehensive performance measures for all of its programs. It is also developing performance measures specifically related to the Mineral Development Strategy. These indicators will measure the progress of developing the province's mineral sector.

Appendix 1—The Mining Sequence

Source of data: Ministry of Northern Development and Mines

In general, there are five stages in mining: exploration, evaluation, development, production, and closure and monitoring. These stages can take from 30 to over 100 years to complete.

Stage	Description of Activities
Exploration	<ul style="list-style-type: none"> • Prospectors analyze an area of land to find mineral deposits and acquire the rights to further explore for mineral deposits • Prospectors stake an area and conduct early exploration work, such as collecting rock samples, remote sensing, and accessing the Ministry's geosciences database, to seek out potential deposits • Usually takes 4–6 years
Evaluation	<ul style="list-style-type: none"> • Prospectors use larger-scale exploration methods, such as more intense drilling and removing larger samples, to test for mineral potential • Advanced exploration can cost anywhere from \$5 million to over \$10 million per project each year and stretch over a period of 5–10 years • The majority of exploration projects do not get past this stage
Development	<ul style="list-style-type: none"> • Companies construct a mining facility and the infrastructure to support it • Can take three or more years to complete and is the most expensive stage of the process
Production	<ul style="list-style-type: none"> • Companies produce minerals or mineral-bearing substances for sale • The main activities during this stage include excavating earth and rock, separating mineral from the waste rock, managing waste materials (known as tailings), and monitoring environmental conditions • A mine can be in operation 10–50 years or longer • This is the only stage in the process that generates revenue and provides the most jobs and other economic benefits for the province
Closure and Monitoring	<ul style="list-style-type: none"> • Companies complete mineral extraction, processing and transportation activities, and remove site facilities and the infrastructure that supported these activities • Depending on the size and extent of the clean-up, closure costs can run more than \$150 million, and can typically take 2–10 years or more to complete • After closure, some mines require continuous monitoring for 5–100 years to ensure no damage is being done to the environment

Appendix 2—Location of the Ring of Fire Belt

Source of data: Ministry of Northern Development and Mines

