ABSTRACT

Ontario introduced new mine rehabilitation requirements through its' Mining Act in 1989. Following proclamation of the regulations supporting this legislation, these requirements came into force in June 1991. The principal thrust of these changes was to require proponents of advanced exploration and mine production projects (including existing operating mines) to provide mine closure plans supported by financial assurance. Major amendments to the legislation were introduced in 1996; these amendments allowed for greater options in providing financial assurance, provided for surrender of rehabilitated mining lands to the Crown, provided for emergency actions by the Ministry and, most importantly, provided for greater responsibility by the proponent in preparing closure plans, notably through requiring corporate certification that the plans meet the requirements of the Mining Act. Sudbury '99 marks 10 years of working with the administration of this legislation. This paper will describe progress and successes to date in working with this legislation. Further information can be obtained from our website at: http://www.gov.on.ca/MNDM/MINES/MG/minrehab.htm.

Key Words: mine rehabilitation, financial assurance, mining legislation, mine reclamation.

INTRODUCTION

Ontario, Canada has an area exceeding one million square kilometers with an annual mineral production of about C$5 billion. In 1998 there were 40 metal mine operations, 14 industrial mineral operations, several advanced exploration projects, numerous rock quarries for construction aggregates and building stone and hundreds of sand and gravel pits for construction aggregates. These will all require some form of rehabilitation upon closure. As well, Ontario has more than 6,000 historic inactive sites having an estimated rehabilitation requirement of C$300 million, much of it in the public domain. In 1988 Ontario initiated action to embrace modern mine rehabilitation legislation to ensure a viable, sustainable mining industry in Ontario. This legislation had to ensure the following upon completion of mining at a site:

- minimal public health and safety risk;
- minimal environmental risk;
- limited accrual of public financial liability; and
- ideally, a productive after-use for the site

This paper will review the development of this legislation over the last 10 years and discuss it’s application. The legislation under discussion focuses on metal mining, underground mining of all commodities, and surface mining of non-metallic minerals not deemed to be aggregates. Surface mining of materials defined as aggregates are mined pursuant to the Aggregate Resources Act for the most part. Articles by W.R. Cowan,1,2, R. Doran and J.A. McIntosh3 relate closely to this discussion.

LEGISLATION DEVELOPMENT

Ontario’s Mining Act was first implemented in 1906 and underwent frequent amendment until about 1970, mainly for administrative purposes. In 1972 a commission was appointed to assess measures required to modernize the Mining Act. Though the Commission reported in 1973, mainly on land tenure issues, no legislation ensued. By the mid 1980's new legislation was being considered to revamp land tenure matters and, in addition, develop modern mine rehabilitation requirements. In early 1988 a policy Green Paper was initiated which culminated in the introduction and passage of Bill 71 during 1989.
Key mine rehabilitation components of Bill 71 included:

- creation of a statutory Director of Mine Rehabilitation;
- requirement to notify Director of existing and new projects;
- requirements for public notice and consultation;
- requirements for the submission of mine closure plans for advanced exploration projects, new mines and existing mines; inactive mines were required to file closure plans only by order of the Director;
- requirement to provide financial assurance to ensure completion of the closure plan.

During 1990 and early 1991 the Regulations for this legislation were completed with much consultation and they were put into force in June, 1991. These Regulations provided direction on the requirements of how the legislation could be met; in addition a manual of guidelines was produced which has become a technical reference world wide. It should be noted that the legislation for these amendments was completed under a Liberal Government, whereas the Regulations and proclamation were completed under a New Democratic Government which came into power in September 1990.

In 1994, the New Democratic Government introduced and passed Bill 175 “An Act to amend the Statutes of Ontario with respect to the provision of services to the public, the administration of government programs and the management of government resources,” an omnibus bill streamlining government processes. In this bill both the Aggregate Resources Act (ARA) and the Mining Act were amended to clarify jurisdictional matters respecting the surface mining of non-metallic minerals on Crown land. At this time eight non-metals were defined as not being under the permitting system of the ARA and authority to prescribe more was provided.

In June 1995, Ontario elected a new Progressive Conservative Government which had a strong mandate to reduce red tape, reduce regulatory burden, streamline approvals that maintain environmental standards, cut the size of government and balance the budget. This led the ministry of Northern Development and Mines to propose major amendments to the Mining Act which would place more onus on the proponent/owner and decrease government costs. These amendments ultimately became Schedule O to Bill 26 which had the name “Savings and Restructuring Act, 1995” as its’ short title. This Bill was introduced in to the legislation on January 29th, 1995 and subsequently received Royal Assent on January 30th, 1996.

The principle components of those amendments respecting mine rehabilitation were:

- increased private sector onus and responsibility for mine rehabilitation;
- decreased government costs by converting from a protracted, iterative closure plan approval process to a “certified by owner” process and audit;
- provided for the utilization of a mine reclamation trust for financially assuring mine closure plans and named royalty streams, sinking funds and pledged assets as possible forms of financial assurance;
- provided authority for the acceptance of corporate guarantees for self assurance of mine closure plans if a prescribed financial test is complied with;
- provided for a so-called “exit ticket” whereby owners/proponents could surrender lands back to the government if they have been rehabilitated “in accordance with a filed closure plan or, if no closure plan has been filed, in accordance with the prescribed standards for site rehabilitation,” or, failing this, the Minister may accept the lands back on agreement including the provision of any moneys required for ongoing care and maintenance (a proponent surrendering land in this manner is not liable to retroactive action pursuant to the Ontario Environmental Protection Act);
- clarified the liability of new claim holders with respect to pre-existing mine hazards;
- provision of emergency access by Ministry employees or agents to mine hazards in the event an owner/proponent does not remediate any immediate and dangerous adverse effect either voluntarily or pursuant to a Minister’s Orders; and
- the requirement to file annual reports on accepted closure plans has been replaced with a requirement to notify the Director of material changes to the project, ownership or control of the project or other material changes which could have a material effect on the adequacy of the closure plan.
In 1997, “An Act to reduce red tape by amending the Mining Act” provided two additional clauses to subsection 176(2) which allow the creation of regulations:

- authorizing a person specified in the regulations to exempt a proponent from complying with any standard, procedure or requirement in a regulation respecting closure plans if the specified person determines that the closure plan meets or exceeds the objectives of the provision;
- prescribing other circumstances under which a proponent, or project, or any class thereof, need not comply with a regulation, or a provision thereof, made under this subsection.

These are intended to provide for special circumstances including the introduction of new technology.

PROGRESS

Closure Plans

Since 1991 proponents of new advanced exploration projects or new mines have been subject to the requirements of the Act prior to initiating either the project or production. Thus, administration of new projects has been relatively straightforward.

Mining projects in existence in 1991 negotiated submission dates with the Director of the day on a site by site basis. Depending on the complexity, scale, risk and expected longevity of the site operations these dates ranged from 1992 to 1998. An important consideration in scheduling these submission dates over several years was the availability of Ministry technical personnel to cope with the review and approval of these materials. As may be expected submission and review of some projects did not go as smoothly as one might wish and most closure plans for these projects will be completed by the time this paper is published. A detailed description of the preparation, review and approval of closure plans prior to 1996 amendments was provided at the Sudbury ’95 symposium by J. R. Doran and the late J.A. McIntosh.3

Statistics on closure plan status as at January 1999 are as follows:

- 63 accepted with financial assurance scheduled;
- 21 at financial assurance negotiation stage;
- 39 under active review; and
- 25 other

Most of those plans which are under active review on financial assurance will be completed in 1999 or early 2000. Many of these await proclamation of new regulations providing for self assurance. Plans described as other include dormant projects, projects experiencing owner problems and projects of confused status.

Financial Assurance

Financial assurance provides the financial guarantee that the owner/proponent will provide for the rehabilitation of the site disturbed by their mining project, especially in the event of premature closure, financial default or other unforeseen or unplanned events such as depressed commodity prices over protracted periods of time. Current practice requires that owners/proponents provide a proposal as to form and amount of financial assurance to be provided under the closure plan; this may be subject to further negotiation. Table I demonstrates acceptable forms of financial assurance prior to and subsequent to the amendments of Bill 26. Proclamation of the latter has taken considerable time due to lengthy negotiations as to the prescribed financial test required to qualify for self assurance; this will be published very soon and will be based upon readily available corporate credit ratings such as Standard and Poor’s.

At the time of writing the Ministry has approved financial assurance schedules for 66 projects totaling more the $62 million; of this $62 million approximately 80 percent is in the form of irrevocable guaranteed letters of credit. Financial assurance held will increase considerably by the end of 1999 as numerous projects are in final approval phase pending negotiations based upon the prescribe self assurance test. In any event over the next three years the Ministry has committed to the government that it will have several hundred million dollars in financial assurance accounted for.
Table I: forms of financial assurance allowed under the current R.S.O., 1990 Subsection 145(1) of Part VII of the Mining Act along with those under Schedule O, Bill 26, Subsection 145(a) which still has to be promulgated.

<table>
<thead>
<tr>
<th>R.S.O., 1990 Subsection 145 (1)</th>
<th>Schedule O, Bill 26, Subsection 145(1)</th>
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<td>The financial assurance required as part of a closure plan shall be in the form of:</td>
<td>The financial assurance required as part of a closure plan shall be in one of the following forms and shall be in the amount specified in the closure plan filed with the Director or any amendment to it.</td>
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<tr>
<td>□ cash</td>
<td>1. Cash</td>
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<tr>
<td>□ a letter of credit from a bank named in Schedule I to the Bank Act (Canada).</td>
<td>2. A letter of credit from a bank named in Schedule I to the Bank Act (Canada). *</td>
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<tr>
<td>□ a bond of a guarantee company approved under the Insurance Act, or,</td>
<td>3. A bond of an insurer licensed under the Insurance Act to write surety and fidelity insurance (amended 1997). *</td>
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<tr>
<td>□ another form of security acceptable to the Director and shall be in the amount specified in the closure plan accepted by the Director or any amendment thereto.</td>
<td>4. A mining reclamation trust as defined in the Income Tax Act (Canada).</td>
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<td>5. Compliance with a corporate financial test in the prescribed manner.</td>
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<td></td>
<td>6. Any other form of security or any other guarantee or protection, including a pledge of assets, a sinking fund or royalties per tonne, that is acceptable to the Director.</td>
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<td>* standard format for letters of credit and insurance bonds may be found on web site as listed in the abstract.</td>
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**Progressive Rehabilitation**

Pursuant to section 143 proponents are required to progressively rehabilitate a site whether or not closure has commenced or whether or not an accepted closure plan is in place.

Experience with currently operating mines indicates that most progressive rehabilitation is focused on removal of unused buildings, vegetation of unused tailings and waste areas, and dealing with openings to surface, e.g. capping shafts. Progressive rehabilitation has considerable financial advantage as these rehabilitated features are not subject to financial assurance; as well, the removal of buildings can provide for a reduction of municipal assessment and considerable savings in real estate taxes.

With regard to non-operating sites not subject to closure plans, progressive rehabilitation is also taking place on several fronts. Firstly, major corporations recognize these mine hazards as long term liabilities if not remediated. They therefore have been carrying out progressive rehabilitation both to comply with the legislation and to reduce this liability. Ultimately they wish to return (surrender) these lands to the Crown wherever feasible. Examples of such activities include works by INCO Limited (e.g. Chicago Mine, Santala Quarry, etc), Falconbridge Limited (e.g. Errington Mine, Christina Mine), Barrick Gold Corporation (e.g. Uchi Mine, Bicrhoft Mine), Teck Corporation (e.g. Copperfields) and others.

Secondly, several intermediate or small companies have carried out progressive rehabilitation in order to comply with requirements. Examples of these include the Midlothian Mine and Munk Gold.

Thirdly, rehabilitation enterprisers have recognized opportunities to create business and they actively approach owners to solicit contracts to rehabilitate sites. Though not extensive these activities are proceeding, sometimes unbeknownst to the government. Though this may create some issues with regard to maintaining adequate standards, many small sites are being rehabilitated in this manner. Several examples of this nature have been completed in the Dryden area.

Fourthly, most mining sites in Ontario dealing with radioactive materials are under decommissioning licence to the Atomic Energy Control Board of Canada. Such licenses are focused on radioactive issues as might be expected. However, in keeping with the spirit and intent of Provincial statutes, the major owners of closed sites, Denison Mines Limited and Rio Algom Limited are rehabilitating the sites to Provincial standards. Indeed, these two companies received awards from the Prospectors and Developers Association of Canada in 1996 for the excellent rehabilitation which they are accomplishing in Elliot Lake Ontario.
Finally, the Ministry can encourage progressive rehabilitation through verbal or written requests or through Director’s orders. The Ministry has not pursued this approach in an aggressive manner due to personnel commitments to processing closure plans for existing mines and because issuance of orders generally leads to drawn out expensive legal procedures; in general we prefer to seek voluntary cooperation before resorting to the protracted legal route.

**Public Participation**

Citizens of Ontario or elsewhere may participate in discussion regarding mine rehabilitation in several forums.

For most advanced exploration projects and for the commencement or recommencement of production proponents are required to give public notice which is necessarily followed by the holding of a public information session in the area in which the project is located. This provides the public with an opportunity to discuss and comment on any issues they may have with the proponent. As well it allows the proponent to react to any concerns expressed. The Ministry has provided a manual to proponents to aid them in this public consultation.

Many new projects in Ontario are required to address the needs of the Canadian Environmental Assessment Act (CEAA) primarily triggered through the Fisheries Act (Canada). This provides an opportunity for public discussion of the proposal. Recent Ontario projects which have addressed CEAA include the Musselwhite Mine, the Matachewan Advanced Exploration Project, the Agrium Phosphate Rock Project at Kapuskasing and the Aquarius Project of Echo Bay Mines Ltd. near Timmins (not yet completed).

In addition, the Ontario Environmental Bill of Rights introduced in June 1995 provides for public notice and comment on issues which may be environmentally significant. The Ministry is required to post on the Environmental Registry proposals for acts, regulations, policies and instruments. Examples of information posted on the Environmental Registry include new regulations and proposals to accept closure plans and proposals to require submission of a proposed closure plan.

To provide for multi-stakeholder involvement in the development of legislation regulations and other materials the Ministry established a Minister’s Mining Act Advisory Committee in 1992. Representation on this committee includes the mining and exploration industry, labour, cottagers, tourist operators, and environmental NGO groups. This forum provides direction to the Ministry and the Minister.

Of concern to some, is the lack of a requirement for public advisory boards for mining projects. Such boards provide ongoing intercourse between the public and the proponent to meet the needs of the community. Excellent examples of this occur elsewhere in Canada, e.g. Equity Silver Mine in British Columbia. Recently, Rio Algom Limited has established a Decommissioning Review and Advisory Committee (DRAC) in Elliot Lake to interact with the company during decommissioning of its’ mine sites. This may prove to be a model for the future if sustainable mining is to be an Ontario reality.

**Abandoned Projects and Mine Hazards**

Ontario has more than 6,000 inactive and historic mine sites with an estimated list of potential hazards exceeding 18,000, many of which are relatively innocuous. During the early 1990’s a C$10 million program was put in place to carry out an inventory and assessment of these features which have an estimated remediation cost exceeding C$300 million. However, before this assessment could be completed, much of the money had to be diverted to carry out remedial work on sites deemed to be public safety emergencies, e.g. stabilization work on the Hollinger Tailings in Timmins diverted more than C$2 million from this project; much assessment work remains and remediation of hazards on public lands has been at a standstill for several years. The Ministry is currently attempting to obtain financing to complete the hazard assessment and to deal with those hazards deemed to pose greatest risk to the public.

Notwithstanding the public safety and environmental risk associated with these potential hazards, the negative aesthetics and perceptions of the public and the environmental community have created a generally poor public attitude toward mining and mining entrepreneurs putting the concept and future of sustainable mining in Ontario at considerable risk.
NEW DIRECTIONS

As outlined in the section on legislation development, proponents of mining projects are being handed greater responsibility in providing for mine rehabilitation in Ontario. In particular, senior corporate officers will be certifying that submitted closure plans meet the requirements of the Ontario Mining Act as amended. Only by exception will interministerial working groups provide an interactive process to achieve consensus on the contents of the plan.

Draft regulations related to the certification process are as follows:

A closure plan filed under Part VII of the Act shall contain the following certificate signed by the proponent, where an individual, or by two senior officers, one of which must be the chief financial officer, where the proponent is a corporation, “I (We) hereby certify that:

1) the foregoing closure plan complies in all respects with the Mining Act, Regulations and Mine Rehabilitation Code;

2) the proponent utilized qualified professionals in the preparation of the foregoing closure plan, where required, under the Mining Act, Regulations and Mine Rehabilitation Code;

3) the costing of the rehabilitation work described in the foregoing closure plan is based on market value costs of the material goods and services;

4) the amount of the financial assurance provided for in the foregoing closure plan is adequate and sufficient to fund the rehabilitation work required for the described site in order to comply with the Mining Act, Regulations and Mine Rehabilitation Code;

5) the foregoing closure plan constitutes full, true and plain disclosure of the rehabilitation work currently required for the described site in order to comply with the Mining Act, Regulations and Mine Rehabilitation Code.”

Technical measures requiring certification include:

- Stability of tailings and impoundment structures
- Rebar design and shaft cap testing
- Shaft backfill design
- Crown pillar stability assessment and rehabilitation designs
- Hydrogeology and groundwater monitoring
- Surface water monitoring parameters and frequency
- Other

Notwithstanding the fact that the legislation points toward this certification process, the legislation retains the ability for a proponent to have a closure plan approved by the Director; if this process is elected, the proponent must pay in advance the estimated costs for reviewing the closure plan for approval. Proponents also have the ability to submit previously filed certified plans for approval.

SUMMARY

From the foregoing, it is clear that mine rehabilitation legislative requirements and practices have been in a state of progressive dynamic change for the last 10 years. As we enter the new millenium it can be asserted that much progress has been made with existing projects and new developments. However, much remains to be completed in order to rectify the legacy of past practices and improve public perception that mining can be an economically and environmentally sustainable endeavor.
REFERENCES


3. J.R. Doran and J.A. McIntosh, Preparation review and approval of mine closure plans in Ontario, Sudbury’95 Conference Proceedings, 1995, Vol 1, 281-188.