

Abandoned Mines, NOAMI and Ecotourism

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Orphaned and abandoned mines are those mines where the owner cannot be found, or is unwilling or unable to remediate the site. They present a number of environmental, health and safety, social and economic problems. The land may be derelict – contaminated, unstable, and/or with dangerous mining infrastructure. They are often expensive to remediate and pose a major public concern in and beyond mining areas.

The National Orphaned/Abandoned Mines Initiative (NOAMI) was created in 2002 at the request of the Canadian Mines Ministers, and based on recommendations put forward at a multistakeholder workshop held in Winnipeg in 2001. The workshop determined the key issues associated with orphaned/abandoned mine sites, and laid down a series of guiding principles and objectives which apply to NOAMI as it exists today.

NOAMI is guided by a multi-stakeholder committee with representatives from government, non-governmental organizations, the mining industry and Indigenous Canadians. They work together to address issues related to remediation of orphaned and abandoned mines in Canada. One of the guiding principles for NOAMI is that “work toward eliminating future abandonment must continue, including the tightening of regulatory approaches.” Committee members felt that there is a need for a clear policy framework governing mine closure, long-term liabilities and return (or relinquishment) of mining lands to the Crown.

Over the last six years NOAMI has undertaken various studies to explore these issues and offer recommendations for change. Important tools and guidance documents have been produced that together will make a major contribution towards development of a policy framework to address all aspects of managing abandoned mine liabilities in the long-term, and to prevent future abandonments in Canada.

The initial report, a guidance document for mine closure and management of long-term liabilities, was produced by Cowan Minerals Ltd. (2010). The report examined major components related to mine closure and post-closure site management, including long-term maintenance and monitoring, financial assurance, relinquishment and institutional care. This has served as a valuable reference tool, and presents a policy framework, together with recommendations for preventing further accrual of abandoned mine hazards. A key message is that jurisdictions should have a managed relinquishment process, that is clear and unfettered, and specific about what will not be accepted. The report notes that closure plans are normally “designed for closure”, and recommends that a more-forward approach be applied and they should be “designed for relinquishment”.

Building and based on the “Cowan report”, a multi-stakeholder workshop exploring the management of long-term liabilities and relinquishment (Tunis, 2011) was held and guidance obtained to assist NOAMI in developing a roadmap for managing long-term liabilities and issues related to mine relinquishment. This led to a further two-part study *Case Studies and Decision-Making Process for the Relinquishment of Closed Mine Sites* (Cowan Minerals Ltd., 2013). The first part examined six case studies from different Canadian jurisdictions that underline “lessons learned” towards their potential relinquishment. The second part, a decision process (Fig. 1), identifies issues to consider when determining if a site could, or should, be returned to the Crown or remain the responsibility of the operator. The process provides a starting point for developing or revising a program for relinquishment; however, each jurisdiction must establish a process that meets its own regulatory regime and policies. The report concludes that mining projects should be designed with the objective of reclaiming the site for possible relinquishment, and future beneficial use.

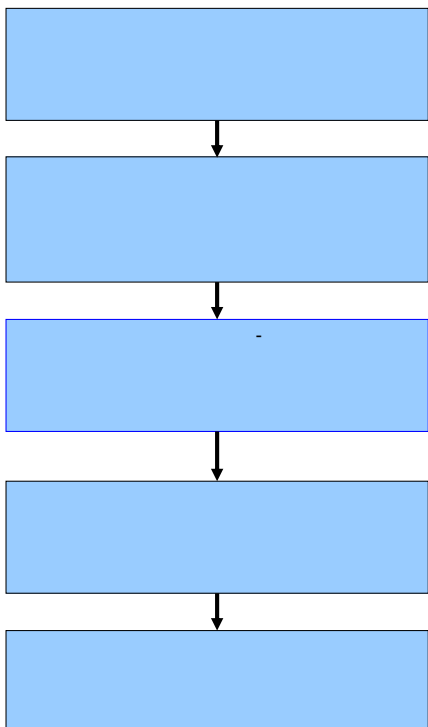


Figure 1: A five-step decision-making process for relinquishment (Cowan Minerals Ltd., 2013)

An effective long-term monitoring and maintenance program at inactive mine sites presents a number of challenges. Kingsmere Resource Services Inc. undertook a study for NOAMI to develop criteria to assess these sites in order to evaluate their condition and provide direction for the planning and delivery of long-term stewardship. As such, the study would address Steps 1 and 2 in the decision-making process. The report entitled *Key Criteria for the Effective Long-term Stewardship of Closed, Orphaned/ Abandoned Mine and Mineral Exploration Sites* (2015) outlines site aspects involved in

identifying, analyzing and evaluating potential site hazards, including those that may pose a risk to public health and safety, to the environment, to ecosystem.

A study to address Step 3 *“Mine Closure and Long-term Management: Cost Estimation”* is currently underway by Kingsmere Resource Services. This step considers the various requirements for long-term monitoring, maintenance or capital replacement of rehabilitation works and cost estimation for this work. This work ranges from routine activities such as water quality monitoring or fence inspections to estimated replacement schedules and costs for capital works, such as shaft cap replacement or treatment plant components. The intent would be to develop a methodology to assess the risk of site-specific characteristics, and to develop a cost-estimate methodology for long term monitoring, maintenance and failure remediation financial liabilities.

A mine ends – what happens then!

Post-mining regeneration seeks to convert negative legacies, such as abandoned mines, into positive ones. There are numerous national and international examples of innovative projects that are delivering a variety of social, economic and environmental benefits post-mining. In 2009, the Post-Mining Alliance produced a book *“101 Things to do with a Hole in the Ground”* that is a snapshot that includes examples of ecotourism, wildlife habitats, educational, sports and leisure facilities and other industrial uses. International examples include the Eden Project in the UK, the Wieliczka Salt Mine in Poland, the Football stadium in Braga, Portugal. In Canada, there is the Butchart Gardens near Victoria, BC, and Dynamic Earth and Science North in Sudbury, ON.

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