Abandoned Mines in Ontario:
An Online Workshop
Presentation to the
Lake Superior Binational Program

Christopher D. Hamblin
Project Coordinator
Abandoned Mines Rehabilitation Fund
Ministry of Northern Development & Mines
Ontario, Canada
Lake Superior Basin AMIS Tailings Sites

Legend
- Tailings sites
Ministry of Northern Development and Mines

So...

How did we get here?

and

What is being done about it?
Background

- There are more than 5,700 known abandoned mine sites located throughout Ontario, of which approximately 4,000 could pose a potential hazard to public health and safety, or to the environment.
- Rehabilitation costs of all known abandoned mines in Ontario have been estimated at $500 million.
- 30 to 40% of all of Ontario’s abandoned mine sites have reverted to the Crown (the Province).
- Rehabilitation Costs of all Crown-held abandoned mines have been estimated at $200 million.
Ontario’s Mining Act, R.S.O. 1990

• In 1991 Part VII of the Mining Act was bolstered to deal with the operation and rehabilitation of mines
  – Changes ensure that mining lands are eventually returned to a safe and uncontaminated state
  – Set out an obligation for proponents of both existing and new mines, as well as advanced exploration projects, to submit a Closure Plan, including Financial Assurance
  – Placed an obligation on owners of all mine sites, including abandoned mine sites, to “progressively rehabilitate the site”
  – Provided the Director of Mine Rehabilitation with the power to order an owner of an abandoned mine to submit a Closure Plan
Year 2000 Amendments to Part VII

• Reduces the previously lengthy Closure Plan approval process
• Includes the new Mine Rehabilitation Code of Ontario, which prescribes the standards that must be met when conducting rehabilitation within the Province
• Now requires “progressive rehabilitation” to be conducted to the standards of the Code
• Now requires a progressive rehabilitation report to be submitted within 60 days of conducting the work
• Provides the Minister with emergency powers to rehabilitate a site where there is, or is likely to be, an “immediate and dangerous adverse effect”
AMIS
(Ontario’s Abandoned Mines Information System)

• AMIS was developed in the late 1980s to catalogue abandoned mines in the Timmins area
• Was expanded to cover all known abandoned mine sites within Ontario
• Constantly updated as new information is available
• Basic information is available on-line through the GeologyOntario website
• Detailed information is available by contacting the Abandoned Mines Office.
AMIS

- Abandoned Mines files contain:
  - the name, and alternate names, for each site
  - the location of each site
  - a description of each feature on the site and their existing protection, if any
  - site assessment reports and inspection reports
  - information regarding any known contaminant sources
  - documentation of any known rehabilitation that has occurred
  - mine plans (both surface and/or underground) and sections, where available
  - photographs and video footage
  - various miscellaneous correspondence and notes
  - references
Abandoned Mines Rehabilitation Program

Funding program was announced on September 15, 1999, by the Minister of Northern Development and Mines at the Sudbury ‘99: Mining & the Environment II Conference.
Program Funding

- $27 Million was made available under the announcement for the original four year Program:
  - $2 Million in 1999/2000
  - $5 Million in 2000/2001
  - $10 Million in each of 2001/02 and 2002/03
- Two further extensions to the funding have since been announced:
  - Funding is now in place until 2012 at the level of $10 million per year
- Funding to be primarily applied to the rehabilitation of Crown-held abandoned mine sites, on a “highest priority” basis
Rehabilitation Achievements to Date

- More than 75 mine sites have been rehabilitated throughout the Province
- More than 80% of the rehabilitation required for the Kam Kotia Mine site has been completed, at cost of more than $52 million
- Site assessments have been completed on approximately 4,000 abandoned mine sites
- Assessment of contamination levels of all remaining tailings sites
- A number of engineering studies have been undertaken to determine appropriate plans for future rehabilitation
North Coldstream Mine Site
Zenmac Tailings Site
Coppercorp Mine Site
What is Kam Kotia?

- Kam Kotia is a former Cu/Zn mine near Timmins, Ontario.
- There are about 6 million tonnes of unmanaged acid generating tailings covering more than 500 ha.
- Environmental impacts are locally significant:
  - acidic leachate
  - aesthetics
  - dusting
  - physical safety
- Mining*: 1943-1944 - 169,000 tonnes open pit.
- Production 6.6 MT @ 1.1% Cu, 1.17% Zn, 0.10 oz/Ag.

The Rehabilitation of Kam Kotia

- A five phased approach to conduct the rehabilitation of the Kam Kotia Mine site was developed in 2000.
- The first phase of rehabilitation work began in 2001.
- Currently, more than 80% of the required measures have been completed, at a cost of approximately $52 million.
- It is expected that all rehabilitation will be completed by 2010.
- The final cost of rehabilitation is expected to be approximately $62 million.
- It is predicted that the Lime Treatment Plant will need to operate for an estimated 50 years after the completion of all rehabilitation on the site (i.e. three flushings of groundwater).
Thank You

Christopher D. Hamblin
Project Coordinator
Abandoned Mines Rehabilitation Fund
Ministry of Northern Development & Mines
Ontario, Canada