

Certificate of Achievement Award

Rehabilitation of Abandoned Mine Sites in Manitoba



Stantec



The Abandoned Mine Site initiative estimated the total Manitoba Provincial Government liability for orphaned and abandoned mine sites at over \$220 million in 2007. During 2005-2007, 148 abandoned and orphaned mine sites were assessed for the Manitoba Mines Branch by AMEC under Dr. Priscu's leadership. Resulting hazard ratings were: High for 31 sites, Moderate for 53 and Low for 49. The remaining few were either owned by another party or could not be located. The Mines Branch then initiated fast-track rehabilitation. The estimated rehabilitation cost for High-Hazard sites was \$30 million.

The High-Hazard EL Mine site, near Lynn Lake, in northern Manitoba, was one of the sites selected for rehabilitation.

This combined open-pit and underground Cu-Ni mine operated between 1954 and 1963 and closed in 1964.

In 2008, TetrES (now part of Stantec Consulting Ltd.)

with Karen Mathers as Project Manager and sub-contractor AMEC Environment & Infrastructure were contracted by the Mines Branch for the Environmental Site Assessment (ESA), clean up, rehabilitation and Implementation of Closure. The first step was a fast-track comprehensive ESA using environmental science, geoscience, biology, engineering, geophysics and underwater methods. Completed within one year, it identified the primary and secondary sources of contamination and their interactions. The remnant aboveground and subsurface mine structures were evaluated and described by geophysical, sonar, aquatic and borehole camera technologies.

The ESA also assessed surface hydrology and water chemistry, metal loadings in discharges, subaqueous mineralized wall rock contribution to ground/surface waters, terrestrial/aquatic habitats, and overburden/rock. Metals and hydrocarbons were the predominant contaminants of concern. Vegetation mapping determined the succession of natural re-growth and identified areas requiring protection during Site Closure. The ESA characterized the overall environmental "footprint" to guide closure planning.

The impacted area was about 8,000 m². Remnant mine structures and over 60,000 m³ of ARD/ML material were removed. The project completed in Fall 2011 required intricate planning & communications between the consultants, First Nations and Governments. Post-rehabilitation monitoring will continue until 2015. Local contractor participation with aboriginal people trained by Stantec created social and environmental benefits for the community. The design and delivery of this project on time and under budget showcased the integration of engineering and geoscience disciplines to address current public concerns regarding the environment.

Currently, 18 High-Hazard sites have been rehabilitated – the remaining 13 are under rehabilitation. The Provincial liability for orphaned and abandoned mines is predicted to drop considerably by the end of 2012, when 29 of the 31 High-Hazard sites should be rehabilitated.

The Association is pleased to recognize the Manitoba Mines Branch, Stantec and AMEC team by Certificate of Achievement Award for their excellent work on the project: "Rehabilitation of Abandoned Mine Sites in Manitoba".