

Remediation of Abandoned Mine Openings in Nova Scotia, 2014

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Introduction

There are thousands of abandoned mine openings in Nova Scotia, many of which are located on Crown land. Since 2001, the Abandoned Mine Opening (AMO) Remediation Program, managed jointly by the Geoscience and Mines (GM) and Regional Services branches of the Department of Natural Resources, has invested about \$760,000 to remediate the most hazardous of these openings on Crown land. From April 1 to December 31, 2014, approximately \$30,000 were invested in this program.

Background

The AMO Remediation Program is overseen by a Steering Committee, which consists of the Executive Directors of the Geoscience and Mines, Regional Services and Land Services branches of the Nova Scotia Department of Natural Resources. Implementation of the program is intended to be managed by a Working Group consisting of Geoscience and Mines Branch staff, three Regional Geologists and one Regional Resource Manager. With the current absence of Regional Geologists in the Central and Eastern Regions, the Exploration Monitoring Geologist in Stellarton and a Regional Resource Manager in Cape Breton have filled in admirably to maintain the program.

The Nova Scotia Department of Transportation and Infrastructure Renewal (TIR) plays a major role in the AMO Remediation Program, both in carrying out work with their own crews, and in tendering and managing contracted work.

The Geoscience and Mines Branch conducts field programs to inspect almost all of the AMOs on

Crown land on a regular basis. Operating on a three-year cycle, almost every AMO on Crown land in the province is inspected, and the degree of hazard assessed. Warning signs and flagging tape are upgraded as needed.

The Geoscience and Mines Branch maintains a database of the known Abandoned Mine Openings in the province (both on private and Crown lands). This database is available online at: <http://novascotia.ca/natr/meb/geoscience-online/about-database-amo.asp>. Field inspection reports are used to update both the AMO database and an AMO remediation priority list.

In November 2013, Version 5 of the Nova Scotia Abandoned Mine Openings Database was released. This is an update to the 2009 Version 4 and contains an additional 329 mine openings not previously documented. With the utilization of GPS and GIS technology over the past number of years, users will also note updates to mine opening locations. More information is also available on historic operators.

Methods

The methods used to remediate AMOs on Crown land include: excavating, backfilling, fencing and placement of concrete caps over mine openings. In the past 13 years the program has backfilled about 540 AMOs, fenced 50, capped seven mine openings and placed three grates to protect bat habitat. In addition, about 150 AMOs on Crown lands have been addressed through partnerships with private operators. Work has been carried out at 39 different sites throughout the province. Table 1 and Figure 1 provide information on the remediation work carried out in 2014.

Table 1. Remediation work completed in 2014.

Central Region	Work Completed
Joggins/River Hebert	Contractor excavated and backfilled 25 AMOs and 125 pits/subsidence features along the outcrop of two coal seams
Montague	TIR backfilled 2 AMOs and approximately 15 m of open cut trenching
North Springhill	TIR topped up a previously filled roadside coal mine slope which posed a significant hazard
Western Region	Work Completed
Crousetown (Somerset)	TIR backfilled 6 AMOs and 4 prospect pits
Leipsigate (Lapland)	TIR backfilled 1 AMO
Mill Village	TIR backfilled 3 AMOs and 5 prospect pits/trenches
Stanburne	Contractor backfilled 5 AMOs and approximately 100 m of open cut trenching

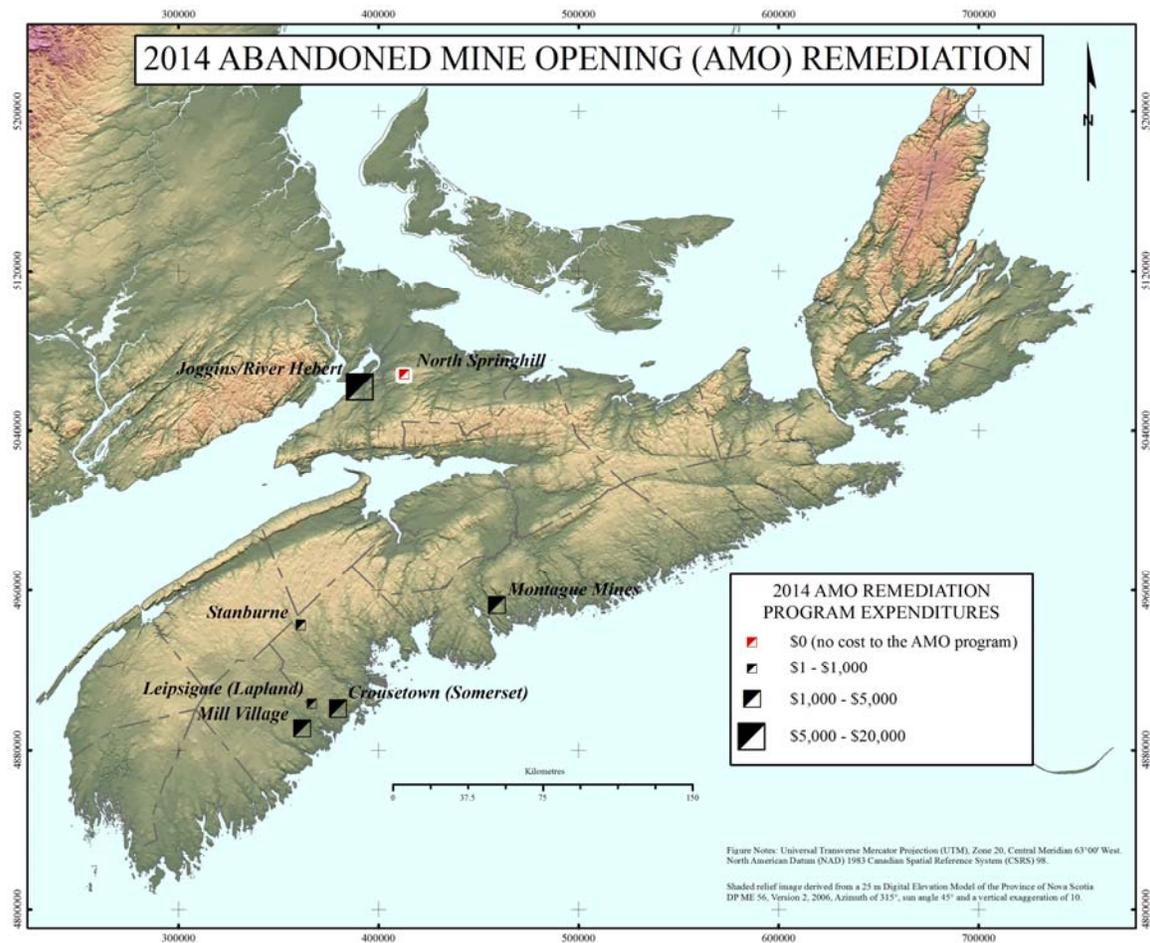


Figure 1. Locations of abandoned mine openings on Crown land that were part of the remediation program in 2014.

Safe Work Practice

The AMO Working Group has updated the Safe Work Practice for working around abandoned mine openings. Originally prepared in 1999, the update was finalized in May 2014 and posted to the DNR internal web site.

Conclusions

All of the Type I (inescapable) and some of the Type II (escapable) abandoned mine openings known to exist on Crown land in Nova Scotia have now been remediated. These are the AMOs that are believed to be the most hazardous. About 1,400 less hazardous openings on Crown land remain to be remediated. Many are either located in very remote areas of the province or are in such a state that they pose little or no risk to public safety.

Recommendations

It is recommended that the Geoscience and Mines and Regional Services branches of the Department of Natural Resources continue to remediate abandoned mine openings on Crown land in the province and monitor those that have already been remediated.

It is also recommended that private landowners be made more aware of the work that needs to be done to eliminate the hazards to public safety that are posed by the estimated 5,000 abandoned mine openings known to exist on their properties.

References

Hennick, E. W. 2013: Remediation of abandoned mine openings in 2012; *in* Mineral Resources Branch, Report of Activities 2012; Nova Scotia Department of Natural Resources, Report ME 2013-001, p. 7-8.

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