Remediation of Abandoned Mine Openings April 1, 2017, to March 31, 2018

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Introduction

There are more than 7,600 abandoned mine openings in Nova Scotia, many of which are located on Crown land. An inventory of these openings was started in 1993 and in 2001 the Abandoned Mine Opening (AMO) Remediation Program was initiated. It is managed jointly by the Geoscience and Mines and the Regional Services branches of the Department of Natural Resources (DNR). To date, the program has invested about $865,000 to remediate the most hazardous of openings on Crown land and in fiscal year 2017-18, about $26,000 was spent on five former mine sites.

Background

The AMO Remediation Program is overseen by a steering committee comprising the executive directors of the Geoscience and Mines, Regional Services and Land Services branches of DNR. Implementation of the program is managed by a working group consisting of a regional resource manager and Geoscience and Mines staff.

The Department of Transportation and Infrastructure Renewal (TIR) and the Department of Internal Services have major roles in the AMO Remediation Program, both in carrying out work with their own crews (specifically TIR) and in tendering and managing contracted work. The Geoscience and Mines Branch conducts field programs to inspect 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 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. In July 2017, version 7 of the Nova Scotia Abandoned Mine Openings Database was released. This is an update to the 2016, version 6 and contains updated information (e.g. hazard rating, coordinates) on more than 2,000 mine openings. With the utilization of GPS and GIS technology over the past number of years, revisions to the AMO database will continue.

Methods

The methods used to remediate AMOs on Crown land include excavating, backfilling, fencing, and construction of concrete caps and steel grates over mine openings. In the past 16 years the program has backfilled about 660 AMOs, fenced 50, capped 7 mine openings and installed 4 grates to protect bat habitat. In addition, about 150 AMOs on Crown land have been addressed through partnerships with private operators. Work has been carried out at 42 different sites throughout the province. Remediation work completed in 2017-2018 is provided in Table 1 and Figure 1.

Conclusions and Recommendations

All forty Type I (inescapable) AMOs and about 40% of the Type II (escapable, but very hazardous) AMOs known to exist on Crown land in Nova Scotia have now been remediated. About 700 potentially hazardous mine openings on Crown land remain to be remediated; however, 55% of

Hennick, E. W. 2018: *in* Geoscience and Mines Branch, Report of Activities 2017-2018; Nova Scotia Department of Energy and Mines, Report ME 2018-001, p. 19-21.

Table 1. Location and remediation work completed in 2017.

Central Region	**Work performed in 2017**
Six-Mile Brook	A contractor erected fencing around a formerly remote mine opening which recently became accessible when a hiking trail was upgraded and an overnight shelter (bothy) for hikers was constructed within 300 metres of the shaft.
Eastern Region	
Country Harbour Mines	A geoscience consultant was engaged to conduct and report on water sampling and water quality in advance of proposed future backfilling work in close proximity to Johnson's Brook
Little Pond	TIR backfilled a sinkhole/subsidence feature on a well-used dirt road leading to Little Pond Beach.
Point Aconi (former Prince Mine workings)	In the spring of 2017, an abandoned electrical services borehole began to emit contaminated water associated with the flooded underground Prince Mine workings. The hole was sealed by a contractor using bentonite clay to a depth of 60 metres below surface.
Western Region	
Pleasant River Barrens (Colpton)	TIR backfilled 7 AMOs

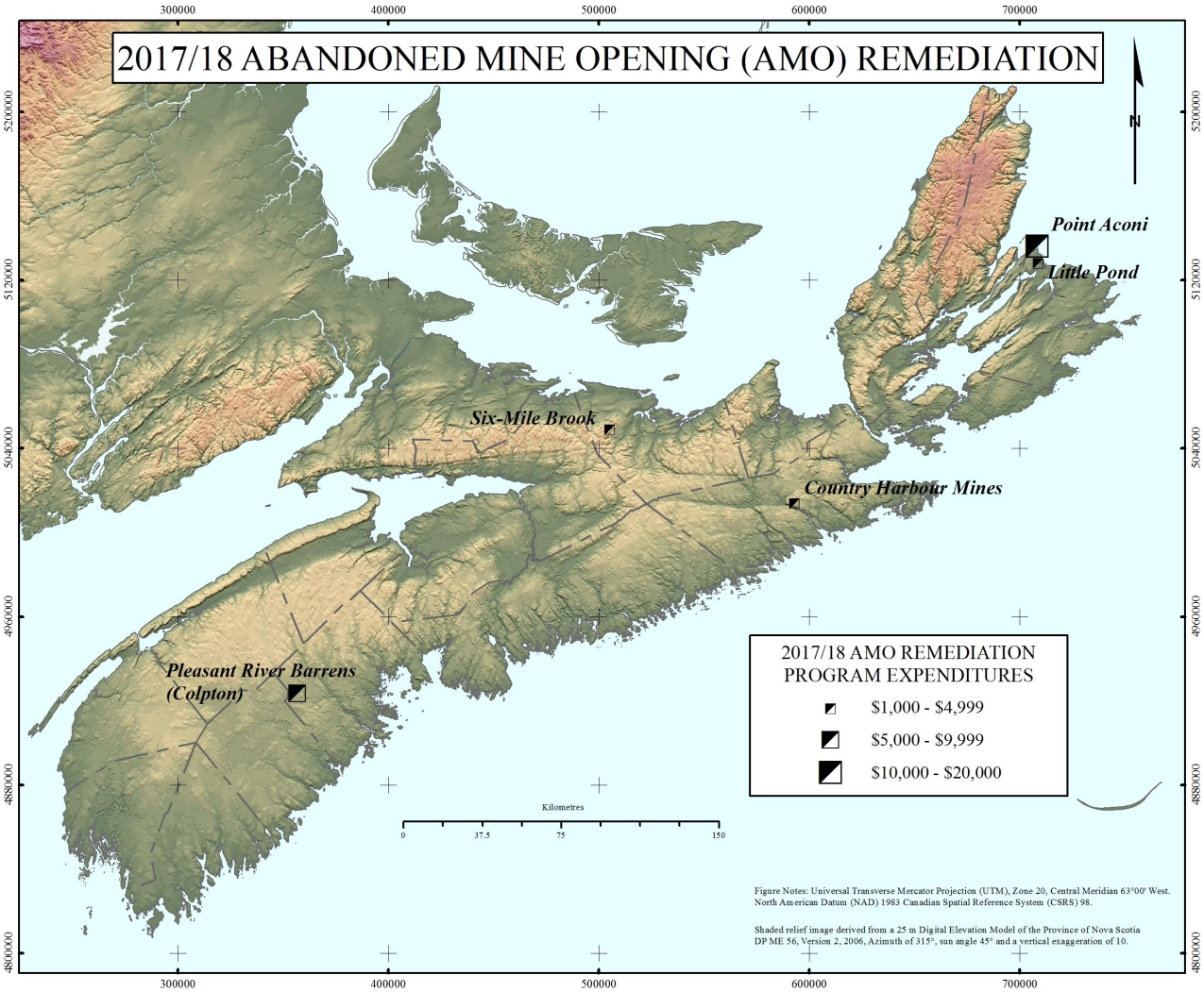

Figure 1. Locations of abandoned mine openings on Crown land that were remediated in 2017-2018.

those are either located in very remote areas or are in such a condition that they pose little or no risk to public safety at this time.

The current plan is for the Geoscience and Mines and the Regional Services branches of DNR to continue to remediate abandoned mine openings on Crown land in the province and monitor those that have already been remediated.

The public is advised to avoid areas with known AMOs, as the condition, even of those that have been safeguarded, can change over time. Under no circumstances should anyone enter an AMO due to the numerous hazards that are present.