

Avalanche hazard in mine development

D.G.E. Liverman¹, M.J. Batterson¹, D.M. Taylor¹ and J. Ryan²

¹*Geological Survey of Newfoundland and Labrador, Department of Mines and Energy,
P.O. Box 8700, St. John's, NF A1B 4J6, Canada*

²*Department of Geography, Memorial University of Newfoundland, St. John's, NF A1B 3X9, Canada*

Mine development has different constraints to other infrastructure construction, in that there is generally little choice as to siting of the major structures associated with the mine. The choice of site is governed by the position of the deposit, rather than any other considerations. Thus mines and mining communities have often been located under steep slopes, making them vulnerable to slope hazards of various sorts and, in Newfoundland, particularly avalanches. Archival research shows that there have been at least five major avalanches impacting on mining operations, with four incidents resulting in deaths. Fourteen fatalities are known in total — four occurred in the course of actual mining

operations, and the others due to avalanches striking residences. All the incidents took place prior to 1914, suggesting a change in the nature of mining operations since that time, with a transfer of exploration efforts towards the interior of Newfoundland (where slopes are generally less). Modern transportation mechanisms allow mining communities to be sited greater distances from the mine site, and in less hazardous positions. Northern Labrador has a combination of high relief, steep slopes, and high snowfall. Thus avalanche hazard must be considered in planning any mine infrastructure in this area, as well as in exploration efforts.