

Rockbursts In Ontario Mines During 1985

Seismic Hazard in Canadian Mines

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ABSTRACT

Hardrock mines in Canada are extracting orebodies at greater depths. With increased depth, come higher stresses, more difficult rock mass conditions and an increased potential for failing ground. In many deep mines, dynamic rock mass failures, also called mining-induced seismic events, have become a major operational risk.

Seismicity and rockbursting is widespread in the Canadian mining industry. In Ontario and Quebec mines, very large seismic events (Nuttli magnitude $\geq +2$) occur on approximately a weekly basis. Seventy percent of Ontario underground hardrock mines have a seismic monitoring system. There are currently twenty-five seismic monitoring systems in Ontario and Quebec mines, seven of which have been installed in the last four years.

This paper discusses seismic hazard in the context of Canadian underground hardrock mines. Some of the pertinent issues and challenges in evaluating seismic hazard in Canadian mines are discussed. Examples of current and emerging methodologies for evaluating seismic hazard are outlined.

1 INTRODUCTION

Hardrock mines in Canada are extracting orebodies at increasing depths. Advances in mining technology in areas such as mining methods, mining equipment, ventilation and ground control, are allowing companies to extract orebodies that may have been considered too deep to mine in the past. With increased depth, come higher stresses, more difficult rock mass conditions and an increased potential for failing ground. In many deep mines, dynamic rock mass failure, also

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Rockbursts in Ontario mines during Front Cover. D. G. F. Hedley, Canada Centre for Mineral and Energy Technology. Energy, Mines, and Resources. Buy Rockbursts in Ontario mines during (CANMET special publication) by D. G. F. Hedley (ISBN:) from Amazon's Book Store. Everyday. Available in the National Library of Australia collection. Author: Hedley, D. G. F.; Format: Book; v, 20 p.: ill. ; 28 cm. ROCKBURSTS IN ONTARIO MINES. DURING D.G.F. Hedley. Elliot Lake Laboratory. Mining Research Laboratories. CANMET Special Publication. SP .Rockbursts in Ontario mines during = Coups de toit dans les mines de l' Ontario en Hedley, D. G. F.. Book, vi, 36 pages: Reference only. Proceedings of the 3rd international symposium, Kingston, Ontario, Brady, B. G. H. and Brown E. T. Rockbursts in Ontario Mines during . Induced earthquakes at a potash mine near Saskatoon, Canada, Can. WETMILLER, R. J. (), Rockbursts in Ontario mines during , CANMET, Energy. This project was started in , after a particularly extensive period of rockburst At present 13 mines in Ontario operate their own microseismic systems which. In Rockbursts and Seismicity in Mines (Edited by N. C. Gay and E. H. Wainwright) , pp. 17 Abstr. 22, (). Hasegawa H. S., Wetmiller Hedley D. G. F. and Wetmiller R. J. Rockbursts in Ontario mines during CANMET. 4th international Symposium on Rockbursts and Seismicity in mines, Krakow, Poland. Link: Ground Support Observations at Some Canadian Shield Hard Rock Mines. in a Seismically Active Fault Zone: A case Study from Xstrata's Craig Mine, Sudbury, Ontario. Rockburst Case Histories , , & Microseismic systems at five mines in the Sudbury Basin provide the basic data for Falconbridge Limited's rockburst research. Daily and long-term analysis of seismic events at Quirke Mine, Elliot Lake, Ontario, has been carried out to study the rockbursts at Quirke Mine, and a geological interpretation has been made. source size remains roughly constant (e.g., Fletcher et al., ; Dysart et. Rockbursts in Ontario mines during (CANMET special publication). No Image Available. Unknown Binding. Books by D. G. F. Hedley. Mining education began in Canada at McGill University (Montreal, Quebec), in the narrow vein gold mines of Ontario were hard-hit by rockbursts and fatal By mid, the Canadian government, the Government of Ontario and its. Rockburst, Mines and seismicity, Induced seismicity, Of rockbursts recorded in Ontario mines during and , 5 percent were. In Ontario, rockburst events in mines with the largest burst magnitude of ML4. 0 were from to , leading to some mines being closed consequently. In , workers died during mining damage hazards in the gold. an interim report by March 30, , and a final report in eight months from by a rockburst shook the Falconbridge Mine near Sudbury, Ontario, causing a monitor installed at the mine recorded 10 significant events in the. Microseismic systems at five mines in the Sudbury Basin provide the basic data for Ontario, Canada and Falconbridge Limited currently operates five mines . Because of the level of activity at Strathcona Mine in , a new reporting. rockburst at Macassa Mine (Blake and Hedley,). Figure Frequency of occurrence of rockbursts in Ontario from to .. Rockburst handbook for Ontario hardrock mines by D. G. F Hedley (Book) 5 Ontario

mines during ; 5% were classified cause concern in the mining.

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