

Preventing Rock Falls and Bursts in Underground Mines

September 27, 2013

The Ministry of Labour will target hazards affecting the stability of excavations in underground mines during a blitz in October 2013.

The increased enforcement is part of the province's [Safe At Work Ontario](#) compliance initiative, launched in June 2008.

Mining inspectors and engineers will visit underground mines to check that mines have proper control measures in place to prevent the collapse of "ground" (rock) as well as to prevent "rockbursts" (bursts of rock from mine roofs and walls).

They will ensure employers are complying with Ontario's [Occupational Health and Safety Act](#) (OHS) and its [Regulations for Mines and Mining Plants](#).

Falls of ground or rockbursts occur when rocks become dislodged from the roof or walls of an underground excavated site. Measures known as "ground control" must be taken to stabilize the structure of new excavations in underground mines and prevent falls of ground. There are two types of measures:

- Design measures that evaluate and adjust how new excavations in a mine will be dug out and supported
- Operational measures that ensure new excavations are carried out according to the requirements of the mine design

Falls of ground and rockbursts are among the biggest causes of serious injuries and deaths in underground mines in Ontario.

Since 2000, five workers have died and about 25 workers have been critically injured in underground mines in Ontario as a result of falls of ground or rockbursts.

Hazards involving ground control mainly involve workers being struck by falling or toppling rock or by rock that is violently ejected from an excavation's roofs or walls.

Ontario has about 40 underground mines, with about 25,000 workers. Most of these mines are located in Northern Ontario. Several of these underground mines operate at depths approaching 10,000 feet. A wide variety of minerals are extracted from Ontario's underground mines, including copper, nickel, gold and other precious metals, diamonds, salt and gypsum.

Blitz Focus

During the blitz, inspectors and engineers will visit underground mines across Ontario, including mines:

- That have been recently reopened or are new

- Where previous ground control hazards were observed
- That have a poor compliance history

Inspectors will take enforcement action, as appropriate, in response to any violations of the OHS Act and its regulations.

Priorities

Inspectors and engineers will focus on:

Design: Inspectors and engineers will check that a proper engineering analysis has been conducted to predict the types of issues that could arise and lead to falls of ground and rockbursts in new or existing excavations in underground mines. This includes how excavations will be dug out and supported. The analysis must be conducted prior to the start of the excavation. Inspectors and engineers will check that adjustments have been made to the excavation design if the analysis identifies any potential problems. They will also check that boundary pillars (structures that separate nearby underground mines), if any, have been designed, as required.

Reporting: Inspectors and engineers will check that any incidents involving uncontrolled falls of ground or rockbursts are reported to the Ministry of Labour, as required. They will also check that records are kept of these incidents.

Communication: Inspectors and engineers will check that a formal program exists for supervisors and workers to communicate and exchange information on ground control in underground mines.

Ground support systems: Inspectors and engineers will check that a formal program exists for mines to verify that any active systems used for ground support are properly installed and provide effective protection against ground instability.

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