

Number 15

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## DRILL FALL TO QUARRY FLOOR

In October 2019, at a quarry in British Columbia, a contract driller was drilling vertical holes on a steep undisturbed slope with a layer of overburden covering the rock, commonly referred to as a "pioneering blast pattern." While moving the drill, the driller attempted to reverse uphill but lost traction on uneven ground, causing the drill to leave the ledge, roll forward and fall approximately 15m to the quarry floor. After the drill came to rest on the quarry floor, the driller climbed out of the drill and received medical attention sustaining only minor injuries.



An investigation concluded that the drill should not have been drilling in this location. Investigators determined that a written, designed blast-hole layout was not available, and there was little instruction about where and what types of holes needed to be drilled. The lack of direction resulted in the driller having a significant amount of freedom in choosing drilling locations. Furthermore, the area where this incident took place was previously designated as unsafe, and it is believed that this information was not clearly communicated to the contract driller.

Ultimately, the drill fell because it lost traction on the steep, slippery slope when the operational demands exceeded the drill's manufactured capacity. Although the driller was experienced and deemed qualified by their employer, the driller did not recognize the hazard of drilling vertical holes versus angular holes on the steep slope.

### Preventative Control Measures

Several control measures could have prevented the driller from operating in an unsafe area, such as:

- i) Physical barriers to prevent access to dangerous areas
- ii) Using the appropriate type of drill for the task, in this circumstance, a hoe drill, which provides greater reach into steep terrain
- iii) The use of radios for effective communications
- iv) A written blast-hole layout
- v) A safety culture that empowers staff to identify hazards to supervisors

## General Recommendations

- 1. Field Level Hazard Assessments ("FLHA")** – Mines are encouraged to utilize FLHA's at their mine sites to motivate workers and supervisors to assess job-related conditions and hazards and generate a plan.
- 2. Designed Blast-Hole Layout** – Written, clear instructions should be prepared in advance to ensure everyone working on the blast pattern understands the task, the drill pattern layout, associated hazards, and appropriate controls.
- 3. Physical Barriers** – Physical barriers are more effective than flagging or signage in deterring access to an unsafe area.
- 4. Communication Protocol** – There should be a communication protocol in the pit or production environment to ensure workers can communicate effectively and call for help in an emergency.
- 5. Supervision** - Supervisors should be circulating throughout the mine frequently to identify tasks with hazardous conditions and provide explicit instruction and adequate oversight. On behalf of the mine manager, the supervisor is responsible for the safety of all workers on site.
- 6. The Daily Examination & Report Book** – Managers should implement a Daily Examination & Report Book that is designed to keep track of all activities that take place on-site.

## Health, Safety and Reclamation Code for Mines in BC (Code)

Mine managers and supervisors are reminded of their responsibility for the well-being of their workers. Implementing health and safety systems and controls, such as the recommendations mentioned above, assists mine managers and supervisors in keeping workers safe. The following Code requirement highlights a mine manager's responsibility for ensuring mine sites are safe for workers:

**Section 1.9.1– Workplace Conditions:** The manager shall take all reasonable and practicable measures to ensure that the workplace is free of potentially hazardous agents and conditions which could adversely affect the health, safety or well-being of the workers.