Ministry of Energy, Mines and Low Carbon Innovation

HEALTH & SAFETY NOTICE

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A rise in Blast-Related Incidents

Over the past six months, mines in British Columbia have experienced a higher number of blast-related Dangerous Occurrences, including misfired explosives and over pressurized blasts. Several incidents involve cut-offs and misfires in surface blasting operations. These incidents have ranged from one hole to entire rows of holes being cut off from a blast, sometimes going undetected until they are excavated. This has resulted in undetonated explosives being found on haulage roads, broken muck piles and stockpiles, and in some cases, inadvertently exploding while being dug up by mobile equipment.

This is a file picture of "fly rock" damage; however, unrelated to the recent "fly rock" Incidents.

Blasting is one of the most hazardous activities taking place on a mine site. The following four recent events highlight the dangers of undetected misfired explosives and over pressurized blasts:

- At a surface mine, a shovel's bucket detonated an undetected explosive
- While working underground, a scoop's bucket detonated an undetected explosive on a haulage road
- A surface blast resulted in "fly rock" striking and damaging a vehicle
- A surface blast resulted in "fly rock" damaging several pieces of equipment and injuring two workers

General Considerations for Blasting

1. **Risk Assessment & Planning –** A risk assessment must be done before preparing a blast. Planning identifies the size of the blast, type of product to be used, burden, spacing, powder factors and blast danger zone radius. Other considerations are ground conditions, proximity to buildings, and the public, including infrastructure.
2. **Competency:** Blast planning requires trained and experienced people. The Blaster in charge must be certified by the Ministry and possess adequate knowledge and experience relative to the type of blast being conducted. The Blaster in charge is responsible for everybody else on the pattern or at the face if underground.
3. **Training –** Mine Managers must ensure workers assisting with or preparing a blast have the appropriate training to complete their tasks safely; this includes how to handle, transport, and use explosives.
4. **Blasting Procedures** – Blasting Procedures must be developed and reviewed with all employees involved.
5. **Explosives –** Only explosives licenced under the *Explosives Act* (Canada) can be used and they must be used following the manufactures recommendations.
6. **Misfires –** Misfires must be reported as a Dangerous Occurrence because they are unusual incidents or unexpected events, which have the potential to result in serious injury. Procedures must be in place for dealing with misfires.

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

Mine Managers, Supervisors, Blasters, and Workers assisting with a blasting operation must be familiar with Part 8 of the Code, including any applicable Ministry-issued Storage and Use Permits for onsite magazines. Additionally, Natural Resources Canada (NRCan) is the federal regulator responsible for the manufacture, distribution, transportation, and storage of explosives in Canada and is governed by the *Explosives Act* (Canada).