

Worker Fatality due to Ejected Rock from Rock Crusher

Synopsis

On June 12, 2018, a worker was fatally injured when struck by a rock that was ejected from the hopper of a rock crusher¹ at a quarry in British Columbia. The worker was refueling the rock crusher while the plant was still operating. A 72 cm rock was ejected from the hopper of the rock crusher striking the worker in the back of the head and neck resulting in fatal injuries.

Findings

The Chief Inspector of Mines directed the Mines Investigation Unit to investigate the fatality pursuant to [Section 7](#) of the *Mines Act*. The investigation determined the cause of the incident was a rock being ejected out of the hopper by the crushing plates inside. The contributing factors as determined by the investigation are as follows:

- There is a hazardous area around the rock crusher which workers should not enter while the crusher is operating. There were no barricades or signage preventing workers from entering the hazardous area around the crusher. The worker entered the hazardous area to refuel the crusher while the crusher was operational contrary to manufacture's recommendations of shutting down the machine before refueling.



FIGURE 1. Rock Crusher with Feeder Conveyor



FIGURE 2. Rock which struck worker

¹ A rock crusher takes various sizes of stock rock material and crushes it into a uniform size for specific applications.

- There were no written safe work procedures for refueling the crusher or working in the hazardous area around the crusher. A change in the normal operating practice did not alert the excavator operator to stop feeding the crusher before refueling. Normally the excavator operator stopped feeding the crusher to allow the hopper to empty to prevent ejected or falling rocks.
- It was common knowledge that the crusher sporadically ejected rock out of the hopper. The crusher guard² was not in place on the top of the hopper to prevent ejected rocks from exiting the hopper.
- The excavator operator could not see the opposite side of the crusher preventing them from seeing a person entering the hazardous area and prompting the operator to stop feeding the crusher. There was limited access to radio communication or a communication plan to ensure the crusher was shut down prior to any worker entering the hazardous area.

Outcome

The mine manager was ordered to provide training and develop safe work procedures while working in and around the rock crusher. The mine manager complied with these orders. A hazard alert was issued recommending the rock crusher's engineered safety mechanisms are in place before operating the crusher, to identify and guard areas where workers may be exposed to flying rocks, to provide safe working procedures, and to provide training to workers.

A recommendation for an Administrative Penalty was submitted to a Statutory Decision Maker (SDM) and a determination was made.

² Crusher Guard. A metal grate above the crusher hopper to prevent rocks from being ejected out of the hopper by the grinding action of the crushing plates. The grinding plates are located inside the hopper.