

Workplace Fatality Summary Report:

Worker Fatally Injured while Clearing Rock Crushing System's Chute

The Contents of this Report

This report summarizes the Ministry of Labour Relations and Workplace Safety's Occupational Health and Safety Division investigation of a fatal incident. The information contained is intended for educational purposes only.

Incident Summary

The incident occurred as a worker attempted to unclog part of a rock crushing system. When the worker stepped onto a conveyor belt's metal frame to shovel out material blocking a discharge chute, the worker slipped, landed on the belt's unguarded moving tail pulley and was fatally injured.

Background Information

The fatally injured worker (worker 2) had completed the required worksite orientation, but was unfamiliar with the procedures for cleaning the discharge chute.

Equipment and Materials

Crusher Spread System:

This collection of equipment has several components and is used in gravel pits to create crusher dust, an aggregate product which is 5/8th sand and dust. Workers use loaders to feed material into the system. A shaker (or, vibratory screen) separates the rocks and sand. Then the material slides through the discharge chute and onto the conveyor belts. The rocks travel down one belt and the sand travels down another (Figures 1 and 2).



Figure 1



Figure 2

Tail Pulley:

The tail pulley is the mechanism that turns the conveyor belt and keeps it in motion. At the time of the incident the part was unguarded (Figure 3).



Figure 3

Control Tower and Emergency Stop Switch:

The computer in the control tower monitors the entire crusher spread. When equipment is blocked or parts are malfunctioning, the operator radios workers on the ground for assistance and shuts down the affected locations, or presses the emergency stop switch to shut down the entire crusher spread (Figure 4).



Figure 4

Sequence of Events

The day crew arrived at the gravel pit at 7:00 a.m., completed the shift-crossover activities with the night crew and resumed crushing.

The material being fed into the crusher spread was hard, damp and muddy from light freezing rain that morning.

Near 9:00 a.m. worker 1, who was monitoring the equipment from the control tower, identified a build-up of clay and rock in the discharge chute. The material needed to be cleared because it was clogging up the spreader. Worker 1 directed the loader to stop feeding the system. No one was on the ground to remove the material so worker 1 de-energized the shaker and left the tower to perform the task. The conveyor belts were left running.

Once on the ground, worker 1 used the ladder attached to the north side of the equipment to access the chute above the conveyor belt. As worker 1 cleaned, worker 2 stepped onto the belt's metal frame to help shovel out the material.

At that moment worker 2 slipped, landed on the conveyor belt's unguarded moving tail pulley and became entangled in the machinery.

Another worker who was operating a front end loader close-by, parked the equipment and, hit the emergency stop switch in the control tower shutting down the entire crusher spread.

Worker 2 succumbed to the injuries sustained in the incident.

Completion

The employer pleaded guilty to clause 2(c) of *The Occupational Health and Safety Regulations, 1995* (being an employer, failed to provide any information, instruction, training and supervision that is necessary to protect the health and safety of workers at work, resulting in the death of a worker); and clause 137(1)(a) of *The Occupational Health and Safety Regulations, 1995* (being an employer failed to provide an effective safeguard where a worker may contact a dangerous moving part of a machine, resulting in the death of a worker). The employer was fined \$125,000 on each count plus a victim surcharge of \$50,000 on each count.