

# South African copper mine conveyor fire

## Mines safety alert no. 357

### What happened?

On Sunday 15 July 2018, six mine workers in a South African underground copper mine died in a refuge chamber as a result of a fire on a conveyor.

### How did it happen?

While the incident is still under investigation, there are a number of matters relevant to all underground operations that have so far been identified, including:

- A refuge bay/chamber located near the conveyor was unable to supply or maintain a life sustaining atmosphere.
- Some of the services installed in the refuge bay were not fire resistant or fire protected.
- The refuge bay/chamber was the only one in the area for a distance of 1400m.
- The fire suppression system installed on the conveyor was not interlinked with the operation of the conveyor.
- The conveyor could operate even if the fire suppression was faulty or lost water charge.
- The available water pressure/flow to the conveyor fire suppression system was inadequate.
- Routine inspections of the refuge chamber and fire suppression system prior to the fire failed to identify or address these issues.

### Recommendations:

Site senior executives and underground mine managers should ensure that:

- refuge bays/chambers and fresh air bases in their operations are able to supply and maintain a life sustaining atmosphere in the event of an underground fire
- services which supply these are fire resistant and/or protected from a likely fire source
- any refuge bays/chambers used are located so that personnel can access them or make their way to them in the event of an underground fire
- there is a rigorous system of inspection and testing in place for refuge bays/chambers and fresh air bases that ensures in the event of an underground mine fire they are capable of maintaining a life sustaining atmosphere until the mine atmosphere is safe or personnel can be rescued
- installation, maintenance and inspection of fire suppression systems on plant and equipment for use underground is undertaken by trained and competent persons
- fire suppression systems on plant and equipment for use underground are installed, inspected and maintained so that:
  - Persons are warned if the system is faulty or has lost charge
  - Where practicable, they are interlocked so that the plant and equipment cannot operate without adequate fire protection.

