

# SAFETY ALERT

## Sudden failure of feed hopper

### INCIDENT

A plant operator heard an unusual noise coming from the run of mine (ROM) feed hopper. On inspection, the plant operator found the feed hopper had collapsed onto the plant feed conveyor.

Figures 1 and 2: The ROM feed hopper collapsed onto plant feed conveyor



### CIRCUMSTANCES

The feed hopper was filled with blended material that was being fed onto the mine processing plant at the time of the failure.

A change in the process of loading material into the hopper from a dump truck to a frontend loader tipping had recently occurred.

The feed hopper collapsed unexpectedly onto the feed conveyor, causing substantial damage to plant and structures.

No workers were in the immediate vicinity at the time of the collapse.

## INVESTIGATION

An investigation found:

- a) some bolts had pulled through the hopper flange
- b) structural bolt holes that were elongated by a hot torch
- c) missing structural washers on bolts
- d) broken bolts
- e) stripped threads on bolts.

A check of the mine's structural inspection program identified fixed structures at the mine were not being periodically inspected by a suitable competent person.

## RECOMMENDATIONS

- a) Mines should have periodic inspections by a competent structural engineer of any structure that may affect the health and safety of people at intervals recommended by the structural engineer. (Refer *Code of practice: Mechanical engineering control plan* clause 4.5.5 '*Inspection and testing of plant*').

If there is no period specified by a structural engineer, inspections should be carried out at two-year intervals.

- b) Steel structures should be designed, fabricated and erected in accordance with *AS 4100 - Steel structures* or *AS 3990 - Mechanical equipment – Steelwork* and other relevant Australian Standards where applicable.
- c) Fixed bulk material belt conveyors (including their structures) should be designed, installed and maintained in accordance with –
  - *AS/NZS 4024.3610 Safety of machinery - Conveyors - General requirements*
  - *AS/NZS 4024.3611 Safety of machinery - Conveyors - Belt conveyors for bulk materials handling*
- d) Holes in fabrications for structural connections should not be elongated with a hot torch. Structural washers should always be used along with correct pre-tensioning.

**NOTE:** Please ensure all relevant people in your organisation receive a copy of this Safety Alert, and are informed of its content and recommendations. This Safety Alert should be processed in a systematic manner through the mine's information and communication process. It should also be placed on the mine's notice board.

Issued by

**Dave McLean**

**Chief Inspector of Mines**

**Appointed pursuant to *Work Health & Safety (Mines and Petroleum Sites) Act 2013***

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