UNDERGROUND FIRES

INCIDENT

In the space of two weeks underground fires occurred at two separate mines.

In incident number 1, a 1.5m^3 load haul dump (LHD) unit rolled onto its side while dumping heavy ore into a stockpile from a one in nine gradient. The stockpile was near full and the unit was partially articulated across the grade of the decline. Two miners were trapped by the fire and were rescued by a Mine Rescue Team.

In incident number 2, an LHD unit (of the same type) rolled onto its side whilst attempting to dislodge oxidised ore in a stope.

The two fires had the following points in common:-

- LHD unit rolled over onto the driver's cab side whilst partially articulated.
- Fuel from the tank leaked onto hot engine and hot exhaust parts and ignited.
- The limited duration of extinguishant from portable fire extinguishers could not contain the fire whilst fuel was still leaking.
- A tyre caught fire and ruptured.
- Management planning and action for such an emergency was inadequate.
- There were no injuries but the potential for disastrous consequences was evident.
- The LHD had a fuel cap approved for use in underground mines in America (ie. MSHA approval).

CAUSES

Both incidents happened during elevation of the bucket of narrow wheel base LHD units on unlevel ground in a partially articulated mode. On each occasion the resultant fire was caused by the partially inverted fuel tank emptying through the cap area onto hot engine and exhaust parts.

COMMENTS AND PREVENTATIVE ACTION

Investigation into both of these fires revealed similar findings. It is considered fortunate that no serious injuries were sustained.

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Awareness of the potential for rollover of high centre of gravity equipment on declines or uneven ground should be included in the training of operators. In addition the need for fuel caps to be fitted and properly secured after refuelling is an important item for both operators and supervisors to enforce. In some cases, consideration should be given to design improvement of the cap, eg. a screw fitting or a cam lock.

These two fires also highlighted the need for:-

1. Management and supervisors to have clear cut action procedures for key personnel.

2. Emergency response exercises, including fire drill practices, for all underground employees on a regular basis to reinforce, in practice, the theoretical knowledge gained at induction.

3. The importance of refuge bays within the mine, together with clearly promulgated procedures to be followed in the event of fire emergency.

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SAFETY AWARENESS SAVES LIVES