

SAFETY ALERT



UPDATE ON FIRE SUPPRESSION SYSTEMS

INCIDENT

Safety Alert SA 00-21, issued in September 2000, referred to a major fire on an excavator at an open cut coal mine, and in particular the failure of the on-board fire suppression system, as well as the escape procedures for operators.

Since that event major fires have occurred on other large earthmoving mobile machines at open cut mines.

CIRCUMSTANCES

On-board fire suppression systems did not operate and/or contain large fires. This has resulted in machine operators being placed at considerable risk, and major damage to the equipment.

ISSUES ARISING

In the particular cases above:

- Fire suppression systems were not able to deal with the fires in question,
- Location of system components did not address all potential sources of fire,
- Some system component parts did not withstand the fire conditions,
- Maintenance procedures did not ensure fire suppression systems were in operating condition,
- Escape routes and procedures required rigorous assessment.

RECOMMENDATIONS

1. Operators of large earthmoving equipment should carry out a full risk review of their operations, with particular emphasis on potential sources of fires, alternative escape mechanisms/routes and emergency training drills.
2. Operators of equipment fitted with on-board fire suppression systems should carry out a risk assessment review as a matter of priority, taking into account, but not being limited to, the following:
 - System design issues including:
 - a) The adequacy of the system to deal with all fire hazards,
 - b) The standards used in developing the system,
 - c) Assessment of the fire load with reference to International Standards for hydraulic systems.
 - Location of system hardware in relation to potential sources of fires.
 - Materials used in component parts of the system, with particular reference to their fire resistance, that is, fire rating, etc.
 - Installation standards with emphasis on detection, suppression and shutdown in the event of fire.
 - Maintenance of the system in accordance with the manufacturer's specifications and to the appropriate Australian standards, including regular testing of the system.
 - Activation time, that is, the time taken from when the fire is detected by the automatic fire detection system to the activation of the suppression system.

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Reference should be made to **MDG 13 – “Guidelines for fire-fighting systems for the surface mobile and transportable equipment”**, when conducting the risk assessment review:

The following standards could also be useful as reference documents:

AS 1603.4	Automatic fire detection and alarm systems -Control and indicating equipment.
AS 1670	Automatic fire detection and alarm systems -System design, installation and commissioning.
AS 2220	Emergency warning and intercommunication systems.
AS 3000	SAA Wiring Rules.
NFPA 121	Standard on Fire Protection for Self-Propelled and Mobile Surface Mining Equipment.
NFPA 11	Low Expansion Foam Systems.
FMI LPD 7-98	Hydraulic Fluids.

NOTE:

Operators are reminded that **prevention of fires** on mobile equipment must be the main priority – fire suppression systems are not a substitute for clean, well maintained and suitably designed plant combined with an effective defect management system.

Approved

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