



Diesel engine - turbocharger fires

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Mine Type

All Mines

Incident

Fires with the engine turbocharger as the source of ignition.

Equipment

Any turbocharged diesel engine.

Hazard

Potential personal injury, fire.

Cause

Diesel engine turbochargers are increasingly acting as ignition sources for fires at surface coal mines.

The Mines Inspectorate has noticed an increase in the occurrence of these fires and has analysed the last 18 months' incident data supplied by the coal industry. The analysis shows excavators recorded 30% of all turbocharger fires, followed by track dozers (15%) and rear dump trucks (12.5%).

60% of the fires resulted from hydraulic or engine oil spraying on the turbocharger. 11% of the fires were caused by engine fuel contacting the turbocharger and 13% from turbocharger failure.

Comments

The surface temperature of turbochargers can exceed 500°C during the normal operating cycle, and this temperature can rise to beyond 600-700°C following engine shutdown. Irrespective of whether the turbochargers are heat shielded, the turbocharger's surface temperature is hot enough to ignite fuel or oil when it comes into contact with it.

When did your operation last conduct a mock emergency with an engine bay fire as the scenario?

Recommendations



All mines are advised to review the occurrence of this type of incident at their mine site. Review your prevention, monitoring and contingency controls to ensure the risk from turbocharger fires is adequately controlled.

Consider:

- Heat shielding turbochargers
- Deflection barriers separating the oil hoses and fuel lines from an engine's turbocharger
- Contain fuel lines and hydraulic hoses to prevent spray onto hot surfaces.

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Issued by the Queensland Department of Mines and Energy

Placement: Place this announcement on noticeboards and ensure all relevant people in your organisation receive a copy.