



NSW DEPARTMENT OF
PRIMARY INDUSTRIES

Electrical Engineering Safety

Decision Sheet 4.3

Electrical Safeguards for Electrical and Non-electrical Hazards

Dust Suppression on Coal Production Machines

A basis for consistent application of Electrical Engineering Safety issues across NSW

Decision Sheets are developed by the Inspectors of Electrical Engineering in response to issues raised or questions asked by others in the DPI, in particular Mine Safety Operations and from our external clients. They are for use by any staff in Mine Safety Operations, but primarily by Electrical Engineering staff. They can be distributed externally to the DPI.

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Preamble

Electrical safeguards are often termed interlocks or trip systems. They are used as a risk control to protect workers when other risk controls have failed. It is important that these safeguards have a high degree of reliability. The higher the risk, the higher the reliability needs to be. This reliability is known in contemporary terminology as Safety Integrity and the higher the Safety Integrity Level, the more reliable the safeguard.

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**NO LIVE LINE WORK
TEST BEFORE YOU TOUCH**



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Electrical Safeguards for Electrical and Non-electrical Hazards - Dust Suppression on Coal Production Machines

Issue

Water is reticulated to coal mining production machines such as shearers, continuous miners and road headers. Spray systems are used primarily for suppressing dust so that respirable dust is kept as low as possible and that explosives levels of dust are not created. A secondary benefit of the water spray system is to assist in prevention of frictional ignition of methane gas which can be caused when cutter picks strike minerals or metals that create incendive sparks.

Position

Where water is reticulated through spray systems on coal production machines for dust suppression or frictional ignition suppression, the power to the machine or part of a machine should be automatically removed where the water for dust suppression is not available, and the associated circuitry for monitoring water flow and disconnection of power shall be automatic and have an appropriate safety integrity level.

Note: It may be appropriate only to remove power from the cutting and loading elements of the machine and not the traction, as it may be necessary to move the machine to another location to affect repairs.

