



Electrical Engineering Safety

Decision Sheet 9.3

Electrical Ex Equipment - Certification & Fit for Purpose Issues

A basis for consistent application of Electrical Engineering Safety issues at NSW mines

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

New electrical explosion protected plant has to be certified within the IEC Ex or ANZ Ex schemes. Basically these certification schemes establishes whether plant complies with an explosion protected standard.

Certification does not necessarily attest fitness for purpose as environment and operating conditions vary between sites. For certification purposes there are a number of tests that must be carried out. Sometimes the tests are carried out in the most onerous (worst case) situation, in others tests are applied within more controlled operating situations. Where the testing has not addressed the worst case environment or operating situations then special conditions of use are identified. This is marked with an “X” on the certificate of conformity identifying number. The testing of plant in less than the most onerous situations may reduce testing time and expense, however this may also transfer more responsibility to the end-users to maintain such an operating environment. The manufacturers and end-users responsibility is to establish how the plant can be used

A typical example would be minimum requirements for enclosure degree of protection for intrinsically safe apparatus is IP20; however the operating environment may demand a higher IP rating.

Another typical example is thermal testing of a flameproof headlight, the tests may only be conducted at a specified angle of inclination of the headlight, the certificate of conformity will be marked with an “x” and information should be provided that specifies that the headlight can not be used at an angle of inclination greater than that tested.

Issue

Should the DPI insist on additional tests where worst case conditions are not tested?
If the DPI does not specify additional tests what approach should the DPI take?



Position

Should the DPI insist on additional tests where worst case conditions are not tested:

NO, the DPI should not require additional testing. To insist on additional testing would require the DPI to gazette additional tests, reports and information provision requirements – this is analogous to “approving” or registration – effectively a reversing of the DPI strategic direction for Electrical Engineering Safety.

What should the DPI approach be:

- Accept Ex certification against published standards, using a credible scheme (ANZ Ex and IEC Ex) as a minimum requirement.
- Where the DPI believes published standards are deficient, initiate and participate in the review and modification of the standard. It is acceptable to be plant and Group I specific in any proposed amendment.
- It is the end users responsibility to determine if plant, or particular components are fit for purpose for use at their coal operation. The coal operation EEMP and OHS Management System must have processes that deliver fit for purpose electrical explosion protected plant and apply the hierarchy of risk controls.
- It is the end users responsibility to understand what an Ex certificate of conformity means for fit for purpose application and application of the hierarchy of risk controls.
- If the condition of use limitations from certification documentation cannot be controlled by the end-user the plant is unsuitable for installation and use.
- It is the end users responsibility to understand the purpose and limitations of explosion protected standards and the impact on fit for purpose application and application of the hierarchy of risk controls.
- It is the manufacturers / suppliers responsibility to apply the hierarchy of risk controls.



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- It is the manufacturers / suppliers responsibility to supply information so that plant can be used, maintained and repaired safely. This information must include the Certificate of Conformity, any special conditions of use determined in the test report associated with the Certificate of Conformity. This information must comply with Chapter 5 OHS Reg 2001.
- DPI will assess these matters when assessing how mines manage Ex equipment.

