



SAFETY ALERT

Failure of explosion-protected characteristics of a diesel engine system

INCIDENT

During a mechanical inspection the intake manifold gasket of an explosion-protected diesel engine system was found to be damaged to such an extent that the diesel engine system would not have been in an explosion-protected condition. It appears the diesel engine system may have been operating in this non-explosion-protected condition for about 2000 hours before the inspection.

CIRCUMSTANCES

The failure was detected at the scheduled code 'D' inspection. The intake manifold gasket had been incorrectly installed at the previous code 'D' inspection.

INVESTIGATION

The investigation found:

1. Between the mechanical code 'D' inspections (2000 hours) the intake manifold or gasket had not been replaced by the mine.
2. The intake gasket appears to have been dropped while the intake manifold was being installed at the previous code 'D' inspection.
3. The gasket was not broken, however, it was not lined up with the bolt holes.
4. There were some witness marks on the manifold and gasket showing this explosion-protected joint was most likely compromised.
5. The mine carries out visual and soapy water tests every 250 hours engine operating. No defects were identified during these inspections and tests.



The intake gasket of the diesel engine system.

RECOMMENDATIONS

All persons (mines, original equipment manufacturers and repairers) undertaking work on explosion-protected diesel engine systems should:

1. Review the installation procedures in relation to explosion-protected joints.
2. Consider support and location of gaskets with studs when assembling components.
3. Verify the integrity of fixed connections following installation of components, particularly joints where negative pressures are found, as soapy water testing may be ineffective.
4. Undertake all activities in accordance with the information and procedures provided by the designer, original equipment manufacturer, or otherwise by a competent person (refer to Clause 137 of the *NSW Occupational Health and Safety Regulation 2001*).
5. Refer to the original equipment manufacturer for guidance regarding the above.
6. Be competent for the task being undertaken with an understanding of the hazards and risk controls.

NOTE: Please ensure all relevant people in your organisation receive a copy of this Safety Alert, and are informed of its content and recommendations. This Safety Alert should be processed in a systematic manner through the mine's information and communication process. It should also be placed on the mine's notice board.

Signed



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MINE SAFETY OPERATIONS BRANCH
NSW DEPARTMENT OF PRIMARY INDUSTRIES

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