

Electrical equipment suitable for use in hazardous areas



What happened?

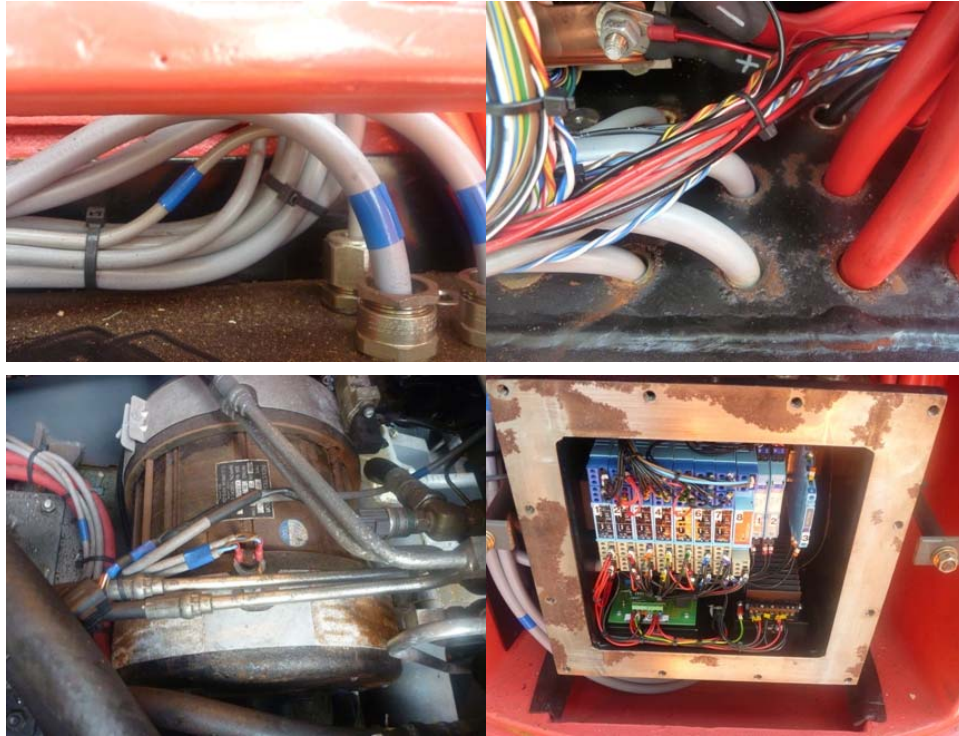
An operator recently purchased a forklift truck supplied to the facility operator as being suitable for use in Class1 Zone1 hazardous areas. During a recent planned regulatory inspection, however, NOPSA queried the validity of the “Certificate of Conformity”, which was a self-certification by the manufacturer.

On further investigation the forklift was found to be non-compliant with the relevant Australian Standards for use of electrical equipment in hazardous areas.

What was the result?

The following were found to be factors in the selection of equipment which was not fit for its function and use:

- A replacement forklift for use in Zone 1 hazardous areas was ordered without proper consideration of the manufacturer’s claim that the “Explosion-proof forklift trucks are fully certified to Australian Standards Class 1, Zone 1”;
- The operator’s management of change process did not require an in-depth Quality Assurance (QA) review for like-for-like replacement;
- QA was only undertaken for lifting and handling of the forklift. There were no QA checks undertaken by the operator for the design and manufacture to appropriate standards, nor was independent certification requested;
- The forklift was delivered with a manufacturer’s “Certificate of Compliance” indicating compliance with Australian Standards for Class 1, Zone 1 hazardous areas;
- The forklift was marked in bold letters indicating its suitability for “Zone 1”;
- The forklift did not comply with relevant Australian Standards certification requirements for electrical equipment operating in explosive gas atmospheres; and
- After investigation, the operator found that the forklift was not constructed to the requirements of an appropriate protection concept. Deficiencies included:
 - Cable entries did not use flame-proof seals
 - Corrosion was found on the flame path and cable entries to the junction box
 - A non-explosion protected motor was used
 - Other electrical parts used were not suitable for use in a hazardous area.



Key Lessons:

- When purchasing safety-critical equipment operators should not rely on suppliers' claims of compliance and should seek suitable independent verification where appropriate. Verification of design (type approval certificate) and manufacture (Certificates for Conformity) by a suitably qualified independent body is considered good industry practice;
- An operator's management of change process should include appropriate QA requirements for like-for-like replacement items;
- Operators should ensure adequate QA is applied during the procurement process to guarantee equipment meets its required performance standards and has the appropriate certification; and
- The certification of safety-critical equipment should follow good industry practice. For example, certification of electrical equipment for use in hazardous areas may be conducted as described in a Type 5 Scheme complying with ISO/IEC Guide 67 by a body operating within the International Electrotechnical Commission for Certification to Standards Relating to Equipment for use in Explosive Atmospheres (IECEX) Scheme, or by a certification body with accreditation from the Joint Accreditation System of Australia and New Zealand (JAS-ANZ) or other suitable equivalent.

The Law:

- Operators have a duty of care to take all reasonably practicable steps to ensure equipment at the facility is safe and without risk to health (Clause 9, Schedule 3 to the *Offshore Petroleum Greenhouse Gas Storage Act 2006*).
- Suppliers have a duty of care to ensure plant or substance at the time of supply, when properly used, is safe and without risk to health (Clause 13, Schedule 3 to the *Offshore Petroleum Greenhouse Gas Storage Act 2006*).

Contact:

For further information email communications@nopsa.gov.au and quote Alert 49.