



Risks associated with 240V Electric Hand Tools / Equipment

What Happened?

Recent NOPSEMA inspections have highlighted an increase in the use of 240V portable electric tools and temporary lighting on facilities.

The use of such equipment increases the exposure of the equipment operator and other facility personnel to a potential electric shock incident through contact with trailing damaged power cables, exposed connections and ineffective or incorrect earths.

What could go wrong?

In the three years from 2006 to April 2009, NOPSA received 29 notifications of electric shock incidents. Over the past three years (April 2009 – April 2012), NOPSEMA has received 39 notifications of electric shock incidents, a **34% increase** over a comparable time period.

Fortunately, there have been no fatalities associated with electric shock incidents and all have resulted in only mild shock events.

Unfortunately, the industry does not appear to be acknowledging the “lessons learnt” from these incidents and the figures indicate that more personnel are being exposed to the potential for serious injury or death due to electric shock.

Of the 39 notifications:

- 19 involved the use of temporary / portable equipment (Hand Tools, Temporary Lighting, Extension Cables etc.)
- 13 involved fixed equipment (Lighting, Switches, General Power Outlets)
- 7 were related to welding activities (5 of which involved Earth Clamps condition / application)

Key Lessons:

Schedule 3 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* places duties on the operator of a facility to take all reasonably practicable steps to ensure that:

- *the facility is safe and without risk to the health of any person at or near the facility; and*
- *all work and other activities carried out on the facility are carried out in a manner that is safe and without risk to the health of any person at or near the facility*

Good practice demands that a hierarchical approach to eliminating risks is taken:

- Elimination of the risk
- Substitution (for a less hazardous alternative)
- Engineering – redesign
- Isolation - Separate the worker from the risk
- Administrative procedures (Permit to Work)
- PPE



240V hand tools can often be replaced with air or battery powered tools or tools powered by an isolated, 110V centre-tapped earth transformer.

These methods of elimination or substitution are generally achievable and it is therefore reasonable for their use in preference to the use of 240V tools.

Residual Current Devices (RCD) are often used in offshore locations but should be considered as PPE, thus low on the hierarchy table.

RCDs are known to fail and rely on thorough inspection and testing to meet the Australian Standards. This testing requires not only the activation of the mechanical trip but includes checking that the device activates at the correct differential pre-set value (usually 30mA for personnel protection) and within the required time.

Further detail of the required testing can be found in AS/NZS 3760:2010.

Facility operators, employers and persons in charge of work activities should review their practices for the use of powered hand tools / portable electric equipment with regard to the above information.

Contact:

For further information email alerts@nopsema.gov.au and quote **Safety Alert 52**