

Safety and health alert

16/95 Explosion during boat repairs

Incident

A six metre aluminium boat exploded as a bracket was welded to the stern, destroying the boat and damaging the roof of a factory building in Albany.

Several incidents of explosion and injury were reported in 1994, resulting from hot work on the hulls of boats. The explosions were caused by fuel vapours trapped in the bilge, a confined space.

Factors

Fuel vapours trapped in the confined space below the deck ignited, causing the explosion.

A safe procedure of cleaning, purging and gas testing was not followed.

Sense of smell was relied upon to detect fuel vapours. Very small amount of residual vapour or gas-forming substances can cause an explosion, and may not be detected by sense of smell.

Recommendations

When welding near the bilge, the bilge should be steam cleaned until the whole of the confined space has become hot to touch, and for at least 30 minutes thereafter, **and** either

- (a) purged with forced draft ventilation for at least four hours, followed by gas testing; or
- (b) purged with forced draft ventilation for at least one hour, followed by filling the container with nitrogen and applying a continuous flow of nitrogen.

For further information see *Australian Standard 1674.1 Safety in welding and allied processes, Part 1 : Fire precautions*. Appendix B of the Standard contains recommended procedures for the preparation of equipment which has held flammable or explosive substances.

Further Information

Further information can be obtained from the WorkSafe internet site www.worksafe.wa.gov.au, or by contacting customer service on 1300 307 877 or email: safety@docep.wa.gov.au.

Date: June 1995

A414220



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and Employment Protection
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