NOPSEMA

Safety alert 63

December 2016

Quality assurance of diving system audits

What happened?

A number of NOPSEMA inspections have identified a trend in the standard of audits conducted on diving systems and equipment. Specifically, a number of operators of diving projects and diving contractors have failed to ensure diving system audits have been conducted to an appropriate standard.

While reviewing the audits conducted by the diving project operators and the diving contractors, NOPSEMA's inspectors identified the following deficiencies:

- Man-riding wire destructive test certification was not adequately assessed, resulting in the failure to identify that the percentage deterioration was greater than that permitted by the relevant International Marine Contractor's Association (IMCA) code/guidelines and therefore should have been replaced.
- Inappropriate application of a management of change process to justify the deferral of man-riding wire destructive tests.
- Utilisation of a self-propelled hyperbaric lifeboat (SPHL) with the connections for the emergency services (e.g. breathing gas, cooling, etc.) located in a place on the SPHL that was not readily accessible, and therefore not as required by the relevant IMCA and International Marine Organisation (IMO) codes/guidelines.
- Failure to make an emergency services umbilical available for SPHL connection to its life support package.
- A high pressure (200 bar) flexible oxygen hose was found during a NOPSEMA inspection to be too long, made up with joins and was damaged, however it was marked as compliant during an earlier audit
- Older diving systems built to class have not been upgraded, where practicable, to meet current class requirements e.g. fire suppression systems within diving chambers unable to be externally actuated.

Each of the deficiencies outlined above should have been identified and rectified as a result of the third party or in-house audits.

What could go wrong?

Failure to identify audit non-conformances associated with safety-critical elements of a diving system may result in an increased level of risk to the air and saturation divers. The non-conformance examples provided above have the potential to compromise the integrity of the system components and reduce functionality in an emergency. Any loss of integrity or system redundancy has the potential to result in serious injury or fatalities to divers and others involved in diving operations.

Key lessons

Operators of diving projects and diving contractors should have measures in place to ensure:

- quality assurance checks are carried out on third party and in-house diving system audits
- audits are conducted by suitably trained and qualified personnel
- audits are reviewed by personnel who have the necessary experience and knowledge to be competent for the task
- auditor observation lists are reviewed to identify any potential non-conformance items
- non-conformance close out actions are documented and verified by a competent person
- safety-critical non-conformance items are verified closed prior to the commencement of diving operations.

Diving project hazard identification workshops and hazard registers consistently record IMCA compliant diving systems as a control for a multitude of hazards. Diving system IMCA audit compliance provides the divers, supervisors and the operator of the diving project, with a level of assurance that the diving system is safe and fit for its intended use.

It is important that these IMCA audits are effectively managed as part of the operator's quality assurance and diving project risk assessment processes, to ensure the diving operations are safe and risks are reduced to as low as reasonably practicable (ALARP).

The legislation

Clause 9 of Schedule 3 to the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* requires that 'the operator of a facility must 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.' This includes an obligation to take all reasonable practicable steps to:

- implement and maintain systems of work that are safe and without risk to health [Clause 9(2)(d)]; and
- provide all members of the workforce with the information, training and supervision necessary for them to carry out their activities in a manner that does not adversely affect the safety of persons at the facility [Clause 9(2)(f)].

Contact

- For further information email alerts@nopsema.gov.au and quote Safety alert 63. NOPSEMA safety alerts are published at nopsema.gov.au, on the 'Safety Alerts' page under the 'Safety' tab.

Further information

The following oil and gas publications provide further information about the recommended practice on diving system inspection and auditing:

- The International Marine Contractors Association, Annual Auditing of Diving Systems. IMCA D 011 Rev 1 – December 2010. http://www.imca-int.com/diving-division.aspx
- The International Maritime Contractors Association, Diving Equipment Systems Inspection Guidance Note, DESIGN for Saturation (Bell) Diving Systems, IMCA D 024 Revision 2 July 2014. http://www.imca-int.com/diving-division.aspx
- The International Marine Contractors Association, DESIGN for Surface Orientated (Air) Diving Systems, IMCA D 023 Rev. 1 January 2014. http://www.imca-int.com/diving-division.aspx
- The International Marine Contractors Association, Hyperbaric Evacuation Systems (HES) Interface Requirements, IMCA D 051 Rev. 1 October 2014. http://www.imca-int.com/diving-division.aspx
- The International Marine Contractors Association, Guidance on Hyperbaric Evacuation Systems, IMCA D052 May 2013. http://www.imca-int.com/diving-division.aspx
- International Association of Oil & Gas Producers, Saturation Diving Emergency Hyperbaric Evacuation and Recovery Performance Requirements. OGP 478 – September 2014. http://www.iogp.org/Reports/Type/478/id/660
- International Association of Oil & Gas Producers, Diving System Assurance. OGP 468 - February 2016. http://www.iogp.org/Reports/Type/468/id/633
- International Maritime Organisation, Resolution A.692(17) 1991, Guidelines and Specifications for Hyperbaric Evacuation Systems. http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Pages/Assembly-(A).aspx.