



Watertight doors and hatches kept open at sea

What happened?

During a number of recent inspections of vessels which are offshore facilities, NOPSEMA occupational health and safety inspectors have observed several instances where designated watertight doors - which are to be closed at sea - have been routinely left open.



Photo 1 – Water tight door to High Precision Acoustic Positioning System space, marked “To be kept closed at sea” left open and blocked with ventilation trunking. The facility was in Dynamic Position mode close to a petroleum production platform.



Photo 2 – A large hatch on an FPSO was left open while the FPSO was connected to a buoy. The hatch leads to lower machinery spaces. The hatch is clearly marked “When at sea keep shut”.

What could go wrong?

Common safety-critical elements aboard vessels that are facilities, such as floating production storage and offloading Units (FPSOs) and offshore construction vessels, include watertight integrity and measures for maintaining stability (for both the intact and damage cases). These safety-critical elements are commonly designed and constructed in accordance with codes and standards such as the:

- Classification society rules
- DNV-OS-C301 Stability and Watertight Integrity
- Intact Stability Code (IMO Resolution A749)
- Mobile Offshore Drilling Unit (MODU) Code
- Safety of Life at Sea (SOLAS) Convention
- Load Line Convention



These codes and standards detail the location, strength and use of all forms of weather and watertight enclosures for various stability cases. The use of such enclosures provides a level of assurance that the facility could reasonably survive an incident involving loss of watertight integrity or defined worst case damage scenario.

The design of vessels that are facilities presumes that watertight doors are closed whilst the facility is at sea, hence the doors are permanently marked as such at the new build stage. This does not stop the crew passing through these doors but it is assumed the doors are then closed immediately afterwards.

Leaving these doors unattended and permanently open at sea, especially during Dynamic Position operations and when the vessel is close to another facility, increases the risk to the health and safety of personnel. SOLAS II-I Regulation 22, regarding the prevention and control of water ingress, describes how watertight doors should be used, including how and when these doors can be left open and when they need to be closed.

In the context of internal and external watertight integrity, NOPSEMA considers a vessel that is being used, or being prepared for use, at a site in Commonwealth waters (i.e. as a *facility*) to be 'at sea'. This is consistent with the UK HSE Research Report 387 (2005) on Stability which applies water-tight door and enclosure requirements when the vessel is on station or afloat.

As a reminder, loss of watertight integrity recently resulted in multiple fatalities from the Costa Concordia incident off the Italian coast.

Key lessons

- Operators of vessels that are facilities should ensure compliance to load line, stability (intact and damage) and watertight integrity requirements.
- Operators should ensure they are fully compliant with commitments made in their safety case.
- Operators should ensure their personnel are aware of the risks and their responsibilities associated with leaving watertight doors unattended and in the open position when at sea.

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*).
- All persons, including employees, have a duty of care to take all reasonably practicable steps to ensure that they do not take any action, or make any omission, that creates a risk to persons on the facility (Clause 15, Schedule 3 to the *Offshore Petroleum Greenhouse Gas Storage Act 2006*).

Contact

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