



Office of  
Transport Safety  
Investigations

# SAFETY ALERT

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## RISKS OF HYDROGEN SULPHIDE EXPOSURE ON DOMESTIC COMMERCIAL VESSELS

The Office of Transport Safety Investigations (OTSI) recently released a Ferry Safety Investigation into a fatality aboard the Domestic Commercial Vessel (DCV) *Lady Rose*. On 2 February 2019, *Lady Rose* was chartered by a group of 27 passengers for a private function Sydney Harbour. During the charter, one of the passengers was noticed as missing and, following a short search, was found in an unresponsive state in a toilet cubicle on board the vessel. Emergency services were called and attended, however the passenger was unable to be revived. The investigation found that it was likely the passenger was overcome by exposure to hydrogen sulphide that permeated into the toilet cubicle through a faulty waterless hand basin trap.

Hydrogen sulphide is a colourless, poisonous, flammable, corrosive gas with a characteristic foul odour of rotten eggs. Hydrogen sulphide is heavier than air and may accumulate in enclosed, poorly ventilated, and low-lying areas. Hydrogen sulphide is often produced from the microbial breakdown of organic matter in the absence of oxygen, such as in sullage tanks and sewers. The typical rotten-egg smell of hydrogen sulphide is often an inadequate warning indicator of exposure. The sense of smell can quickly disappear after only a few inhalations, together with the awareness of danger. This may lead to loss of consciousness at relatively low level doses and at higher concentration levels may result in a fatality.

## KEY POINTS FOR DCV OPERATORS

Assess the risks (as per your SMS) relative to your specific vessels to ensure that controls are in place to minimise the risk of hydrogen sulphide exposure. The following actions should be considered:

- Engage a qualified plumber to inspect your vessel's sewage systems to ensure safe operation.
- Ensure all sullage and grey water tanks on vessels are emptied at the completion of cruises to minimise the likelihood of hydrogen sulphide creation.
- Establish a cleaning and maintenance schedule for sullage tanks.
- Include in your regular inspection regime confirmation of the integrity of the sewage system.
- Ensure ventilation to all toilet cubicles is sufficient to provide a safe environment.
- Communicate the dangers of hydrogen sulphide gas to all crew members.

Mick Quinn

Chief Investigator

For further information [www.otsi.nsw.gov.au](http://www.otsi.nsw.gov.au) Ferry Safety Investigation – Passenger fatality *MV Lady Rose* Sydney Harbour, NSW.