

# Safety Alert

**Number: 22-01**

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**Subject: High Levels of H<sub>2</sub>S Detected in Bilge Tank**

## What Happened / Narrative

On a member's vessels during routine transfer of bilge water from the engine room bilge wells to bilge water tank, the crew observed a smell of "rotten eggs" from the bilge tank vent. The transfer was immediately stopped. During measurements at the tank vent pipe with a multi gas meter, a level of 453ppm of H<sub>2</sub>S (Hydrogen Sulphide) was detected.

Preventive actions were taken to ensure the gasses would not enter the accommodation. The quick response of Vessels crew prevented a serious accident.

COMPOUND	CHARACTERISTICS	DENSITY	IDENTIFIER
 Hydrogen Sulphide	 Toxic + Flammable	 Heavier than Air	 Rotten Egg Smell

### Immediate Hazard:

Dangerous atmosphere (high H<sub>2</sub>S concentration)

- Seawater in (bilge) tanks, especially in ER, mixed with residue and bio-degradable detergents create conditions favourable for the formation of dangerous levels of H<sub>2</sub>S
- Not recognising the dangers associated with H<sub>2</sub>S could have resulted in explosion, intoxication or in worst case scenario death

## Why Did it Happen / Cause

### Technical:

- Bilge tank was not disposed for a long period due to not reaching capacity
- Unable to inspect the tank on a regular basis
- Several tank corners solid residue which is very difficult to remove

### Organisational:

- Lack of knowledge by external parties
- Internal (Vessel Owner) H<sub>2</sub>S safety procedure available but did not suffice in sudden release, response and responsibilities

### Communication:

- As a result of not receiving a clear answer from the external parties on "Plan of Approach" the vessel was unable to enter port for almost 4 days for final removal of sludge and cleaning of the tank

### Root causes:

- Maintenance/Inspection – unable to inspect
- Inadequate assessment of needs and risks

## Corrective Actions Taken / Recommendations

### Initial actions in relation to incident:

- Transfer stopped (Stop the Job) and H<sub>2</sub>S concentration measured at the tank vent
- Emergency response team and client informed
- Flexible hose connected to the tank vent to ensure gasses guided away from the accommodation
- Assistance requested from local agencies on removal of the bilge residue and tank cleaning
- Constant monitoring of H<sub>2</sub>S levels by approved measuring device and crew in full respiratory protection
- Removal of bilge water, cleaning of the tank by specialised contractor and Gas Free certificate issued

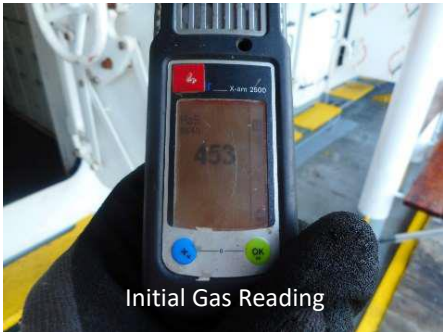
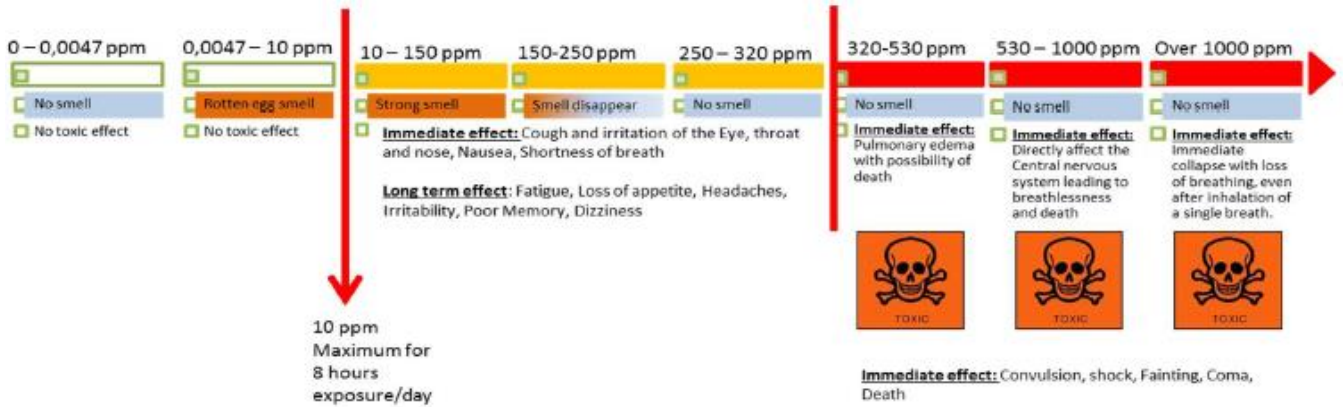
### Follow up Actions & Precautions:

- Regular checking of bilge water handling and arrangement for disposal
- Bilge water disposal to be combined with sludge disposal on a regular basis
- Review of vessels machinery cleaning practices
- Make H<sub>2</sub>S awareness part of the onboard training programme

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## Photographs / Supporting Information



**Supporting Information:**

A video raising awareness and highlighting the risks associated with H<sub>2</sub>S "The Danger Within" is available on the MSF YouTube from the link below:

<https://youtu.be/PaoJpilLjuk>

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