IMCA Safety Flash 03/14

March 2014

These flashes summarise key safety matters and incidents, allowing wider dissemination of lessons learnt from them. The information below has been provided in good faith by members and should be reviewed individually by recipients, who will determine its relevance to their own operations.

The effectiveness of the IMCA safety flash system depends on receiving reports from members in order to pass on information and avoid repeat incidents. Please consider adding the IMCA secretariat (imca@imca-int.com) to your internal distribution list for safety alerts and/or manually submitting information on specific incidents you consider may be relevant. All information will be anonymised or sanitised, as appropriate.

A number of other organisations issue safety flashes and similar documents which may be of interest to IMCA members. Where these are particularly relevant, these may be summarised or highlighted here. Links to known relevant websites are provided at www.imca-int.com/links Additional links should be submitted to webmaster@imca-int.com

1 Loss of Consciousness Due to Exposure to H_2S

A member has reported an incident in which two crew members lost consciousness owing to exposure to H_2S. The incident occurred when a team of three mechanics were assigned to clean the starboard-side sewage tank. The operations started at the beginning of the shift, the team opened the hatch on top of the sewage tank to clean the residual materials (settling tank was half full). One of the mechanics, standing on top of the roof of the tank, was spraying high pressure water in order to break the solidified layer of slurry. During this process H_2S gas trapped under the solidified material escaped, reaching the mechanic who lost consciousness.

A second member of the team went on top of the tank in order to help the colleague, but he fell unconscious as well. The third member did not go on top of the tank instead, he raised the alarm. However, he remained inside the room and as the H_2S descended from the tank (being heavier than air) it intoxicated the third team member who as a result began to feel dizzy.

The emergency team arrived at the scene and rescued the two unconscious mechanics and the third team member. All three persons made a full recovery after administration of oxygen by the doctor.

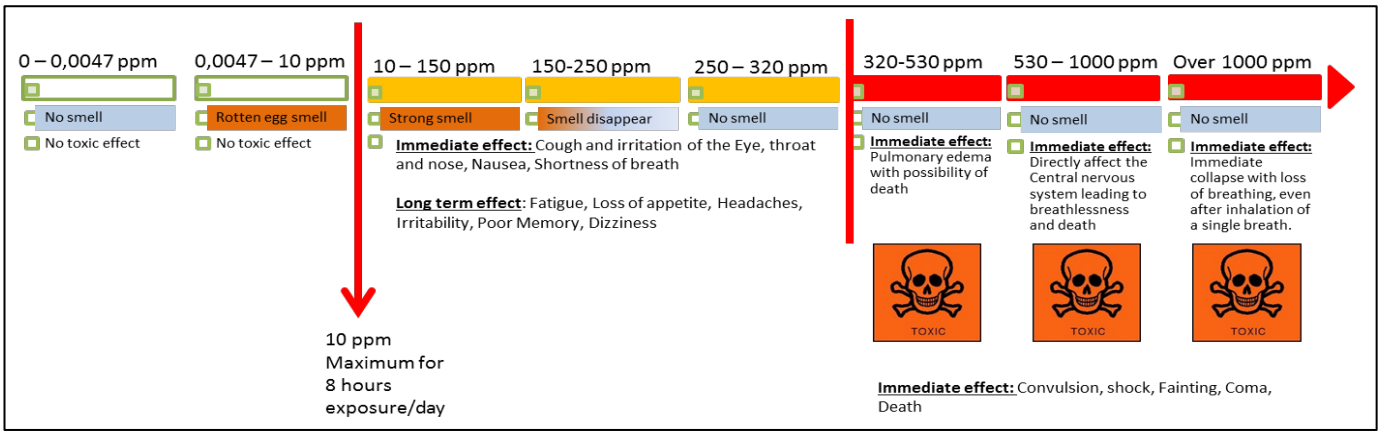


Figure: the effects of differing concentrations of H_2S

Our members' investigation revealed the following causes:

- Lack of compliance with manufacturer instruction (e. g. de-sludge procedure, procedure for long period of shut down of sewage tank, etc.);
- Hazards related to potential presence of toxic gases (e.g. H_2S) were not identified in the job safety analysis or the toolbox talk. As a consequence, a permit to work (PTW) process was not applied;
- Inadequate work planning and supervision: the injured persons were over confident that they could perform a cleaning task they had done before in the same way;
- The sewage plant room was not equipped with gas detection system.

Our member took the following corrective actions:

- Considered the installation of a gas detection system in the area;
- Reviewed the operation and maintenance manual of the sewage treatment tank and new procedures developed;

- Ensured proper planning, risk assessment and execution of these operations, including the use of PTW;
- Reviewed job safety analysis for cleaning of sewage tank;
- Organised refresher training for job safety analysis (JSA), hazard identification, PTW etc. for all personnel involved in tank cleaning;
- Organised confined space entry training for key personnel (authorized gas tester, confined space awareness and rescue);
- Reviewed manufacturer requirement about installation of a dedicated sewage holding tank onboard for the de-sludge operations.

The following lessons were learnt:

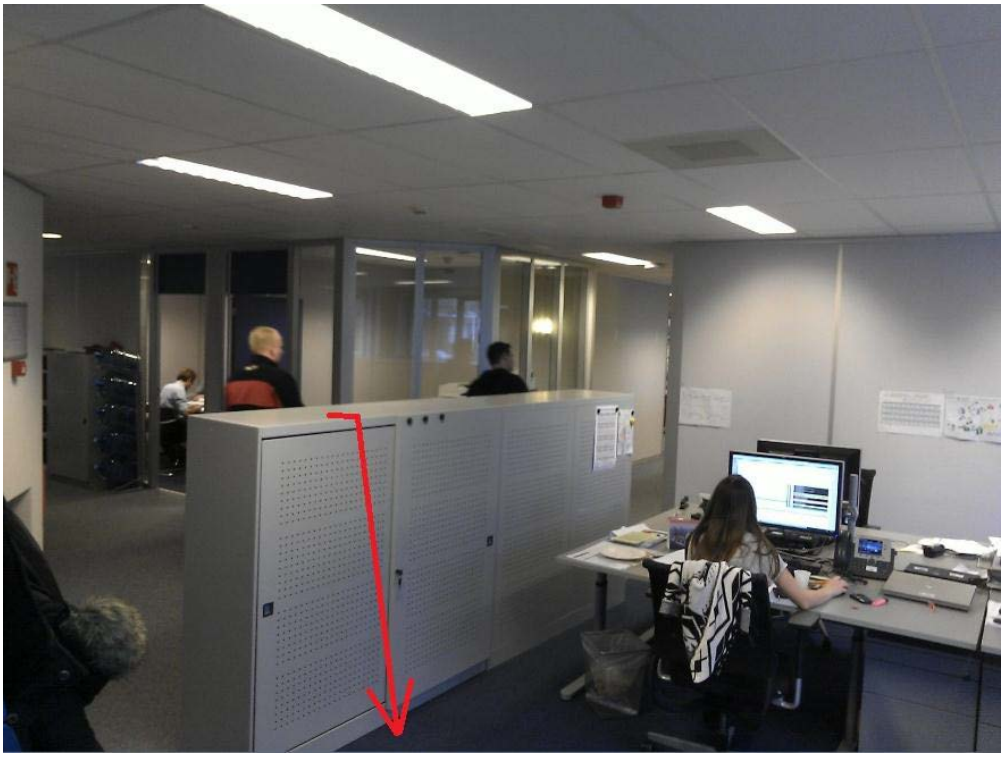
- Any maintenance on sewage treatment tanks requiring the opening of the tank itself should be considered as hazardous due to the potential release of toxic gases:
- In principle, such maintenance should be conducted using exactly the same precautions as for work in confined spaces;
- Manufacturer instructions (in this instance, for installation, operation and maintenance of the sewage tank) should be followed;
- Any deviation from the instructions, or any modification of the equipment itself, should be approved through the management of change process.

2 Dropped Fluorescent Light Tube

A member has reported an incident in which carelessness resulted in minor damage to equipment. During the replacement of old fluorescent light tubes in an onshore office location, a new fluorescent light tube dropped down from the cabinet (1.6 meters) to the ground and smashed. As a result, glass and particles from the fluorescent light were flying around and landed on various places (in a radius of around 5 meters). Nobody was hit or injured. At the time of the incident the person involved was climbing the ladder to remove the old light tube.

Direct cause: Failure to secure loose object. The fluorescent light tube was able to roll from the cabinet to the ground, because it was not in a secured position.

Root cause: Inadequate assessment of needs and risks. No-one seriously considered the possibility or assessed the risk of the fluorescent light tube rolling from the cabinet and smashing.



Our member took the following action to prevent re-occurrence: transport trolleys to be made fit for purpose to store and secure the fluorescent light tubes, ladder, related personal protective equipment (PPE) and other items required for the repair or renewal of light fittings.

3 Entanglement in Moving or Rotating Machinery

The United States Coast Guard (USCG) has published incident 11-13 as a timely reminder of the risks of entanglement in moving or rotating machinery. In this instance, a crewmember's hair became entangled with a rotating propeller shaft as the crewmember was on watch and conducting rounds. The crew member sustained life-threatening injuries and was permanently disfigured.

Further information about this safety incident can be downloaded from http://wow.uscgaux.info/Uploads_wowII/P-DEPT/10and11_SA13.pdf.

4 Fire and Subsequent Foundering of Wind Farm Support Workboat

The UK Marine Accident Investigation Branch (MAIB) has published the following report regarding an incident in which a 14m wind farm support catamaran, ecc Topaz, caught fire. The three crew members on the vessel were unable to extinguish the fire, which spread rapidly throughout the vessel, forcing them to abandon to a liferaft. One person was slightly injured. It was discovered that there had been no control of work whatsoever in place – no PTW, no isolations or barriers, no risk assessment or tool box talk.

Further information can be found at:
www.maib.gov.uk/publications/safety_bulletins/safety_bulletins_2014/safety_bulletin_2_2014.cfm

A PDF report of the incident can be downloaded from:
www.maib.gov.uk/cms_resources.cfm?file=/Safety%20Bulletin%202_2014.pdf

5 Watertight Doors Left Open at Sea

A member has reported a number of occasions during recent inspections on one of their vessels where auditors have observed designated watertight doors, which are to be kept closed at sea being left open as a matter of routine. This resulted in audit non-conformity and could have meant detention by Port State Control – to say nothing of the risk to the integrity of the vessel when at sea. Loss of watertight integrity resulted in multiple fatalities and the loss of Costa Concordia in 2012.

Common safety-critical elements aboard vessels include watertight integrity and measures for maintaining stability (for both the intact and damage cases) are commonly designed and constructed in accordance with codes and standards such as:

- Classification society rules;
- Intact Stability Code (IMO Resolution A749);
- Safety of Life at Sea (SOLAS) Convention;
- Load Line Convention.

These codes specify that the use of such enclosures provide a level of assurance that the vessel could reasonably survive an incident involving loss of watertight integrity in a worst case damaged scenario. These codes presume that watertight doors are closed whilst the vessel is at sea. The doors in question are therefore permanently marked. This does not stop the crew passing through these doors but it is essential that the doors are then closed immediately afterwards.

Leaving these doors permanently open at sea, increases the risk of progressive flooding and loss of stability. International Convention for the Safety of Life at Sea (SOLAS) describes how watertight doors should be used, including how and when these doors can be left open and when they need to be closed. Vessel management teams are encouraged to ensure that all personnel are aware of the risks and that watertight doors are kept closed.

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