IMCA Safety Flash 23/19

October 2019

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 info@imca-int.com

Any actions, lessons learnt, recommendations and suggestions in IMCA safety flashes are generated by the submitting organisation. IMCA safety flashes provide, in good faith, safety information for the benefit of members and do not necessarily constitute IMCA guidance, nor represent the official view of the Association or its members.

1 For Want of a Watchman the Ship Was Lost

What happened?

The United States Coast Guard (USCG) has published Marine Safety Alert 07-19 entitled '*For want of a watchman the ship was lost'*. It tells the story of a Great Lakes bulk carrier laid up for the winter suffering a catastrophic fire that caused major cosmetic, machinery, and structural damage. The vessel was unmanned and vacant at the time the fire was discovered. There were no injuries.

The fire appeared to have originated in the machine shop on the gangway deck, above the lower main engine room space. Numerous possible sources of ignition were identified; propane heaters, electric heaters, and heat lamps were being used in the machinery space.

Fighting the fire was hampered by cold weather causing frozen water hydrants. As a result, the fire burned for over 35 hours within the upper engine room spaces, moving up into the entire superstructure. While the fire was being fought, the electrical shore power supply to the vessel failed. Within the machinery space, a number of valves had been opened for maintenance and to drain various systems. During the fire and due to the power loss, the system used to prevent freezing around the machinery space area of the hull failed. As a result, and because of the several days of freezing weather, various piping systems failed and allowed water to flood the machinery space. The flooding continued until divers were able to secure the flow from the sea chest.

What actions were taken?

As a result of this fire, the USCG strongly recommends that vessel owners and operators, particularly of vessels in layup, or vessels using shore power and or on which work is being performed:

- **Ensure that continuous fire, safety, and security watches are maintained** and that the watchmen are provided specific written instructions regarding their duties in the event of a fire or other emergency situation;
- **Ensure that persons with vessel engineering experience and knowledge of engine room systems** are used during lay-up preparations to prevent unintended circumstances – such as, in this case, the flooding of the machinery space.

The full marine safety alert can be found here.

Members may wish to refer to:

- Potential engine room flooding: maintenance and equipment failure issues on a laid-up vessel

2 UK HSE Investigation into Offshore Gas Explosion

What happened?

The UK HSE has fined Marathon Oil UK LLC (Marathon) £1,160,000 following an investigation into a high-pressure gas release on the Brae Alpha offshore platform on 26 December 2015. Eight-inch (20cm) diameter high pressure pipework in Module 14 on the platform suffered a catastrophic rupture as a result of 'Corrosion Under Insulation' (CUI), allowing over two tonnes of high-pressure methane gas to be released almost instantaneously. The force of the high-pressure release caused significant and widespread damage in Module 14. Fortunately, owing to the timing of the incident, there were no injuries.

What went wrong?

Investigation found that Marathon Oil had failed to undertake any suitable and sufficient inspection of the pipework that would have allowed the company to identify the risk and prevent the hazard from materialising. These failures resulted in personnel on-board the Brae Alpha platform being exposed to an unacceptable risk of serious personal injury or death from fire and explosion, and also led to the UK HSE serving an Improvement Notice on Marathon Oil in January 2016, requiring the company to implement an effective hydrocarbon pipework inspection and maintenance regime.

The inspector noted:

> *"This incident is a further reminder of the ever-present hazards in oil and gas production, that if not rigorously managed can easily result in a potentially life-threatening event. Corrosion Under Insulation (CUI) is a well-known risk and this incident should not have occurred. During any normal period of operations personnel could easily have been working in, or transiting through Module 14, and they would almost certainly have been killed or suffered serious injury. The timing of the incident and fact that the gas did not ignite was fortuitous."*

The press release can be found here.

Members may wish to refer to the following incidents where *hidden corrosion* was a causal factor:

- Corrosion of hollow section members on offshore drilling structures
- Lifting Sling Failure on freefall lifeboat
- ROV main lift umbilical failure

3 UK HSE Prosecution Following 2011 Fatal Explosion in Oil Refinery

What happened?

The UK HSE has prosecuted two companies after an explosion killed four workers and seriously injured another at an oil refinery in Pembrokeshire in 2011. Five workers were emptying a tank using a vacuum tanker when the explosion and subsequent fire took place. The explosion resulted in a fireball which severed the 5-tonne tank roof, and this was projected 55 metres to impact against a butane storage sphere. The roof narrowly missed a pipe track where a range of flammable materials were carried.

Investigation found the explosion was most likely to have been initiated by the ignition of a highly flammable atmosphere within the tank, during **what should have been a routine emptying operation** [IMCA emphasis] in preparation for further cleaning and maintenance. The investigation also found there had been longstanding failures within the refinery safety management systems (SMS) and as a result **the risks posed by flammable atmospheres …were not understood or controlled**. [IMCA emphasis]

Please see here for the full UK HSE press release.

4 Near Miss — Diving Operations While Alongside

What happened?

A vessel main engine was started while the divers were in the water, and the engine was immediately shut down again by the bridge. The diver was able to exit the water and was unhurt in the incident. The incident occurred during diving operations in a dockyard to remove debris from a bow thruster.

What went wrong?

- Engine room to bridge communications procedures were not followed. The engineers started the engine without consulting the bridge;
- There was a failure to follow the diving permit to work (PTW) procedures;
- There was a failure to implement lockout/tagout (LOTO) procedure;
- There was no risk assessment conducted.

What actions were taken? What lessons were learnt?

- Only the vessel Master should have the authority to start the vessel's engines;
- Sometimes, isolation tags (LOTO) are not enough, and physical isolations and barriers should be put in in place;
- Our member recommended the following specific actions:
  - before divers enter the water, all subsea equipment should be physically isolated including the auxiliary engines and HVAC system
  - lifting operations on the main deck are to be stopped while divers are in the water

- control of work documentation to be completed in full before any tasks are started, including any associated documentation from the diving teams
- do not sign off on the control of work unless you have physically checked to ensure that the control measures listed in the risk assessment and associated PTW have been put in place
- any mistakes in any official logbook should be corrected by placing the mistake in brackets or a single line through it so that it is still eligible – scraping out and use of correction fluid not to be permitted.

Members may wish to refer to:

- Near miss (HIPO): Engine started and running whilst crew member working on shaft generator
- Dropped object fell from crane – poor communication/lack of awareness/control of work
- Lost Time Injury (LTI): finger injury during main engine exhaust valve overhaul [root causes: no adequate system of communication and confirmation; no isolation (lockout/tagout); inadequate compliance – the risk in this routine, recurring task was seen as tolerable.]

5 Loss of Rig Anchor Wire from Vessel Karm Fork

What happened?

There was an unplanned retraction of the Karm Fork on an Anchor Handling vessel, leading to an anchor tow wire and chain to be dropped. The incident occurred during a rig move. The Anchor Handling vessel was following the rig with the anchor line secured in the Karm Fork on deck with 300m of wire and 150m of chain between the rig and vessel. During the transit to the new location, the vessel accidentally retracted its Karm fork, allowing the wire and chain between the vessel and rig to slip over the vessel stern roller into the sea. Water depth at the time was 370m. No subsea assets were in the vicinity, no personnel were in the line of fire.

What went wrong?

Our member noted that the preliminary investigation revealed that the causes were lack of communication, failure to follow company procedures and failure to follow the Masters' instructions:

- The Chief Engineer raised the port side Karm Fork with no command from the Master – the company procedure states *"All instructions for operation of the anchor handling plant will be disseminated directly from the Master*";
- Ignoring the Masters' request and lack of attention — even after the Masters' second command to lower the port side Karm Fork, the Chief Engineer delayed the task implementation and then in a rush accidentally pushed the emergency release buttons of the wrong Karm Fork.

What actions were taken? What lessons were learnt?

- Revision of operations manual and task risk assessment;
- Relocation of CCTV camera to cover deck area;

- Reiteration of need for strict compliance to manual requirements and specifically, the need to follow the requirement that such commands or actions should come from the Master only.

Members may wish to refer to:

- Inadvertent Opening Of Circuit Breakers
- High Potential Near Miss – Unsecured Sheave
- Anchor Drag Near Miss Incident