IMCA Safety Flashes summarise key safety matters and incidents, allowing lessons to be more easily learnt for the benefit of all. The effectiveness of the IMCA Safety Flash system depends on members sharing information and so avoiding repeat incidents. Please consider adding **safetyreports@imca-int.com** to your internal distribution list for safety alerts or manually submitting information on incidents you consider may be relevant. All information is anonymised or sanitised, as appropriate.

1 Loss of heading control on an FPU during diving operations

Applicable Life Saving Rule(s)

Work Authorisation

What happened

During diving operations at an FPU (floating production unit), the forward thruster was isolated, and the turret locked, in line with diving isolation procedures. The starboard aft thruster was out of service due to an ongoing upgrade project. The only thruster in operation and available was the aft port thruster.

During preparation of greasing of the port thruster steering pump, the standby pump did not start automatically. This resulted in there being no azimuth (direction) control of the thruster and loss of heading control of the FPU. The Diving Supervisor on the light daughter craft (LDC) was notified by the FPU control room immediately that they had lost power on one thruster. The Diving Supervisor informed the divers of the situation and confirmed that the divers had a clear route to surface.

Based on the fact that the FPU turret rotation was locked, the Diving Supervisor secured the work site, while the LDC Coxswain monitored the heading. The Diving Supervisor then recovered the divers to surface safely in a controlled manner.

Typical FPU Image: https://oilandgas.world/

What went right

The dive was aborted and divers safely recovered to surface.

What went wrong

Our member noted that usually maintenance would not be performed on the thruster equipment while only one was in service and during diving operations. Greasing of the main steering pump was not usually a permitted activity, as the crew would normally switch from main to standby and then grease the offline unit so that there was no interruption in the steering. Also there was no requirement for Lock-out/Tag-out (LOTO) of the standby unit. However, in this case the standby pump did not produce pressure and the other pump, which had become the standby, did not auto-start.

Our member notes that there was:

- Insufficient risk assessment: of both heading control and of the Emergency Preparedness Plan;
- It was unclear to the FPU control room team whether or not there were divers were in the water;
- Tasks seen as routine: Greasing was not an activity that was usually discussed in the work permit/SIMOPS meeting as it was seen as operational and did not require a Permit to work

Our member notes that the notification from the FPU control room of the severity of the incident, was unclear.

What were the causes

- Diving operations were on-going at the FPU whilst there was only one only thruster in operation and available;
- The FPU was lying with the wind to its side to shelter the LDC;
- During planned greasing, equipment (the standby pump) did not automatically start as it should have done, leading to there being no azimuth control (direction) of the thruster and hence loss of heading control of the FPU.

Lessons learned

- Renewed focus on understanding of possible consequences of working on any critical equipment (thrusters, generators etc) during diving or marine operations;
- Amend company SIMOPS matrix with regard to the possible impact maintenance on critical equipment for position keeping (thrusters, generators, critical utilities etc) could have during vessel and diving operations.

2 Implosion of chemical tank

What happened?

A chemical tank, partly filled with Monoethylene Glycol (MEG), imploded on the back deck of a vessel, resulting in a spillage of around two cubic metres of MEG to the back deck and to sea, and unrepairable damage to the tank itself. There were no injuries. The tank was a 26 cubic metre tank, containing 10 cubic metres of MEG.

What went wrong

The implosion happened due to a vacuum created in the tank because the MEG was pumped out into a storage reservoir on the vessel during a mobilisation.

- A 20 cubic metre tank had been planned for and agreed, but a different and larger type of tank, of 26 cubic metre capacity, was actually delivered;
- The new tank was unfamiliar to the third-party operators and no documentation was available before starting pumping operations. This type of tank requires a manual air inlet valve to be opened on top of the tank, to allow for air inlet and avoid vacuum. Due to lack of knowledge and documentation, this valve was not opened as it should have been, hence creating sufficient vacuum in the tank to cause it to implode five days later.
- The supplier of the tank and of pre-commissioning services was new to the company;
  - Although the supplier had been audited before the work, the audit did not generate sufficient insight into the capabilities and experience of the supplier;
  - The possible risks arising from fact that the supplier was new were not recognised in the risk assessment;
  - Only a “standard” onboarding/scope familiarisation was done, there was no adaptation specific to new suppliers.
- The tank type and specification (it was a carbon fibre tank) were unknown to both the third-party operators and the suppliers;
- The suppliers’ personnel did not inform any company personnel that they were not familiar with this type of tank;

Monoethylene glycol (MEG) is an anti-freeze widely used at wellheads and in pipelines to prevent hydrate formation at pipeline conditions, particularly where there are lower temperatures in subsea pipelines.

- The tank was operated without manuals/datasheet reviewed at the time.

Actions taken

- Increased focus and follow-up of new suppliers, with specific onboarding arrangements to offshore routines and in-depth familiarisation to scope of work;
- Ensure that operators of equipment are familiarised with equipment specifications and modes of use, including risk assessment and documentation requirements;
- Ensure that Management of Change (MoC) is properly applied when equipment is changed out, also when it involves third-party equipment.

Members may wish to refer to events involving third parties, or management of subcontractors. Browse to https://www.imca-int.com/safety-events/ and enter the appropriate search term in the dialogue box.

3 USCG: hazard from discarded munitions

The United States Coastguard (USCG) had published Safety Alert 02-24 relating to hazards presented by discarded ammunition. The alert was issued to raise awareness of lurking hazards caused by discarded munitions, which often contain active explosives or chemical agents. Although the practice of dumping munitions into the sea ceased in 1970, a significant amount remains hidden in coastal waters, posing a safety hazard to commercial fisherman, dredge operators, and others who trawl and work the ocean floor.

What happened

A deckhand on a clamming vessel was severely burned when a canister was dredged up and brought onboard with clams and other debris. The canister likely contained mustard gas or another blistering agent, but did not display any obvious visual, audible, or odour indicators of discharging content. A member of the crew discovered the canister and threw it back overboard. Several hours later he developed a severe rash that required professional medical treatment. Mustard gas is a chemical weapon developed during World War I. Millions of pounds of this product, other chemical weapons, bombs, torpedoes, artillery shells, and munitions were routinely disposed of and remain in U.S. coastal waters.

Although many munition dump areas are well marked on navigation charts, numerous areas where munitions were discarded remain unmarked. There is also evidence suggesting that munitions were frequently "short dumped," meaning dumped outside of the designated areas by contractors hired to take them to the intended locations.

The US Coast Guard previously issued Safety Alert 11-16 and Safety Alert 6-10 on this same topic and continues to strongly recommend that persons involved in the fishing and dredging industries:

- Review their navigational charts to ensure the areas in which they are working are not near labelled "Explosives Dumping Areas." Such areas should be given a wide berth and seafarers should recognize that seabed topography can change and that objects can move significant distances from their original disposal areas;
- Carefully record the position of any munitions encountered and returned to the sea;
- Immediately report discovery of unexploded munitions to the appropriate local authorities.

Members may wish to refer to:

- Maritime Industry 3Rs Explosive Safety Guide
- MAIB: Unexploded ordnance – subsea explosion causes injury and damage
- High potential near miss: unplanned handling of unexploded ordnance
- Exploding television recovered from sea

4 Person injured when chain hoist container failed at securing point

Applicable Life Saving Rule(s)

Line of Fire

Safe Mechanical Lifting

What happened?

An overhead electric chain hoist container/box weighing approx. 30kg fell around 0.8m onto a crew member. The incident occurred whilst crew were working on adjustment of a heavy clamp used as part of a pipelaying operation. A permanently installed 3.2 Te SWL overhead electrical chain hoist, mounted above on a structural beam, was being used to support the clamp end. One of the securing points of the hoist failed, and the chain hoist container fell onto one of the crew present. It hit the right shoulder/back, causing contusion and bruising.

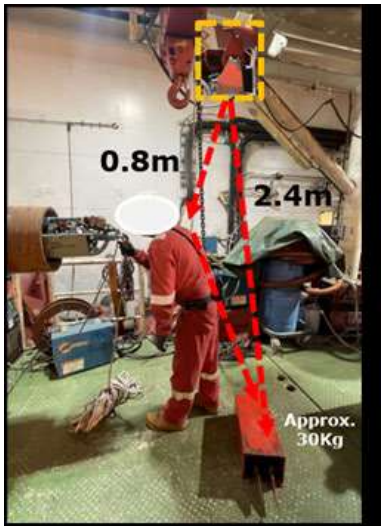
What went wrong

- An improvement/alteration of the chain hoist container had been carried out locally without proper engineering calculation for the change (the original bag removed and a sheet metal box had been added);
- There was inadequate engineering/design: secondary DROPS retention had not been considered;
- There was inadequate maintenance/inspection: the inspection of exterior container was in the planned maintenance system, but it lacked important detail such as fixing point and wear.

Hoist chain container attachments points

Failed/fatigued attachments points

Position of injured person before the event



Position of injured person when the chain container box fixings failed and struck him (reconstruction)

Actions taken

- If you are required to make a change to a component, communicate this change with your supervisor/engineer to ensure the correct method and/or Management of Change is being applied;
- Amend planned maintenance system to include regular inspection of the chain container to ensure hardware (brackets, links, fasteners and other supports) are in good condition and replace any

parts of hoist showing wear or damage – BEFORE using the hoist;

- Check of any similar hoists elsewhere; install secondary retention where required.

Members may wish to refer to:

- NOPSEMA: person injured in chain hoist incident
- High potential incident: gantry hoist failure
- Chain hoist failure resulting in a serious near miss

5 LTI: person slipped climbing out of tank

What happened

A crew person was injured getting out of a fresh water tank on a vessel. The incident occurred during cleaning of the tank. The injured person was in the process of exiting the tank for a rest break. He was on the same level as the entry/exit hatch for the tank. As he was heading to the tank exit hatch, he slipped and during the fall he reached out with his right hand to help cushion his fall. He has been carrying a torch in one hand, nothing in the other.

He was attended to in the ships hospital for treatment and then it was necessary for him to be taken ashore for further medical treatment. He was unable to return to the vessel due to the nature of the injury – a closed fracture of the right forearm.

Entry to the tank viewed externally.

Inside the tank

What went right

The two crew persons involved in the operation followed all appropriate safety controls for entry into the confined space of the tank – Permit to Work, toolbox talk, rescue plan etc. They were trained and competent in confined space entry and were wearing full and correct PPE for the task.

What went wrong

Our member's investigation noted that the root cause was a slippery surface in the tank due to water pooling from the cleaning operation. The inner surface of the tank was a painted smooth surface, i.e. becoming slippery when wet.

- This kind of tank entry was considered routine work with an elevated risk to it due to the design and confines of the tanks;

– The risk was high due to the use of water to clean the tanks which in turn creates a slippery surface where there is potential for slipping over and consequent potential injury;

Lessons learned

- Review schedule for Fresh Water Tank inspections to see if they are being completed too frequently and exposing crew to risk;
- Review the coating requirements for tank to see if it is feasible to apply non-slip coating to the tanks to prevent slips.

Members may wish to refer to

- Serious LTI – Crew member slipped on deck breaking his leg
- Fall leading to serious personal injury
- Person slipped on stairway while wearing shoe covers
- Person slipped when exiting bathroom into cabin