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 Compressor fire

What happened?

There was a fire in a 25bar high flow diesel driven screw compressor installed on the back deck. The incident occurred on a diving support vessel operating within the 500m zone of a platform. The compressor was a long-term rental unit being used to provide ancillary air for subsea operations. It had had been running for 30 minutes at the time of the fire, and there were no indications of anomalies leading up to the incident. The fire was extinguished quickly and safely. There were no injuries.

Compressor on deck

Damage to interior of compressor

What went wrong?

- There was a short circuit within the compressor electrical junction box, which melted insulation on cables both inside and outside the junction box;
- The radiant heat from the melted wires compromised the integrity of a nearby oil scavenger line;
- The scavenger line end fitting parted, which released compressor oil under pressure inside the compressor cabinet. This oil ignited, causing a fire which was fed by air being drawn across the compressor by the engine cooling fan.

Causal factors

- The Original equipment manufacturer (OEM) maintenance regime did not require the physical testing (i.e., insulation resistance checks) of wiring at each major service interval;
- The hired compressor was considered “standard equipment” within the company and did not require detailed pre-mobilisation inspection/surveillance activity;

- The risk assessment and management of change for the use of the compressor did not identify fire as a hazard associated with operating the equipment, and a safe use of work equipment assessment had not been completed.

Actions taken

- When procuring temporary equipment to be used in the offshore environment:
  - Assess the potential fire hazard, and if applicable check the unit for in-built fire suppression capability and audible/visual alarm system set-up;
  - Temporary equipment used in the offshore environment should be considered as non-standard, and procurement of such equipment should be subject to careful and appropriate checks;
- Before mobilizing mobile deck equipment onto vessels, consider the required inspection/surveillance necessary, inclusive of any run-up test and review of maintenance and operational history;
- Once temporary mobile deck equipment is mobilised, ensure that a safe use of work equipment assessment is completed;
- Deck plans should reflect the safe positioning of equipment and consider requirements for exclusion zones around adjacent equipment in event of fire.

Our member noted that this was the fourth compressor fire incident across their offshore operations since 2018.

Members may wish to refer to:

- Generator fire incident (2013)
- Fire in wheelhouse on offshore renewables crew transfer vessel
- Near miss: fire of electrical distribution board during diving operations

2 Near miss: Foreign body in diver's helmet, resulting in fall of gas pressure

Applicable Life Saving Rule(s)

Bypassing Safety Controls

What happened?

During a routine dive at a depth of 18m (60'), the diver reported to the Dive Supervisor a drop in breathing gas pressure. The diver switched to bailout gas which did not solve the problem. The diver opened the free flow which increased gas pressure to a suitable level. The diver left the sea bottom and returned safely to the vessel deck. Upon removal of the diving helmet (a Kirby Morgan 37) a foreign body was found in the demand valve chamber section of the helmet regulator.

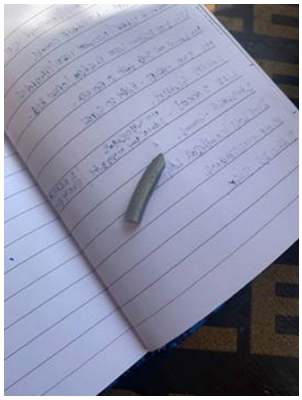
What went right?

The diver remained composed and took the correct emergency actions.

What went wrong?

- A foreign body found its way undetected into the helmet during pre/post-dive cleaning. It is thought that the likely cause was the foreign body – a small shard of plastic - entered the regulator body and restricted the action of the lever arm.
  - The bowl or utensil used for cleaning helmet parts was an old and broken plastic pot;
  - The foreign body was identified as being part of the old and broken plastic pot used as a cleaning utensil;

Plastic pot used to wash the internals of the hat.



Foreign body from the plastic pot broken off (22mm).

What was the cause

Inappropriate or sub-standard cleaning technique for such an item as literally vital as a diver's helmet.

Lessons and actions

- Consider how something so minor could have such an impact on a diver's gas supply;
- Reiterate the importance of pre-dive checks and of the need for absolute cleanliness in divers' life-saving equipment;
- Our member introduced spray bottles to eliminate the chance of particles entering the helmet during cleaning.

Members may wish to refer to:

- De-Rusting Incident Resulting In Eye Injury
- MSF: Foreign object in eye
- Unapproved repair of diver gas supply umbilical
- Failure of in-service saturation bailout bottle

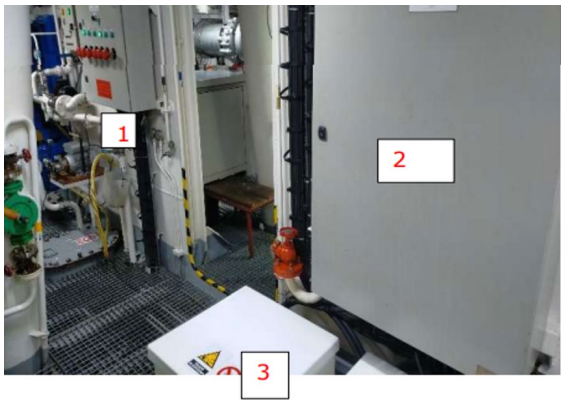
3 Battery explosion during routine maintenance

What happened

Applicable Life Saving Rule(s)

Energy Isolation

A chief engineer suffered minor injuries in a battery explosion when disconnecting a cable from the battery. The incident occurred onboard a harbour tug. The chief engineer was planning to replace a battery disconnect switch that had failed. While disconnecting the positive terminal, both terminals were inadvertently short-circuited with a spanner and the battery exploded causing injuries to the chief engineer. Operations were stopped, first aid was given and the tug returned alongside. After assessment at hospital the chief engineer returned to the tug with only minor injuries. The tug was out of service for four hours.



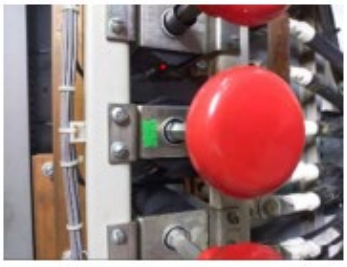
1. *Battery disconnect switches*
2. *External power supply*
3. *Battery box*

What went right?

- The external power supply breaker was switched off;
- To be able to work on the switch safely, it was decided to disconnect the battery cables so the switch would be isolated from the battery 24VDC.

What went wrong

The battery was inadvertently short-circuited with a spanner.



Battery disconnect switch

switchboard

damaged switch

Lessons learned

- Protect battery terminals with plastic caps to avoid accidental contact;

- Ensure proper PPE (gloves, apron, face shield) is used when working on batteries;
- Consider the use of tools appropriate for battery handling;
- Changes to vessel planned maintenance system:
  - Follow manufacturers recommendations for battery maintenance;
  - Increase the frequency of battery maintenance inspection to gain better control of batteries in a poor state;
  - Consider the installation of battery chargers with temperature sensors.

Members may wish to refer to:

- Short circuit on 440v AC bus bars – arc flash
- Electric shock near-miss

4 Poor control of work in dry dock

Applicable Life Saving Rule(s)

Bypassing Safety Controls | Hot Work | Work Authorisation

What happened

A member reports several cases of hot work and other activities being conducted by contractors on a vessel hull during dry dock/maintenance activities, in which the work was not fully or appropriately under the control of vessel management.

Examples included mesh cutting, pad-eye welding works on a vessel's hull, and an empty PTW station.

What went wrong

Discussion revealed a significant misunderstanding amongst the crew, that activities conducted outside the vessel and in the dry dock itself would be controlled by contractors with no involvement of vessel management. The potential hazards to vessel and crew were not considered.

Causes

- Lack of control of third-party activities: contractors working on the vessel hull were left unattended;
- Lack of Task Risk Assessment: risk assessment was too generic and did not cover task specific issues;
- Both company standards and procedures and locally applicable safety requirements were not followed.

Members may wish to refer to:

- Dropped objects in dry dock
- Use of damaged electrical equipment by dock workers
- Electrician suffered flash burn to hand *[third-party electrician on a vessel in dry dock]*

5 Ineffective Crane Stinger Hook Pin Installation (BSEE)

Applicable Life Saving Rule(s)

Safe Mechanical Lifting

What happened

The United States Bureau of Safety and Environmental Enforcement (BSEE) has published Safety Report 452 relating to a high-potential dropped object incident on a Gulf of Mexico energy facility. While using the platform crane to suspend a wireline lubricator, the pin holding the hook on the crane stinger backed out, resulting in the hook and lubricator falling. The incident caused damage to a section of the lubricator.

Figure 1

Figure 2

What went wrong

The incident investigation found that the cotter pin at the end of the hook pin had sheared (See Figure 1), which allowed the washer to fall and the pin to back out. When the pin backed out, it caused the ear on the connection to distort (See Figure 2), resulting in the hook failing. The investigation also found there was an inadequate pin configuration design. The pin installed on the hook assembly had a smooth composition (See Figure 3). The operator determined that a threaded bolt with nuts and keepers (See Figure 4) was the proper pin design for ensuring the stinger remains secure throughout lifting operations. BSEE notes that following this event, the operator inspected their other facilities and found the same improper arrangement on additional cranes.

Figure 3

Figure 4

Actions

Therefore, BSEE recommends that operators and contractors:

- Inspect all cranes on the facility and verify that the hook assembly has a threaded pin with nuts and keepers;
- Retro-fit any stingers equipped with an improper stinger hook pin configuration;
- Verify all crane components are in alignment with current manufacturer recommendations;
- Add “assessment of the pin condition” into the pre-use inspection checklist, which should be completed before conducting lifting operations.

Members may wish to refer to:

- Near-miss: Rigging recovered with missing nut from tri-plate shackle
- Use of spelter sockets