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 NTSB – Safer Seas Digest 2020

The National Transportation Safety Board (NTSB) of the United States has published their SAFER SEAS Digest 2020, being lessons learned from marine accident investigations. The NTSB determines the probable cause of the accidents and issues safety recommendations aimed at preventing future accidents.

The digest covers lessons learned from 42 maritime accidents involving contact with fixed objects, sinkings, collisions, fires, explosions, flooding, groundings, and capsizings. The safety issues categorised include:

- Procedures and effective communication;
- Fatigue;
- Crew training;
- Voyage planning and dynamic risk assessment, vessel speed;
- Smoke detection, storage of flammable or combustible materials, closing ventilation inlets during a fire;
- Lithium-ion battery hazards;
- Navigating through bridges, operating in high-water/high-current conditions;
- Effective hull inspection and maintenance, inspection of control linkages.

The contents include reports on the investigation into:

- 18 cases of vessels inappropriately contacting the quay or other fixed structure;
- 8 collisions;
- 6 fires or explosions;
- 4 flooding incidents,
- 2 groundings and,
- Equipment and machinery failure.

Also covered is the sinking of the Liftboat *Kristin Faye*.

2 MSF: Hand Injury Sustained During Routine Checks

Applicable Life Saving Rule(s)

Line of Fire

The Marine Safety Forum (MSF) has published Safety Alert 21-13 relating to a hand injury sustained during routine activities.

What happened?

During routine weekly checks, someone was performing tests for the emergency generator. The MSF reports that he approached the generator to investigate an abnormal noise coming from the cooling fan, and his fingers were struck by the fan blades, and he sustained an injury to three of the fingers on his right hand.

Why did it happen?

The MSF's correspondent notes the following:

- Unsafe, complacent behaviour;
- Lack of situational awareness - he placed his hands in an area with a partly exposed rotating part;
- The injured person was working alone;
- The fan was partly unprotected.

Actions and lessons learned

- Modifications were made to the fan guard of the emergency generator to avoid any possibility of touching the fan - and warning signs were posted;
- Further training for crew in "Situational Awareness";
- A fresh look at hand safety in general:
  - Always be aware of where your hands are at all times;
  - Always wear the appropriate PPE (including the right gloves for the job);
  - Always identify all potential hand hazards (i.e., line of fire, pinch points) and take the appropriate mitigating steps during the planning stage of a job;
  - Always use Risk Assessment and Toolbox Talk as appropriate in all tasks, whether formal or informal;
  - Risk Assessment should be specific and identify the hazards and the Toolbox Talk should include discussion of the task at hand with those involved;
  - If you don't understand, ASK!! Don't start the job, however simple or complex, unless you understand what you are supposed to be doing.

Please STOP and think!! Watch your hands – you've only got one set!!

Members may wish to review:

- *Are you prepared to work safely?* Short video Line of fire
- IMCA poster on hand safety
- Hand injury when caught in machinery
- Finger injury caused by incorrectly secured console cover
- Hydraulic sample extruder - finger laceration

3 Electrician suffered flash burn to hand

What happened

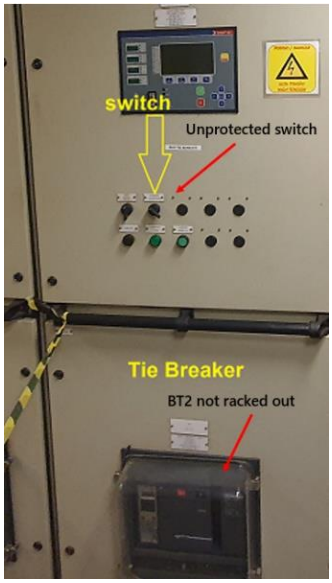
A third-party electrician on a vessel in dry dock got burnt whilst verifying the integrity of insulation on a 690 Volt bus bar. A voltaic arc was created resulting in a flash burn to his hand. Following medical treatment and a period of restricted duties, he returned to work.

Applicable Life Saving Rule(s)

Energy Isolation

What were the causes?

- The switchboard was energized / live. The bus-tie status switch had been moved to "auto" from "off" and an [as yet] unidentified function of the Power Management System commanded bus-tie breaker 2 (BT2) to close;
- The crew 'racked out' most of the circuit breakers, therefore physically isolating them. BT2 was not physically 'racked out' because the crew mistakenly believed that this would cause the vessel to blackout. 'Isolation' was made using the status switch which may have been considered sufficient had the switch been effectively guarded (locked and tagged), but it wasn't, and no further action was taken to prevent access.



Lessons learned

- **Planning** - the vessel/shipyard interface document identified that the shipyard permit-to-work system should be used, however the shipyard management system did not specifically address electrical work and did not specifically require a task risk assessment or lock-out tag-out controls;
- **Supervision** – The required level of supervision of shipyard personnel and contractors was underestimated in the planning phase of the dry docking leading to insufficient crew being allocated and/or available to supervise critical activities;
- **Communication** – Changing the status of the bus bar switch (which was not locked out and tagged) occurred during lunch break and was not communicated nor identified prior to resuming work;
- **Monitoring** - Gaps in the shipyard Permit To Work system were not identified earlier.

Actions taken

- Additional crew were mobilised to enable adequate supervision and support of activities for the remainder of dry dock;
- The existing shipyard Permit To Work system was augmented with task risk assessments, lock-out tag-out control processes and emergency response instructions and toolbox talks;
- The circuit breaker switches were modified to facilitate effective lock-out tag-out;
- A functionality test of the vessel main power management system was conducted, and documentation / manuals and training updated.

Members may wish to refer to:

- HSSE 032 *Guidance on safety in shipyards*
- Shipyard worker receives electrical shock
- Crisis Management: Rail Industry High Potential Near Miss
- Electrician received electric shock from a bare cable
- Electric Arc Incident

4 Failure of in-service saturation bailout bottle

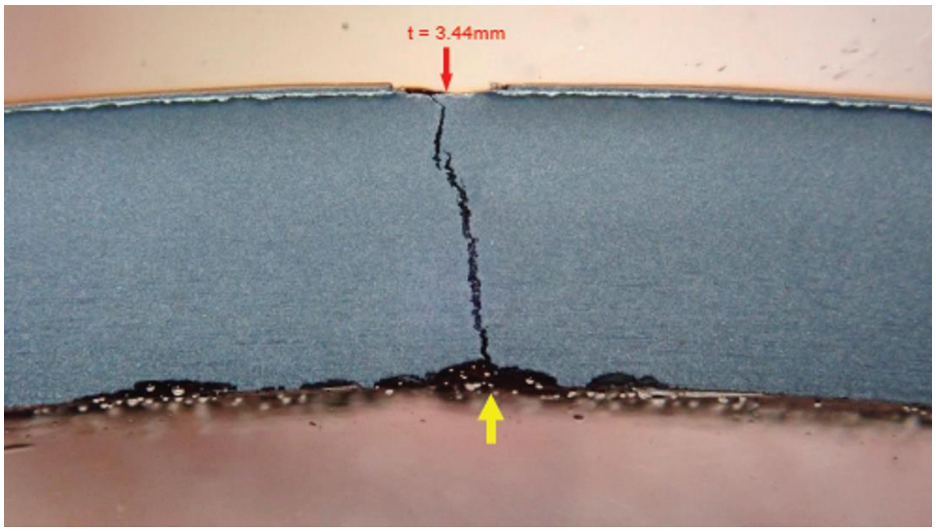
What happened?

During saturation diving operations, Diver 1 reported his bailout bottle pressure dropped. A leak was observed by diver 2 but the origin was uncertain. Diver 1 returned to the bell and changed his bailout bottle. The leaking bailout bottle was removed in the bell trunking and stored in the clump weight basket.

Upon recovery to deck, the bailout bottle was found to have 3 pin holes on the side wall hidden by a locking clasp. Saturation diving operations were suspended and all bailout bottles from the same manufacture of the same type were taken out of service and quarantined.

Leaking cylinder

Internal surface of cylinder, showing corrosion over entire surface. Leak location circled.



A cross-section through the cylinder wall at the leak location showing a through-thickness crack. The cylinder suffered internal corrosion at the crack location, with a measured remaining wall thickness of 3.44mm.

What went wrong

A through-wall defect 42mm long approx. was observed, with 3 small leak paths.

What were the causes of the incident?

- The primary factor was water/moisture on the internal surface of the cylinder, promoting corrosion. High levels of chlorides and possibly produced hydrogen may have led to the Stress Corrosion (SCC) and/or Hydrogen Stress Cracking (HSC) mechanisms;
- The root cause was suspected to be third-party testing and/or unsuitable long-term storage.

Lessons learned

- Improvement required for technical specification for servicing, testing and inspection of bailout bottles;
- Drying procedure used by supplier deemed to be inadequate;

- Bottle receipt and storage process deemed inadequate - potentially exacerbating internal corrosion.

Actions

- Verify that third-party procedures are fit for purpose and followed;
- Improve receipt inspection and storage of bailout bottles to ensure they are dried and sealed.

Members may wish to refer to:

- IMCA D 018 *Code of practice for the initial and periodic examination, testing and certification of diving plant and equipment*
- COBRA bailout system – guidance note
- Substandard nitrogen quads delivered to shipyard
- High potential near miss: failure of valve on gas bottle

5 Stuck emergency hatch freed

What happened?

It was discovered, during an inspection onboard, that the emergency escape hatch leading from the steering gear compartment to the main deck walkway on the starboard side, was rusted shut, stuck and could not be opened.

Emergency hatches and doors should be usable in emergency and ought not impede emergency escape.

What were the causes?

Our member identified that

- The crew were not familiar with the importance of this emergency escape hatch;
- There was a poor maintenance culture;
- Onboard responsibility for safety was neglected.

Actions

- Check that all emergency escape hatches and fire doors are always free from obstacles and/or obstruction;
- Add routine inspection of emergency escape hatches to planned maintenance system;
- Ensure hinges are greased and maintained properly.

Members may wish to refer to:

- Incidents relating to hatches and doors
- Only a centimetre – an emergency exit hatch blocked by mooring ropes
- Inadequate maintenance and securing arrangements of emergency exit hatches

Escape hatch rusted closed

Escape hatch made free after greasing

6 UK HSE: employee scalped when hair trapped in a pillar drill

Applicable Life Saving Rule(s)

Bypassing Safety Controls

Line of Fire

What happened

The UK Health and Safety Executive (HSE) has fined a company after an employee received scalping injuries when her hair became entangled in a pillar drill. Press release here.

An employee got her hair caught in a rotating pillar drill and as a result suffered life changing injuries when her scalp and part of her ear were torn off.

What went wrong?

Investigation revealed that:

- The rotating parts of the drill were not guarded in accordance with standard industry practice;
- The company's own risk assessment for using the drill had identified a guard should be fitted, but evidence obtained indicated the drill had been operated without one for a number of years.

IMCA members have reported a number of incidents where employees have suffered injuries from pillar drills or from other rotating machinery. This is an area where a fresh focus may be productive in improving safety.

Please see the following:

- Arm injury whilst using pillar drill (2017)
- Finger injury during work with rotating machinery (2017)
- Hand injury whilst using pillar drill (2017)
- UK HSE: Worker suffers life-changing crush injuries - rotating machine (2018)
- Serious Injury from Rotating Winch (2018)
- LTI: finger injury during work with rotating machinery (2019)
- Three hand injuries (2019)
- Hand injury when caught in machinery (2020)