Safety Flash

13/23 – May 2023

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 Hand injury while using manual torque tool

Applicable Life Saving Rule(s)

Line of Fire

What happened?

A deck engineer was torquing Grayloc clamp bolts connecting the gooseneck connector onto the second end of a flexible, using a manual torque wrench with a force multiplier attached. A project engineer was in the moonpool area to verify the torque settings on the wrench, as stipulated in the task plan. The project engineer stepped in to assist the deck engineer and they began torquing the bolts together. During the torquing of the last bolt, the project engineer placed his left hand on the reaction bar of the force multiplier as torque was being applied. His hand slipped and was trapped between the reaction bar and the gooseneck causing a hand injury.

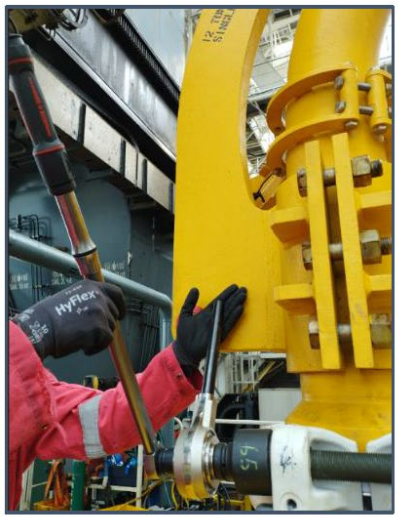


Photo #1: Injured Party (IP) hand placement at time of incident

Photo #2: Personnel Positioning

Photo #3: Manual torque tool with force multiplier

What went wrong

- Those supervising and those in control of the task did not intervene when the project engineer got involved in the work;
- The pre-job briefing received by the injured person before travelling offshore did not include any advice, in terms of roles and responsibilities, on what activities project engineers do and do not get involved in;
- The project engineer who was injured was not involved in the deck engineer's Toolbox Talk (TBT) even though he had a specific role in the task plan to verify the torque tool settings;
- The project engineer was not trained or qualified for the task he was participating in.

Lessons to learn

- Ask yourself "What should have been done differently?" to prevent this injury event?
- If it's not safe, stop the job!
  - Reinforce the expectations with supervisors to stop work if workers from outside the assigned and briefed work team become involved in the task. The natural inclination may be to offer to help: this is not always safe or appropriate;
  - Ensure that the obligation and expectation to exercise **stop work authority** is clearly communicated and understood by all parties;
- Review inductions for new personnel travelling offshore or to site for the first time. Ensure the induction covers their specific roles and responsibilities on site;
- Ensure that ALL personnel involved in an activity are included in the toolbox talk – and that they can understand what is being discussed in the toolbox talk and what is going on in the task;
- Ensure all are aware that they should be trained on equipment before using it.

Members may wish to refer to:

- Communications: LTI finger injury during lifting operations *[Roles, responsibilities, communication, and risks during lifting operations were not discussed during toolbox talk (TBT) which was held in English and translated into another language for one attendee who did not speak English]*
- Near Miss: Personnel nearly struck by rotating chain attached to flexible pipe *[Key people involved were inexperienced in this specific activity and were not familiar with the task in hand]*
- Dropped object fell from crane – Poor communication/lack of awareness/control of work
- BSEE – "Green hats" – training and supervision of short service employees

2 Loss of redundancy in diving bell launch and recovery (LARS) PLC system

What happened

During a vessel transit to an offshore field, Dive Technicians on a routine walkaround noticed an alarm from the LARS for the dive bells. Investigation indicated loss of automatic (LARS) PLC redundancy caused by failure of one of the PLC fibre optic processor synchronisation links. This resulted in the loss of normal operation and increased the risk of single point failure of the dive bell Launch and Recovery System (LARS), so the decision was taken to return to port. No-one was injured. The divers in the saturation chambers were not affected by the system fault.

In port, an independent control system specialist reviewed the diagnostic data and confirmed the dive technician's initial diagnosis that one of the redundancy synchronisation link fibre optic communication modules had failed.

Unfortunately, it was not possible to immediately repair the loss of automatic redundancy fault as the dive control systems spares inventory did not include spare synchronisation modules. The original equipment manufacturer who designed the dive bell LARS PLC system had made no recommendation to hold spare synchronisation modules in stock. Spares were immediately ordered but were not readily available.

What was the safe workaround?

The company and the client discussed a way forward, and a "return to work" protocol was discussed, risk assessed and approved. Risk assessment involved testing the LARS operation of each of the redundant PLC processors independently and manual changeover of the processors to proof test a temporary manual redundancy option. These tests were carried out successfully on both forward and aft dive bells. The DSV then returned to the field and safely completed the job for the client with no further issues.

At a subsequent port call the spare synchronisation modules were delivered and installed by the Dive Technicians and the automatic LARS PLC redundancy was restored. The repair was witnessed and signed off by the client's diving

subject matter experts. The faulty synchronisation module was returned to the manufacturer for further investigation.

What went wrong

A diode failed: the failure of the LARS redundant PLC synchronisation module is classed as a 'random hardware failure.'

- The risk of random hardware failures in programmable control system can be mitigated by proof testing. The dive company did carry out annual proof tests to trigger the automatic LARS PLC redundancy and the proof test records were up to date;
- The company had followed the dive control system spares list guidance provided by the original equipment manufacturer (OEM) and did not have the spare synchronisation modules in stock;
- The redundant PLC hardware configuration used on the LARS was a standard, proven solution provided by one of the leaders in automation systems and used globally on many safety-critical applications;
- The available data led everyone involved to assume that it was highly unlikely that the synchronisation module would fail in normal use;
- Following their investigation of the faulty module, the manufacturer concluded that the synchronisation module hardware had developed a faulty transmitting diode.

3 Hand injury in medical airlock

Applicable Life Saving Rule(s)

Line of Fire

What happened

An LST (Life Support Technician) suffered a finger injury whilst operating the medical airlock ("Med-lock") on a dive chamber. The LST (Life Support Technician) was closing the Med-lock door but was unable to rotate the door to the fully closed position, indicating that the hatch needed to rotate further clockwise. The LST attempted to rotate the hatch counterclockwise in order to be able to open the door and inspect it. The Med-lock was stiff to rotate. For leverage to assist with rotating the Med-lock, the LST placed his hand on the flat bars that brace the operating wheel. The hatch moved suddenly and because his hands were on the brace and not on the wheel itself, his hand got pinched between the brace and the Med-lock door hinge plate, causing an injury.

Location where LST placed hand for leverage to rotate medlock hatch counterclockwise

Location where finger was pinched when the medlock hatch rotated

What went wrong

The hatch was stiff, and the LST had his fingers in the wrong place at the wrong time.

Lessons learnt

- Maintain proper lubrication on the door. Added Med-lock maintenance to planned maintenance programme;
- Added warning signage to the Med-Lock, for appropriate hand placement, along with clear instructions;
- Updated the vessel familiarization to include Med-lock operations and demonstrate operations.

Members may wish to refer to

- Hand injury during closing of hatch
- Finger injury: pinch point

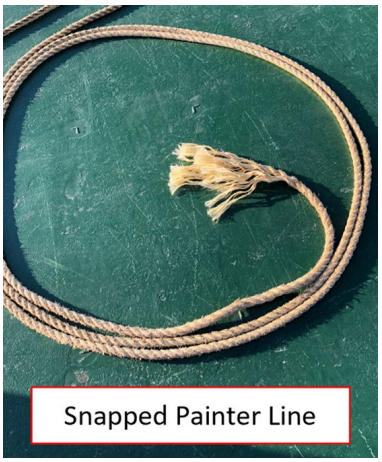
4 Painter line snapped and hit crew member in the face

Applicable Life Saving Rule(s)

Line of Fire

What happened

A painter line snapped during towing operations, and the flying end struck a worker in the face. The worker was wearing full PPE (helmet and safety glasses) and had it not been for the helmet and safety glasses there could have been a more serious injury. The safety glasses were destroyed.



What went wrong

Investigation of this incident is ongoing. Our member notes that findings will be shared in due course. This bulletin is intended to **RE-MIND** us of the importance of Personal Protective Equipment.

Members may wish to refer to:

- Line of fire – short video
- IMCA HSSE 036 *In the Line of fire* – longer video
- IMCA HSSE 038 *Mooring incidents*

5 MSF: Disposable vape self-ignition

The Marine Safety Forum (MSF) has published Safety Alert 23-03 relating to an incident where an e-cigarette ("vape") caused a small fire. This may be of interest to members.



What happened

A fire pre-alarm was raised on the bridge fire detection panel and accepted by the Duty Officer. Phone call immediately received from crew member to the Bridge informing that there was an incident with a disposable vape in his cabin, but that there was no immediate danger.

On investigation at the cabin in question, a slight smoke and smell of burning was noticed. The crew member explained that the disposable vape self-ignited on the table at which he was sitting in the chair with laptop on his lap. He immediately jumped and tried to extinguish burning vape with hands, but realising it was hot, automatically threw it onto his bed where the vape continued to burn on the mattress. He used two T-shirts to choke the fire.

What went wrong

- The company Smoking Policy, which forbade the use of e-cigarettes, was not followed; the company mandated that these devices should not be taken onboard vessels;
- The bedding used by the crew member in the cabin was not standard company issue, and thus did not comply with IMO SOLAS regulations.

Actions

- Ensure compliance with company policy on smoking and vaping, and the non-use of e-cigarette devices;
- Closer attention to e-cigarette devices when carrying out ISPS checks on board;
- Ensure bedding onboard is compliant with IMO SOLAS regulations.

Members may wish to refer to:

- Cabin fire caused by light fitting overheating
- Fire in the accommodation: electronic items in cabins
- Near-miss: burnt out electrical socket