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 Diver Finger Injury – Scrubber Blower Fan

Applicable Life Saving Rule(s)

Energy Isolation

What happened

A diver suffered a minor hand injury when he put his hand on part of a fan which should not have been exposed. The incident occurred on a vessel carrying out mobilization; a diver was in the starboard bell carrying out bell checks. He placed his hand on the soda sorb fan motor housing (scrubber). The fan motor was running to improve air flow through the bell. There was no soda sorb canister attached leaving a small exposure point to the fan which nipped his thumb causing a small injury.

What went wrong

- Fan not switched off;
- Risk assessment did not include hazard posed by the rotating fan, nor the requirement to switch off the fan when the canister was removed.

What our member did next

- Reviewed equipment design: considered adding a guard (seen as undesirable as this would restrict gas flow) or altering the design to include an automatic cut off (this may fail);
- Updated appropriate company risk assessment to include requirement to switch off the fan when the canister was removed during bell entry;
- Appropriate signs or labels were also considered.

Another solution may be to fit an empty cannister to the fan. This would protect the diver's fingers from the fan while not wasting any CO2 absorbent.

Members may wish to refer to:

- MSF: Hand Injury Sustained During Routine Checks
- Hand injury when caught in machinery
- Hydraulic sample extruder – finger laceration
- *Are you prepared to work safely?* Short video Line of fire
- IMCA poster on hand safety

2 BSEE: Unsecured Pressurized Hoses Result in Hand Injuries

Applicable Life Saving Rule(s)

Energy Isolation

What happened

The United States Bureau of Safety and Environmental Enforcement BSEE) has published Safety Alert No. 442 relating to hand injuries caused by handling unsecured pressurised hoses during coil tubing operations.

Incident 1: A flexi coil hose was filled with salt water during a pressure test and tested to 10,000 psi for 10 minutes. The pressure was bled to 6,000 psi through a needle valve at the pump's discharge following the successful test. Once the pressure was bled to 6,000 psi, a worker began releasing pressure from a ball valve on the upstream end of the flexi coil hose. While doing so, the flexi coil hose backlashed and pulled the valve from the worker's hand, causing the ball valve to contact the coil reel of the unit. The ball valve came apart when it hit the unit, and the handle contacted his right thumb, causing a laceration. The injured worker stated he was wearing latex gloves at the time of the incident. Right before opening the valve handle, he had been handling hydraulic oil.

Incident 2: Crew were in the process of rigging up three nitrogen bottle racks to blowdown and purge the reel during rigging down operations. After a successful connection to the reel, the three nitrogen bottle racks were opened to pressurize the line. A valve at the reel was opened to begin purging the reel. After opening the reel valve, the nitrogen hose connecting the second bottle rack failed at the brass fitting, sending the pressurized hose whipping around. The injured crew member was struck in the hand, resulting in two broken fingers and multiple lacerations. The hose then struck a second worker in the arm, causing bruising and swelling of the forearm. The injured person was not wearing impact gloves at the time of the incident.

What went wrong

In both cases, the injured parties were not wearing proper impact gloves to help reduce the severity of a hand injury. Moreover, in neither incident was the appropriate safety device/equipment installed to keep the pressurized hose secured correctly in the event of a mechanical failure.

Incident 2: Failed Hose Connection on Bottle Rack.

Incident 1: The spot where the contractor's right thumb was pinched between the ball valve and the horse head.

In incident 2, the job safety analysis (JSA) did not address the procedure for blowing down the reel dry and other associated hazards.

BSEE recommendations included:

- Emphasize the use of properly fitting gloves (e.g., impact, chemical, or a dual glove) in the JSA to reduce or eliminate the severity of sustained hand injuries;
- Depressurise the line entirely or depressurize to a much lower pressure before manipulating valves under pressure;
- Ensure that during pressure testing, hoses are secured to prevent them from moving. Avoid stressing small threaded connections by properly supporting hoses and tubing;
- Use a whip check across a pressurized hose connection to mitigate uncontrolled movement in the event of connection failure;

- Verify that all valves are in the correct position before pressurizing equipment;
- Determine the correct PPE before handling chemicals. The materials used in some protective gloves may provide excellent protection against specific chemicals but may be ineffective against others;
- Ensure full and comprehensive review of every job task and associated hazards during the creation of the JSA;
- Use **Stop Work Authority** when equipment is unsafe or if you discover a new hazard!

Members may wish to refer to:

- High potential near miss: Nitrogen hose failure during transfer of gas
- Near miss: unplanned release of 2" blasting hose outlet from air receiver coupling clamp
- Worker suffers life changing injury after pressure test failure

3 Cook's arm scalded while removing food from oven

Applicable Life Saving Rule(s)

Line of Fire

What happened

At a meal time the chief cook opened the upper part of a combined oven to remove a tray of rice that was being kept heated. The tray was at head height for the injured person. Whilst removing the tray, scalding hot water (condensed steam) on the surface of the lid dripped onto the cook's arm causing a scald injury. The accident was a medical treatment case and the cook had to be sent ashore for treatment.

What went wrong?

The lower oven (which would have been safer) was not working and the upper oven was used instead for hot food storage. As the cook was shorter than the height of the oven it was not possible for him to see the condensed steam on the surface of the lid when he removed the tray.

What were the causes?

Our member determined that the root causes of the incident were inadequate communication and previously damaged equipment. Contributory factors were inadequate inspection and inadequate risk identification and/or risk assessment.

Reaching upwards for a hazardous or heavy object at eye-line is something that ought to occur to you as being potentially tricky. In this case the cook could not see the top of the tray – and scalding water ran off the tray onto his arm. In different circumstances, this could have been dust or debris sliding off the object into your eyes and your face. You might find such an object is too heavy to control with your arms raised. **Stop and think!**

Lessons learned

Our member:

- Fixed the lower oven and amended the Planned Maintenance schedule;
- Reviewed the risk assessment and procedure for this task;
- Further encouraged crew to report that equipment had failed;
- Replaced the lids with PVC plastic (film stretch);

Members may wish to refer to:

- LTI: Loss of fingertip and nail
- Near-miss: Fire axe falls out of cabinet, almost hits a fireman's toes

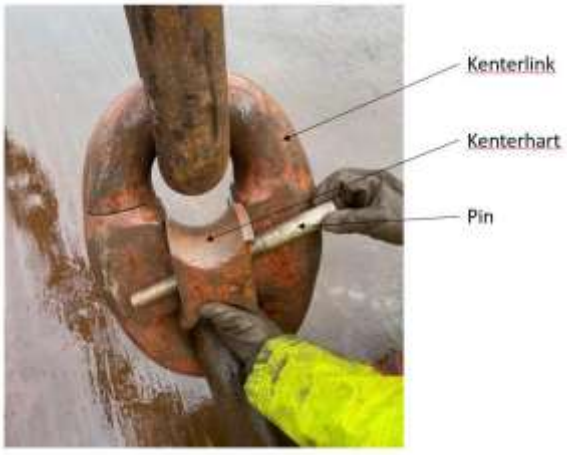
4 LTI: fractured finger during anchor handling

Applicable Life Saving Rule(s)

Line of Fire

What happened?

A crew member suffered a serious finger injury when he got his finger trapped. The incident occurred when a vessel had been installing mooring elements, suction anchors and mooring chain. Whilst handling chain, the injured person got his finger squeezed when loosening a bolt (pin) from the central part of a Kenter link (Kenter heart). He went to see the medic onboard and was treated, but was unable to do any practical work on deck the next day. When the vessel arrived back in port he was sent for X-rays, which revealed that the fingertip was fractured. He was then sent home on sick leave.



Suction Anchors and Mooring Chain

What went right

The injured person was just hired and had a positive learning attitude to the job, and felt that he was well taken care of and safe. There were personnel working around him on deck and he was a part of a "buddy" system.

What went wrong

The injured person was sitting on deck hitting the Kenter heart down to drive out the pin. The pin is a conical shape, and so it must be done the correct way or else it will be driven firmer into the Kenter heart. If this is done the correct way, the pin comes out easily. While he was hitting the heart with the pin down to a hard surface the wrong way, it didn't loosen but slipped and his finger got squeezed/pinched between the deck/chain and Kenter heart.

Short IMCA videos

Are YOU prepared to work safely?

Watch your hands

Line of fire

Manual handling

What were the root causes?

- Lack of training & knowledge – the injured person had previous experience on deck on various vessels, but was new to this vessel and anchor handling operations. While he had received training and he was supervised working on the aft deck. He did not know about the conic shape of the pin in the Kenter heart.

- Insufficient supervision – whilst there were personnel working around him on deck and he was a part of a "buddy" system, he was not being overseen at the time of the incident;
- Lack of effective risk assessment - the risk assessment for the specific job was done in the beginning of the campaign *before the injured person was onboard*. The team did not effectively perceive the risks in the situation and the injured person did not stop to get advice from his colleagues.

Lessons

- A higher focus on training and supervision of inexperienced or new personnel;
- Communicate incident effectively: New employees represent an increased risk of injuries and need special attention during their first shifts and time onboard. Increased activity in general, also means increased number of new employees onboard the vessels.
- Could impact gloves be helpful in some operations on deck?

Members may wish to refer to:

- LTI: Loss of fingertip and nail
- Finger injury while using a crowbar to try to shift a large shackle

5 LTI: person struck by uncontrolled swing in chain

Applicable Life Saving Rule(s)

Line of Fire

What happened

An anchor chain swung unexpectedly across the deck and hit a crew member, causing an injury to his foot resulting in an LTRI. Anchors were being pulled over the stern using aft tugger winches, controlled remotely by AB's. At the same time, a winch operator on the bridge operated the winch that pulls in the chain.

When the anchor was pulled backwards, it started to lose its initial "heading". When approaching the stern roller, the anchor was at a 45 degree angle to the vessel heading. This was not identified as a risk since all involved persons where at a safe distance from the anchor. As the weight of the anchor passed over the roller, the anchor straightened up as expected, but this also created an unexpected swing of the chain going forward to the main winch. The chain swung from the port side and approx. two meters to starboard and subsequently struck the left safety boot of one of the AB's causing an injury.

What went wrong

This specific anchor had a bridle with shackles attached underneath. So, when the anchor moved, it was "riding" on these shackles. This made it particularly difficult to "steer" the anchor. Instead of stopping and re-positioning

the wrongly positioned anchor, the crew continued to pull it over the stern with a 45 degree angle; no-one anticipated the sudden and excessive movement of the anchor chain across the deck.

Lessons learnt

- Insufficient risk assessment and job preparation – much more thorough risk assessment and tool box talk, including discussion of safe positions, snap back zones, clear deck policies etc.;
- There was poor situational awareness. Crew noticed the angle of the anchor but did not realize the positioning of the deck crew;
- When pulling an anchor over the stern, the anchor should be straightened up if it comes with an angle. This will reduce the likelihood of equipment damage and potentially dangerous situations for the deck crew. Vessel to review and improve operational routines;
- Emphasise the "Stop the Job" policy. Everyone has the right/responsibility to stop the job if they see that something is not how it should be.

Members may wish to refer to:

- Lost time injury (LTI) during mooring operations
- Crewman fatally injured during mooring operations