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 Fatality during transfer of pipes

Applicable Life Saving Rule(s)

Line of Fire

Safe Mechanical Lifting

What happened

A member passes information to IMCA relating to a recent fatality on a ship alongside. The incident occurred during the transfer of pipework between the quay and vessel.

The incident is still under investigation by the local authorities. This flash serves to raise awareness, as lifting operations are a regular occurrence in offshore operations along with mobilisation and demobilisation and there is the potential for similar incidents to occur on IMCA members' vessels.

Lessons/reminders

- Lifting operations:
  - Never exceed safe working load (SWL) during lifting operations;
  - Never walk under a suspended load (see Step Change video linked below);
  - Identify all entrapment and crush areas;
  - Be aware of sudden load movement and loads swinging;
  - Ensure effective barriers are in place to prevent unauthorised access.

Image: DROPS forum

- Objects with roll or fall potential:
  - Secure all loads that have the potential to roll before lifting, loading, unloading or transporting;
  - Pay close attention when moving loads with all forms of transport;
  - What will you do if the load shifts? Stay out of the line of fire;
  - Secure objects that can roll such as tools, cylinders and poles.
- Dropped object cone of exposure (drop zones):

A controlled 'drop zone' should be half the height of the potential drop where possible with the area increased if potential exists for the falling object to be deflected by an obstacle, structure, wind and weather conditions.

Members may wish to refer to:

- Step Change in Safety "*Safe Lifting, Working at Height, and Preventing Dropped Objects*" – including short video
- HSSE 019 *Guidelines for lifting operations*
- Short video *lifting operations*

- Short video *Line of fire*

2 Getting fall arrest equipment right

Applicable Life Saving Rule(s)

Working at Height

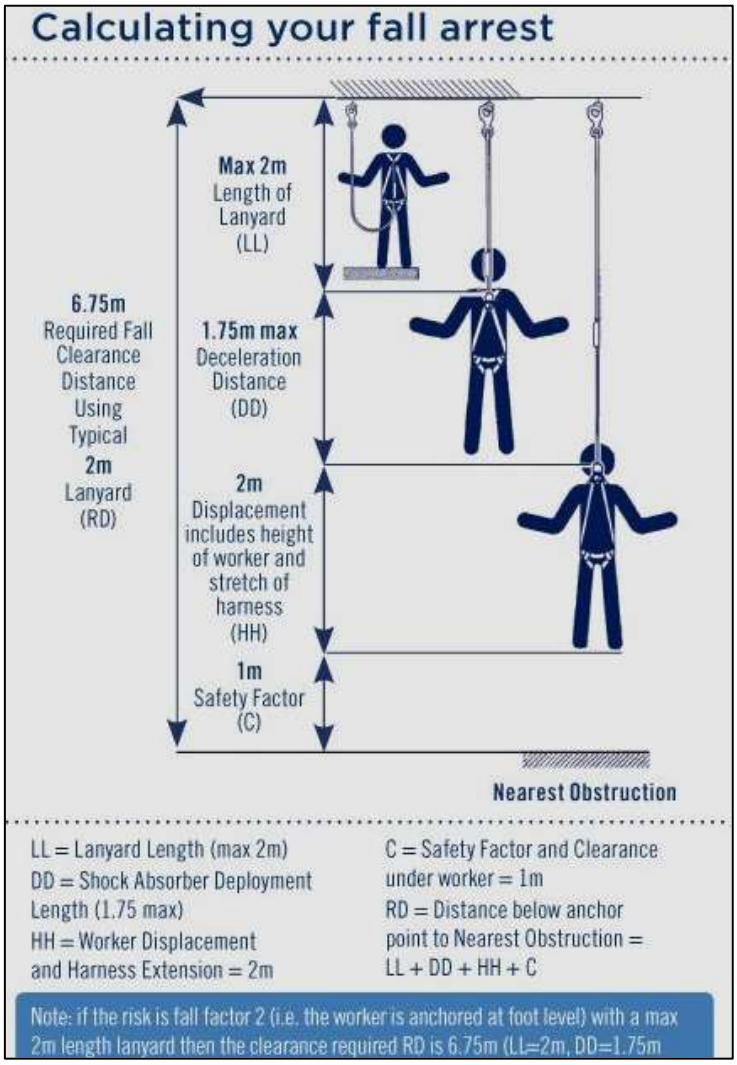
What happened

A crew person was changing the lamp bulbs on the vessel mast, working at a height of around 4m above the deck. The person was wearing a full set of PPE including a certified safety harness with a lanyard equipped with a shock absorber. There was a Permit to Work in place.

However, the total length of all this safety equipment had not been properly taken into account.

- 1.75m: the safety lanyard shock absorber;
- 2m: the lanyard itself;
- 1.9m: the approximate height of the person being protected.

This added up to 5.65m, whereas the person was working 4m above the deck. In the case of a fall from height, the fall arrest equipment would have been of no use and the person could have fallen to deck unprotected. He did not fall – no-one was injured.



What went right and wrong?

- Right: the crew person was wearing fall arrest equipment and there was a Permit to Work in place – some incomplete assessment of risk had at least taken place;
- Wrong:
  - The risk assessment was not adequate; no-one thought to check that the proposed work height relative to the length of the fall arrest equipment;
  - No-one noticed or considered that the fall arrest safety lanyard was clearly marked "Minimum 6m clearance distance" (see image);

Lessons

Correctly calculate your fall arrest!

Members may wish to refer to

- Near-miss: improper use of fall-arrest equipment leads to fall
- Fall from Height Leading to Injury

3 Paper shredder – explosion

What happened

There was a small explosion in an office paper shredder. It happened after the blades were lubricated to ensure that the paper shredder cutting blades ran smoothly and to prevent paper jams after a period of intensive use. The method adopted, was to spray WD-40 silicone lubricant onto a sheet of paper, switch on the machine and immediately feed the lubricated sheet through shredder blades. The heat generated during the shredding process or a spark from the internal motor ignited the WD-40 vapours, which had accumulated inside the shredder collection bin. This resulted in a small explosion. No-one was harmed; the paper shredder's plastic bin was destroyed.

Lessons learned and actions taken

- WD-40 silicone spray is classified as a flammable product.
  - The office staff did not appreciate the risks associated with using a flammable product;
  - The WD-40 silicone lubricant safety data sheet had not been adequately reviewed;
  - The use of WD40 silicone lubricant use of the product had not been properly risk assessed.
- The paper shredder operating instructions do state that "proprietary lubrication sheets" should be used to lubricate the shredder blades – appropriate paper shredder lubrication sheets were purchased;
- Our member reviewed:
  - how hazardous substances are selected, used and managed on site;
  - manufacturer's instructions and maintenance requirements for these products, with appropriate safe systems and precautions implemented.
- **Read, understand and follow manufacturers' instructions!**
- **Be aware of the risks of flammable products.**

Members may wish to refer to:

- Burns suffered in confined space *[similar cause: a heat source contacted in inappropriately used flammable substance]*
- Ignited hand sanitiser *[injured person failed to realise how flammable the sanitiser was]*
- Punctured aerosol results in chemical burns
- BSEE: Unsafe chemical use and disposal

4 MSF: Air Cylinder – High Pressure Discharge

The Marine Safety Forum (MSF) have published Safety Alert 23-10 relating to a pillar valve failure.

What happened

During preparations to land a leaking breathing apparatus bottle ashore, a crew member was draining the remaining pressure from the bottle when the pillar valve broke off from the top. On inspection of the damaged valve, it was found that there was a fracture of the threaded end which had resulted in failure along a crack likely caused by metal fatigue. The MSF notes that *"although this could not have been foreseen, the potential for serious injury was very high if the bottle had been fully pressurised. In this case there were no injured persons."*

What was the cause

The cylinder and associated fittings were sent for further investigation, and the investigator noted that there was evidence that the pillar valve had "*seen a heavy impact, the nut retaining the handwheel has been pushed through the handwheel itself and …what is left of the spindle has also seen a heavy impact along with the valve itself*." It was the opinion of the investigator that the cylinder had been dropped onto the valve causing it to break. This was considered a very serious incident that ultimately could have caused a fatality.



Actions

The MSF report notes that there was an extremely high potential for this incident to have caused harm. The vessel owner recommended the following actions:

- When moving pressurised cylinders around the vessel extreme care should be exercised;
- When decanting cylinders for transportation, the cylinder should be held securely with the valve being slightly cracked open with the contents being released in a slow and controlled manner;
- Always make sure that the valve end of the cylinder is pointing away from yourself and any colleagues;
- When conducting this operation full PPE should be worn;
- The vessel owner is investigating the fitting of Excess Flow Valves when individual cylinders pass through the maintenance workshop.

Members may wish to refer to:

- High potential near miss: failure of valve on gas bottle
- Injuries due to failure of diver's emergency gas cylinder
- Pillar valve failure

5 BSEE: Improper use and application of high-pressure hoses

The United States Bureau of Safety and Environmental Enforcement (BSEE) has published Safety Alert 465 relating to the improper use and application of high-pressure hoses.

What happened

During a recent offshore inspection, a BSEE inspector observed operator personnel installing a 30m high pressure hose, with a Maximum Working Pressure (MWP) of 5000 psi, to test pressure safety valves on pipeline pumps. The hose used was designed for hydraulic fluid and was not suitable for high-pressure nitrogen; when nitrogen gas at 2500 psi was injected into the hydraulic hose, the hose blistered, allowing nitrogen gas to leak.

Incompatible hydraulic hose blistered during use

Hose with application information

BSEE recommendations

BSEE recommends operators and their contractors, where appropriate, consider:

- Selecting hoses based on size, temperature, application, material to be conveyed, pressure, ends or couplings, and delivery;
- Sizing the inside diameter (I.D.) and outside diameter (O.D.) appropriately to minimize pressure loss and reduce heat generation;
- Choosing the appropriate hose size to match the new hose or referencing the original equipment manufacturer (OEM) for specifications of the equipment requiring the hose;
- Ensuring the operating temperature of the hose is similar in temperature to the fluid and ambient temperatures. Both high and low temperatures can have a significant effect on the efficiency, performance, and safety of the hose. Also, check for hot surfaces or hot exhaust in the area where the hose will be installed and consider re-routing the hose if a heat shield cannot be installed;
- Ensuring the hose is correct for the gas or fluid being carried;
- Checking for compatibility between the fluid and the hose materials, along with connections, couplings, and O-rings;
- Following manufacturer recommendations for hose inspection and replacement intervals. Frequent fluctuations in pressure and poor storage conditions may reduce hose life; consider these variations when determining replacement intervals for preventative maintenance;
- Immediately stopping usage or replacing hoses when they become damaged, cracked, cut, abraded, blistered, soft, kinked, crushed, flattened, or twisted;
- Always properly marking discontinued service hoses for disposal and quarantining them - storing them separately from new service hoses;
- Ensuring work permits and job safety analyses address the risks involved in working closely with pressurized hoses;
- Notifying personnel of the hazards of working around pressurized hoses and installing warnings and barriers.

Members may wish to refer to:

- BSEE Safety Alert 442 *Unsecured Pressurized Hoses Result in Hand Injuries*
- Hose management and chemicals: crew person felt ill
- Working with hoses and pressure