

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 US Coast Guard: Wire rope terminations

The United States Coast Guard (USCG) has issued [Marine Safety Alert 04-21](#) relating to wire rope terminations. The Safety Alert addresses the importance of verifying the condition and manufacturing of wire rope terminations used in various systems that utilize wire rope in a load-handling capacity (e.g., lifesaving appliances, cranes, lifting slings).

What happened

The USCG has been investigating a casualty involving a failed wire rope termination that resulted in extensive damage to equipment. The Coast Guard observed that *“improperly applied swaged fittings could result in unintentional damage to the wire rope, resulting in failure of the termination. Improper swaging procedure includes failures within a quality management system in which materials are improperly selected and do not match the specifications of the original equipment manufacturer”*.



Fig. 1 This fitting has a uniform appearance

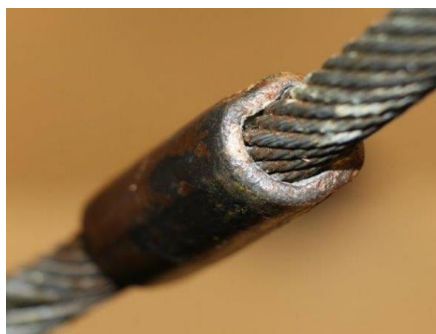


Fig. 2 Completed fitting is not “round” nor within manufacturer specifications



Fig. 3 Fitting is deformed with “ridges” of extra material present from over-crimping

The USCG also made the separate observation that *“different types of fittings/end terminations might decrease the safe working load (SWL) of the wire rope. With this in mind, the type of fitting could affect the safety factor that is required by regulation or recommended by industry standard/practice for the application (e.g., 6:1 for lifesaving appliances launched with wire rope falls). As an example, a swaged sleeve in a common turnback eye results in a 90% or better efficiency of the termination (i.e., 10% or less reduction in the SWL of the wire rope) when properly installed in accordance with manufacturer’s recommendations.”*

Actions

The US Coast Guard strongly recommends that owners, manufacturers, operators and service providers utilizing wire ropes:

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- Visually examine wire rope terminations for abnormalities that may indicate improper installation (Figure 1 shows a crimp with a uniform appearance, Figure 2 shows out-of-roundness, and Figure 3 shows ridges created by over-crimping);
- Compare fitting dimensions against the manufacturer’s specifications/tolerances for the completed fitting (i.e., does the length and diameter fall within fitting manufacturer specifications);
- Verify through documentation related to the manufacturing of the assembly that the materials were properly selected and that the termination type does not reduce the SWL of the wire rope below the minimum safety factor for the type of service.

IMCA notes that over-crimping can also be caused by the incorrect crimping die being used during manufacture. Ensure that all wire ropes and their terminations are inspected by a competent person prior to being used.

Members may wish to refer to:

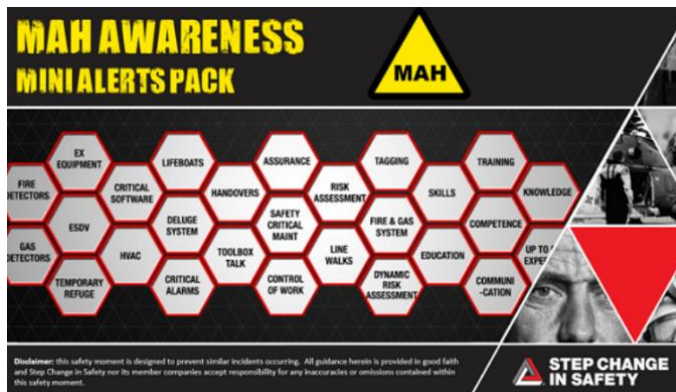
- [High potential dropped object near miss: Steel ferrule failure](#)
- [IMCA HSSE 019 Guidelines for lifting operations](#)

2 Step Change in Safety - Major Accident Hazard (MAH) Awareness

Step Change in Safety have published a safety moment or “mini alerts pack” on Major Accident Hazard (MAH) Awareness. It can be downloaded [here](#).

The pack has been compiled to enable users to have proactive safety conversations about barriers to major accidents. It contains learnings from both oil & gas and other industries' major accidents.

Each mini alert describes the circumstances, what went wrong and includes discussion points relating to the 7C's of Safety.



The major accidents covered include:

- Chevron Richmond Refinery hydrocarbon leak of 6/8/2012 – nineteen persons engulfed by fire;
- Costa Concordia disaster of 13/1/2012 – ship holed, 32 fatalities;
- DuPont Chemical Release of 23/1/2010 – one fatality;
- Flixborough disaster of 1974 – 28 fatalities in chemical plant fire and explosion;
- Grenfell Tower – 14/6/2017 – tower block fire leading to 72 fatalities;
- Lindsey oil refinery – 29/10/2010 – one fatality;
- Mumbai High - 27/7/2005 - oil rig fire and explosion, 22 fatalities;
- Pryor Trust well blowout – 22/1/2018, five fatalities;
- Tenerife airport disaster of 1977 – aircraft collide leading to 583 fatalities.

IMCA works closely with Step Change in Safety <https://www.stepchangeinsafety.net/> to promote and encourage sharing of incidents and to reduce incident and injury rates.

3 UK HSE: Oil company fined for hydrocarbon release – lack of written procedures

What happened

The UK Health & Safety Executive (HSE) has prosecuted an oil company after they failed to provide written safety procedures for the depressurisation of an oil well, which led to the release of more than 1000kg of hydrocarbon gas at the Beryl Alpha production installation in the North Sea, in June 2014.

What went wrong?

A production technician was set to carry out a depressurisation task on a well, a task he had performed on previous occasions. However, he was not provided with any written safety procedures; the expectation was that he would carry out this complex task from memory.

Four flammable gas detectors detected gas in the area and automatically activated the platform water deluge system. The general platform alarm sounded, and all 134 workers went to their muster stations. The gas release continued, and the installation remained at muster stations for more than six hours.

What was the cause?

Investigation found that deficiencies in the company's safety management system (SMS) led to a release of more than 1000kg of hydrocarbon gas. They had failed to carry out a risk assessment for depressurising gas lift wells, which meant there was a lack of suitable written procedures.

The use of a formalised written procedures would have ensured that this task was carried out correctly in a safe and consistent manner across all staff shifts, preventing the safety critical emergency shutdown system from being disabled during well depressurisation. The prolonged duration and magnitude of the release was a direct consequence of the inadvertent defeating of the emergency shutdown system in this instance.

The company pleaded guilty to breaching the Offshore Installations Prevention of Fire and Explosion, and Emergency Response Regulations 1995 (PFEER) and was fined £400,000.

The HSE inspector noted, among other things, that *"the depressurisation of an oil well is a safety critical task, and so should have been formalised in a written procedure to set out a specified sequence of operations to perform the task correctly and prevent potential fatal consequences."*

Members may wish to refer to:

- [For want of a watchman the ship was lost \(USCG\)](#) [a causal factor: lack of specific written instructions]
- [Fatality: Trapping in machinery \(2003\)](#) [no written procedures existed at that time]
- [Lifeboat damaged whilst being lowered on davit](#) [there were no written procedures or instructions covering the circumstances]

4 All of a sudden – “this is not a drill” - person injured during a drill

The Marine Safety Forum have published [Safety Alert 21-12](#) relating to a person who was injured as a result of being suspended in a safety harness during a rescue at height drill.

What happened

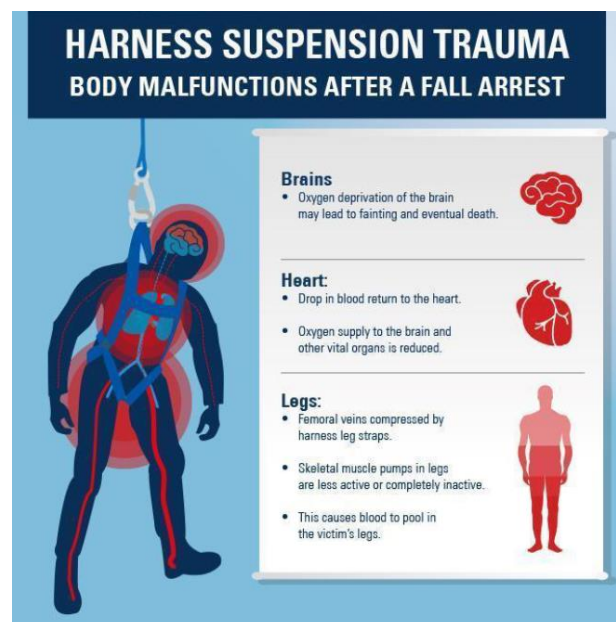
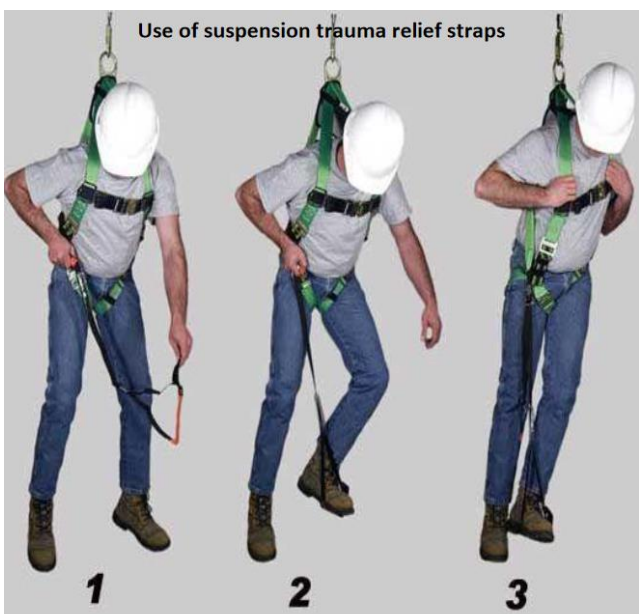
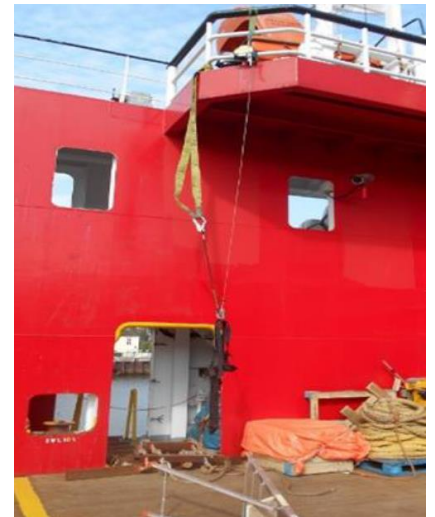
For the purpose of a rescue at height drill a person on the main deck suspended himself 1.5 meters from the deck in a safety harness with a ladder nearby, while crew gathered on the bridge. After contacting crew on the bridge by radio the person in the safety harness stepped on the ladder for a second time to reposition the safety harness. After this the person pretended to fall off the ladder to make it look like a real situation for rescue.

A fall arrestor was used for lifting the person to disconnect him from the sling he was hanging on. Whilst being lifted, the person lost consciousness. At this time the crew members on deck were not sure if the situation was real, or 'played' as a scene for the drill?

However, once lowered to the deck the crew discovered blood coming from his mouth and realized the situation was for real! First aid was given. Further medical treatment was immediately carried out including medical oxygen, and the Automated External Defibrillator (AED) was connected for heart monitoring.

The authorities and the office Emergency Response Team were informed immediately, and a nearby sister company vessel assisted. The casualty was medevaced by helicopter to hospital, shortly after regaining consciousness. After numerous scans and tests the person was discharged from hospital within two days to recover at home and more tests to be conducted, as no clear diagnosis could be determined at this time.

Amongst the conclusions was that the immediate first aid response by the vessel crew significantly reduced the impact on the person. Severely emotionally shaken by the experience, the crew looks back on an incident that obviously could have resulted in a very different / less favourable outcome. Due to prudent action by the crew this was fortunately prevented.



What went wrong?

When suspended in the harness, the straps around the legs and limbs may have obstructed the blood flow, as indicated in the graphics on the following page, which is commonly known as suspension trauma.

Lessons learned

- Performing drills and exercises to a realistic scenario is of course essential to ensure crew can act promptly and effectively in emergency situations. **However, the risks of such exercise should always be carefully assessed;**
- The risk of trauma from being suspended in a harness can be effectively reduced by using suspension trauma relief straps after falling into the harness, this places the weight of the body on the feet while awaiting rescue;
- Consider also the reverse scenario: what happens if someone falls overboard during a Man Overboard Drill, or if a real fire breaks out during a fire drill?

5 Wear a life-jacket!! (MAIB)

The UK Marine Accident Investigation Branch (MAIB) has published an instructive and useful account of a recent man overboard exercise, which is summarised below for members.

The MAIB sent an inspector to take part in a man overboard experience exercise held for the fishing community, intended to provide an understanding of what someone falling overboard would experience. The inspector's story is found here www.gov.uk/government/news/man-overboard-recovery-and-drowning-prevention. Some bullet points from the story are provided here for members' discussion:



- **Lif jackets:** hold an honest conversation about lifejacket use and the perceived issues with wearing lifejackets while working. When we look at the statistics around man overboard incidents and the effects of cold water immersion, some of the reasons given for not wanting to wear lifejackets (like comfort and convenience) are trivial;
- **Being in the water with no life-jacket:** The MAIB's correspondent went in the tank and noted *"I've always thought I was a decent swimmer...I felt OK for the first couple of minutes...but that changed very quickly. As soon as the first significant splash of water went over my face, I started to go downhill rapidly. Every time I tried to calm myself down and get my breathing under control, another wave would hit, and I felt more and more desperate for a decent breath of air. Any rhythm I had with the waves disappeared which then compounded the issue as it seemed every wave was now breaking over my head. The reality dawned on me; I was drowning. I signalled to the lifeguard who rescued me, and when I finally got out of the pool I was completely exhausted. I had been in the wave pool just 5½ minutes."*
- **Being in the water with a life-jacket:** *"When in the pool with the lifejacket on and inflated, I was so much more comfortable. Although I still got the occasional splash over the face, I could float calmly and preserve my energy. What was very noticeable was the difference in comfort and how high my head was above the water when my crotch strap was tightened properly."*
- Once someone is in the water in most cases, they will be unable to help in their own rescue after around 10 minutes due to the effects of immersion in cold water;
- A lifejacket will give time to affect a rescue but only if there is a well-considered recovery system in place which is ready to use. Being well drilled in the use of the recovery equipment is also critical to a successful rescue, as is the ability to raise an alarm, like the use of a personal locator beacon;
- The key piece of safety learning - eliminate the risk of going overboard in the first place! **Wear a life-jacket, clip on, don't fall overboard.**

Members may wish to refer to:

- [Double man overboard resulting in one fatality](#)
- [MAIB: fatality during transfer from a workboat to a barge](#)

- Three man overboard fatalities
- Fatality: Man overboard
- Worker fell into sea from gangway and drowned

Finishing on a positive note, please look at

- Positive: vessel improvements made following a man overboard incident