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 MAIB: mv *Teal Bay* mooring fatality

Applicable Life Saving Rule(s)

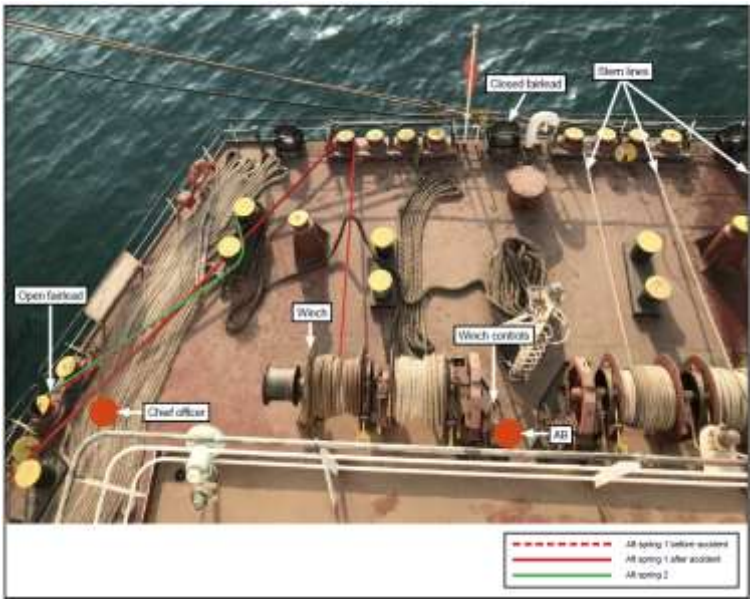
Bypassing Safety Controls | Line of Fire

The UK Marine Accident Investigation Branch has published Report 9/2022 relating to a mooring deck fatality on board a cargo vessel in August 2021. Of interest in that this may have made the investigation more difficult, was that it was conducted remotely as access to the vessels, shore authorities and port involved was not possible due to COVID-19 travel restrictions. The remote investigation also limited the evidence that was directly available from the local authorities.

What happened

The Chief officer was fatally injured when he was struck on the head by a tensioned mooring line that sprang out of an open roller fairlead. *Teal Bay* was loading grain when moored alongside an anchored bulk carrier. The mooring line was being used to pull *Teal Bay* forward and it sprang free when its lead angle became too great for the open fairlead to restrain it.

The MAIB notes: *the Chief officer was struck because he was standing in a hazardous area close to a mooring line under significant tension. The operation to move* Teal Bay *forward had not been risk assessed and was undertaken with insufficient crew. The use of an open roller fairlead was inappropriate during a ship to ship transfer operation where a freeboard differential between the two vessels was foreseeable and created the hazard of a high lead angle on mooring lines.*



Showing mooring arrangement (dotted line indicates position of aft spring 1 before the accident)

What went wrong

- The mooring line sprang free because the fairlead in use was open and the lines had developed a hazardous upward lead during Ship-to-ship cargo operations as the difference between the vessels' freeboard increased;
- Leading two lines through the same fairlead restricted the space available and almost certainly contributed to the loss of spring line 1 containment.
- The number of crew assigned to carry out the warping operation was insufficient and almost certainly influenced the Chief officer's decision, which went unchallenged, to stand in a hazardous area;

- There was insufficient planning for both the mooring and the warping; this happened because, for both evolutions, there was a lack of time available to plan and the crew was unfamiliar with the operation;
- Despite the crew's efforts and the assistance of a tug, it took over two hours for the casualty to be seen by a medical professional. Given the severity of his injuries, it is unknown whether the delays in the Chief officer receiving medical attention had any bearing on his death; however, the lack of coordination by the parties involved in organising the medical response created delays that lessened his chances of survival.

Recommendations and actions taken

- Fleetwide safety alert to highlight the safety issues raised;
- Additional safety training with crew, including modules on safe mooring operations and ship-to-ship transfer;
- Planned to remove open fairleads and replace them with a closed type or universal type of fairlead;
- Reviewed and SMS procedures and risk assessments.

Members may wish to refer to:

- Mooring incident: mooring line slipped off and snapped back
- Lost time injury (LTI) during mooring operations

2 Failure of moorings during heavy weather

The Marshall Islands registry has published a casualty investigation report into an incident where the drill ship *Valaris DS-4* lost its moorings in heavy weather while being prepared for lay-up.

What happened

Offshore winds from the northeast had increased throughout 2 February 2021 and by 1800 were between 50-55 knots. At about 1915, VALARIS DS-4's moorings failed during storm force winds. The drill ship was blown off the jetty and drifted to the southwest until about 1923, when the anchor, which had previously been deployed as part of the VALARIS DS-4's mooring arrangements, held. This likely prevented the drillship from going aground on an island about 400m to the west. Another similar drill ship ENSCO DS-8 remained moored alongside the jetty with tug assistance and the use of its thrusters.

VALARIS DS-4's crew were able to start all but one of the drill ship's diesel generators but did have difficulties bringing the bow and stern thrusters online. VALARIS DS-4 was re-moored after the crewmembers were able to start all but one of the azimuth thrusters.

What went wrong

The investigation revealed the following causal factors:

- the inability of crew to bring the thrusters online in time to prevent the mooring lines from being overloaded by the storm force winds from the northeast;
- the Master did not request tug assistance when the weather forecast for storm force north easterly winds was received on the afternoon of 2 February 2021;
- Additional factors identified included:
  - inadequate coordination between vessel management and the port;
  - inadequate identification and consideration of local conditions, including the weather;
  - inadequate identification of the drill ships' power requirements;

– not following the original mooring plans.

What went right (what reduced the adverse consequences of this marine incident)

- Anchors had been pre-deployed when the drill ships were berthed;
- The arrival of tugs to hold ENSCO DS-8 alongside the berth.

Recommendations made

The report's conclusions, recommendations and proposals for action included:

- Ensure thrusters can be started appropriately and in a timely way – in this case, all six should have been able to start simultaneously;
- Develop new and better mooring plans and emergency response procedures;
- Review and revise their procedures for planning for vessel lay-ups.

Members may wish to refer to:

- Don't lose your tow in heavy weather
- Grounding of bulk carrier Kuzma Minin at Falmouth

3 BSEE: Hazards associated with cranes on idle facilities

The United States Bureau of Safety and Environmental Enforcement (BSEE) has published Safety Alert #448 relating to hazards associated with cranes on idle facilities posing safety and environmental risks.

Figure 1 – Corroded crane cable

Figure 2 – Crane missing main block and auxiliary ball

What happened

BSEE inspectors have observed multiple crane components in poor condition on idle facilities throughout the Gulf of Mexico. Additionally, BSEE inspectors have noted various crane components missing that were previously attached by crane cables.

After extended periods of inactivity, with little or no operator inspection and maintenance, lifting equipment deteriorates due to harsh offshore environmental conditions. BSEE inspectors have observed corrosion on numerous crane cables, which support main blocks, auxiliary balls, overhaul/headache hook balls, and anti-two block equipment. Without proper oversight, the weakened cables have parted, resulting in cables and associated crane components dropping from elevation.

In addition, diminished integrity of wire rope and synthetic slings exposed to weather elements have also been identified as dropped object hazards. These slings are sometimes used to support heavy water hoses and diesel fuel hoses. If the slings fail, there is a potential for severe consequences. The dropped objects can potentially pose a safety risk to personnel boarding the facility or individuals nearby the facility, such as offshore support vessel crewmembers or commercial/recreational fishermen. The dropped objects can also become marine debris, posing environmental risks.

Along with dropped object hazards, potential pollution threats associated with inactive cranes on idle facilities have been identified by BSEE inspectors. Defective fittings, hoses, and leaking diesel/hydraulic reservoirs have been observed across multiple idle platforms.

As most inactive cranes on idle structures have been taken permanently out of service, they no longer require an annual inspection by a qualified inspector. Consequently, in most cases preventative or corrective maintenance has been disregarded.

BSEE recommendations

- Removing all blocks and balls from inactive cranes on idle facilities. If immediate removal is not possible, temporarily secure the blocks/balls with straps or slings that are in adequate condition to prevent dropped objects hazards;
- Conducting a full-function operation inspection when an out of service crane is being put back into service, paying special attention to the lubrication of the wire ropes. All slings on idle facilities that are kept on outboard brackets should be appropriately stored or discarded to eliminate the possibility of falling overboard;
- Clearing diesel and hydraulic reservoirs and associated hoses on cranes that have been permanently taken out of service, to eliminate pollution potential.

Members may wish to refer to

- NTSB: Fire on laid up Dive Support Vessel
- Potential engine room flooding: maintenance and equipment failure issues on a laid-up vessel
- Lifejacket battery caught fire *[during cold layup]*

4 BSEE: Unsafe crane working practices result in injury

Applicable Life Saving Rule(s)

The United States Bureau of Safety and Environmental Enforcement (BSEE) has published Safety Alert #446 relating to an injury caused by unsafe crane working practices.

What happened

A lead mechanic suffered a severe leg injury while performing a boom tip changeout on an offshore pedestal crane. He and his assistant deviated from the planned scope of work, failed to rig up the mid-section to the bridle (Figure 1) prior to removing the mid-section to boom tip connector pins (Figure 2), and failed to use boom connector safety pins (Figure 3). After removing the bottom right pin, both employees assumed the bottom left pin would be difficult to remove since it was bearing the weight of the boom section. When the lead mechanic struck the remaining connector pin, it unexpectedly ejected, causing the boom to drop and pinning his leg against a sledgehammer and grating (Figure 4), fracturing his tibia.

Facility personnel used a pallet jack, a piece of two-inch pipe, and a two-by-four piece of wood to lift the boom tip and pull the lead mechanic from under the boom tip and then administered appropriate first aid.

What went right: The response of the facility personnel was critical in providing lifesaving interventions until treatment could be provided at the hospital on shore.

What went wrong

The company's incident investigation found that the root causes were:

- The Job Safety Analysis (JSA) was only completed by one employee and did not include rigging up the mid-section to the bridle prior to removing pins or the use of safety boom connector pins. In addition, the lead mechanic signed off on the JSA without actually reviewing it;
- There was no requirement for onshore management or the crew to review the JSA before starting work.

Figure 1 – Example of how mid-section should have been rigged

Figure 2 – Boom connector pin

Figure 3 – Boom connector safety pin

Figure 4 – Boom section on injured person's (IP) leg

Recommendations:

- Review of policies and procedures, ensuring compliance with the JSA requirements;
- Reinforcing the use of **Stop Work Authority** particularly when the scope of work changes;
- Understanding the importance of staying out of the line of fire when working near heavy equipment and considering all possible pinch points when walking down the job;
- Verifying all safety equipment is available and in place before the job starts;
- Providing specific written procedures to individuals disassembling cranes;
- Ensure that you do actually review the paperwork, risk assessment, JSA etc **before you sign off on it** and before you start the job!!
- Ensuring specialized contractors create and maintain written procedures and checklists for common jobs;
- Conducting drills based on realistic injury and first-aid scenarios and inspect medical supplies and kits at the facility level.

Members may wish to refer to:

- High potential near-miss – Lifting equipment failure
- BSEE: potentially catastrophic crane and lifting incidents

5 USCG: Hidden corrosion on deck fittings can cause dangerous failures

The United States Coastguard (USCG) has published Safety Alert 09-22 relating to a dangerous and potentially fatal situation involving D-ring lifting points, which caused a severe injury to a crewmember.

What happened

While positioning a removable hatch cover on the vessel (Figures 1 and 2), three of the four D-ring securing straps failed (Figures 3 and 4), causing an uncontrolled snap-back of the lifting sling assembly that struck the crewmember in the head. The three fractured securing straps showed similar failures with a significant amount of corrosion beneath the paint and on the underside of the straps. It is likely that just one D-ring failed initially, which would have instantly doubled the load on the two adjacent corner D-rings, both of which were apparently weakened and

subsequently failed. Without proper and periodic inspection and replacement, corrosion and stress can eventually lead to deck fitting failures.

Figure 1. Deck Configuration

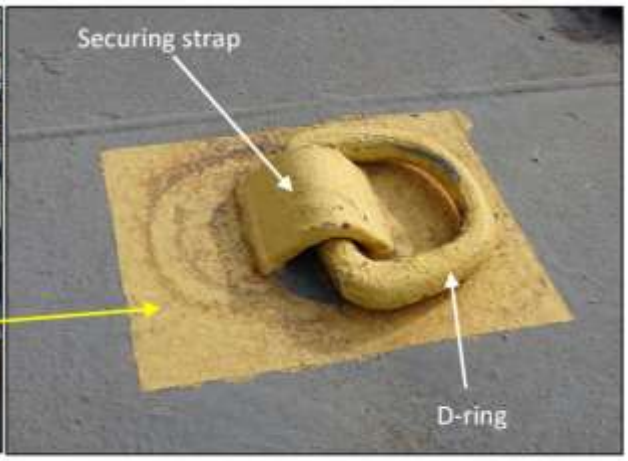


Figure 2. Example D-Ring Configuration

Figure 3. Separated D-Ring

Figure 4. Failed Securing Strap

What went wrong

- Whilst the arrangement of the hatch cover lifting points were in accordance with all available drawings and design schematics, there were no records of any pull-tests or other testing conducted on these lifting points since their installation in the mid-1980s;
- There were no records of any D-ring replacements, indicating that these have likely been in an exterior weather deck environment for several decades;

The Coastguard recommend that vessel owners, operators, and other maritime stakeholders:

- Immediately identify high-risk D-rings and similar lifting-point fittings. High risk factors include: Age, weather exposure, and lifting load. These factors will cumulatively cause corrosion losses on the fitting, increasing its stress and fatigue vulnerability during each lifting cycle;
- Thoroughly inspect all high-risk lifting points for damage, hidden corrosion, and wastage. Audio gauging, pull-testing, or even replacement may be appropriate;
- Consult with the manufacturer's instructions to ensure safe lifting limits are in place and that the effects of service life are considered in their determination;
- Establish a maintenance schedule for periodically inspecting all lifting points and audio gauging or testing any fittings as they age into high-risk status.

The USCG encourages marine inspectors, investigators, and surveyors to maintain an acute awareness of these issues and initiate corrective actions as needed.

Members may wish to refer to:

- Corrosion: failure of bolts on a cargo barge bollard
- Corrosion damage: Failed fire hydrant