



Mariners' Alerting and Reporting Scheme

MARS Report No 329 March 2020

MARS 202012

Mooring fatality

As edited from official SHK (Sweden) report S-238/18

→ A cargo vessel was about to depart. The Master held a short briefing with the duty officer and a seaman. He informed them that they would depart without assistance from outside linesmen because the weather was good and the light winds would hold the vessel on the berth.

The deck crew for the departure consisted of an officer and two crew, as was usual on this vessel. Since no outside linesmen had been called, one of the crew was on the dock to let go the lines. No additional crew members were called on deck. The officer went forward and one crew member went aft.

The order was given to release two of the three stern lines. Both aft lines were on the same winch, so the crew member on the poop deck slacked them both at the same time. Once the lines were off the shore bollards he started winching them to the poop deck.

During this time the vessel moved slightly forward, so there was no tension on the aft spring bollard. The crew member on the dock took the aft spring line off the bollard as he went forward. He released the lines at the bow and came back on board just aft of the forecastle.

About this time, the Master noted that the aft spring line was still lying on the quay and had not been winched in. He called the crew member at the stern over VHF radio but received no response. He ordered the third officer to send the recently boarded crew member to the stern to check the situation.

The crew member found his colleague pinned to the mooring winch by one of the lines that he had been winching inboard, unresponsive and bleeding heavily from several places. The control lever for the winch was held down by a weight to keep it in the position for maximum winch speed. He immediately called for help and engaged the emergency stop on the winch.

The crew member who found the victim had to cut the mooring rope to free him. By the time the officer arrived the victim had been freed and first aid was administered. Using a stretcher, they moved the victim inside the vessel. An ambulance arrived and the victim was taken to hospital where his condition was stabilised. Unfortunately, due to the serious internal injuries he had sustained, he died two months later.

The official investigation found, among other things, that:

- The crew member working the lines on the poop deck was working alone on a slippery deck.
- The two aft lines were winched home simultaneously with the winch control lever locked to high speed, probably because the victim wished to stow them at the same time as winching in.

Lessons learned

- Ensure sufficient crew are present during mooring operations to guarantee safe working conditions. This will usually require more than one person at each mooring station.
- The winch operator must have full control of all activity as ropes are taken in on the winch drum. When using a winch drum with a loose rope, one person must be at the end of the drum and another person must be standing at least one metre behind to manage the slack. With the winch operator, this makes three.



- Deck surfaces where mooring activities are carried out must be slip-resistant.

■ **Editor's note:** Using a weight to keep the winch control in operation while the lone crew member handled the lines was apparently a common practice on this vessel. This type of work-around is typical of human nature; we all want to accomplish the task required of us. If you are bypassing safety mechanisms while trying to do your work, STOP and ask yourself, 'Is this really safe?' In almost every case the answer will be no.

MARS 202013

SOx scrubber overboard discharge incidents

DNV-GL Technical and Regulatory News No. 20/2019

→ SOx scrubbers are one of the compliance options for ships to meet the IMO global sulphur cap for 2020. But we are still on a learning curve for ship-based applications of this technology. On one vessel, a hole in the piece of piping between the SOx scrubber overboard valve and the ship's hull (the spool piece) led to a large quantity of seawater entering the engine room. With considerable difficulty the crew eventually managed to stop the water ingress and limit the consequences.

During the damage survey, the spool piece was found to be severely corroded. The diffusor necessary to dilute the acidic outflow of the

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scrubber wash water and ensure compliance with the emission regulations was also found to be heavily corroded.

Even though the spool piece was made to an approved design (steel piping with epoxy coating), the acidic wash water managed to make



Corroded diffuser

contact with the steel pipe and react with it. This was probably due to a flaw in the application of the epoxy coating or the coating being damaged during installation. There have been several other instances of overboard piping connected to SOx scrubbers experiencing leaks.

Lessons learned

- These incidents highlight the need to select both a suitably durable material for scrubber parts and a robust design.
- Until the industry converges on reliable design(s) and material(s) for the overboard piece, a yearly inspection of the spool piece is recommended. Particular attention should be paid to the bottom part of the pipe closest to the valve flange, since many incidents indicate that this is the area most affected by corrosion.
- An alternative to yearly inspections is to install a leakage indicator to the spool piece.

MARS 202014

Fan blade finger injury

➔ A tanker was moored and waiting to load cargo. An engineer and the electrician were tasked with the scheduled maintenance of the electric motor of one of the engine room supply fans.

After a briefing by senior staff on the work to be done, the two men isolated the motor's electric circuit and did a lock-out. The fan-motor unit was located in a small deck house and was accessed through a cover built into the ventilation ducting. As they pulled the cover off, part of the gasket became detached. The engineer instinctively tried to grab the gasket but in doing so his right hand struck the edge of the immobile fan blades inside the ducting.

Even though he was wearing gloves, the impact caused a deep wound on his second finger. After first aid, he was sent ashore for further medical examinations. He received three stitches and was declared unfit for duties for 20 days.



Lessons learned

- Working in cramped and difficult areas brings its own risks. Be aware of these possibilities and adjust your work style accordingly.
- Even seemingly minor injuries can have repercussions that last for some time. In this case the victim was unfit for duty for 20 days.

MARS 202015

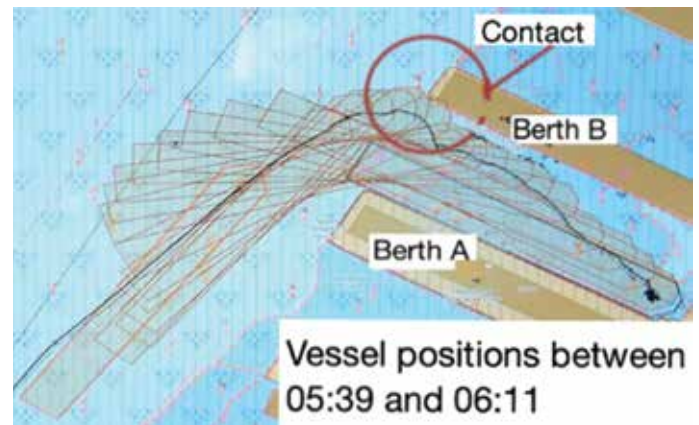
Passenger ship parking problems

As edited from NTSB (USA) official accident brief DCA18FM036

➔ In the early morning hours a passenger vessel was inbound for the port with an arrival pilot at the con. There was a significant ebb tide setting at about 2.3 knots, so a docking pilot and assisting tug had been ordered. The docking pilot boarded and had a discussion with the Master about the docking manoeuvre. Shortly after this, the docking pilot took the con from the arrival pilot.

The bridge team included the Master, Staff Captain, an officer, a cadet, lookout and helmsman. Additionally, an officer was stationed at the forward mooring platforms, port and starboard, to relay distances to berths A and B (see diagram below). About 15 metres separated the two platforms and the officer alternated from one to the other as needed.

The tug was positioned on the starboard side, without lines, to act as a pivot point for the starboard turn into berth A. The pilot gave helm and thruster orders and the Master complied using a controller. With the vessel's speed at about 1.4 knots, the bow began approaching berth B. The officer forward gave a warning. The bow soon made contact with berth B, causing significant damage to two levels of the shoreside vehicle parking area.



The official investigation found, among other things, that:

- Minimum safe distances had not been set out during the docking discussions, so there was no shared mental model of where the threshold was.
- There was little evidence of the bridge team practising the technique of 'thinking aloud' that would have allowed for verbally sharing the mental model of the current and future situations.
- Members of the ship's bridge team were not engaged effectively in helping the pilot and Master execute the manoeuvre.
- The officer at the forward mooring platforms had no view of the tip of the bow, which made contact with the parking structure. Also, he was doing double duty alternating from port to starboard, which reduced his effectiveness.

■ **Editor's comment:** The marine industry is unusual in that, as in this example, up to five people have to co-ordinate their movements and actions in order to manoeuvre a massive floating object safely to berth. Since human error is understood to be the most prevalent contributory factor to accidents, these situations call for strict protocols and procedural integrity; working as a true team is paramount. Working as individuals, each in their own bubble, is a recipe for failure.

MARS 202016

One metre fall proves fatal

As edited from IMO Committee III 5 – Lessons Learned from Marine Casualties

→ Hold-cleaning operations were being conducted during a ballast voyage in favourable weather. The crew were using a ladder and a high-pressure water jet to remove cargo residue from the sloping upper hopper bulkhead. The ladder was secured at the top by a rope and was stabilised by a crew member at the bottom. Another crew member climbed the ladder and directed the water-jet on to the bulkhead to remove cargo residue.

The crew member on the ladder was wearing a safety harness attached to a line that was passed through a pad-eye on the bulkhead above and back down to a third crew member on the tank top. This person gave or retrieved slack on the safety line as necessary. Hold cleaning in this manner was a well-established practice on this vessel.

After cleaning one section, the crew member on the ladder was climbing down in order to reposition the ladder for the next section. When he was about one metre above the tank top he stopped and disconnected the safety line. He immediately lost his balance and fell backwards on to the tank top, striking his head. The victim was unconscious and was evacuated by helicopter. Despite all efforts he was declared deceased on arrival at the hospital.

The investigation found, among other things, that the victim's safety helmet was not secured by the chin strap and was dislodged during the fall. Had the helmet remained attached to his head it could have provided sufficient protection to reduce his injuries from a fall from such a relatively low height.

Lessons learned

- Even falls from low or moderate heights can result in serious injury or death. Do not become complacent about the dangers of working at height.
- Do not remove safety devices, such as a safety line, until you are truly safe.
- A hard helmet will provide a greater level of protection if it is secured by a chin strap. For another incident where an attached chin strap might have reduced the consequences, see MARS 201547.
- While ladders are necessary for providing access, it is not best practice to use them as work platforms.

MARS 202017

Anchors prevent grounding

→ A tanker in ballast left its berth in a river estuary under pilotage. After leaving the berth, speed was gradually increased and then adjusted until a speed of nearly 10 knots was achieved. Some 18 minutes after departure a power blackout occurred. Power could not be regained and the vessel's speed began to slow so much that steerage became difficult. The port anchor was dropped (vessel speed 5.3 knots) and about two minutes later the starboard anchor was also let go (vessel speed 3.8 knots). The vessel stopped safely within a few minutes.

Soundings were taken around the bulbous bow and confirmed the vessel had not grounded. No changes were observed in the vessel's tank soundings and no spill or leakage was observed.



Lessons learned

- Have your anchors at the ready when navigating restricted waters.
- Be aware that anchors can be pulled from the ship if the speed is too high.
- If emergency anchoring is necessary, ensure the crew are well clear of the chain as it pays out.

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