Mariners' Alerting and Reporting Scheme

MARS Report No 362 December 2022

MARS 202250

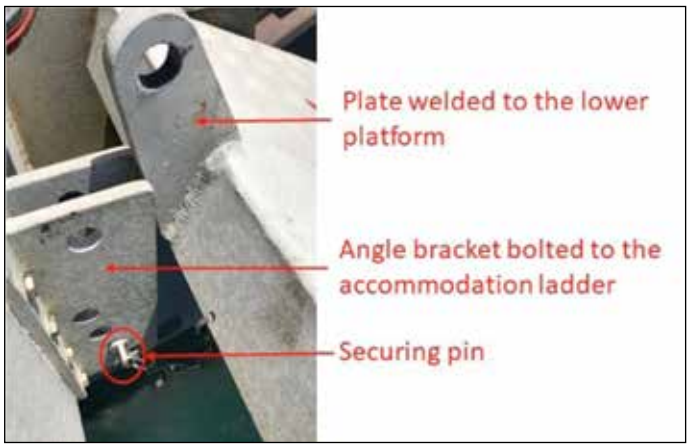
Deadly MOB while rigging pilot combination ladder

As edited from the Marshall Islands report published 12 November 2021

➔ In the early morning hours, a loaded tanker with seven metres of freeboard was approaching port at about 6.5 knots. There was a light wind and seas of approximately 1 metre. Visibility was good, but it was still dark; sunrise was in about one hour and 45 minutes. The air temperature was 15C and the sea water temperature was 16C.

The combination accommodation/pilot ladder was being rigged to allow pilot access. The Bosun and one other seaman were on deck for this task while the OOW monitored from the bridge. After lowering the accommodation ladder the Bosun and the seaman took off their lifejackets and safety harnesses/lines. They then rigged the pilot ladder, but they found that the lower platform of the accommodation ladder needed adjusting to be parallel with the water. The seaman went down the accommodation ladder without putting his lifejacket and safety harness back on. Neither the Bosun nor the OOW in the wheelhouse objected to this unsafe act.

The lower platform is held in position by a securing pin that passes through one of four sets of holes in the angle bracket. The angle of the platform is determined by which set of holes on the angle bracket the securing pin is passed through. Changing the angle of the platform after the accommodation ladder is lowered requires the operator to crouch down to reach and remove the securing pin with one hand while using the other hand to hold onto the rope attached to the platform to reposition it at the intended angle. They can then put the securing pin in the proper set of holes.



While performing this balancing act, the seaman lost his balance and fell overboard. The Bosun immediately reported an MOB on the port side to the bridge with his handheld VHF radio and then ran aft to throw a life buoy. He lost sight of the victim when he was about 100 metres astern of the vessel. Meanwhile, the Master ordered the rudder hard to starboard. In the flurry of events, the lighted MOB buoy mounted on the bridge wing was not released.

Within 12 minutes the vessel had completed a single turn manoeuvre and reached the position where the victim had fallen overboard. The rescue boat was ready to be launched, but was not used, since local search and rescue (SAR) units and the outbound pilot boat were already tasked to search for the victim. The pilot assigned to the vessel embarked to assist the Master and coordinate with local authorities. When the victim could not be found after three hours searching, the SAR mission was suspended.

Lessons learned

- Actual Man Overboard (MOB) events are rather rare but when they happen, they are often serious or fatal for the victim. Numerous quick and decisive actions must be taken by the vessel's crew. For this reason, realistic MOB exercises are regularly performed to imprint the actions into rote memory. In this case, many of those actions were performed well but two critical ones were not:
  - The vessel was turned to starboard for a port side MOB. Normally the vessel should always be turned to the same side as the victim to throw the stern clear of the victim.
  - The bridge wing lighted MOB buoy was not released. This should be an automatic gesture by the OOW in any real MOB situation.
- PPE, PPE, PPE. Every time someone works overboard they should be wearing a lifejacket and a well secured safety harness.
- Look after yourself but also look after your mates! The victim decided to go down the accommodation ladder without his lifejacket and safety harness/line. Yet, both the OOW on the bridge watching the work and the Bosun acquiesced to this unsafe act.
- If acrobatic acts are necessary to complete a task, that means the task should probably not be completed under those conditions.

MARS 202251

Foot crushed during acrobatic manoeuvre

➔ The vessel was preparing to load a cargo of timber. The ship's crew were arranging the stanchions on the ship side that would be used for the timber stow on deck. One upright got stuck and the deck crewman attempted to pull it free, keeping his left foot underneath the upright for leverage. His left foot got stuck between two uprights, resulting in a foot injury. He was taken to the ship's hospital for treatment, put on light duties and recovered completely within two weeks.

Lessons learned

Much as in the previous MARS report, an 'acrobatic' manoeuvre was attempted with a view to getting the job done. This attitude is very common and easily leads to negative outcomes. We all want to get the job done, and we are usually hesitant to ask for help or fetch the right tool. The 'ask for help' reflex should be instilled in crew by the vessel leaders.

MARS 202252

How do you like your hydrogen sulphide? Rotten eggs over easy?

As edited from Marine Safety Forum Safety Alert 22-01

➔ A routine transfer of bilge water from the engine room bilges to the bilge water tank was being undertaken. During the transfer, the crew detected a smell of rotten eggs from the bilge tank vent, an indicator of hydrogen sulphide (H2S) gas. The transfer was immediately stopped so that an investigation could determine more facts. Using a multi-gas detector, measurements at the tank vent pipe indicated H2S at a level of 453ppm.

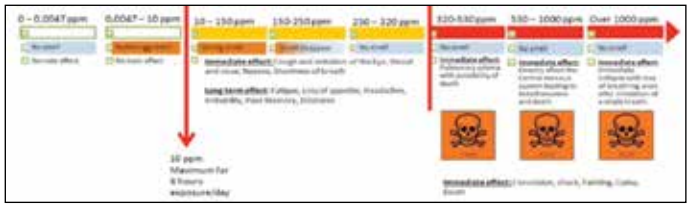
Immediate preventive actions were taken to ensure the H2S fumes would not enter the accommodation. Ducting was installed from the tank vent to the ship's side to ventilate the tank and continuous monitoring of the area near the tank vent was undertaken until gas concentration readings were reduced to safe levels.

What happened?

Seawater in bilge tanks, and in particular engine room bilges, mixed with other residues and bio-degradable detergents created conditions favourable for the formation of dangerous levels of H2S gas.

How dangerous is H2S?

Very! The pictogram below found on the referenced Safety Alert gives an excellent idea of the consequences (see the full alert for full size version). Even 10 ppm is acceptable only if exposure is restricted to eight hours per day.



Anything at or above 320 ppm is dangerous or lethal and cannot be detected by smell.

Lesson learned

Any indication of the presence of H2S should be taken with the greatest urgency.

MARS 202253

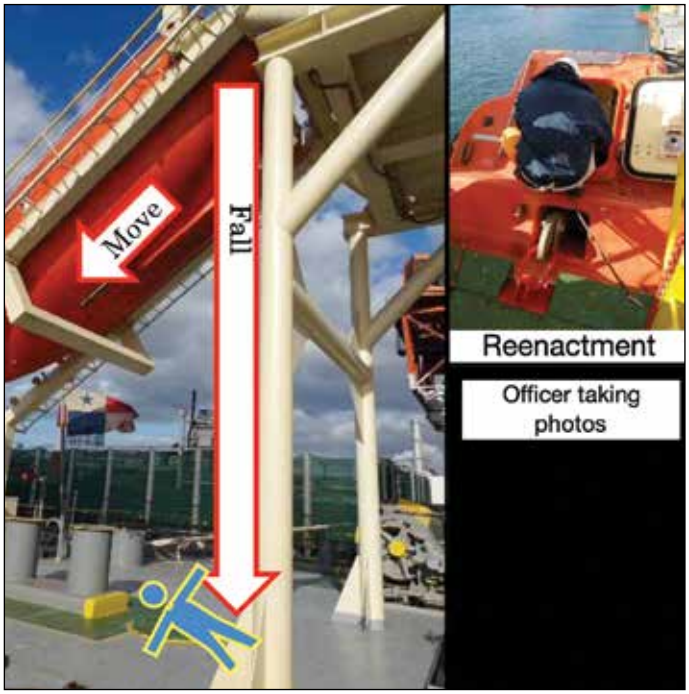
Fatal fall from stern mounted lifeboat davit

As edited from JTSB (Japan) report MA2021-2

➔ A bulk carrier was anchored outside a port awaiting a berth. During this time, the crew were involved in an abandon ship exercise where the stern-mounted lifeboat was lowered to the sea without crew members on board. After the sea entry, the lifeboat was recovered with the hoisting wire.

Once the lifeboat was back in position on its launching ramp, a navigation officer entered from the stern door to restore the release system that locks the hook onto the securing ring. Another officer was crouched down taking photos at the door to keep a record of the event, as shown in the reenactment photo.

As the officer inside the lifeboat worked on resetting the release system, he tried to insert the safety pin; the last step in the reset process. He was unable to fully insert the safety pin, and as he was trying to do so the hook was suddenly released and the lifeboat moved down about two metres on the ramp. This sudden movement caused the officer at the doorway to lose his balance. He fell to the deck six metres below, without a safety harness.



The victim was transferred by helicopter and ambulance to a local hospital but he was pronounced dead by an attending physician. The cause of death was confirmed as brain contusion.

Lessons learned

- This crew seemed to do everything right, until everything went wrong. Lowering the lifeboat to the sea and recovering it without crew on board reduces risks and bad outcomes. Despite this, an unsafe act with lethal consequence occurred in what appeared to be a secure and safe environment.
- Some environments appear safe yet they really are not so. In this case the lifeboat was recovered and was in its final stowed position. But it was not yet locked in place and the victim was in a precarious location without fall protection.

■ **Editor's note:** Although statistics of lifeboat drill injuries and fatalities are incomplete, we hear anecdotally that accidents related to these drills continue to happen almost every year. The fact that lifeboat drills intended to save lives cause a level of fatalities and injury that seem to outnumber those of actual shipwrecks is certainly a cruel irony. As early as 1994, this situation was serious enough for the Oil Companies International Marine Forum (OCIMF) to conduct a survey into lifeboat accidents among their membership. Since then, the struggle to find solutions continues; each new solution seemingly setting the stage for new risks. In 2008, an article by this Editor appeared in *Seaways*

Magazine, documenting the 'lifeboat imbroglio' as it was at the time. It is linked below for interested readers.

http://safeship.ca/uploads/3/4/4/9/34499158/seaways_article_lifeboat_imbroglio.pdf

MARS 202254

Fatal collapse of portable tween-deck

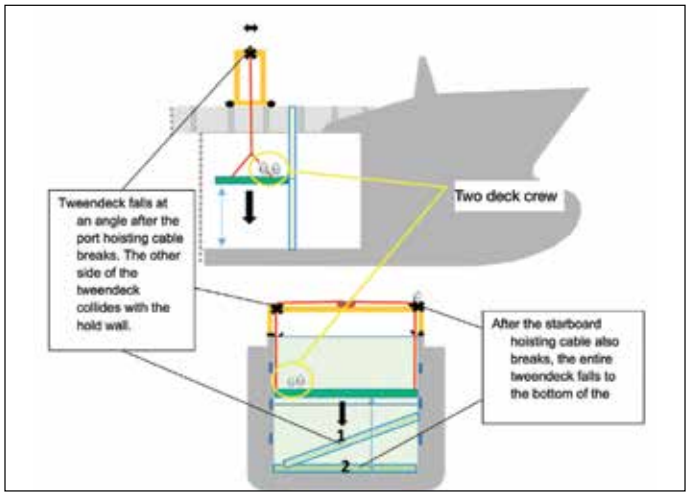
As edited from Dutch Safety Board report published December 2021

➔ A small general cargo vessel in ballast was docked at port and crew were preparing to load various rice cargoes. As part of the preparations, temporary transverse bulkheads were installed and secured in both holds of the vessel. In the evening, an officer and two deckhands came on duty. Their task was to seal the gaps between the newly installed transverse bulkheads and the sides of the hold to prevent the different types of rice cargo from intermixing.

Starting at the top of the transverse bulkhead, the sealing procedure involved filling the gaps with sections of old ropes and then finishing with a strip of magnetic tape. This required working at height and lifting/shifting persons up and down in the hold. The hatchcover crane on board the vessel was equipped with electric winches and the vessel carried 'man cages' for this task. However, the crew found this way of working impractical, as the man cages were too small to transport enough old ropes for the task. Also, when pushing the ropes into the gap, the man cage often moves away from the bulkhead due to the reactionary force rather than providing an immovable platform. Instead, the smallest portable tweendeck was suspended from the two hoisting cables of the hatchcover crane and used as a working platform. This tweendeck weighs 20.2 tonnes, and has a width of 13 metres (the same width as the hold) and a length of more than 5 metres, which allows sufficient space to carry the necessary materials and tools. By lifting and lowering the tweendeck close against the bulkhead, crew members could stand on it and seal the gaps between the transverse bulkhead and the walls of the hold.

The use of the tweendeck as a work platform in this way had become part of the procedure described in the safety management system (SMS) for sealing gaps between walls of the hold and transverse bulkheads. This system was in place not only on the vessel in question, but in all similar vessels in the fleet. However, there was no specific description in the SMS on how the work should be carried out.

With the officer working the hatchcover crane and the two deck crew standing on the tweendeck, they began filling the gaps. Starting at the top of the hold, the tweendeck was gradually lowered in increments which allowed the deck crew to seal the gaps between the transverse bulkhead and the port and starboard hold walls.



The port hoisting cable broke and the port side of the tweendeck fell to the bottom of the hold, damaging the starboard side of the hold wall and sending the two crew tumbling to one side. The starboard hoisting cable then also broke, and the entire tweendeck fell to the bottom of the hold.

As neither of the deck crew were wearing fall protection, both fell with the tweendeck. One was trapped between the port hold wall and the tweendeck. He died at the scene. The other deckhand suffered serious injuries and was transported to a shore hospital. He was subsequently repatriated. Following the occurrence, three safety harnesses were discovered stacked on the tweendeck.

Investigation revealed that both the port and starboard hoisting cables were extremely worn. Neither of them was well coated with lubricating grease to protect against the corrosive maritime environment.

The 'safety coefficient' or safety factor applied to the hoisting cables was 1:5, which is standard for lifting cargo or other loads such as the hatch covers but not for lifting persons, which is usually applied at a 1:10 ratio, or twice as stringent. The hoisting cables had been installed five years earlier and had been successfully tested and examined by a certification body about four years earlier. About nine months before the occurrence they had undergone and passed an annual examination.

Despite the fact that tweendecks were regularly used as a work platform at height, an activity that involved safety risks, no specific instructions were drawn up nor risk assessments carried out for working with tweendecks in this way.

The manual for the hatchcover crane did include checklists for maintenance and inspection. However, these checklists were not used and were not fully integrated in the compulsory operational maintenance routine (PMS) on the vessel. There was no other link between the PMS and the original manual for the hatchcover crane.

■ **Editor's note:** The lessons learned that we have culled from the report can be seen in the light of several 'safety issue' categories;

Working at height issues

It appears the crew were informed and concerned about working at height, as safety harnesses had been fetched and were found on the tweendeck. However, they were not actually used.

- When working at height, always, always wear a safety harness and line that is rigged to protect from a fall.
- Appliances and accessories for lifting humans are usually specially designed for this purpose. The safety factors involved in the design and specifications are normally greater than those used for cargo.

Maintenance and inspection issues

- The wire rope was extremely worn. Cost cannot be a factor for not replacing a wire rope, because good products are readily available and are relatively inexpensive when compared to other vessel costs. In essence, there is no excuse for an old wire rope to be in use.
- Even new wires can be damaged at any time. Careful and regular inspections should be the norm, as should proper maintenance such as lubrication – preferably the penetrating type that goes to the wire rope core and leaves the exterior layer clear for proper inspection.
- As a good practice, companies should strive to integrate manufacturer's specifications and advice for equipment used on their vessels into their SMS procedures.

Management of change issues

An alternative work method for sealing temporary transverse bulkheads in the hold had been developed. The use of a portable tweendeck as a work platform appeared to be a better solution than the use of man cages. But there were risks associated with this practice that had gone undetected because it appears proper risk assessments were not conducted prior to adopting the new work method. Any new procedure should be rigorously studied and risk assessments applied.

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