August 2015 www.nautinst.org

Seaways

The International Journal of The Nautical Institute

Lost in numbers?

Is the focus on quality obscuring the safety message? p05

The Nautical Institute

Philip Wake MSc, FNI Chief Executive

Focus

Risk Assessment

> Seafaring has to be acknowledged as an inherently risky occupation at the mercy of natural forces far more powerful than mere man-made vessels, equipment and systems.

Assessing and mitigating risk is a constant need in shipping operations. Seafaring has to be acknowledged as an inherently risky occupation at the mercy of natural forces far more powerful than mere man-made vessels, equipment and systems. Add to that the potential for failure of such vessels and systems plus the frailties of human behaviour in varied operations, and the complexities of risk assessment are apparent. It is not surprising that the majority of the articles and input in this month's issue can be related to risk and its mitigation in practical ways.

Firstly, let us consider the use of VHF in collision avoidance situations. Many members may well oppose such use in the belief that properly applying the Colregs is sufficient to avoid collision in all circumstances – as indeed it should be. However, it cannot be ignored that many mariners do indeed use VHF in such situations. While this can help to successfully avoid collision, on the other hand it may actually contribute to the eventual collision (see MARS 201542, p17). Ed Verbeek's Pilot Column on p4 draws attention to the use of VHF for collision avoidance in VTS sectors and the importance of using the correct channel to ensure other ships and the VTS personnel can hear and understand the intentions of the ships involved. In terms of risk assessment, the time and attention taken while using the VHF should be considered as the close quarters situation may well escalate significantly during that time as well as reducing the reaction time.

Continuing his series of thought provoking articles on risk assessment and safety management, Dr Nippin Anand questions the focus of safety management reporting and whether this really helps to eradicate unsafe practices (see p5). He identifies the uncomfortable relationship between commercial imperatives such as not losing charters and the need to report problems honestly. The utopian aim from management of 'zero accidents' is questioned, especially as it may also be allied to 'zero defects' and 'zero off-hires'. Similarly, he examines the relationship between occupational health and safety and technical management, which in his experience are often handled by different managers within a company. He concludes that measuring safety requires reliable indicators to be established. The absence of any genuine concern or understanding of safety risks will lead to defensive attitudes that only generate mindless paperwork. Given the feedback we continue to get about the burden of paperwork on officers today, we are sure his conclusions will resonate with many members. Dr Anand's previous article on risk assessment at the sharp end (*Seaways* June 2015) has led to some lively debate in our LinkedIn group and Letters page which would be well worth considering in your next safety meeting (see p34 and p35). It may lead to suggestions for the improvement of your own assessments and systems.

Managing the risk of dry bulk cargoes, especially those in the 'fines' categories, has been discussed in previous *Seaways,* so it is good to have an article on the practical interpretation and implementation of the International Maritime Solid Bulk Cargo Code (IMSBC Code) 2013 (see p9). Captain Ruchin Dayal is at the forefront of India's efforts in this regard so is well placed to identify the risks of carrying iron ore fines and the measures that the various parties involved need to take to ensure the safety of the seafarers tasked with their carriage.

Managing risks in a variety of other operations has been the subject of a number of Branch events in recent months, including the excellent conference on Maritime Energy Transportation organised by the British Columbia Branch which preceded the Institute's AGM Event in San Francisco. This brought all the relevant parties together and facilitated very useful dialogue and understanding of the major developments in the NW Pacific area. As ever, the range of subjects covered by branches in recent meetings is extensive and excellent continuing professional development. Whilst attending in person is highly beneficial for networking and social interaction, it is increasingly possible to join in virtually, as shown by the New Zealand Branch in their meetings. All members are encouraged to get added benefit from their membership by engaging in their local activities whenever possible.

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Mariners' Alerting and Reporting Scheme

MARS Report No. 274 August 2015

MARS 201542

Everything normal – until it's not

➔ A loaded VLCC was making way eastbound in good visibility in the deepwater route of a busy traffic separation scheme (TSS) (VLCC track shown in yellow on illustration below). The vessel entered the TSS at 2035 hours with the Master, OOW and helmsman on bridge and two lookouts forward. A few minutes later, a westbound capesize bulker was noticed on the VLCC's radar entering the eastbound lane (bulker's track shown in red below).

Vessel Traffic Services (VTS) made several calls to the bulker warning that there was a deep laden VLCC tanker in the eastbound lane and they needed to give it a wide berth. Although the bulker acknowledged the warning, there was no change of course. Soon after, the VLCC also called the bulker but received no reply. The VTS intervened and responded that the bulker would keep clear of the VLCC.

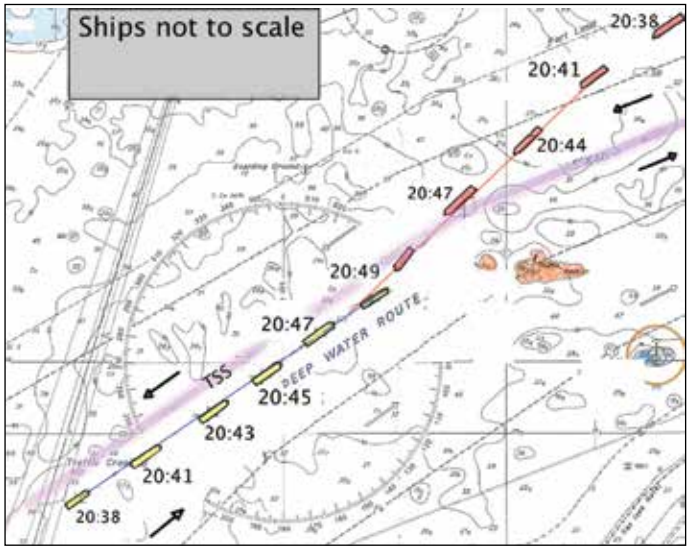
At 2046 the VTS again called the bulker to check if she was altering course. The OOW on the bulker responded confusingly, asking what the intention of the VLCC was and where she was bound. VTS reiterated that the VLCC was eastbound in the deep water lane, and to keep well clear of the vessel.

At 2048, when the vessels were about six cables apart, the bulker made a sudden bold alteration to port, bringing it in direct conflict with the VLCC. The bridge team on the VLCC altered to starboard to bring their vessel parallel to the bulker and reduce the impact. One minute later the bow of the VLCC made contact with bulker's starboard side in way of the forward cargo holds.

Two crew members on the VLCC who were keeping lookout on the bow received serious injury to their legs.

The company investigation on the part of the VLCC did not have access to the other side of the story, but nonetheless the following was posited:

- It would appear that poor judgment and less than adequate communications, as well as an almost total lack of situational awareness on the part of the bulker's OOW led to this collision.
- Neither vessel used engines to reduce speed.



Lessons learned

- In less than 10 minutes, the situation went from commonplace to critical. This is a good example of why active and attentive navigation is always necessary, especially in a busy TSS.
- Using all available means to attract the attention of the other vessel's bridge team (sound and light signal) to give warning of the situation may have helped.
- When confronted with an imminent collision, lookouts on the bow should clear the area.

■ **Editor's note:** Consider what the VLCC crew could have done in this situation.

Man overboard buoy stays on board

➔ An officer was undertaking his inspections of the various life saving appliances on a relatively new (two years) small coastal vessel. His inspection revealed that the starboard man overboard life-ring launcher, located aft and below the bridge due to design considerations, was inadequate from a design standpoint. When activated from the bridge wing, the launching flap deployed to 90 degrees, the retaining chain being too short to allow a greater angle. This meant the life-ring would remain in its holder instead of falling into the water.

Lessons learned

- Even after two years, this deficiency remained 'hidden in plain view'. Flag inspectors, class surveyors, port state controls and even internal inspections had failed to catch this deficiency over the two year period.
- Life saving appliances are a crew's last chance at survival if disaster strikes. It is in the crew's own best interests to ensure their proper functionality.

MARS 201544

Watch out from above

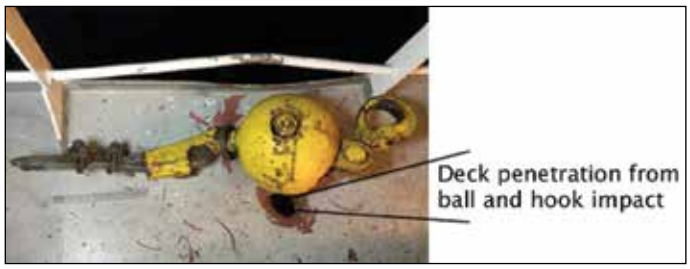
Edited from Marine Safety Forum Safety Flash 15-02

➔ A rig supply vessel was in position and being discharged by the rig's crane. The rig had a dual line crane (single whip and a double block) and was using the double block for the discharging operation. As the crane commenced lowering the double block towards the vessel's deck, the

single whip line ball and hook assembly detached from the crane and landed on top of the safe haven of the vessel.

Fortunately the deck crew were standing clear, approximately four metres from the point of impact, and suffered no physical injuries. The assembly weighed 160kg and fell approximately 50 metres giving an impact force of 784KN. This would most certainly have resulted in one or more fatalities had it struck the crew members.

The cause of the failure is still under investigation.



Lessons learned

- Be aware and warn all crew of the potential for dropped objects during cargo operations.
- Stand clear of the load route; loads should never be lifted over people.
- Maintain visual contact with the load at all times.
- Check every load to ensure nothing is loose or damaged before dispatch.
- Make sure that all loads are properly secured.
- Stand clear from moving crane boom and/or block even with no load.
- Do not approach the crane slings/hook until the crane is fully stopped and ensure all is safe and secure prior to approaching.

MARS 201545

Unintentional CO_2 release

Edited from US Coast Guard Safety Alert 15-14

➔ On a towboat, a vessel crew member intended to test the emergency fuel oil shut-off cables. He opened the panel door that contained both the emergency fuel oil shut-off and the CO_2 release handles. He activated what he thought was the fuel oil shut-off but instead the CO_2 was released. Fortunately, the audible alarm system and release time delay functioned as intended, allowing personnel to safely evacuate the machinery spaces prior to the CO_2 discharge.

Lessons learned

- Emergency systems should be designed with human factors in mind; they must be logically understood and easily operated during high stress situations.
- System training should provide the familiarity needed during an emergency or other situations.
- Pre-test coordination and review of procedures will minimise accidental and potentially fatal discharges.

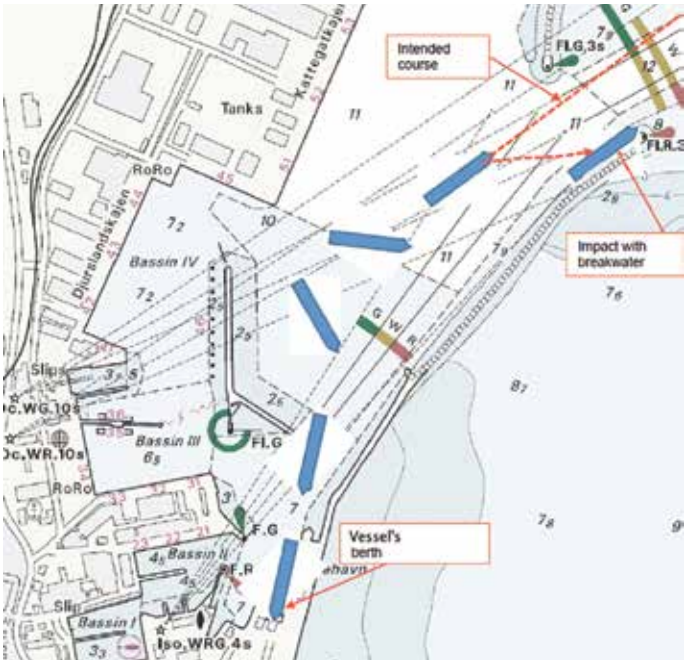
MARS 201546

Broken on the breakwater

Edited from the official Danish Maritime Accident Investigation Board report (Feb 2015)

➔ A ro-ro passenger vessel was departing a regular scheduled port and was controlled by the Master from the port bridge wing during the backing and turning manoeuvre in the outer basin. During this time an officer and the helmsman were at the centre console. After the turn was completed and the vessel headed on the intended course of 051 degrees, the Master ordered the steering to be transferred to the centre console and for the helmsman to steer 051.

The officer pressed the helm TAKE OVER button and confirmed; the helmsman then confirmed he had hand steering. Immediately thereafter the helmsman expressed doubt as to whether he had hand steering. The Master noticed the vessel was still turning to starboard and ordered port rudder. The helmsman confirmed his wheel had no effect and the officer tried pressing the TAKE OVER button once again, but to no apparent effect. The helm Non Follow Up button was then pushed but did not seem to affect steering, so the Master returned to the port bridge wing to try and regain control. This seemed to work and the Master also deployed a bow thruster to stop the starboard turn, but it was too late; the vessel made several heavy contacts with the breakwater. The vessel was returned to berth for safety reasons as several compartments were flooding.

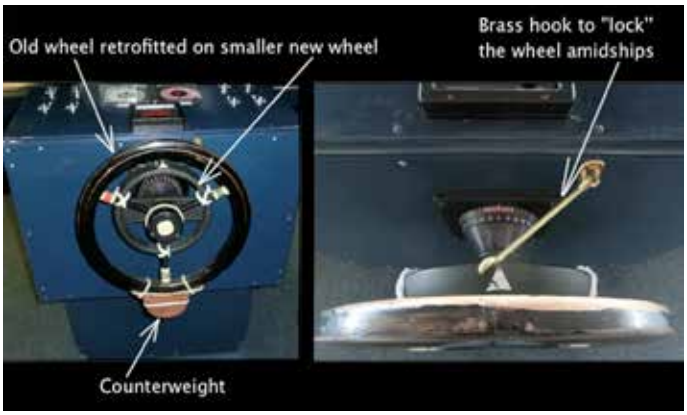


The investigation found it highly likely that the centre console helm had been turned to the hard starboard position before the transfer but, because of the darkness and the bad ergonomic design of the helm, neither the helmsman nor the officer had realised this. The helmsman assumed the helm was amidship when control was passed to him. When he put port helm on he simply decreased the starboard helm, which was not enough to counter the starboard swing.

Some other findings of the official report were:

- As the ship was refitted with new and additional equipment, there was little or no analysis of how the operators were working on the bridge. Making new equipment available in an operational environment changes the operational process and even though it can optimise the work, it also introduces new risks.
- The design and operation of the steering system was prone to erroneous actions because it allowed for several different strategies of operation. Also, it was not easy for the operators to see the actual helm angle applied, especially at night.
- The decision to return immediately to berth after the contact was well founded; shortly after the ship was secured the water level in the engine room reached some of the switchboards.

After the accident, the 'old wheel', previously replaced by the new, smaller unit, was retrofitted around the new wheel and a counterweight was added to make the wheel naturally come to midship if no force is applied. Also, a hook was installed to lock the wheel in the amidship position when not in use.



■ **Editor's note:** It never ceases to amaze how bad ergonomic design seems to be endemic in the maritime industry, as shown by the small wheel and inadequate helm position indication in this case. Additionally, the solutions brought to bear after the accident, although well meaning and probably effective, are a wellspring of improvisation and ironic adaptations. Would the airline industry allow such bad design or for that matter, such 'handyman' fixes?

MARS 201547

Fatality while rigging pilot ladder

➔ The deck crew were preparing the starboard pilot boarding ladder in combination with the accommodation ladder due to the freeboard of 10.2 metres. Strong winds were blowing so the deck crew put their safety helmets away. They started to pay out and secure the pilot ladder to a height of one and a half metres above the water. After the pilot ladder was secured the crew lowered the accommodation ladder to about five metres below the main deck.

An experienced ordinary seaman (OS) then went down the accommodation ladder in order to set the railings and the lower platform. He was wearing an inflatable life jacket (manual release) and had secured himself on a lifeline with safety harness. The pilot embarkation station was properly illuminated.

At one point, the crew on deck realised something was wrong; they then saw the victim lying in the water still attached to the lifeline and obviously unconscious. The bridge was informed and a life buoy with safety line was thrown into the water.

First attempts to pull the OS out of the water were unsuccessful due to the headway of the vessel and the soaked winter clothes of the victim. Only after more crew arrived on scene was it possible to pull him out of the water a few metres and, after about 10 minutes, the victim was retrieved on board. Despite immediate artificial respiration and heart massage the victim passed away.

Lessons learned

- The length of the lifeline was about 9.75 metres. During the accident the platform was only about five metres below the main deck; this allowed a free fall of more than four metres.
- None of the deck crew assisting had seen the OS fall as they were attending to other duties. Best practices require constant surveillance of a person working over the side on a vessel underway.
- The victim sustained head injuries and became unconscious after the fall, which hindered his rescue and survival. A helmet with chin strap could have prevented the head injuries.
- The heavy weather conditions and the fact that the combination ladder was on the windward side of the vessel increased risk for this operation. Yet, the company permit to work on deck in heavy weather states that the operation should be aborted if crew are at risk.
- Course and speed alterations may have been possible to mitigate the weather influences at the ship's starboard side.

■ **Editor's note:** Helmets worn with chin straps should be the norm. In this case, not only were the crew not wearing chin straps, but due to the strong winds they actually took off and stowed their safety helmets.

READER'S FEEDBACK

MARS 201523 Tight coil/slow rescue

➔ In MARS 201523, the importance of properly coiling the line attached to the man overboard lifebuoy was highlighted. On certain ships it has been observed that the rope is tightly coiled and wrapped around itself which makes for a slow rescue. A reader has sent the following photo that gives one way to store the rope for quick deployment.

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