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Seaways

The International Journal of The Nautical Institute

Rise of the ocean giants

What the ULCV means for shipping and salvage

The Nautical Institute

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Focus

Change and no change

> The Institute offers a range of digital services to enhance the value of your membership and ensure that we get information to you quickly as well as expanding the ways in which you can become involved.

First – the good news. There will be no change to your membership subscription from April for one year. The Executive Board recognises that the Institute has had three very good years of generating surpluses in difficult market conditions thanks to the support of the membership, the hard work of the staff and the spread of professional activities undertaken. They also appreciate that the continuing economic problems in many parts of the world are affecting the livelihood of members and hope that this subscription decision will help to some extent. This and the other decisions and discussions at the Board and in Council are set out in Governance Proceedings (see pp 12-16) so that members may see the Institute's new structure of representative bodies in action. 'Making the most of digital' (see pp 21-22) updates members on the further development of digital services offered by the Institute to enhance the value of your membership and ensure that we get information to you quickly as well as expanding the ways in which you can become involved.

Lifeboats and the sea of paper

Two subjects that the Institute has worked on for some years without as yet achieving the results we desire are the design of lifeboats and the volume of documentation that has become the bane of the seafarer's life, particularly the Master. In the Captain's Column this month, Captain Michael Lloyd concisely sets out the compelling need for change in the design of lifeboats and/or the requirement for dedicated, properly designed rescue boats. The former especially applies to cruise ships as they increase in size whilst the latter affects all ships equipped with enclosed lifeboats as they are particularly unsuited to the sea boat rescue task. Rescue is also needed for the Master 'drowning in a sea of paper' says Captain Naveen Singhal (see pp 23-24), who considers the spirit of the ISM Code has been corrupted as too many people have used it to cover them against all eventualities. This has resulted in very extensive procedures contained in multiple manuals and could be said to be detracting from safe operations rather than improving them. He points to some efforts to reverse this trend and calls on the IMO to review the ISM Code itself as well as ensuring the drafters of legislation actually sail on ships from time to time to experience the real world of seafaring. We and other professional body NGOs, such as IMPA and IMarEST, do our best to input this practical view to IMO debates but acknowledge that more sea experience amongst other delegations would be useful.

So what is changing?

The answer is a great deal and at a rapid pace. Four feature articles this month give just a flavour of this relentless process across the breadth of the maritime industry. AIS is no doubt considered relatively mature navigational technology now, so its development into a satellite system should come as no surprise (see pp 5-7). The underlying data remains the same, and there will probably be a debate about the accuracy and usefulness of that, but the range and uses of the data extends dramatically via satellites.

Meanwhile on the sea and beneath it economic and environmental pressures are driving innovation. Ever larger container ships are being designed to reap economies of scale in transport costs as well as a lower carbon footprint. However, there are risks involved with any enterprise and the challenges of salvaging these ocean giants need to be properly considered. The physical difficulties have already been amply demonstrated in recent casualties involving much smaller ships, but there are other aspects such as General Average that are equally daunting in their scale and the sea of paper they create, to return to an earlier theme. Delving under the sea for a moment, what are the consequences of wave and tidal power generation technologies for the seafarer? These are in their infancy compared to wind turbines but are being developed and tested (see pp 8-9). They will inevitably need to be taken into account in passage planning and the good news is that commercial construction of them is likely to result in employment for specialised vessels and personnel, especially in dynamic positioning.

Finally, it is good to see an initiative gathering pace to achieve consistency in training seafarers internationally that goes beyond merely implementing the requirements of STCW. This is a Stena initiative which links the various nautical colleges they use around the world and enables the sharing of best practice and professional development (see pp 25-26). We wish them success.

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Mariners' Alerting and Reporting Scheme

MARS Report No. 244 February 2013

MARS 201304

Oil-soaked waste caused fire on deck

Official report edited from MAIB Safety Digest 01-2012 – Case 2

➔ Arriving at a river port after a short coastal passage, a container feeder vessel was transiting upriver under daytime pilotage, when the bridge team suddenly observed thick black smoke rising from forward. The fire alarm was activated and speed was reduced while the emergency team proceeded to the location, with two crewmembers wearing breathing apparatus. The fire was seen to be on a pile of rags and cotton waste and it was quickly extinguished with fire hoses.

Result of investigation

Earlier during the voyage, linseed oil had leaked from a container that had been discharged at the previous port, after which the deck crew had mopped up the oil from the deck. It was intended to land the oil-soaked material at the next port, so the crew had collected and stowed it on deck overnight on a rubber mat abaft the forward wavebreaker. The rags spontaneously heated to above the self-ignition temperature of the vegetable oil. The resulting fire caused substantial burn damage to adjacent electrical fittings and paintwork on the deck, vertical surfaces of the bulkhead and a ventilator cowl.

Fire damage to paint and fittings on wavebreaker and deck

MARS 201305

Fuel leakage from main engine fuel pump

➔ A product tanker was proceeding on a long voyage after the completion of drydocking and associated surveys. During the ocean passage, the fire alarm suddenly activated in the engine room. Instead of a fire, the cause of the alarm turned out to be a large leakage of fuel oil from a flange on the inlet pipe of the main engine no. 4 fuel injection pump.

Result of investigation

1. The fuel system had been overhauled, but no senior ship's engineer supervised its refitting in drydock. As they did not have a new spare, the yard workers had reused the gasket of the flange connection on the suction side of the fuel injection pump even though it was damaged;
2. The insulation and leakage containment cover over the fuel line had not been renewed/refitted.

Lessons learnt

1. Proper planning is necessary in drydock and during major repairs to ensure that responsible officers are delegated to supervise the refitting of critical components;
2. The condition, integrity and tightness of piping should be regularly checked, especially on critical equipment and fuel oil systems;
3. The vessel must ensure that adequate quantities of original spare parts are available at all times, and that all gaskets are renewed whenever pipelines are opened up and reconnected;
4. Wherever appropriate, lagging and containment covering must always be refitted, or renewed, if damaged;
5. All defective parts discovered after an incident must be carefully preserved to allow detailed investigations and to establish the underlying cause(s) so that effective corrective and preventative actions can be taken.

Fuel oil leakage at camshaft side

Fuel oil leakage on fuel pump side

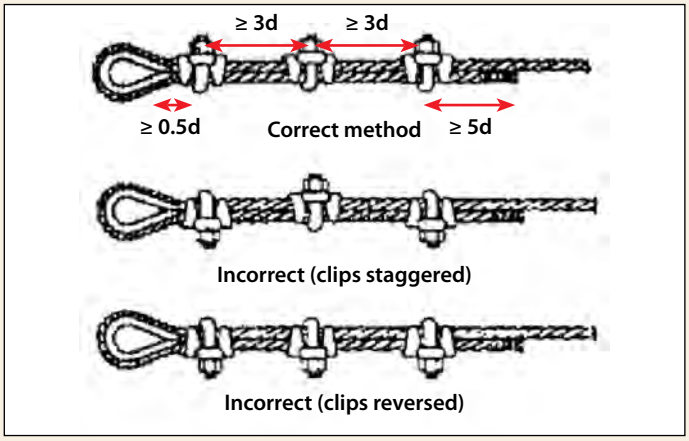
Reused torn gasket that caused the leak at the flange connection

Corrective action implemented – fuel inlet pipe re-connected with new gasket and covered with insulation and containment covering

MARS 201306

Incorrect use of wire clips

➔ In my nearly two decades of seafaring, I have rarely seen wire clips (bulldog grips) fitted the correct way. Before commencing loading operations, I always ensured that both stevedores and my deck crew understood the proper technique, and posted copies of the following diagram at strategic locations.



In my present role as a shore-based superintendent, I continue to encounter wrong methods of fitting of these clips as shown in the following photographs.

■ **Editor's note:** One easy way of remembering the right way to fit wire clips is – The 'U'-bolt of the clip is placed over the 'U'nstressed part of the wire and the 'S'addle of the clip is placed over the 'S'tressed part of the wire.

MARS 201307

Overloaded electrical socket and defective adaptor

➔ A newly-joined crewmember reported to the ship's safety officer that many galley electrical appliances were connected to a single power outlet by using an adaptor. It was also observed that the cable terminations within the socket were loose and there was poor contact within the multiple outlets of the adaptor. Over a period, both the socket and the adaptor had overheated and could have led to a fire if the fault had gone unreported and prompt remedial action had not been taken.

Overloaded and damaged electrical outlet and adaptor

MARS 201308

Hull breached at unsafe berth

On completing discharge, a tanker was ordered by the port to vacate the berth and tie up at a waiting berth, about 8 miles upriver. The assigned berth was identified with some difficulty on the chart and was seen to be on a sharp bend in the river. A passage plan was made with the limited information available onboard, and, during the transit, the pilot provided more details of the berth. He mentioned that the jetty was partly damaged and had two pontoon barges secured to it and that the vessel was to moor starboard side to them. The Master was advised that the final line configuration would be 3+2+2 forward and aft and that about a mile before the berth, two 'powerful' tugs would assist the mooring operation with ship's lines from the port bow and quarter. The plan was explained to the C/O and 2/O before they proceeded to their respective mooring stations. Meanwhile, the deck crew rigged portable fenders just above the water level as the pilot warned that the steel pontoons had none and also prepared ship's lines for the tugs on the port side. Just before the tugs approached on the Master's instructions, the C/O prepared the port anchor for letting go in an emergency.

Contrary to what the pilot had stated earlier, both tugs appeared to be too small and underpowered for the tanker's size, and they refused to make fast the ship's lines. To the shock and disbelief of the vessel's bridge team, the pilot denied that he had ever implied that the tugs were to be made fast. With no possibility of aborting the manoeuvre, the vessel was forced to attempt berthing without the benefit of controlling towlines.

The tanker passed two bulk carriers double-banked at the wharf close downstream and then prepared to approach the two pontoon barges secured in line at her assigned berth. Considering the length of his ship, the Master estimated a final overhang of about 25 metres at each end. He also noticed that the middle section of the pier, inshore of the two barges, was missing.

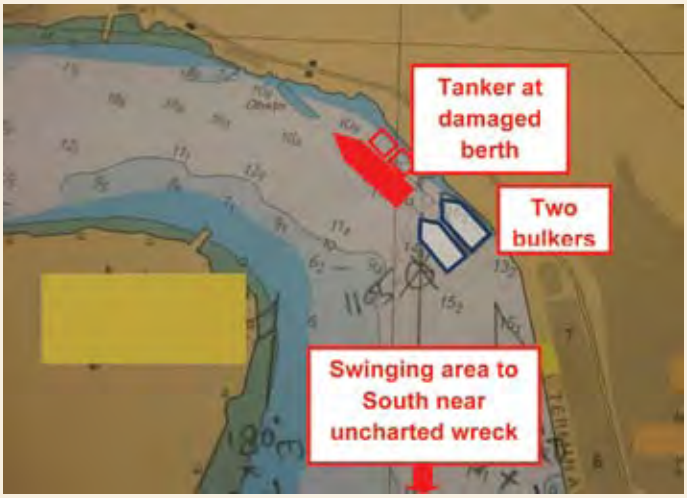
A strong current was setting the ship sideways on to the pontoons and wharf. With no meaningful tug assistance, a very tense and stressed Master heeded the pilot's rapid engine and rudder orders. To add to his worries, the C/O reported from the forecastle deck that the collapsed portion of the jetty appeared to be extending into the river. The vessel

was drifting astern with the ebb current and the 2/O reported that the distance to the bulkers was only 20 metres and closing rapidly. An urgent ahead movement on the engine took the tanker ahead by an estimated 50 metres when the engine was stopped and the Master ordered the port anchor to be let go. Holding on to 2 shackles of chain, the vessel was being brought sideways towards the pontoons, when a loud grating noise was heard along the starboard shell plating accompanied by intense shuddering.

After securing to the shore with unusually long lines, it was discovered that the empty fore peak tank was holed below the waterline. Fortunately, the ballast pump was able to cope with the inflow and a zero tank sounding was easily maintained. The company's emergency procedures were followed and appropriate reports were sent to the office. The next day, when the tank was carefully opened for the class surveyor, a mooring bollard was found tightly wedged in the hole at the bottom of the tank, partly stemming the inflow. It was decided not to disturb the bollard, which fortuitously acted like a plug. It is presumed that the impact dislodged the bollard from the submerged collapsed section of the pier. The surveyor issued a temporary permit to sail to the nearest drydock for permanent repairs and the vessel departed from the port.

During the Master-pilot information exchange before departure, the swinging area about 0.5 mile downstream from the berth was shown on the chart and it was also revealed that a harbour tug had recently sunk in mid-channel. The Master was horrified that the pilot who conducted the vessel inward had omitted to relay this crucial information. After casting off the berth just after slack water, the vessel's stern-first exit was assisted by two large tugs. In order to avoid the new unmarked wreck, the pilot executed the swing closer to the shoal ground on the west bank, which gave the Master more anxiety, as the tugs appeared to be turning the vessel with minimum power.

During the short passage to drydock, all tanks were monitored and the ballast pump was continuously discharging the ingress into the fore peak tank. Regular situation reports were sent to the management team ashore. In the drydock, it was observed that apart from the large hole punched in the shell plating in way of the fore peak tank, there was no other damage.



Representation of tanker after berthing (not to scale)


Looking aft from forecastle at collapsed section of wharf and intervening pontoon barges


The collapsed structure is thought to have slid further into the river


Hole in way of fore peak tank after bollard was removed


Bollard extracted from fore peak tank

Lesson learnt

It may be advantageous to appoint an independent owner's agent or a port captain in 'difficult' ports, where reliable navigational and commercial information may not be readily provided by charterers / local authorities.

MARS 201309

Fatality in slop tank

(Edited from IMCA Safety Flash 06-11)

➔ The C/O of a tanker in port was planning to carry out maintenance of valves inside an empty slop tank. The day before the planned maintenance, he instructed the Bosun to open the access hatch of the tank and to start ventilating with air so that it would be gas-free before tank entry the next morning. As this task needed no man entry, no enclosed space entry procedures were followed. Shortly afterwards, the C/O and deck crew working nearby on deck heard a noise as if an object had fallen into the tank. They rushed to the open manhole and saw the Bosun lying motionless on the top platform of the vertical ladder, about 5 metres below the main deck. Sending the crew to raise the alarm and to bring the necessary rescue gear and stationing a lone seaman outside the tank entrance, the C/O entered the tank with the intention of helping the Bosun. The watching crewmember observed the C/O descending the ladder and then trying to rouse the Bosun. Immediately, he saw the C/O collapsing next to the Bosun. In panic, the seaman also entered the tank to help the C/O and Bosun. All three persons became unconscious in the tank.

Soon after, the emergency team led by the 2/O arrived at the entrance. The portable gas analyser that he used to sample the tank atmosphere instantly sounded the H_2S alarm and showed values of O_2: 20%, CO: 0%, H_2S: 60 ppm and LEL: 0%. Quickly donning a breathing apparatus (CABA / SCBA), he entered the tank, and soon all three casualties were lifted out of the tank. They were immediately transported to a shore hospital by helicopter (medevac), where the C/O and seaman made a full recovery, but unfortunately, the Bosun could not be revived and died.

Result of investigation

1. As there was no witness, it could not be ascertained why the Bosun had entered the tank and how he fell off the vertical ladder;
2. The C/O entered the tank impulsively to rescue the Bosun, ignoring the hazards and safety procedures;
3. The crewman stationed at the tank entrance also reacted emotionally rather than logically, and entered the tank to assist the two casualties;
4. The emergency team responded correctly, identifying the presence of toxic gas, before mounting the recovery operation in accordance with company procedures;
5. It could not be adequately deduced how a lethal concentration of H_2S gas had developed in the slop tanks.

MARS 201301 CORRECTION

The incident in MARS 201301 was incorrectly reported as being the subject of an AMSA investigation. The investigation was in fact carried out by the Australian Transport Safety Bureau (ATSB).

MARS: Editor

Due to circumstances, The Nautical Institute needs to appoint a new Editor for the Mariners' Alerting and Reporting Scheme (MARS). This is a part-time position that can be done through correspondence, and might suit a self-employed member with a passion for improving safety at sea. The work load is estimated to be about 30 hours a month. A small honorarium (£5,000 GBP per annum) is paid and expenses are reimbursed. The initial contract will be for a one-year period.

Recent command experience is highly desirable and a high standard of written and spoken English is a requirement. The Editor has to be computer literate and able to communicate effectively and diplomatically with correspondents. Professional integrity is essential in running this confidential scheme, as is the ability to meet a monthly publishing deadline.

The Institute would like to hear from members interested in contributing their expertise to this important role. In the first instance, please contact David Patraiko, Director of Projects (djp@nautinst.org) with a copy of your CV and a 500 word article on how you view the use of and development of the MARS scheme.

MARS: You can make a difference.

You can save a life, prevent injury and contribute to a more effective shipping community.

Everyone makes mistakes or has – or sees – near misses. By contributing reports to MARS, you can help others learn from your experiences. Reports concerning navigation, cargo, engineering, ISM management, mooring, leadership, design, training or any other aspect of operations are welcome, as are alerts and reports even when there has been no incident. The freely accessible database (http://www.nautinst.org/mars/) is fully searchable and can be used by the entire shipping community as a very effective risk assessment, loss prevention and work planning tool and also as a training aid.

Reports will be carefully edited to preserve confidentiality or will remain unpublished if this is not possible.

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