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Seaways

The International Journal of The Nautical Institute

Annual report

Services, support and campaigns throughout the year p7

The Nautical Institute

Philip Wake MSc, FNI Chief Executive

Focus

Paperless Ships?

> We hope the reports in this issue give you a feeling for the diversity and effectiveness of the work undertaken by The Nautical Institute's members, branches and staff.

Before the industry gets into seriously considering fully automated, people-less ships, which is not such a fanciful notion, it is to be hoped that far more mental effort and investment is devoted to reducing the administrative burden on the sea staff that do remain in post. Captain Ajay Tripathi sets out the problem concisely in his Captain's Column (see pp 4-5) and offers solutions. Virtually every port has its own documentation requiring information from the ship; there are multiple surveys; even supposedly standardised industry inspection regimes have variations or reports are not accepted between the participant members; and the company office wants to monitor everything. These problems are not new and have been highlighted and debated many times at Institute and industry events over the years. Yet there is no coordinated action to really try to implement meaningful change.

It is, however, good to see that the Danish Maritime Authority (DMA) has conducted a survey to identify the extent of the problems and it should be a wake-up call for the regulatory and company people ashore. The consistent view of the sea staff surveyed is that they are spending far too much time on paperwork of questionable value and that this is distracting them from the far more important role of operating the ship safely. For evidence that paperwork does distract and detract from safety, you only need to refer to various accident reports to find references to garbage records being signed at inopportune times, Masters leaving the bridge as the ship approached a port to complete entry formalities and many similar occurrences. Our colleagues in pilotage frequently report that their arrival on the bridge is the cue for the Master to head for his cabin where a pile of paperwork awaits – yet this is the riskiest stage of the voyage. It is time for flag and coastal states to work with trade associations to reduce this burden and for companies to use IT systems and shore employees to take on much of the administration that currently falls to the Master and chief engineer. Is this really cost-effective use of senior personnel, and would the managers of the company burden themselves with such tasks on a daily basis?

Important paper

There are of course various documents that are essential to the safe operation of ships and, whilst many of these can be held electronically, there is proven value in retaining at least some of them in hardcopy. Studies have shown that the retention of information is greater when read on the printed page rather than electronically, which is more suited to quick scanning of information. We believe that the publications published by the Institute come into the category of essential reading for safe operations and many of our books are still standard issue to ships. The latest, *Stowaways by Sea*, certainly should be on every ship to help avoid the dangerous and traumatic incident of such people being found on board (see p 22). It provides advice on security measures and what to do if the unfortunate but unwanted guests do get through.

Another important publication that we are issuing in hardcopy is *The Navigator* magazine which is intended to increase the competence and professionalism of officers of the watch (see p 6). Feedback on the limited circulation of the first five issues has been very positive and we are extremely grateful to IFAN, the International Foundation for Aids to Navigation, for the full funding for one year to allow mass distribution of this publication to the entire SOLAS fleet and nautical colleges. This is a major task, as we want the publication to reach those vessels and parts of the world that are not so involved with professional bodies or trade associations from whom such information is usually acquired. We need your help in this distribution task so, if you can distribute copies, do please get in touch.

Similarly, there is the opportunity to give input into the revision of the Command Scheme (see p 25). This is linked with workshop debates that will take place at the Command Seminar series this year, starting with the AGM Event in Sydney on June 16/17th (see website for details). As usual at the AGM, the Annual Report of the Institute (see pp 7-11) will be presented by the Chairman of Trustees and we hope that it gives you a feel for the diversity and effectiveness of the work undertaken on your behalf by the dedicated branches, many volunteering members and the staff.

p6

p31

Mariners' Alerting and Reporting Scheme

MARS Report No. 259 May 2014

MARS 201424

Emergency exit cuts like a knife

➔ During an engine room fire drill, the crew practised an evacuation through the emergency escapes. After successfully exiting via the escape hatchway, the team leader instructed a rating to operate the external hand-wheel to ensure the free opening of the hatch lid for emergency entry purposes. The rating attempted to rotate the hand-wheel with all his strength in order to overcome the residual resistance of the securing dogs below. The dogs released with a jerk causing the wheel to turn freely. Due to the sudden absence of resistance, the rating's right hand shot past the sharp bottom edge of the housing lid, which inflicted a deep gash near the knuckle.

Crew members immediately gave first aid, applying pressure on the wound to stop the bleeding. The victim was escorted to the ship's hospital where the wound was cleaned, dressed with antibiotic powder and tightly bandaged.

Contributing factors:

- The faulty design of the hand-wheel housing lid, with its sharp edges and wheel rim located very close to edge of housing cover.
- The hasty and vigorous operation of hand-wheel under the prevailing pressure of an ongoing emergency drill.
- The sudden release of securing dogs.
- The absence of gloves (normally not a requirement for emergencies or drills).

Corrective actions

The incident was discussed at a special stand-down safety meeting held after the incident. An injury report was sent to management with a corrective action plan; a rubber strip was permanently glued to the sharp bottom edge of hand-wheel housing lid and a warning note was stencilled on the underside of lid.

MARS 201425

Trapped in a tank

➔ The vessel was en route, with a couple of ship surveyors onboard to perform steel condition assessments. One area of interest was the aft peak ballast tank. This tank was drained to allow the surveyors inside.

The stern shaft, which passed through the lower aft peak ballast tank, was rotating throughout and the chief engineer was keen to re-flood the tank as quickly as possible to ensure shaft temperatures did not increase beyond specified limits. It was a tight space and required a lot of wiggling and squeezing through small holes and around bends to get to the furthest reaches of the tank.

A rating had been posted at the access hatch of the ballast tank; his task was to stand by at the entrance and advise the bosun once the surveyors were out of the tank. Unknown to the surveyors or the bosun, the rating left the tank entrance for a brief period.

The bosun arrived back at the tank access hatch to find the rating had left. He assumed the surveyors had finished their work and were out of the tank. As he started securing the hatch back on, the surveyors heard the rattling of the air-gun as the bolts were being fastened. The surveyors scrambled back through the confines of the tank to the access hatch, yelling all the way. They began hammering on the bulkhead hatch with their fists and chipping hammers to warn of their presence in the tank. Fortunately, the bosun heard the banging in time; all but two of the 20 bolts remaining had been secured.

Lessons learned

The rating posted at the tank entrance was not aware of the importance of his task. He was essentially the lifeline for the surveyors deep inside the ballast tank. By leaving his post, even for a short while, he had put their lives in danger.

In assuming the surveyors had exited the tank, the bosun committed an error. Always follow procedures for enclosed spaces, which should include positive verification that the tank is indeed vacant of personnel before closing up. If no procedure is in place, one should be made.

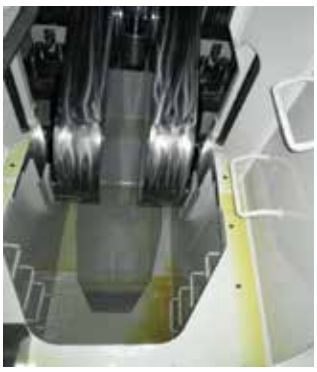
MARS 201426

Improvisation leads to fall

➔ The main engine crankshaft deflection was to be measured and recorded at the anchorage, a routine job completed every three months. A risk assessment was prepared by the second engineer the day before the job and was approved by the chief engineer. In preparation for entry the main engine crankcase doors were opened and the space ventilated. Prior to entry, a tool box meeting was held including a review of the risk assessment and the enclosed space entry requirement. All personnel involved in this job had been given adequate rest and there was no pressure to complete the job in a hurry.

The plan, as improvised, was to position the crank shaft in such a way that the crank web was in the horizontal position. This would allow crew to cross directly from one side of the crank case to the other. An engine cadet was assigned to note down the readings and the fourth engineer was to operate the main engine turning gear remote control.

Once ready, and wearing a work suit, helmet and rubber boots, but not using gloves, the second engineer entered the crankcase. Inspection and measurements of units number one and two went without incident. However, while crossing from port to starboard on the horizontal crank web in unit number three, he lost his balance, tried gripping the hand rails/steps, and fell on to his left arm with all his weight. He was later diagnosed with a fracture.



Contributory factors:

- The second engineer was not wearing proper PPE. For example, he was not wearing correct safety shoes/boots nor an antiskid protective cover for the footwear. Nor was he wearing gloves such as dotted cotton gloves that enhances grip on slippery surfaces.
- Proper procedures were not followed during the inspection. Crew should not be crossing over from one side to the other through the crank web. Rather, the procedure calls for climbing down and passing underneath the crank web, then climbing up the other side to continue the inspection.
- Inadequate safety leadership as demonstrated by not following the procedure and not wearing the correct PPE.
- The risk assessment prepared for this task was not effective as it did not adequately list the risk control measures for preventing slips and falls. The risk assessment sheet lacks imagination and seems to be a copy of the standard risk assessment sample sheets provided to the vessel. Consequently the tool box meeting was ineffective and there was a lack of awareness of hazards and possible consequences.

Corrective action:

- Staff must be familiarised with procedures. The safety briefing conducted with senior officers prior to their joining the vessel has to be reviewed. This briefing should focus on raising standards of safety leadership on board. Senior officers shall be briefed on carrying out realistic risk assessments and the briefing shall include a video on risk assessments.
- Anti-skid covers for safety shoes are necessary PPE when working in slippery work spaces. The company shall provide all fleet vessels with antiskid covers for safety shoes. The PPE matrix will be amended in the appropriate manual.
- All ship's staff shall be encouraged to prepare realistic risk assessments and conduct effective tool box meetings that discuss the actual conduct of a job in explicit detail. It has to be reiterated to the crew that a tool box meeting is the opportune time to review the process of work and discuss any preoccupations.
- The second engineer should attend the in-house risk assessment course/safety officer course prior to his next employment on board a fleet vessel.

■ **Editor's note:** The company investigation quite rightly found that safety leadership was lacking. When company leaders do not follow procedures or lack proper training in risk assessments and hazard identification, accidents and incidents are bound to happen with greater frequency and consequence than is reasonably acceptable.

MARS 201427

Good BRM saves the day

➔ The vessel was proceeding to an anchorage area under pilotage on a heading of 025º. At the time, there were many ships anchored on the vessel's port side, the closest only about one cable away. At a point where the vessel was to alter course to port to enter the anchorage, the pilot ordered 315º. The Master, who was present and monitoring the pilot's actions as well as all rudder and engine movements, immediately realised the order was incorrect. He countermanded the course order and instructed the helmsman to remain, for the time being, on 025º.

A short discussion with the pilot ensued. The pilot admitted the error and corrected the course to steer, ordering 015º.

Lessons learned

Under pilotage, the vessel's crew have a duty to closely monitor and interact with the pilot. Anyone can make a mistake. Good BRM means mistakes by one member of the team are spotted and stopped early and consequences are reduced.

MARS 201428

If you're tired, don't sit down

Edited version of official Marine Accident Investigation Branch (UK) report 26/2013

➔ After loading, the vessel left port at 2300. The Master decided that the AB assigned to the 0000-0400 watch would not be required for lookout duties. Near midnight, the second officer arrived on the bridge to relieve the Master. After plotting the vessel's midnight position on the chart, the Master handed the watch to the second officer but remained on the bridge to complete some paperwork and to monitor the vessel's transit through some restricted waters. Once in more open water, the second officer engaged the autopilot and the Master left the bridge for some rest.

At 0256, the vessel reached a waypoint and the second officer adjusted the vessel's course to 311º. He then went out to the starboard bridge wing to get some fresh air. When he returned to the wheelhouse, he secured the starboard bridge door in the fully open position and sat in the port bridge chair. Shortly afterwards he fell asleep. The vessel passed the next planned waypoint and maintained her course for just over 2½ miles, at about 10.5 knots. The OOW woke up and, sensing something was wrong, he immediately moved the engine control to neutral, and then full astern, but the vessel grounded nonetheless.

At the time of the accident, the wind was south-westerly force 3, the sea was calm and the visibility was good.

Some of the findings of the official MAIB report

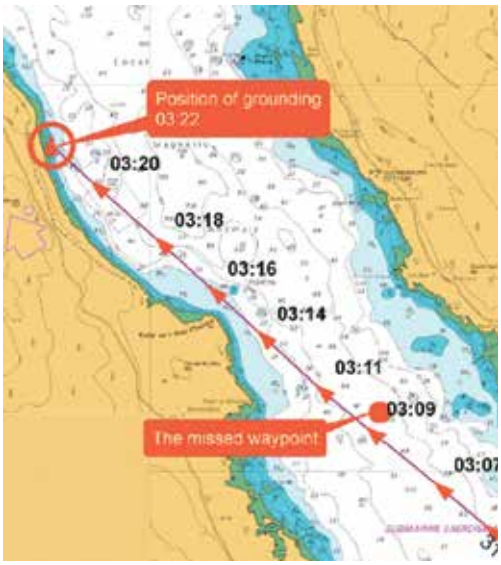
While ergonomically efficient, the bridge design encouraged the OOW to sit down, which increased the potential for him to fall asleep.

The OOW's method of navigation provided little stimulation and allowed him to remain inactive for extended periods of time which further increased the potential for him to fall asleep.

Although the OOW had gone out to the starboard bridge wing to get some fresh air, and had then secured the starboard bridge door in the fully open position, his actions were insufficient to prevent him from falling asleep.

The lack of a lookout removed a valuable control measure in that his interaction with the OOW might have prevented the latter from falling asleep. Additionally, if a lookout had been present on the bridge, he would have been in a position to immediately wake the OOW.

Routine absence of a lookout on watch at night without incident would have reinforced a belief that it was safe to operate the vessel in that way, and would have influenced the Master's decision not to employ a lookout on this occasion.



The OOW was possibly fatigued when he arrived on the bridge for his watch.

The bridge navigation watchkeeping alarm system (BNWAS) was probably not switched on during the period leading up to the grounding, and the ECS and GPS audible alarms were insufficiently loud to wake the sleeping second officer.

■ **Editor's note:** If you are tired, or even you are not, at such early hours anyone can fall asleep if in a comfortable position. The best remedy is to occupy oneself with watch keeping duties of position fixing, radio watch, and lookout, including effective use of radar by regularly changing scales. If you feel yourself very tired, get some help. Also, never work alone at night; have an effective lookout posted at all times in darkness and in reduced visibility.

MARS 201429

A senseless close call

As edited from official Transportation Safety Board (Canada) report M12L0098

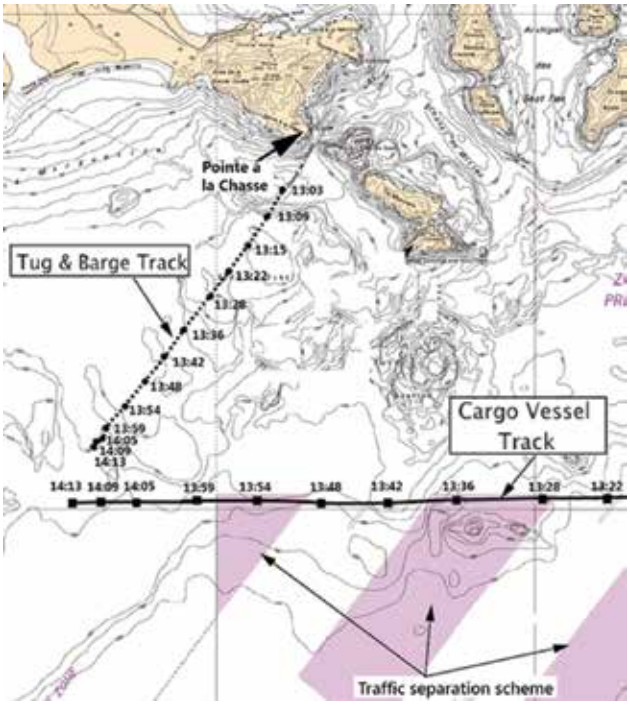
➔ A tug pushing a loaded barge had left port and was outbound. The weather was clear and winds were from the west-southwest at 10 to 15 knots with 1.5 metre seas. The tug and barge were abeam and clearing Pointe à la Chasse and the only immediate traffic in the vicinity, as reported by vessel traffic, was a cargo vessel that was heading for a port further west. At this point the Master on the tug handed the con over to the OOW and left the bridge; the vessel's course was 216° and speed was 6.5 knots.

Soon afterward, the OOW detected a target on the radar; the target was on the tug's port side at about 12 nm. The OOW acquired the target with the automatic radar plotter and also verified the information on the automatic identification systems (AIS). The AIS identified the target as the cargo vessel mentioned by vessel traffic and indicated the closest point of approach (CPA) to be approximately 0.3 nm. The automatic radar plotter confirmed the CPA and indicated the cargo vessel would cross ahead of the tug.

Tug and barge

Cargo vessel

Since the tug was the stand-on vessel, the OOW maintained course and speed and continued to monitor the cargo vessel. About 40 minutes later the cargo vessel was within 4.6 nm and had not yet altered course. The OOW, concerned about the developing close quarters situation, attempted to call the vessel on VHF, but was unsuccessful. Only when the vessels were about 3.3 nm from each other, with a CPA of approximately 0.25 nm, did the OOW on the tug finally make contact with the OOW of the cargo vessel. The tug OOW asked the cargo vessel's OOW his intentions and if he would alter to starboard to pass astern of the tug. The request was rejected by the cargo vessel's OOW. He made an alternative proposal that both vessels should alter course a little to port in order to increase the CPA. This proposal was justifiably rejected by the tug's OOW based on the collision regulations.



Soon, both OOWs had called their respective Masters to the bridge for assistance. When the Master of the cargo vessel arrived on the bridge and saw the tug and barge close on the starboard side, he ordered to reduce speed to half ahead on the telegraph. VTS also advised him that the tug and barge was requesting their vessel alter course to starboard in order to pass astern. The cargo vessel's Master responded that they would try; the vessels were about 2 nm from each other with a CPA of approximately 0.25 nm. Unclear as to the cargo vessel's intentions, the Master of the tug sounded one short and one long blast on the whistle to alert his crew, then reversed engines to stop and let the cargo vessel cross ahead. No manoeuvring or warning whistle signals were sounded; however, the Master broadcast the manoeuvre astern on VHF radio. Shortly after, vessel traffic advised the Master of the cargo vessel that the tug was reversing engines. The cargo vessel acknowledged the call and replied that they would maintain course and speed and pass ahead of the tug and barge.

Findings of the official report

The cargo vessel maintained course to pass across the bow of the tug without taking action to avoid the close quarters situation, resulting in a risk of collision.

Following VHF radiotelephone communications, the tug remained unclear as to the cargo vessel's intentions and did not sound the appropriate whistle signals to indicate their doubts. The tug maintained course and speed until it became apparent that the cargo vessel was not taking action.

Upon arriving on the bridge, the Master on the cargo vessel reduced the vessel's speed prior to assessing the situation, further reducing the CPA.

The prolonged use of VHF radiotelephone communications in collision avoidance situations may preclude the bridge team from adequate monitoring, increasing the risk of collision.

READER'S COMMENT: CAPTAIN D P COCKRILL FNI, CHAIRMAN, UNITED KINGDOM MARITIME PILOTS' ASSOCIATION

'Root causes'

➔ I have noticed over the years a continuing reference to 'Root Causes' of accidents in MARS reports. To use such terminology today in this manner is out of place and potentially misleading. The comments made in the MARS reports almost always actually refer to principal contributory factors and not root causes. The latter are almost always a factor of systemic failures, often at management or administrative level which have ultimately resulted in the final undesirable event through many levels of incidence.

READER'S COMMENT: MR. VILAS SALUKHE MNI, KUALA LUMPUR

MARS 201410: Windlass Failure

➔ If the anchor is badly fouled at the bottom and cannot be freed, the traditional seamanship practice (if time and circumstances permit) is to bring the next Kenter shackle on deck and open it with pin and hammer. Cutting the chain with a saw or a gas torch may not be suitable or possible.

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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