September 2017 www.nautinst.org

Seaways

The International Journal of The Nautical Institute

Who's afraid of shiphandling?

Accelerated learning with manned models **p22**

The Nautical Institute

Captain John Lloyd FNI Chief Executive

Focus

Progress report

> I am especially aware that our engagement and support of members is the key to our success

Three months into my appointment as Chief Executive at The Nautical Institute, I am pleased to be able to tell you a little about our recent achievements and to take a small glance into the future to see what lies ahead.

One of our key objectives this year was to launch the Ice Navigator qualification. This scheme allows suitably experienced mariners to gain recognition for their special expertise in navigating vessels in and around areas of ice. The scheme was launched on 3 July, and I am very pleased to report we have already awarded certificates to candidates from Canada, Finland and India. We are evaluating applications from a number of countries and have entered discussions with a variety of companies about the ways in which they can ensure their own technical records can be developed to show compliance with the NI specifications.

To complement these early successes it is pleasing to hear of the earliest and fastest west-to-east voyage through the North West Passage of the vessel MSV *Nordica*. The vessel was under the command of Captain Jyri Viljanen AFNI, with Nautical Institute President Captain Duke Snider FNI as Ice Navigator, RAdm Nigel Greenwood AFNI as junior Ice Navigator, and Captain Victor Gronmyr AFNI as Canadian Coast Guard Observer. A truly international gathering of NI experts. We wish them all continued safe sailing.

The last quarter has also seen a hugely positive response to our new publication *Guidelines for Collecting Maritime Evidence*. Published alongside a dedicated handbook, the book achieved record sales of more than 8,000 copies in the first ten weeks. This is something of a record for a new publication from the Institute and demonstrates a welcome level of support from our industry stakeholders. I am delighted to record our appreciation to the authors and staff who have enabled this success and to our booksellers and distributors who have made it possible.

The Navigation Assessors' Course has been delivered in UK and the Netherlands, and during this month will be delivered in Ireland, Hong Kong and Cyprus. This is down to a significant international effort from our branches. Thank you again to them, as well as to the HQ staff supporting the administration and distribution of materials.

Despite the downturn in the price of oil and gas, our certification team has continued to be busy with new certifications and revalidations. We process more than 400 certificates a month and we are delighted with the level of support from DPOs seeking a truly international dynamic positioning qualification. We now offer DPOs a special deal on joining The Nautical Institute and have created a dedicated Revalidation Logbook in support of their continuing career experience.

Mirroring this certification activity is the considerable effort that goes into our professional Accreditation Service that approves centres for the delivery of DP courses leading to NI certification. Sadly there have been one or two centres unable to sustain the more difficult conditions of the downturn, but these have been more than offset by new entrants keen to support the professional development of seafarers in this sector. With more than 90 centres accredited we continue to lead the way in providing flexible access to these special training opportunities.

I am especially aware that our engagement and support of members is the key to our success and I am very pleased we have successfully negotiated an extension to our cover for legal expenses. Please see the website for more details and be reassured that this service remains an important component of our membership benefits.

In a new initiative we will be commencing an online jobs board this month, providing access to a worldwide selection of some of the best jobs in the maritime community. We look forward to providing this information to you, and I hope it will become a valuable part of your career development.

Finally, we always look forward to feedback from members. Please feel free to write in as a 'letter to *Seaways*' or to write to me directly at sec@nautinst.org

I look forward to hearing from you.


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Mariners' Alerting and Reporting Scheme

MARS Report No. 299 September 2017

MARS 201758

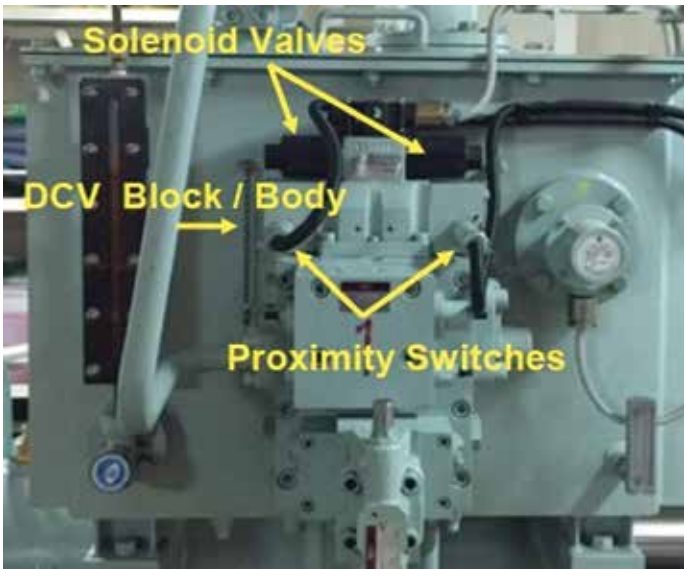
Don't be complacent about nuisance alarms

As edited from US Coast Guard Marine Safety Alert 16-16

➔ Repetitive alarms occurred when crew performed steering tests to move the rudder through its range of motion. The alarms indicated a 'hydraulic lock' event, even though the steering gear had moved the rudder adequately during the test. On each occasion the crew simply acknowledged the alarm, without making any further investigation to identify the cause.

The hydraulic system that moves the steering gear's rams involves a directional control valve (DCV), which is a hydraulic shuttle valve. A set of solenoid valves receives an electrical signal from the bridge helm or autopilot, which causes a flow of oil to certain sections of the shuttle valve. The DCV shifts and initiates flow to the system's hydraulic rams dependent on the command. If the shuttle valve does not shift, or is not sensed as having shifted (via magnetic proximity switches) after a period of time, it activates an alarm on the bridge console.

In this case, the proximity switches were found to be faulty and needed replacement. Although the rudder moved as expected in the tests, the lack of properly functioning proximity switches combined with a complacent attitude had 'trained' the crew to ignore the alarm.



Lessons learned

- The management of nuisance alarms should be addressed in the company's safety management system.
- If an alarm has become a nuisance, find out why and correct the situation.
- Never pin or otherwise secure an alarm acknowledgement button or switch in order to silence the alarm.
- Nuisance alarms can, over time, desensitise an operator to real problems that may be indicated by an alarm.

MARS 201759

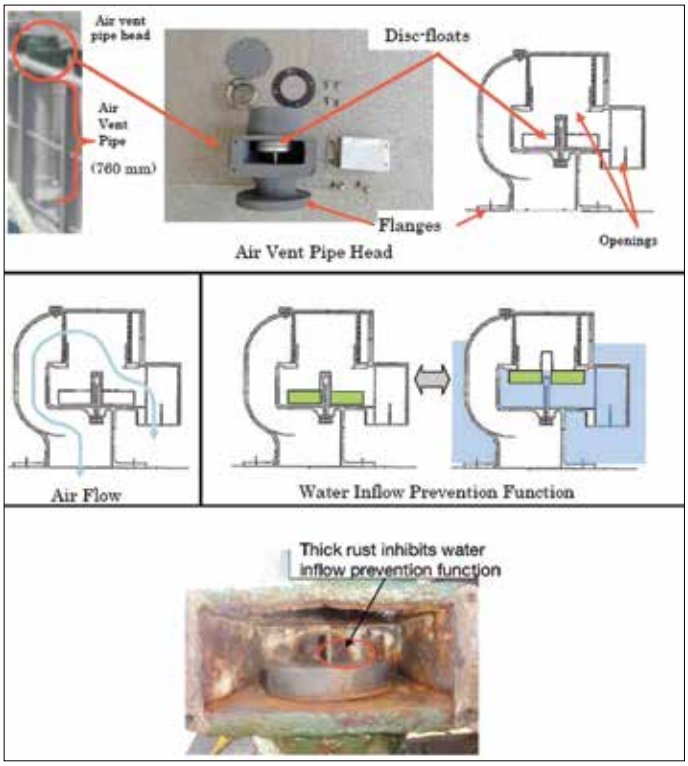
Water ingress via ballast tank air vent leads to capsize

As edited from official report of the Japan Transport Safety Board no. MA2012-12

➔ A small chemical tanker was loaded and underway at about 11 knots in a following sea with waves of about 2.5 to 3.0m and winds of nearly 40 knots on the port quarter. Waves were washing over the deck and the vessel repeatedly rolled, displaying a tendency to roll more heavily to port. The situation caused concern, but although the speed was reduced the vessel continued to struggle. Soon the rolling was observed to be about 5° to starboard and 20° to port.

Waves from the port quarter were washing on to the deck and seawater was submerging the air vent pipe heads of several ballast tanks on the port side. It is assumed that water was being taken on in these ballast tanks via the air vents, but the crew were not able to deballast the water as access to the pump room was on deck and awash.

The Master sent an emergency message to search and rescue (SAR) authorities. Not long afterwards the main engine ceased to function due to the extreme rolling and water ingress. Soon afterwards the vessel capsized and the crew members plunged into the sea. Three came to the surface near the vessel's stern and caught hold of the liferaft, which rose to the surface, but the tent turned upside-down. They attempted to turn the raft over, but were unable to climb up on it owing to the high waves. Within a short time three crew members were rescued. Another was recovered dead and the fifth was never found.



The official investigation found, among other things, that:

- Before this accident, seawater had entered the side ballast tanks via the air pipes in bad weather. The crew were apparently considering countermeasures for this defect, but they had not reported it to the company.
- Research on air vent pipe heads has found that when the casting section of the vent head is rusty (see photo) the movement of the disc float can be impeded and the vent head is no longer able to prevent water inflow – that is, it allows water to enter the tank.
- It is likely that faulty water inflow protection floats allowed seawater to enter the port ballast tanks, which eventually destabilised the vessel to the point of capsize.
- If the water inflow prevention floats had been working properly, only 0.6 litres of seawater per wave would have flowed into each air vent. However, if the floats were not working, 16 to 20 litres of seawater would have flowed through each air vent into the ballast tanks each time a wave struck the ship.

Lessons learned

- Defects, especially any that may affect the seaworthiness of the vessel, should be reported to the company and class and corrected immediately.
- Keep your air vent heads in good condition and check that the water inflow prevention device, if fitted, is working properly.

MARS 201760

Collision sinks fishing boat

Accident Investigation Board of Norway, Marine 2017-03

➔ An LPG tanker was underway at 15 knots. The bridge was manned by an officer of the watch (OOW) and a lookout, and the tanker's autopilot was engaged. Traffic was dense, with many cargo vessels and fishing boats in the vicinity. The OOW observed two fishing vessels on the radar at about 6.5nm, both on course towards the tanker on the port bow. Observations indicated that the fishing vessels would cross ahead of the LPG tanker with a closest point of approach (CPA) of 0.3nm.

The lookout told the officer that he could see the two fishing vessels on the port bow, that they displayed red over white lights and that the deck lights were on. The tanker's course at the time was 356°.

Although it was not equipped with an AIS, one of the fishing vessels was plotted on the tanker's radar and found to be heading 148° at close to 6 knots. After about 15 minutes the OOW on the tanker saw the fishing boat make a sudden change of course to starboard, straight towards the tanker. The tanker's OOW ordered the lookout to take the helm and apply hard starboard rudder, but this was not sufficient to prevent a collision between the two vessels in the next few minutes.

The bridge team on the fishing boat was not using radar and their vision to starboard was blocked by a provisional sleeping cabin built in front of the windows on the starboard side of the wheelhouse. They did not see the LPG tanker until the collision occurred.

The tanker's bow hit the fishing vessel on its starboard side, pinning it on the bow as they reduced speed, which took about 10 minutes. After the vessels disengaged the fishing vessel sank. Four of the five crew members from the fishing vessel were rescued while the fifth remained missing.

Lessons learned

- Even if you are the stand-on vessel, be prepared to take evasive action in sufficient time to avoid a collision if the give-way vessel remains a danger.
- If the CPA is small, ask about the intentions of vessels in your vicinity. This will get their attention and promote situational awareness.

MARS 201761

Hold access ladder is an enclosed space

Edited from official report no 55E/2014, Republic of Cyprus Marine Accident & Incident Investigation Committee

➔ A loaded bulk carrier berthed at port for discharge operations. Holds three and five were discharged of the 'green delayed petroleum coke' without incident. One of the officers decided to check for damage in number five hold. He instructed the deck crew member who had the keys to open the entrance hatchway door of hold five. Equipped with a VHF radio, he then entered via the cofferdam enclosed stairs.

Some time later the chief officer tried to contact the officer (now in the hold) via VHF without success.

He asked a deck rating to find the officer. The deck rating went to hold five and looked over the hatch coaming, but did not see the officer. He then went to the hold's aft entrance hatchway and shouted, but there was no reply. He entered and proceeded down the ladder. When he arrived on the first platform he realised that the officer was lying face down on the next platform. He immediately called for help on VHF and, assuming the officer had slipped on the ladder and fallen, proceeded down to help him. When the deck rating reached the victim he too collapsed.

The chief officer heard the call for assistance and assumed a fall; he ordered the gangway crew member to investigate. The crew member entered the hold access and saw the two collapsed men; descending the stairs, he too lost consciousness and fell down on the first platform. The C/O arrived soon afterwards and seeing all the unconscious men on the ladder platforms raised the alarm. Breathing apparatus (BA) was prepared and the three men evacuated from the hold access ladderway.

Two crew were revived but the officer was later pronounced dead.

View of part of the hold access ladder

The official investigation found, among other things:

- A contributing factor to the accident was the perceived absence of threat within the enclosed space that contained the hold ladder.
- Despite posted safety signs warning crew to confirm oxygen content of the space before entering, this procedure was not followed.

Lessons learned

- Some enclosed spaces, such as a hold access ladder, may seem less risky to mariners due to their familiarity. Never fall into this trap. Treat all enclosed spaces equally by testing for oxygen content before entering and deploying the full enclosed space procedure each time.
- Identify all enclosed spaces on board your vessel and mark them as such.

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- Warning signage is a preliminary barrier to protect against risks in enclosed spaces, but it is not sufficient on its own. Correct entry into enclosed spaces must be an integral part of the culture in the company and on the vessel.
- Never rush into a confined space to rescue a crew member who has collapsed. Call for help and put your enclosed space rescue routine into effect.

MARS 201762

Be aware of your environment

➔ The vessel was underway on the open ocean in rough weather. The electrical officer and another crew were to check the tightness of the accommodation blower's V-belts. Prior to the job the lock-out/tag-out procedures were followed and the blower suction, outlet and recirculating flaps were closed.

The blower door was opened for inspection and team started checking the V-belts for tightness. As they were finishing their inspection the vessel took a roll due to the sea state. Both men lost their balance, and in an attempt to hold on to something the electrical officer's left hand fell on the blower's V-belt. As his weight came to bear on the belt it caused the belt to move, trapping his hand between the V-belt and the blower pulley wheel. The victim was able to extricate his hand but not without negative consequences. Two fingers and his thumb were badly injured. After receiving first aid he was evacuated from the ship by helicopter.

His fingers fell on the belt

Lessons learned

- Crews should take vessel movements into consideration in their risk assessments before undertaking a task. Less essential tasks should be done when there is minimal vessel movement.
- In this instance there was no securing arrangement to prevent the door from moving when it was open. A securing hook arrangement was fabricated for the doors in order to secure them while open.

MARS 201763

Nitrogen cylinder ruptures and kills one member of crew

As edited from official interim report MO-2017-203 from the Transport Accident Investigation Commission (New Zealand)

➔ Maintenance was being undertaken on a passenger ship lifeboat while the vessel was in port. One of the four nitrogen cylinders of the 'stored energy system' for emergency launching of the lifeboat (ie when the ship is in blackout condition) had lost some pressure; it was showing 165 bar when it should have been between 180 and 210 bar. The cylinders were stored in a covered area outside and were exposed to the harsh marine environment.

Connections were checked but no leaks were found. It was decided to change the pneumatic distribution block (manifold) to fix the situation. The system was brought to ambient pressure according to procedure. The manifold was changed and the crew began to re-pressurise the system, again as per procedure. Without warning, one of the cylinders ruptured, sending shrapnel and debris flying. The event fatally wounded one of the nearby crew members.

Typical arrangement of four cylinders

Ruptured cylinder

To date, the official investigation has discovered that:

- The burst cylinder had become severely corroded on the exterior, reducing the cylinder wall thickness by 75% at the point of rupture.
- Several other cylinders on board the vessel were found to be exhibiting similar levels of exterior corrosion.
- The current inspection regime for such cylinders may not be adequate to detect unsafe cylinders.

Lessons learned

- Although the cylinders were inspected annually, the surface rust does not seem to have raised suspicions about the structural integrity of the units. Cylinder wall thickness measurements may be a necessary step to control risks.

READER'S COMMENTS, MARS 201725

Grinder injuries due to disc failure

➔ Richard Brinti MNI kindly submitted the following observation concerning grinding discs:

While discussing the dangers of grinding accidents with a chief engineer, the chief explained that he always checks the maximum RPM of the discs he is buying. Most vessels have an electrical supply of 60Hz. If a motor rated at 50Hz is run at 60Hz, its speed will be 20% faster than indicated on its specifications. Given this increased speed, discs used on board may exceed their max RPM or be at the very limit, which could be a contributory factor in their failure.

MARS 201738 – MYSTERY COLLISION

Looking out of the window

➔ James Austin has contributed the following comment:

I realise and accept that this may sound like antiquated seamanship, but could it be possible that the 'Lessons Learned' be inverted so that what comes first (instead of last) is to look out the window?

■ **Editor's response:** I agree wholeheartedly that looking out the window (and going outside on the bridge wings often to look around and listen) is of utmost importance. Our readers may wish to note that the lessons learned in each MARS report are not necessarily listed in order of importance.

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www.nepia.com

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Norwegian Hull Club
www.norclub.no

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http://paramountnautical.com

The Port of London Authority
www.pla.co.uk

The PTC Group
http://ptc.com.ph/

IHS Safety at Sea
http://magazines.ihs.com

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