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Seaways

The International Journal of The Nautical Institute

The navigator of tomorrow

What skills will be needed? p14

The Nautical Institute

Philip Wake MSc, FNI Chief Executive

Focus

Professional Conduct

> Accidents will happen unless we all maintain vigilance and strive to correct shortcomings.

It is with great sadness that I turn my attention to writing the Focus piece this month as we have just received the news of the untimely death of Captain Eric Beetham MNM FRSA FRIN FNI. A Founder Member and past President of the Institute, Eric was still serving as a member of the Executive Board although he had decided to retire after this week's meeting. He was a consummate professional who gave of his time and expertise freely. He spoke with quiet authority in providing his sage advice and there are many here as well as widely in the industry who have benefitted from his mentoring. A full appreciation of his contribution to the Institute and many other parts of the industry will be published next month but, in the context of this piece, he was a shining example of exemplary professional conduct in a fast changing world which requires people to look ahead and adapt yet hold onto core values if they are to be the best, and he was.

In terms of adapting, a major debate that needs to be engaged in by members afloat and ashore as well as by the industry generally, is the type of navigator in the future. Will they be actively engaged in navigation as we know it today, or will the increasing use of technological solutions bring about a monitoring role? These are questions explored by Captain Robert McCabe FNI, Senior Vice President, who has been heavily involved in the industry meetings developing the concept of eNavigation (see pp 14-16). There is no doubt that this will also be a major topic explored during the Command Seminar series this year and it will be interesting to see whether different conclusions are reached in the various regions – Australia, Philippines, Cyprus and UK (see brochure enclosed for the first seminar at the AGM Event in Sydney).

There is of course already a good deal of monitoring of equipment on the bridge and in the engine room, or indeed co-located on the bridge, and concerns are already being expressed about losing practical navigational skills. Captain McCabe provides more questions than answers, which is good for getting the debate going, and does not consider that the problem lies with the young officers of today. He does, however, identify that there will need to be as much attention paid to the nautical colleges and their training systems as to the design of the equipment itself. That leads to a whole new level of debate about the need to increase the speed at which training, including STCW, is updated to cater for technological advances.

Practical skills

Effective communication and attention to detail are two skills that are essential in the maritime professional and yet they also seem to be ones that are most difficult to include in training courses. You can of course learn about these things simply by reading and thinking about them and then putting them into practice. This is one of the purposes of the Institute's publications, and is a form of continuing professional development (CPD) that does not take much time or take you away from friends and family whilst on leave – an added advantage. It is not as formal a process as the Royal Navy's career development system (see p 7) but it is a valuable benefit of membership if used to your advantage.

So how can it be used to improve professional conduct? Two practical examples are provided by articles this month. Captain Nick Cooper's experience of walking into a serious and ultimately dangerous stowaway situation provides food for thought on the unprofessional conduct, lack of effective communication and lack of attention to detail by various people before he joined the ship (see pp 4-5). We hope that the Institute's new book *Stowaways by Sea* will help to guard against these situations and, while it should be in the office ashore, it must also be on every ship. Finally, Captain Malcolm Goodfellow provides excellent advice on the integration of the pilot into the bridge team and the ways to maintain effective communication (see pp 10-13). He also highlights various examples of unprofessional conduct which need to be guarded against, but which continue to occur despite BRM courses now being mandatory. Are such failings the exclusive fault of the ship's officers or indeed the pilot in some cases? No – they are the result of many shortcomings in the industry merging together to create an accident waiting to happen, and eventually it will.


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Mariners' Alerting and Reporting Scheme

MARS Report No. 258 April 2014

MARS 201419

H_2S – Dangerous at almost any concentration

Edited from US Coast Guard Marine Safety Alert 02-14

➔ During a recent Port State Control (PSC) tank vessel examination it was requested that cargo tank oxygen levels be verified using the ship's portable gas meter. The vessel was carrying Grade E Sour Crude. When the deck sounding valve (see photo) was opened, the pressurised cargo tank atmosphere escaped releasing inert gas and H_2S (hydrogen sulphide) vapours. During the evolution the personal gas meters of two individuals alarmed for H_2S. One whose alarm sounded was standing 1-2 feet downwind from the sounding valve. Within days, this person developed severe exposure symptoms consistent with H_2S exposure. Two others involved were standing upwind. Afterward, one reported experiencing a minor headache.

H_2S is a colourless, flammable gas with a 'rotten egg' smell that occurs naturally in crude petroleum. Even at low concentrations this heavier-than-air gas can irritate the eyes, nose, throat and respiratory system with effects delayed for hours or days. At higher concentrations, nausea, vomiting, headaches, dizziness, unconsciousness or death may occur. While the initial 'rotten egg' odour is present, an individual may lose the ability to smell that gas after becoming exposed. Personal monitoring equipment is, therefore, vital to protect against exposure.

An alarm on H_2S constitutes an acute exposure and should trigger immediate evacuation and initiation of acute exposure procedures including medical attention.

The International Oil Tanker and Terminal Safety Guide (ISGOTT) recommends that personnel should stand perpendicular to the wind when sampling tanks, in order to avoid being downwind or upwind and creating eddies. When monitoring cargo tank atmospheres, all personnel should exercise diligence and great care. In all cases, personnel should completely assess the risks including the cargo type, tank pressure, venting arrangements, wind direction/speed and condition of the testing equipment. When H_2S is suspected, ISGOTT recommends that self-contained breathing apparatus (SCBA) be worn if it is necessary to breach the integrity of the cargo system and if a vapour free atmosphere cannot be guaranteed.

Additionally, the American Conference of Governmental Industrial Hygienists recently reduced the H_2S dangerous Threshold Limit Value from two parts per million (ppm) to one ppm.

MARS 201420

Fog bound grounding under pilotage

Edited from official Marine Accident Investigation Board report 22/2013

➔ The Master and pilot discussed the plan for unmooring and departure. They agreed that the forward spring would be the last mooring rope to be let go and that the vessel would then move stern-first into the fairway. The tug would be made fast at the stern and would assist the vessel into the centre of the river. The tug would be released once the vessel was clear of the jetty and making headway downriver. Initially, the fog had been quite thick and had delayed departure. Later, some improvement was seen so the vessel's crew began to single up the vessel's mooring lines and the pilot informed Vessel Traffic Services (VTS) that the vessel was preparing to leave the berth. At the time the tidal current was easterly two to three knots.

At departure the Master and pilot were on the port bridge wing. The OOW was operating both the helm and the engine telegraph, which was being responded to by the engine room crew. The duty helmsman was with the aft mooring party as the vessel left the berth. At 0551 (Figure 1) the Master and pilot entered the wheelhouse: the pilot ordered the engine to slow astern and the vessel's speed over the ground (SOG) increased to 2.1 knots on a course over the ground (COG) of 210°. Two minutes later, the vessel's engine was stopped and the pilot ordered 'dead-slow-ahead' and the helm hard-to-starboard: the SOG was 4.0 knots and COG 171° (Figure 2). The pilot requested the tug to pull on the port quarter at 25% power and 40 seconds later ordered the tug to increase to 50% power. Soon afterward, the pilot ordered the engine to slow-ahead and a few seconds later to half-ahead.

At 0555, VTS warned the vessel's pilot by VHF that the vessel was south of the fairway (Figure 3). The pilot then ordered the engine to full ahead and for the OOW to steer a heading of 073°. A minute later

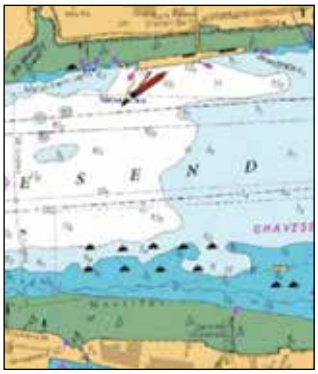


Figure 1

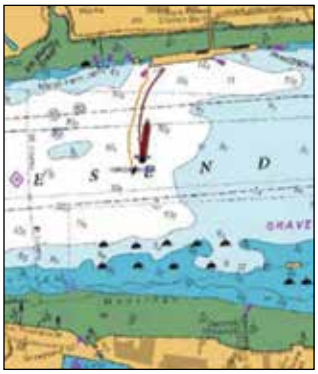


Figure 2

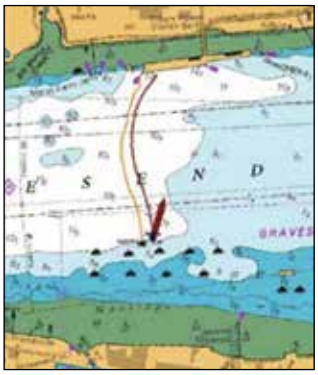


Figure 3

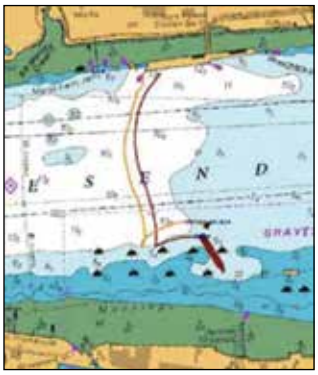


Figure 4

the pilot ordered the helm to be put hard to port and the engine to full ahead. He then instructed the tug to stop pulling and to take up station on the port quarter. At 0557 the vessel was swinging quickly to starboard; the pilot again ordered the helm hard-to-port, the engine to full ahead and the OOW to steer a heading of 071˚. The pilot then called VTS and reported that the vessel's engine was not responding. VTS asked if the vessel required assistance, to which the pilot requested a second tug.

At 0558 (Figure 4) the vessel was continuing to swing to starboard at 3.5 knots SOG, the helm was hard-to-port and the engine was set to full-ahead, when the helmsman arrived on the bridge to replace the OOW at the helm. At about this time the Master informed the pilot that the vessel's engine was working normally and that he had instructed the engineers to increase power to full sea speed. By 0600 the vessel made contact with moored barges on the south side of the river before running aground.

Some of the important findings from the official report were:

- The need to check on roles and responsibilities [is paramount]. Had this been done, it is probable that an officer would have been allocated to maintain a radar watch during the vessel's departure.
- This accident was characterised by poor communications. These can be attributed to the initial failure at the briefing stage to assign appropriate roles and responsibilities within the bridge team to manage a port departure in restricted visibility. This in turn resulted in poor situational awareness and in team members acting in isolation, without fully communicating their actions to the other team members or the assisting tug.
- The use of the tug, in circumstances where [the pilot] had no visual references, resulted in a disproportionate effect being applied that turned the vessel some 90˚ more than intended so that the vessel drove out of the channel and grounded before he could assess and recover the situation.

■ **Editor's note:** Readers may also wish to review MARS report 201360; this present instance of departure in fog is, in many ways, a mirror image of the arrival in fog described in the former instance. And although the arrival was attended by a full complement (ie helmsman and OOW ostensibly doing their job) as opposed to the reduced complement in this instance, the root causes remain the same in both cases. Without roles and responsibilities assigned to each member of the bridge team, and pre-defined limits established and measured, low visibility manoeuvring can be a risky proposition.

MARS 201421

Unsecured tow rope fouls prop

➔ Due to the poor weather conditions the azimuth stern drive (ASD) tug was requested to get underway earlier than anticipated to meet the customer vessel. Normal practice is to hold station just inside the harbour entrance but prior to leaving the berth contact was made with the pilot, who requested the tug meet the customer vessel outside the harbour and conduct an active escort secured in the centre lead aft.

En route through the harbour the Master held a meeting with the crew outlining his requirements and due to the poor conditions outside of the harbour (Wind 7-8 with associated sea and swell) to prepare the vessel for heavy weather prior to proceeding outside of the harbour entrance. The Master requested that crew should pay out both forward tow ropes ready for use (one for the tasking and one on standby) and then secure all ropes/equipment on deck and check all watertight closings. Once outside the harbour entrance numerous waves were taken over the bow but the vessel remained comfortable throughout.

Once the towline was secured to the customer vessel, the initial part of the inward passage was uneventful, with the tug maintaining a fore/aft position with no weight in the towline. Just prior to the harbour entrance the pilot requested the tug to 'pull back slow'. This was done without issue, and only the expected cavitation was experienced. The order to 'stop' was then given and the customer vessel's speed decreased to approximately 6kts. When in the relative calm of the harbour the pilot gave the order to 'pull back dead slow'. As the tug Master moved the controls astern and increased the rpm, an unexpected amount of vibration and cavitation was experienced. Upon verification it was found that the messenger line from the standby tow line was leading through a freeing port between two vent pipes, overboard and aft. The tug completed the tasking without further incident using minimal ASD thrust and rotation to minimise any further complications.

After tasking the standby tow line was fully recovered but with considerable damage found to the eye of the towline tail, minus the messenger line. A diving inspection was necessary to untangle the messenger line from the starboard pod; no damage to the pod was found.

Findings of the company report

It was found that the standby towline and specifically the messenger line had not been secured. It is believed that the seas taken over the bow while on passage outside the harbour caused the messenger and tail of the towline to be washed down the deck and then overboard via a freeing port. These then became entangled in the starboard pod unit.

A contributing factor may have been the unexpected call to get

underway earlier than anticipated, so that preparations had to be done while en route to the task. Ideally they would have been made alongside prior to getting underway. Passage time from berth to harbour entrance was only about five minutes, so there was an element of rush to get the tug and equipment secured.

Lessons learned

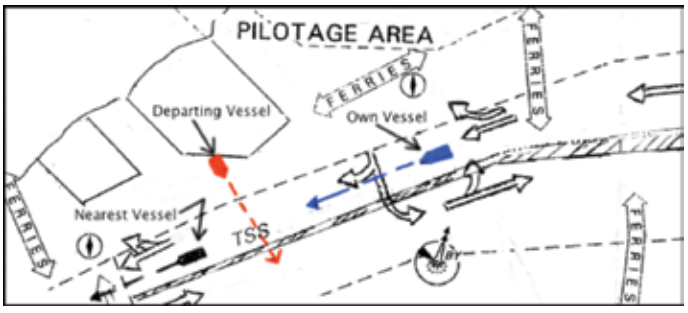
- The Master should never assume, but always ask for verbal confirmation that all is secure and ready.
- Irrespective of location or weather, the same preparations should always be made to the same standard so that it becomes second nature.
- In poor weather the tug should be prepared for immediate tasking while alongside.

MARS 201422

Give way the proper way

➔ During the evening 4-8 watch, a large, fully loaded container ship was proceeding westbound through a normally busy traffic separation scheme (TSS) under the conn of the OOW, with the Master observing. At the time there was light traffic in the west lane with the nearest vessel ahead about 2.5 nm and proceeding at a similar speed to ourselves. There were no small or coastal vessels proceeding between the lane and the anchorages. Numerous small craft were moving around in the anchorages, and there was a steady flow of vessels transiting the east bound lane.

At around this time the VTS called the vessel to advise that a large ship was underway from one of the anchorages and would cross the separation scheme to proceed eastwards; VTS advised us to keep clear of this vessel. The target was picked up first on the radar and then visually (although this was difficult at first due to the background lights) and was observed to be approximately three points on the starboard bow at a distance of just over two nm. A quick look at the target data showed the vessel would pass astern of our vessel by one to two cables at its present speed.



It was at this point the OOW ordered an alteration of 10 degrees to port – which was immediately counteracted by the Master who ordered 20 degrees to starboard.

After clearing the vessel, which passed eight cables ahead and had safely entered the eastbound lane the Master asked the OOW why he initially wanted to go to port. His reply was 'to give the crossing vessel more distance to pass astern'. Unfortunately he hadn't taken in to account the fact that the other vessel was increasing speed and would probably not cross astern but ahead – as was the case.

Had we continued to go to port in an attempt to put the crossing vessel past our stern, our vessel would have likely ended up in the eastbound lane going against the flow of traffic. The alteration to starboard immediately put the crossing vessel on our port bow; we briefly exited our lane to the north, and as soon as the crossing vessel was clear we were able to re-enter the lane and continue our westward passage.

Lessons learned

Some officers seem to think that when a crossing vessel is going to pass close astern it is alright to go port to 'give them more room'. But this is contrary to Rule 15 where it quite clearly states that if two vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and shall avoid crossing ahead of the other vessel.

MARS 201423

Steel plates slam seaman

Edited from official BSU (German Maritime Safety Board) report 179/12

➔ Two deckhands were detailed to replace the torn tarpaulin covering some steel plates, which were stored upright on the poop deck. The 20 plates measured approximately 1.4m x 1.2m with a thickness of 5-10mm, and weighed about 1000kg in all. In order to undertake this task the deckhands released the single lashing strap that held the plates in place so as to free the tarpaulin. Upon release of the lashing strap several plates began to topple over, falling on top of one of the attending deckhands.

It required several crew to free the trapped victim and first aid was immediately administered after which he was transported to hospital. He was later diagnosed with chest contusions and a fractured leg.

Report findings

- Improper vertical storage and securing of steel plates, especially with only one securing strap and no wooden or other deck underlays to increase friction, unnecessarily increased risk.

■ **Editor's note:** The BSU report also noted a similar accident just a few months earlier where the crewman was fatally injured due to falling plates that were vertically stored. Beyond the specific findings of this report it is important to realise the insidious nature of certain seemingly innocuous conditions. How dangerous can a few plates be? We tend to view such conditions as 'normal' – but there are hidden risks if only we had stopped and thought about it for a minute. Such hazards probably exist on your vessel. Go around once again with new eyes and renewed interest to try and spot the risks before any negative consequences occur. Readers are encouraged to report back to the MARS editor with descriptions and photos of what they find and any corrective action taken.

READER'S COMMENT

MARS Report 201406

Nick Cutmore, Secretary General, International Maritime Pilots' Association

➔ The Editor's comment that 'For some reason, fall arrest equipment has never been seriously considered for persons using a pilot ladder….' is misplaced. We have just spent eight years in discussion at IMO about the new SOLAS V R23 and A.1045 closely considering every aspect, naturally including fall arrest. As such, the main changes to SOLAS V R23 and other instruments with effect from 1 July 2012 are:

- Pilot hoists are now barred;
- Outward opening doors barred;
- Accommodation ladders and pilot ladders used in combination to be tied into hulls;
- Rubbing strakes cut away in the way of pilot ladders;
- Ladder reel arrangements set out for the first time;
- Pilot ladders are now part of the ship's safety equipment and need to be certified.

Pilot boarding arrangements are predicated on the principle of both vessels moving. Surveyors and inspectors normally board vessels anchored head to wind with no lee and their 'tender' slops about in troughs while the transfer is underway.

[Pilots] are not complacent but we do not want to compound the difficulty with building-site technology either. The reason why pilots do not want such equipment is simple – they do not want to be attached to either their cutter or the ship they are boarding for fear that their flexibility to choose themselves to either climb or descend is compromised by being irrevocably attached to either vessel/craft. For example, trials in the UK using the 'Hadrian's Rail' system on pilot cutters starkly demonstrated the drawbacks and dangers of such systems.