MARITIME FEEDBACK

CHIRP MARITIME

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An independent and confidential reporting system for the maritime industry

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The *CHIRP* editorial

Risk acceptance – have we got the balance right?

Adam Parnell
Director (Maritime)

Welcome to the latest edition of FEEDBACK. We aim to improve safety for all seafarers, so I am pleased that this issue contains reports about bulk cargo vessels, gas and oil tankers, container carriers, fishing vessels and super yachts. Although the reports might at first appear not to share many similarities, there is a common theme that runs through them all: risk acceptance.

It is well understood that maritime operations are more hazardous than many other occupations, but have we as seafarers become so accepting of risks that we no longer see them? Have mariners become numbed to dangers because they don't believe they can challenge them – or that nothing will change if they speak up?

In our first report concerning a timber carrier, we investigate why the crew had to walk on the ship's railings to get from one part of the vessel to another. In another, we examine why a ship undocked even though the weather conditions were unsuitable. Sometimes we accept risks through repetition, which was the case when a superyacht tender ran aground at speed because nothing untoward had occurred on previous transits of a similar route.

Have we as seafarers become so accepting of risks that we no longer see them?

But we also report on occasions when crews did speak up, as in the case of an LNG tanker which sounded a fire alarm when they were unsure whether they saw steam or smoke coming out of the compressor room. And we also report on a port operator who realised that an emergency command had been missed and spoke up.

Regular readers will know that we often report on pilot ladder shortcomings. To help avert future incidents, we encourage ships to adopt the 'pilot ladder permit to work' form that we have published at the end of this newsletter.

Don't forget! *CHIRP* is here to receive your safety concerns in confidence. It welcomes reports of incidents, accidents and near misses from commercial seafarers, recreational mariners or those working ashore in the maritime industry.

CHIRP MARITIME

Are you interested in becoming a *CHIRP* Maritime Ambassador?

CHIRP and the Nautical Institute have an established ambassador scheme to raise awareness of our incident reporting schemes and encourage the submission of incident, accident and near-miss reports.

We seek additional volunteer ambassadors around the world, especially in China, Cyprus, Indonesia, the Philippines, Spain and the USA.

As an ambassador you will join an international network of seafarers who also share your passion for safety, and you will quickly gain a broad knowledge of current safety issues. These are great additions to your CV and increase your employability.

Together we can promote the development of a 'just' reporting culture across the maritime sector to improve safety outcomes. The key attributes of a successful ambassador is a passion for safety and a willingness to speak up for *CHIRP* among your colleagues and contacts.

If this sounds like you, please contact us to discuss this opportunity at mail@chirp.co.uk

www.chirpmaritime.org

M1852

Machinery breakdown results in allision

Initial Report

The vessel was undocking following a successful survey in dry-dock. The plan was to move to an inner anchorage to conduct sea trials before her scheduled departure. The vessel was in a very light condition with a draft of 5m and a freeboard of 17m.

The deck and engine room teams completed their pre-departure procedures, but the main engine was not tested. A passage plan had been prepared, and this was given to the pilot by the master. Three dock masters were also in attendance. Strong winds were forecast (27 knots with gusts of up to 35 knots) from the port side.

Five tugs were in attendance, with two attached to the bow, one attached to the stern and two others standing by. The main engine was set to 'Stand By', and the vessel was pulled out of the dock by the tugs. As the vessel exited the dock, the two tugs at the bow were released and the bridge ordered 'Dead Slow Astern' on the telegraph. The engine failed to respond, and the vessel started to drift to starboard because of the strong winds.

One of the tugs was directed to make fast on the port side and pull the vessel to port. The tug attached to the stern was not directed to do anything, so it did not assist.

The vessel drifted onto a newly-built moored vessel which was extensively damaged, as were some of the nearby shore facilities. Fortunately, there were no casualties or pollution. Shortly afterwards, a third tug was made fast on the port side, and the pilot was able to manoeuvre the vessel to the allocated anchorage. An investigation undertaken by the authorities, owners and the engine manufacturers found the exhaust valves had not been properly calibrated whilst in dry-dock.

CHIRP Comment

Manoeuvring into and out of a dry dock would be an unfamiliar operation for most ship crews. Our maritime advisors questioned why the vessel was allowed to undock, given the very strong winds, and asked if this was due to commercial pressure?

The presence of three dock masters and five tugs suggests that a plan had been developed. Still, the lack of a coordinated response to a reasonably foreseeable event (the engine failure) indicates that the emergency response plan was missing or inadequate. Most tugs can push more powerfully than they can pull, but the three available tugs were not ordered to 'push on' to arrest the drift caused by the strong wind.

The fact that the main engine was not tested before departure, despite undergoing significant repairs, is a major failing concerning risk mitigation and reflects poorly on the management, supervision, and the organisation.

Given the proximity of nearby vessels immediately outside the dry-dock and the prevailing onshore wind conditions, the risk assessment, including the consequences for loss of control, was not considered. Nor was emergency anchoring considered.

The dry dock pilot should have insisted that the main engine be tested before departure. Was this raised during the master-pilot information exchange?

Factors relating to this report

Situational Awareness (SA) – Collective situational awareness is based upon formal Risk Assessment and the adoption of agreed Standing Operating Procedures. It also relies on everyone understanding the plan and their part in it and knowing what to do if things go wrong (the emergency response plan).

Capability – The crew in this incident did not have recent experience of undocking a vessel and had to rely on the three dock masters. Did the difference in experience and capability make it difficult for the crew to raise questions or concerns? When writing the risk assessments for uncommon or infrequent tasks, do you consider' capability'? How does your ship empower a 'challenge' culture?

Pressure – The undocking went ahead even though the weather conditions were unsuitable. Dry docks usually are fully booked, and overstaying can be financially costly. Did the master and crew feel under pressure to undock even though the conditions were unsafe?

Teamwork is situational: crews who perform strongly in familiar situations may not do well when facing unfamiliar challenges. This takes time, leadership and open communication. How does your company ensure that your team is ready to face its next task?

Training – The crew did not respond appropriately to the machinery breakdown. Do you regularly conduct machinery breakdown drills on your vessel?

Manoeuvring into and out of a dry dock would be an unfamiliar operation for most ship crews. Our maritime advisors questioned why the vessel was allowed to undock, given the very strong winds, and asked if this was due to commercial pressure?

M1979

Unsafe access!

Initial report

A pilot embarked on a loaded log-carrying vessel which was about to depart. There was no safe walkway over or around the logs. The only way the crew could access the forecastle was either by balancing on the railings around the ship's side or by climbing over the logs. None of the crew wore the right PPE to climb safely over the logs, and those balancing on the ship's side were at risk of falling overboard.

The pilot raised the matter with the master and alerted the authorities to these significant safety breaches.

CHIRP Comment

The IMO's Code of Safe Practice for Ships Carrying Timber Deck Cargoes (the 2011 TDC Code) applies to timber-carrying vessels over 24m. Although it is not mandatory, it provides safety guidance that says:

> *(2.8.2) "Special measures may be needed to ensure safe access to the top of and across the cargo" and*
>
> *(2.8.5) "A safe walking surface not less than 600mm wide should be fitted over the cargo" alongside a wire lifeline.*

The suggested PPE is a safety harness and lifeline and suitable safety footwear. (*It is recommended that ankle boots and spiked overshoes are used to prevent slipping and ankle injuries*).

Because ships are under commercial pressure to sail as soon as their cargo is loaded, there might not be time to install a safe walkway to the forecastle. This should have been considered part of the vessel's risk assessment for unberthing and alternative safety measures, such as a temporary walkway, should have been provided. *CHIRP* has previously received reports of serious injury occurring in similar situations.

Factors relating to this report

Culture – A good safety culture is one in which all reasonable steps are taken to remove or reduce risks. If these steps are difficult to implement or take time to put into place, there is a real danger of 'safety apathy', and we no longer 'see' the risks. We tell ourselves that "the risks are the risks" or convince ourselves that the risks we are taking are 'acceptable'. Where is your company on the Hudson Safety Ladder?

Alerting – The crew would have known that walking on a bulwark rail is dangerous, so what stopped the crew members from pointing this out? Did they feel empowered to raise the alarm, or were they afraid of the consequences? Would you raise the alarm if you saw this on your vessel?

Pressure – When working under pressure, we often prioritise completing the task over keeping ourselves safe.

> Seafarers: Do you ever feel pressured to carry out an unsafe act? Do you ever discuss pressure workloads during safety committee meetings? What can you do to reduce workload pressure?
>
> DPAs: is there inadvertent or deliberate pressure on the onboard managers (Captains & Chief Engineers) to cut corners to save time? How do you know?

Local practices – Loading and securing timber cargo is a high-risk operation. If you are not provided with the correct PPE, would you raise the matter with your head of department or through a company hotline?

M1794

Fire in LNG carrier compressor room?

Initial report

The Dual Fuel Diesel Electric (DFDE) LNG carrier was on passage at sea at night. At around 0400, the reporter was woken by a fire alarm and a PA announcement that there was a fire in the compressor room, which is an unmanned space (UMS).

Fearing an explosion, the reporter donned PPE and met the senior engineer outside the compressor room. It took both

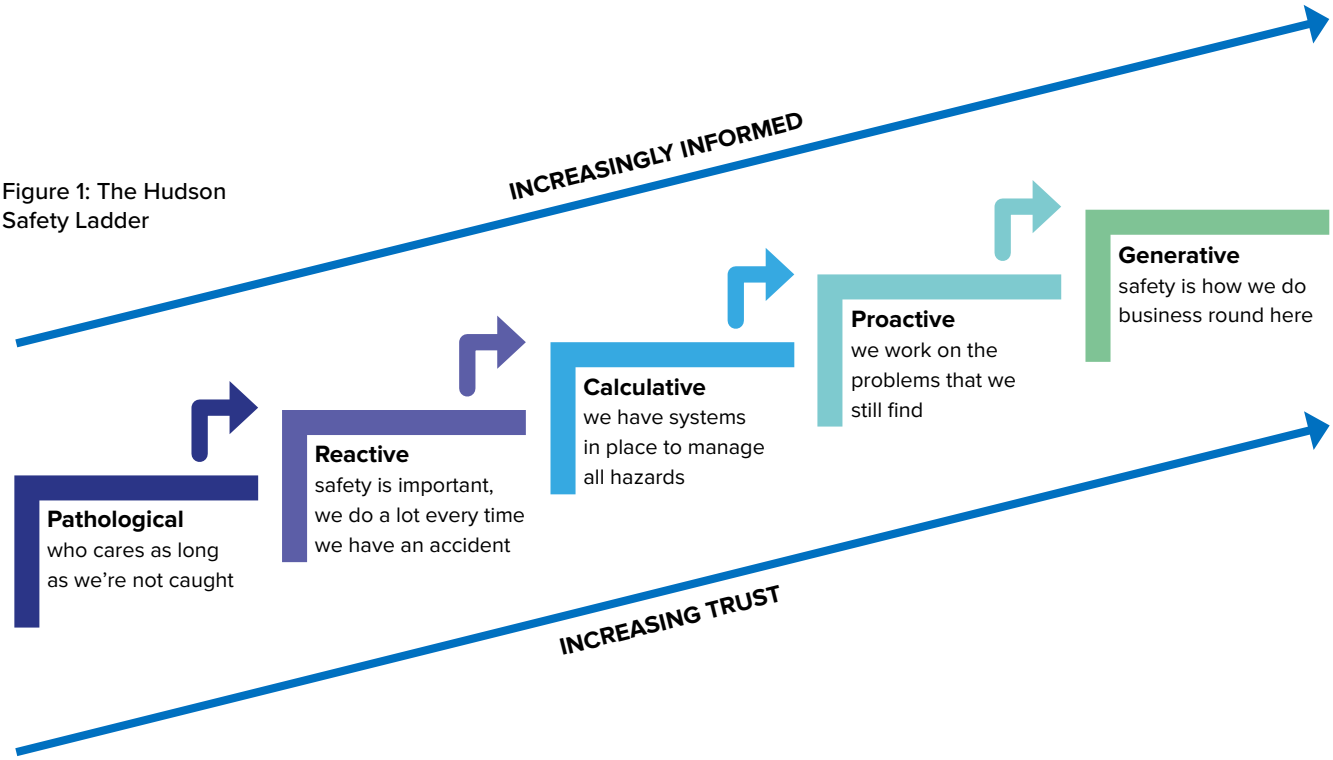

Figure 1: The Hudson Safety Ladder

of them to open the door against the positive air pressure in the compartment. From the doorway, they could see no sign of fire or smoke but did not enter immediately because neither had remembered to collect portable gas detectors. They sent for them, and once these had arrived and they confirmed that there was no gas present, the three-person fire team entered the compartment wearing breathing apparatus. A thorough search confirmed that there was no fire.

The bridge team were convinced that they had seen flames coming out of the compressor room. The three-person team checked the adjacent motor room and confirmed no fire.

The emergency party went to the bridge, and the bridge team told them that they had seen a big cloud coming from the compressor room ventilation shaft. This was inspected and found warm, so the team concluded that the bridge team had mistaken a steam cloud for flames and smoke in the darkness.

Further investigation revealed that there had been a loss of electrical power throughout the ship, which had been restored only a few moments before the fire alarm sounded.

The ship continued sailing, but it was discovered that the fire detection panel was faulty, and the gas detection mode switched off, so there was no way to identify a fire or gas leak.

CHIRP Comment

LNG carriers use an inert nitrogen gas system in the motor room and compressor room to keep out air/oxygen and water vapour, which could freeze and damage critical equipment. It also serves to reduce the risk of fire.

Excess nitrogen gas is vented through a small gooseneck vent on the compressor room roof, which can be seen from the bridge. Usually, the quantity released is very small and almost unnoticeable, but in a power failure, the system will expel a greater amount in a sudden burst. The gas is super-cooled, and when it meets the atmosphere over the compressor room roof, it causes water vapour to condense into a steam cloud which can look like smoke.

The vessel had suffered a loss of electrical power because the uninterruptable power supply (UPS) had not worked. The loss of power triggered the fire alarm, further reinforcing the perception of a fire in the compressor room.

Because the vessel was newly built (around a year old) and had only recently entered service, the UPS defect likely existed since she was built but had not been previously detected. A review of the existing UPS test and inspection regime would be beneficial, as would raising the bridge team's awareness of the effects of a loss of power on the nitrogen gas system and the likelihood that a temporary burst of steam may be seen shortly afterwards.

Factors relating to this report

Situational Awareness – People awakened from deep sleep can feel groggy and disoriented for several minutes after they wake up. This hampers our ability to build situational awareness and explains why the portable gas detectors were not collected initially. Written aide memoir lists can sometimes be beneficial in such circumstances.

Alerting – The bridge team was right to raise the alarm because they believed there was a fire in the compressor room.

Teamwork – The report did not mention that a headcount of everyone on board had taken place, but this is good practice in an emergency.

Training – Responding to an emergency at night is more challenging than during the day. Do you conduct emergency drills at night?

M1977

Collision between a tanker and fishing vessel

Initial report

A laden tanker was sailing in an area well known for high levels of commercial and fishing vessel traffic. The sea state was moderate with Beaufort wind force 5, although visibility was good. The ARPA radars were set at 6nm and 12nm for the X and S-band, respectively, linked to the ECDIS.

At 0449, an AIS target appeared at a range of 1nm. Neither the OOW nor lookout could see anything through their binoculars, but a bright light was switched on from the fishing boat shortly afterwards.

The OOW detected the fishing boat on the port bow and assessed that there was a risk of collision as the CPA was 0.01nm.

The OOW repeatedly flashed the fishing boat with an Aldis lamp but observed no response or action by the fishing vessel. At 0504, the OOW judged that the fishing vessel was not taking action to avoid collision and ordered hard starboard rudder. At 0506, the fishing boat hit the tanker's port side. The fishing vessel maintained its course and speed until it collided with the tanker. There was no evidence that it was engaged in fishing.

After the collision, the fishing vessel briefly slowed and then resumed its original course and speed.

At 0520, the duty officer reported the collision to the master. The master immediately proceeded to the bridge, ordered the engine to standby and started investigating the condition of the fishing boat and the vessel.

At 0525, the master took over the watch from the OOW and called the chief officer to check for damage.

The master observed the fishing boat for about 30 minutes to determine whether she was damaged and needed any help. Attempts to communicate with the fishing vessel through VHF were unsuccessful. The fishing boat appeared to be without serious damage, and she resumed her voyage.

At 0543 the master called the operating company using the emergency contact number and reported the incident. The VDR data were saved and ECDIS screenshots were taken as well. The lookout and OOW were tested for alcohol in accordance with company policy, and both had negative (alcohol free) results.

Both vessels resumed their passages after the incident, and the master of the tanker reported the incident to local port authorities. When the tanker reached port, there was attendance by the local P&I and Class, and the marine superintendent for the management company.

Findings were damage to the hull shell plating, which required further examination and subsequent repairs by an agreed due date.

A review of the VDR playback revealed no significant traffic in the vicinity at the time of the accident. The fishing boat switched on her navigational lights just one mile before the accident and then took no action to avoid the collision, keeping her course and speed unchanged.

The VDR playback revealed that neither radar was properly tuned – both had the radar clutter too high, which

decreased the radars' efficiency in detecting weak targets. The visibility was good and there was no rain. Additionally, the CPA and TCPA that had been set were different from the requirements stated in the master's standing orders.

Although the Aldis was used by the OOW and was verified through the VDR, the ship's whistle was not used.

CHIRP Comment

Both vessels failed to maintain a proper lookout, and the tanker's radar was incorrectly configured, making it harder to detect small vessels in the moderate seas. The lack of navigation lights on the fishing vessel made detection even harder. The AIS symbol does not always align with the radar echo return – were the lookout and OOW looking in the right place before the fishing vessel turned on its navigation lights?

The tanker's OOW correctly used the Aldis lamp to attract the attention of the fishing vessel but should also have used sound signals (5 short blasts) which would also have alerted the master that something was wrong.

The tanker's OOW correctly maintained course and speed (Rule 17) but subsequently took action "as will best aid to avoid collision" when it became apparent that the fishing vessel was not taking avoiding action.

CHIRP could not discover why the OOW did not inform the master of the collision until 15 minutes afterwards – this is highly unusual.

The OOW should periodically check equipment settings throughout the watch, particularly if the weather or sea-state changes, and use visual sightings of vessels at range to determine whether the radar and AIS are working as expected

Factors related to this report

Capability – Did the OOW on the tanker know how to set up the radar in the prevailing weather conditions correctly? Was this equipment different to that which the OOW had been trained to use? Were they shown when they joined and had they been assessed by the master or chief officer before taking their first watch? Does your vessel have checklists and aide memoirs to help you set up the bridge equipment?

Was the OOW on the fishing vessel aware of their responsibilities under the collision regulations? They were the give-way vessel yet did not take action to avoid collision.

Communications – There were several ineffective channels of communication in this incident. The fishing vessel did not respond to VHF or light signals; sound signals were not used to alert the fishing vessel. The tanker's master was not told of the incident until 15 minutes later.

Local practices – The master's standing orders concerning CPA were not followed.

Situational awareness – The radar and AIS on the tanker were not working well if targets were only detected at close range. The OOW should periodically check equipment settings throughout the watch, particularly if the weather or sea-state changes, and use visual sightings of vessels at range to determine whether the radar and AIS are working as expected.

M1967

Near Miss – distraction and work overload

Initial report

The vessel was discharging oil at a European oil terminal using three pumps through two manifolds to shore with a steady manifold pressure of 9 bar. Operations were coordinated via the terminal's dedicated VHF channel. A hand-held VHF radio was provided to the vessel's chief officer at the ship/shore discharge meeting earlier that day. At the meeting, the terminal's written operating procedures had been reviewed, and these directed that an emergency stop by either ship or shore teams should be initiated by ordering "STOP STOP STOP".

At 1453 the terminal ordered an emergency stop using the word "STOP". The vessel did not respond to the order. However, a cargo expeditor from the terminal who was on board realised that something was amiss and at 1454 verbally ordered, "STOP STOP STOP". The chief officer stopped all pumps using the emergency stop buttons.

At the time of the incident, the chief officer, second officer, cargo expeditor, the bunker surveyor, and the ship chandler were all present in the cargo control room (CCR) making communications difficult to hear because several different conversations were taking place at once.

The ship's internal communications were also overloaded because they were covering both the cargo/deck and the approach of a bunker barge, all via a common ship's walkie talkie channel. The vessel was also taking on stores and provisions, whilst an annual class inspection, a port state control, and a vetting inspection were all taking place at the time.

An investigation concluded that the chief officer's workload stopped him from maintaining an efficient watch on the VHF, so the initial (incorrectly worded) call was missed. However, the chief officer reacted correctly when prompted by the cargo expeditor. The master was similarly distracted by the vetting and port state control inspection.

CHIRP Comment

The terminal's order to 'STOP' was a deviation from pre-agreed procedures and would not have conveyed the same seriousness as the same word repeated 3 times. Because so much was happening in the cargo control room, the level of noise and the distracting parallel conversations meant that the order was initially missed by the ship's team, who were undertaking multiple simultaneous activities. By contrast, the cargo expeditor was concerned only with the discharge of oil and was less distracted. They recognised the intent of the initial order and relayed it using the correct pre-agreed format, which was responded to immediately.

The CCR is an operational space, and the simultaneous administrative and logistical meetings should have been held elsewhere. They took place in the CCR because each meeting needed the master's or chief officer's involvement, which distracted them from properly supervising the cargo offload. This could reasonably have been foreseen by the operating company, who are compromising safety by placing so many simultaneous tasks on the ship's staff.

Factors related to this report

Distractions – The chief officer was overloaded with other communications in the CCR. Relocating all the other meetings would have reduced the level of distraction.

Pressure – Recognising the different workloads during a discharge operation and the importance of pre-planning can considerably reduce the pressure on those involved in the operations. A high workload may lead to overload and essential things being missed. Relieving pressure is a team responsibility and should not be left to one individual.

M1969

Boat tender strikes charted rocks at speed

Initial report

Two crew members were performing a tender run ashore at night to collect a third crew member who was returning from shore leave. The helm used the chart plotter to follow the transit courses made earlier that day. The course was not a straight line because it had to account for two rocks that protruded about 50cm above the waterline.

On the trip back to the parent vessel, the tender crew conversed with the crew member they had just collected, who was returning from an extended leave. They were distracted from monitoring the chart plotter and they hit the rocks at around 15-18kts.

The helm and deckhand were both thrown out of the tender by the force of the impact but were otherwise uninjured. Both were wearing life jackets and because the helm was correctly wearing the 'kill cord', the engine shut off. The collected crew member was thrown against the windbreak and sustained bruised ribs.

Both crew members climbed back into the tender and radioed the yacht to tell them what had happened. The tender still worked, so it was carefully navigated back to the yacht. When the tender was lifted out of the water, the crew discovered large holes and gouges in the hull.

CHIRP comment

Although the rocks were visible in daylight, they were not lit or marked at night, and background lights might have masked their silhouette. Following the previous routes on the chart plotter would have been a sound choice. Still, because of the lack of visual clues, and the conversation with the returning crew member, the helm became distracted from monitoring the chart plotter.

As their attention wandered, they likely forgot about the rocks and instinctively headed directly back to the yacht. At night the second crew member would not have had any visual cues that the tender was off course, so they could not remind the helm to regain the planned track. And unless the tender was being actively tracked by the crew on the yacht, they also would not have been able to raise the alarm.

Factors related to this report

Distraction – There is a natural tension between concentrating on navigational safety and keeping your eyes and head 'out of the boat' while simultaneously being friendly and attentive to passengers and guests who might not understand the consequences of distracting the helm from their primary task.

Competence – Night navigation requires different skills to navigating by day. Regular training is necessary to keep these skills current.

Safety culture – A good safety culture will empower the helm to fend off distractions as they arise and deliver a short safety brief at the start of every trip.

M1910

Foundering

Initial report

The ship had recently changed management company, and a totally new crew joined the ship. Following a brief handover from the previous crew, the ship sailed with no cargo. The off-going crew had reported that all the double bottom ballast tanks were full, and the wing ballast tanks were 60% to 65% full. In total, about 80% of the ballast capacity had been filled. The replacement crew accepted these figures but did not verify the status of the ballast tanks.

116 loaded TEU's (twenty-foot-equivalent containers) were loaded into the hold and on deck, with an estimated deadweight of 1900 mt. No change was made to the ballast configuration, which remained at 80% of ballast capacity. There was no verification of the ballast capacities in each tank.

The ship departed for the next port, where it took on freshwater before departing for its next destination. Shortly after departing, it encountered heavy weather caused by monsoon winds and a typhoon. The passage plan required the vessel to go beam-on to the heavy seas and it rolled heavily. It then developed a severe list of about 25 degrees to starboard toward the wind and waves, which increased quickly to 30 degrees.

Without attempting to establish what had caused the list, the master issued a Mayday and ordered the crew of 12 to abandon ship into a life raft. The crew were all safely rescued from the life raft by helicopter and observed that the ship was now listing at about 45 degrees. All the deck containers were still in place, and as they had left the main engine and generators running, the lights were still burning. The crew reported that there had been no noticeable failure of the ship's equipment or systems, and there had been no movement of the containers on deck. The crew assumed that there was no movement of the containers in the holds because the containers were so tightly packed athwartships that no appreciable transverse movement would have been possible.

Six days later, a search found the ship still afloat and listing between 15 and 30 degrees to starboard. All the deck containers were missing, but the hatch covers were in place and appeared intact. A salvage tug arrived about four days later, but the ship had sunk.

The cause of the list and subsequent sinking was not conclusively identified. The crew were not fully aware of the severity of the forecast weather conditions and consequently had not implemented heavy weather procedures.

In the absence of any other obvious factors, the reason for the ship developing a heavy list is likely related to

a change in the ship's stability resulting from the ingress of water.

The crew had not verified the amount of water in each ballast tank since they had boarded the ship three weeks before the incident. The pre-departure stability calculation on the ship's stability computer may not have been an accurate representation of the ship's actual stability condition.

The crew took no action to identify why the ship took on a list and therefore took no remedial action (if any was possible).

The crew were unlikely to have been adequately familiarised with their ship before it departed on the voyage. There appeared to be minimal support and assistance provided to the new crew by the new ship management company when it took over the operation of the ship.

CHIRP Comment

The crew were unfamiliar with the vessel and had insufficient time to properly familiarise themselves. Their repeated failure to take ballast soundings supports this conclusion. Four opportunities to take soundings were missed: as soon as the new crew had joined, after taking on the containers, after taking on fresh water and before entering an area of heavy weather.

Crews must have time to familiarise themselves (ISM Code section 6) properly. It also takes time for a new crew to become a team. Had they had more time, they might have been more confident in trying to find out why the vessel had developed a list rather than abandoning the vessel immediately. 15 degrees of list is alarming but not necessarily dangerous if the chief officer is confident in their stability calculations.

The management company are responsible for ensuring that the crew is safe to operate the vessel and never more so than when sending it into an area where monsoons and typhoons could be expected. This suggests that the company had not adequately assessed the risks of placing a new crew on an unfamiliar ship in such conditions.

The loss of containers in the heavy weather would have reduced top weight and made the vessel more stable. It is likely that the ship sank after the generators ran out of fuel and the automatic pumps stopped working.

As well as the safety implications of this report, ballast management is also essential to ensure that harmful organisms or pathogens are not inadvertently transferred between ports in the ballast water.

Factors related to this report

Situational Awareness – The new crew were unfamiliar with the vessel and its equipment and relied on the information provided by the off-going crew, who were from a different company. Verifying the material condition and seaworthiness of the ship are essential to understanding any safety issues. How organised is your company when taking over a new ship?

Capability – The management company did not verify that the crew could safely operate the vessel.

Pressure – The crew were not provided sufficient time to familiarise themselves with the vessel. Did commercial considerations take priority over the safety of the ship and the crew?

Culture – Does the company care about safety and their crews? Would you consider working for a company that operates as this company did?

M1920

Fatality – Crew member scalded by steam from a boiler

Initial report

After arriving at the port, the engineering watch officer discovered a water leak from the main engine turbocharger drain. Suspecting that the leak was coming from the boiler, the chief engineer ordered it be shut down so that it could be inspected and repaired later that morning during regular working hours.

About five hours later, the second engineer and a fitter entered the boiler space from the bottom manhole door after they were satisfied that all safety precautions had been taken for entry.

They identified a leaky boiler tube, plugged it from the bottom, and then plugged the same tube from the top of the boiler so that the boiler could be restarted. As the second engineer was leaving the boiler through the bottom manhole door, the inserted boiler tube plug fell off along with a small broken section of the water tube, causing hot water and steam from the boiler drum to engulf the fitter who was just about to leave. He was killed instantly.

The investigation identified that the risk assessment for boiler maintenance was inadequate because not all the hazards were identified nor associated risks assessed. It noted that the boiler had not been depressurised, nor the boiler blown down, nor the boiler vent opened to see that depressurisation had taken place. It also concluded that the fatigue of the second engineer was a likely contributing factor.

Fatigue is widespread among seafarers – a 98-hour working week is regrettably permitted by STCW – so the ship's management has a responsibility to ensure that the crew are sufficiently rested before doing hazardous tasks

CHIRP Comment

The water in the boiler had not been 'blown down', nor the steam vented off. This exposed the engineers carrying out the work to a single point of failure. Where double valve isolation is not practical, the entire system should be depressurised and vented. Although 5 hours passed before the team entered the boiler, it is likely that it or the surrounding pipes would be in a 'hot' condition. Engineers are often put under pressure to fix defects so that the ship is ready to sail as soon as possible. This time pressure can result in compromising safety procedures.

Because one tube had already failed, it would be prudent to assume that the others would be in a similarly fragile condition until proven otherwise. The risk assessment should take this into account.

Fatigue is widespread among seafarers – a 98-hour working week is regrettably permitted by STCW – so the ship's management has a responsibility to ensure that the crew are sufficiently rested before doing hazardous tasks like this and then providing support so that essential safety steps (like depressurising the system) aren't missed.

Factors relevant to this report

Fatigue – The report mentions that the 2nd engineer may have been experiencing signs of fatigue. If this was the case, why were they given this task? A common symptom of fatigue is taking risks and not challenging unsafe situations. Somebody who was more rested could have done this job.

Culture – If there was a good company culture concerning safety, then this operation would have been challenged as unsafe. Where is your company on the safety ladder?

Teamwork – Encourage a healthy 'challenge' culture onboard. This reduces the likelihood of such incidents.

Situational awareness – If the engineers who entered the boiler were aware that a failure of any of the water tubes and associated pipes would kill them, would they have entered the boiler?

CHIRP INSIGHT

Effective use of tugs for pilots & exempt masters

by Capt Arie Nygh AM FNI FITA
Ambassador: *CHIRP* & NI MARS

My 51-year career background includes 30 years in the towage sector as an omnidirectional tug master, training master, national operations manager, and towage industry consultant. Along the way, I founded SeaWays Consultants (SC) (Australia based) and SeaWays Global (SG) (UK based). SC & SG have trained more than 2,000 tug masters for some 60 towage companies worldwide.

I mention my towage industry credentials to provide credibility to why SeaWays originally developed the one-day workshop "Effective Use of Tugs for Pilots & Exempt Masters". Having worked and trained, and assessed in more than a hundred ports worldwide, it was evident that there was a significant gap in knowledge about the safe and effective use of tugs by Pilots.

The workshop mentioned above was developed to address this shortfall and has now been delivered to more than 650 pilots worldwide. At no time do we attempt to tell pilots how to pilot; instead, our goal is to inform and educate pilots based on a training tug master's expertise on all things a professional pilot should know about different tugs' capabilities along with what they can and can't do to assist the pilot in their task at hand.

As we know, overnight, COVID changed the world and how we go about our business, particularly in the maritime industry. This energised me to convert our workshop into online eLearning. Over this year-long project, I also took this opportunity to revamp and develop the content. This includes filming live onboard tugs whilst they respond to the pilot's orders, giving a unique insight into when a pilot gives an order, how and why the tug responds and how long it takes. I then sent the draft courses to six highly respected high profile senior pilots worldwide to review and critique the lessons. Their valued input and suggestions were then incorporated into the lessons.

Now, a pilot or exempt master, no matter where they are stationed, can undertake this classification society accredited (by Class NK) course cost-effectively in their own time and at their own pace.

From personal experience on the water, in simulation facilities, and the lecture room, there is a concerning gap in many pilots' in-depth knowledge about tugs and how best to utilise them safely and effectively. Given the evolving new tug and equipment designs, the gap is widening; this course aims to close this gap.

Tugs and their masters are acknowledged as an essential extension of the pilot's BRM team. For mine, given challenges faced by pilots relating to language barriers and onboard ship competencies, I would put forward that tug masters are the essential part of a pilot's BRM team.

Tugs that are well chosen for a specific port and appropriately trained tug masters can significantly support a Pilot in safe day-to-day operations and assist in saving the ship when things go wrong. Furthermore, Tug masters can generally recognise when things are not going to plan, or an incident is imminent. Having appropriate Pilot and Tug master SOPs, including communication protocols, the "shared mental model" between all parties is well understood. A common understanding is a critical aspect of the Pilot's BRM; hence a shared responsibility to communicate concerns to the Pilot enhances safe operations.

This may all seem logical, but this is not always the case. Whilst there has been a marked improvement in many ports, I still witness poor communications and cultural issues whereby a Tug master does not feel comfortable or empowered to give feedback to a Pilot.

I have witnessed pilots ordering tugs to undertake manoeuvres they (the tugs or tug masters) are not designed to do. Conversely, pilots underutilise tugs as they don't understand what the tug can do!

As an example, understanding;

- What a 2nd generation Azimuth Stern Drive (ASD) tug can do easily that a 1st generation ASD tug can't do at all,
- What speed can a tug square up and work a ship at?
- This can vary from <2 knots to >6 knots, depending on the design of a particular class of tug.
- Why it's essential that a pilot knows and understands what the tug's winch can and cannot do (*the variances are significant and will impact how a tug master responds to orders and how long it will take to perform the requested task).*
- Why does a ship transiting a narrow waterway at relatively high speed (8 to 10 knots), with an escort tug tethered at the centre lead aft, has approximately 30 seconds to correctly respond to the pilot's orders to counter a ship having a rudder failure? (There is simply no time for miscommunication, ambiguity, or incompetence).

In many ports, the pilots are the in-house experts on all things towage. They must have detailed knowledge of the tugs they control to ensure that they can be used effectively and safely.

All the above applies even more so to exempt masters, who in many cases only utilise tugs for their vessels when environmental conditions are extreme. Consequently, it is fair to say they are not necessarily entirely familiar or current with tug usage and commands in times of extreme need. This can heighten the risk to personnel, the environment, third party assets, and their vessel, including the tug itself.

Online eLearning

SeaWays' online eLearning modules involve 20 lessons, approximately 25 minutes per lesson. While undertaking a course, a participant can log on and off with their unique password as many times as they wish.

These courses are divided into two modules and are classification society accredited by ClassNK.

- Module 1 – Harbour Towage.
- Module 2 – Active Escort & Dynamic Assist.

Each Module comprises about 20 lessons that include a combination of:

- Instruction at the whiteboard
- PowerPoint presentation.
- Unique video footage filmed live onboard tugs responding to pilot's orders during operations.
- Pertinent links to website articles.
- A downloadable .pdf file covering the lesson's content.
- Multiple-choice questions & answers to ensure proof of learning.
- A Certificate of Achievement on the completion of each course.

For more information, visit our eLearning website: https://schoolways.thinkific.com or email me direct: MD@seaways.net.au.

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Pilot ladder permit to work (PtW) checklist

CHIRP regularly publishes articles on Pilot boarding safety issues, especially pilot ladder and combination ladder safety construction. Regrettably, the number of incidents is not decreasing. *CHIRP* would like to present our readers with a suggested permit to work checklist to raise safety awareness of the problem, which we hope will be considered part of the safety management system by all responsible shipping companies.

The PtW checklist must be checked off as correct by a responsible officer and requires the master to give the final permission to allow the pilot transfer.

Using a PtW checklist, ship crews will have greater accountability for ensuring that pilot transfer arrangements are carried out safely for everyone involved in this critical process for ship navigation.

Permit to Work checklist to be used by the officer responsible for the pilot transfer arrangements

- Officer in charge of the pilot transfer to establish contact with the bridge by radio
- The ship's speed and weather conditions are checked to allow the safe rigging of the pilot ladder and accommodation ladder.
- Officer in charge to confirm to the bridge when all checks have been completed.

Freeboard: .....

Items that must be checked	
According to pilot ladder regulations, the pilot ladder and combination ladder arrangement must be rigged in accordance with Solas V Reg 23 IMO Res A.1045(27)	**Checked**
Crewmembers are wearing the correct PPE for rigging and unrigging the pilot ladder or accommodation ladder	☐
Crewmembers rig the pilot ladder and accommodation ladder wearing a safety harness and inflation device when working on the accommodation ladder or lowering or raising the pilot ladder. The harness and inflation device is secured to a strong point above the level of work by a fall arrester	☐
The safety harness and inflation device are correctly secured, including the leg and chest straps, and checked by another crewmember	☐
Lighting is adequate to allow safe working in the area and for the pilot boarding	☐
A lifebuoy with a self-activating light is available at the pilot boarding area	☐
A buoyant line is available at the pilot boarding area	☐
The Pilot ladder is in good condition: • No loose chocks • No damaged or uneven steps • Side ropes and manropes are in good condition • The pilot ladder is properly secured	☐
The Accommodation ladder sheaves and wires are in good condition: • No kinks in the wire, and • The wires are securely fastened	☐
Overside has been checked clear to lower the accommodation ladder or lower the pilot ladder to the correct heights. The platform for accommodation ladder at min 5 m above the waterline	☐
All railings and platforms safety pins are securely in place, and the stanchions and safety lines are properly secure	☐
The pilot boarding arrangement has been checked by the responsible officer and is safe for use	☐
Master advised that all checks have been carried out	☐
Approval given by master that pilot boarding can take place and logged in the deck logbook	☐
The date of manufacture of the pilot ladders shown on the plate can be seen	☐
Date when accommodation wire to be replaced	☐

On the reverse side are the actual requirements for IMO Res A. 1045(27)

CHIRP Maritime – the voice of the mariner

Who are *CHIRP* and what do they do

The *CHIRP* (***C***onfidential ***H***uman Factors ***I***ncident ***R***eporting ***P***rogramme) Charitable Trust has provided a totally independent and confidential safety reporting system to seafarers worldwide since 2013, complementing the reporting system it has offered to the UK aviation industry since 2003. By publishing our analysis of received incident and near-miss reports we raise awareness of safety issues and contribute to improved safety outcomes through all sectors of the maritime industry.

What is the purpose of *CHIRP*?

Our programme complements (but does not replace) existing statutory, company or other organizational incident reporting systems by providing a voice to those mariners who feel that they cannot otherwise speak out, or feel that their concerns have not been heard. We are the voice of the mariner, concerned only with the enhancement of safety for everyone employed by or associated with the global marine and UK aviation industries.

Confidential Reporting

Reports can be submitted online via our website (www.chirp.co.uk), or via email (reports@chirp.co.uk).

Reporter's identities are kept confidential. Once we have collected sufficient report details from our reporters we delete their personal details so that neither we nor anyone else can identify the reporter. Any photographs or other details have all identifying features removed and are only published with the approval of the reporter.

Information Sharing

CHIRP publishes its findings and other important information in the languages most spoken by seafarers (including English, Chinese, Filipino, Indonesian and several others) both online via its website and social media and in its Maritime FEEDBACK paper publication to make a wider audience aware of situations. Subscribe to mail@chirp.co.uk to make sure you never miss a copy.

CHIRP MARITIME
@CHIRP_Maritime

What do I report?

Safety-related incidents or events involving:

- Yourself
- Your organisation or your vessel
- Other people
- Your organisation or organisations you deal with

Incidents/events can include:

- Errors
- Individual performance
- Regulatory aspects
- Unsafe practices or design

What don't I report?

- Incidents or events with no safety content
- Issues involving conflicts of personalities
- Industrial relations and/or terms and conditions of employment problems

When do I report?

- When you are concerned and wish to protect your identity (please note that anonymous reports are not accepted)
- When you wish others to benefit from an important "Lesson Learned"
- When other reporting procedures are not appropriate or are not available
- When you have exhausted company/ regulatory reporting procedures without the issue having been addressed

How do I report?

Reporting can be sent via:

- Email: reports@chirp.co.uk
- Online: www.chirp.co.uk
- Telephone: +44 (0) 1252 378947