MARITIME FEEDBACK

CHIRP

*An independent and confidential reporting system for the Maritime industry*

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# Safety. By design!

**Adam Parnell**
Director (Maritime)

Sadly, this edition of FEEDBACK contains several reports involving loss of life. They remind us that we cannot relax our vigilance, even for a moment, because the consequences can be fatal. Every death or serious injury at sea has repercussions far beyond the ship itself, not least for the family and friends whose lives are also irrevocably affected. So, please, remain alert and do your best to ensure you get home safely to your family.

There are a number of themes running through this edition, and many of them will be depressingly familiar to our regular readers. The dangers of working at height are well known, yet accidents and fatalities still occur frequently, as we highlight in the following pages. Similarly, the importance of ensuring watertight integrity during towing may seem obvious, yet we have received two reports where the danger was overlooked, and evidence from a regulatory body that the problem is quite widespread.

Tugs are becoming more powerful and sophisticated but there is ample evidence that training in the towage sector is not keeping up with the advances in technology. Is it time for national maritime authorities to take a closer look at tug training and associated topics, including the requirements for shipmasters with pilotage exemptions to be familiar with modern tug capabilities and limitations?

Poor design is another feature which appears in several of our reports, but all too often we accept what we are given and try to make the best of it, rather than pointing out the deficiencies and demanding that something be done about them.

Good companies will always welcome feedback from the fleet, although some of our reports suggest there are still companies which are reluctant to listen to their crews or spend any money on safety. This is disappointing because many other industries recognise that safety and efficiency go hand-in-hand. A safe company is a more efficient and profitable company, and it is high time more shipping operators realised this.

Finally, we have some reports where the officer who should probably have been supervising a job was doing the work personally. Removing the oversight in this way leaves an obvious gap. Do you have sufficient manpower to provide adequate supervision on your ship?

Until next time, be careful out there!

# Are you interested in becoming a CHIRP Maritime Ambassador?

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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

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*M1987*

# Danger! Working at height!

## Initial report

Our reporter sent us this picture of two seafarers working on a crane at height while the vessel was underway at sea in poor weather conditions. They appear to be re-greasing the sloping wires of a crane. Their lifelines are attached to the same wires. Nothing would stop them from falling to the bottom if they slipped and fell.

They are not wearing safety helmets or lifejackets despite being close to the edge of the vessel. This activity took place in full view of the bridge team, but they were neither challenged nor stopped.

## CHIRP Comment

Good equipment design can eliminate operating and maintenance hazards. In this case, it could have been possible to design the crane to be lowered to the deck to allow maintenance to take place without ever sending someone aloft. If that were not possible, the designer could have added hand-holds and connection points for safety harnesses to be attached so that the crew had safe access.

When accepted into service by the Flag State and Classification Society, did either organisation audit the maintenance routines to ensure they were safe? It is unlikely that either body would agree that sending people aloft by balancing on greasy wires is a safe system of work.

Is this then a poor local practice? If so, it is sadly a common practice that occurs on many ships. CHIRP questions why the wire cannot be run out onto the deck and grease added as the wire is rewound in?

The maintainers are wearing loose plastic overshoes – this is a common (but unsafe) way of keeping your footwear clean and avoiding transferring the grease from the wires onto the deck. However, grease and loose overshoes significantly increase the likelihood of slipping and falling, and you should carefully consider the risks if you use them.

The crew member in white overalls appears to be wearing only a harness around the waist, not a full-body harness. An incorrect or badly fitted harness increases the risk of internal injuries when coming to a sudden stop at the end of the lanyard.

Fall arrestors reduce this shock but need you to fall another 2-4m to work correctly. If there is insufficient clearance to fall this distance without hitting an object or the deck, the wearer could hit these objects at full speed and be seriously injured. In the photograph, the crew members would likely fall onto the crane arms before their safety harnesses could work.

Hanging motionless in a harness restricts blood circulation and can cause breathing difficulties (this is often called 'suspension trauma') if you are not rescued within 15 minutes. If you are sent aloft wearing a harness, make sure there is a rescue plan in place. A rescue plan is a pre-planned procedure to safely retrieve someone suspended at height in a harness. It should also be regularly practised to ensure it can be done safely and quickly.

If your ship uses safety harnesses for working aloft, make sure there is a rescue plan in place.

CHIRP questions why this task could not have been delayed until the weather had improved and wonders if this is an indicator that the ship's programme was too full to allow maintenance to be properly and safely completed.

## Factors relating to this report

**Alerting –** Our reporter may have sent this to us because they did not feel able to alert the master or OOW. If you saw this happen on board your vessel, would you be listened to, or is this usual practice? Tell us about your experiences.

**Teamwork –** Why didn't the bridge team intervene? They are all part of the same team.

**Supervision/Local practices –** Did this incident occur because supervision was lacking, or was it an acceptable local practice to balance on the wires?

**Capability –** Are the individuals correctly trained to wear a safety harness? Does the ship have a rescue plan? Are you sent aloft in a harness when no rescue plan exists? What happens on your vessel?

**Pressure –** Was inappropriate time pressure put on the officers and crew to take risks to keep the vessel running to a timetable? Is profit put above safety? If so, why? This task is probably not time-critical and could have been delayed until the weather conditions were more appropriate.

*M1912*

# Fatality by drowning

## Initial report

A bulk carrier was loading a timber deck cargo at anchor. While lashing down the timber, an Ordinary Seaman (OS) fell overboard into the sea. Another crew member jumped

in to search for them but was unsuccessful, and despite an extensive search over several days, the victim was never found. What caused the OS to fall into the water could not be determined as there were no witnesses. The OS was inexperienced yet had not been trained or briefed on the risks of working on timber. He wore coveralls, gloves, a safety helmet, and studded overshoes. Still, the ship's SMS manual did not mention the rigging of safety lines or wearing safety harnesses when working on top of the timber, nor did it require the crew to wear lifejackets or buoyancy aids.


## CHIRP Comments

This report raises several organisational safety concerns. There was nothing in the company SMS about working at height on logs, nor any guidance on the rigging of safety lines or the wearing of safety harnesses. It would be impractical to rig a lifeline over the timber because it would interfere with the timber being loaded or unloaded by crane, but alternatives should have been considered. On board, the operational leadership knew of his inexperience, but did not provide a safety briefing or assign the person a 'buddy' or supervisor to ensure his and others' safety.

Was safety compromised because of poor safety culture on board, or because the operational programme set by the company could not be achieved without reducing safety?

In a similar previous report (M1979, see FEEDBACK edition 67), CHIRP referenced the IMO's *Timber Deck Cargo Code* (the TDC Code), and the reader's attention is drawn to section A2.22, which states that

**"While working on the cargo, there should be provisions to attach a safety harness. (TDC Code)"**

Working on top of logs to carry out lashings is hazardous and requires experience and training to do the work safely. The average height of a completed stack of logs varies from 5 to 8 meters above the main deck; a fall either overboard or to the deck can be fatal.

## Factors relating to this report

**Capability –** This job was beyond the capability of the crew member because he had no experience performing this work. Does your company consider the experience required for log carriers; are the crews staggered so that experience can be passed down? Does your company provide practical training courses for the officers and crew to understand the hazards of carrying timber deck cargo?

**Situational Awareness –** Being alert to your position on the logs is crucial to maintaining good situational awareness. A constant check is required. This can be impaired if you are tired or fatigued.

**Teamwork –** A vital component for a successful lashing operation. The team working on the logs should be working as a cohesive unit and looking out for each other.

**Culture –** Does your SMS have information and procedures for a bulk carrier carrying logs? Does the company provide sufficient details for carrying logs, especially if this is not a regular cargo? Does the marine manager actively engage with the master to advise on the safety requirements for log carriage?

*M1908*

# Fatality – Falling from height

[Note: CHIRP received this report from a company who were happy to share their safety learning. CHIRP applauds their transparency and commitment to safety and welcomes reports from other similarly-minded organisations.]

## Initial Report

A three-person crew had been tasked to replace the wire rope of a cargo crane grab stowed on the main deck in its designated storage position. The weather was fair, and working at height precautions, including completing a Permit to Work, had been taken.

The work started in the morning and was completed in the evening. Two seafarers first descended from the grab. The senior crew member then unclipped his safety harness as he prepared to descend. Tragically he lost his footing and fell about 5 metres onto the platform railing and a further 1 metre onto the deck below. He suffered a head injury and was taken to the ship's hospital. The ship's master sought radio medical advice, but the crewman died of his injuries about an hour after the accident.

The grab's shape, size and position meant poor hand and footholds, although it was concluded that the crew member probably perceived the risk involved as acceptable

and within his control. The fall prevention equipment on board was not ideal for vertical movements, so using equipment such as a double-legged energy-absorbing lanyard would have been more appropriate. The equipment was of a type that necessitated unclipping the safety harness lanyard to ascend or descend at the work site.

The ship's SMS procedures did not refer to hazards related to access/egress from a worksite at height, and it could not be determined if the risk of going up and down from the grab had been assessed.

### CHIRP Comments

The task was lengthy and required concentration throughout, which can bring about fatigue. When we finish a job, particularly one that is challenging or difficult, our brains release dopamine which causes positive feelings but can also impair decision-making, including when assessing risks. In combination, these factors would make the descent from this task perhaps the riskiest part of the job.

A fatigue management plan is useful in these circumstances: if a task can be broken into smaller parts, and either sufficient rest breaks or crew rotations are provided, then concentration and decision-making can be protected.

The company have suggested that a double-legged energy-absorbing harness would have been appropriate. CHIRP agrees, because a single-leg harness must be unclipped when climbing, descending, or navigating obstacles, thus removing the benefit of wearing a harness. And in this incident, a fall arrestor would not have worked because the crewman would hit the grab or the deck before it functioned.

Were the placement of hand-holds or other safe means of access and work considered at the equipment's design stage? If not, why not? Some vessels have fold-away temporary scaffolding that can be quickly erected around equipment. This takes up minimal deck space and is relatively cheap.

### Factors relating to this report

**Teamwork –** Supporting one another is crucial during high-risk work which is long and physically demanding. Is this the case on board your vessel or in your company? Do you feel supported by your ship workmates, or do you operate like an individual with everyone doing their own thing?

**Alerting –** If you see a team member's performance dip due to fatigue, do you feel empowered to point it out and take a short break?

**Fatigue –** The task started early morning and finished early evening. Regular breaks should be incorporated into lengthy tasks and, if necessary, the task should be broken into smaller tasks spread over several days. Team members should also be monitored for signs of fatigue. Fatigue management planning should take these factors into account.

**Fit for purpose (equipment) –** CHIRP recommends that safety harnesses have two lifeline lanyards (also known as double-lanyard harnesses) so that at least one can always be connected when climbing up or down a ladder. For wearers of harnesses fitted with only one lanyard, the ascent or descent to a task is the most hazardous time.

*M1893*

# Main Engine failure exposes maintenance deficiencies

### Initial Report

A vessel was approaching a mooring to perform Ship to Ship (STS) loading operations. As they approached the mooring, the pilot ordered an increase of the revolutions from slow ahead to half ahead. The main engine failed to respond correctly and an investigation revealed that the number one cylinder had a very low exhaust gas temperature. The main engine slow-down function was overridden, but the problem persisted and the mooring was aborted. The vessel went to a nearby anchorage for a fuller investigation and repair.

Number one cylinder exhaust valve required replacement. There were three spares on board but none could be used immediately, and each needed an overhaul before use. The overhaul created a 12-hour delay before the vessel could return to service.

The removed exhaust valve had only been serviced 4,700 hours previously. The maintenance interval for this equipment is 16,000 hours which suggests that the previous maintenance was neither properly completed nor adequately assured by the senior engineer afterwards. This prompted the company to order a fleet-wide review of critical spare parts to ensure they were ready for immediate use.

### CHIRP Comment

The pilot made the right decision to abort the planned manoeuvre in restricted waters because he did not have confidence in the main engine. Luckily the incident occurred in an area where tugs and shore assistance were readily available.

The exhaust valve failure so soon after the previous maintenance interval could indicate poor engineering standards. These can result from insufficient training, supervision or time to adequately maintain the spares. It could also result from inappropriate procurement choices: cheap and poor-quality parts may not last as long as expected.

Items identified as critical spares should be in a good enough condition to be used when needed. None of the three spares carried was in this condition, which could be bad luck or an indication that they were listed as a critical spare for documentary, inspection and audit purposes only. The company had concerns because they ordered a fleet-wide review of spare parts.

### Factors relating to this report

**Complacency (over-confidence) –** The failed exhaust valve had about 70% of its service life left. It should not have failed if it was maintained correctly, indicating that insufficient priority was placed on maintaining critical spare parts and engineering standards.

**Capability –** Does a senior officer check maintained critical equipment before re-assembling it, or is this left to more junior engineers? If you are a junior engineer, do you get the necessary support when maintaining items of critical equipment? Are you aware of what constitutes critical equipment on your vessel?

**Local practices –** The manufacturers' maintenance instructions should always be followed. Following practices for maintenance which have been passed down by others but are not in compliance with the manufacturer's requirements is unsafe and can be dangerous.

*M2036*

# Breach of TSS regulations

### Initial Report

Shortly after midnight, a tanker with a deep sea pilot on board was approaching a traffic separation scheme (TSS). The ship's draught was 20 meters. The tanker was about to enter the internationally recognised designated deep water route.

The master of a container ship with a draught of 14m approaching the same TSS informed the tanker that both vessels would arrive at the entrance of the deep water lane at the same time and asked the tanker to give him more room.

The pilot on the tanker informed the container vessel that the tanker was following the deep water track and directed that the container vessel should take the other lane, east of the deep water lane, and it should avoid overtaking at that point.

Instead of entering the alternate TSS lane to the east, the container vessel entered the southerly TSS lane against the traffic flow, which was clearly marked on the charts. The container ship called several oncoming vessels to request they alter course to starboard to permit the container ship safe passage.

Shortly afterwards, the Coastguard asked the container ship what it was doing in the opposite lane.

### CHIRP Comment

Either of the vessels could have slowed down to avoid a close-quarters situation at the entrance to the TSS deep water lane. It is considered unlikely that a few minutes delay at this point would materially change the arrival time at their next port. The container vessel could safely have navigated the alternative lane to the east but ignored the pilot's advice to do so and entered the lane to the south, against the general direction of traffic flow for that lane.

CHIRP could not determine whether the container vessel's Standard Operating Procedures empowered the OOW to amend their speed (i.e. slow down) or their nav track, but in such circumstances the master should be called. Slowing down could have generated the space to avoid a close-quarters situation and provided more time to assess the situation. CHIRP encourages watch officers to think in terms of 'time' as well as 'space'.

When approaching a congested area such as the entrance to a traffic separation scheme, it is good practice to prepare a contingency plan if the situation allows and identify the time or place by which you need to make a decision. In this case, the container vessel had a choice of two traffic separation lanes and, when it became apparent that the tanker was using the deep water route, could have elected to use the alternative route to the east.

## CHIRP encourages watch officers to think in terms of 'time' as well as 'space'.

The container vessel's actions were hazardous and contravened international regulations regarding traffic separation schemes; good seamanship requires vessels to use the correct lane, to proceed in the general direction of traffic flow for that lane, and not impede vessels which are restrained by their draft and manoeuvrability.

CHIRP contacted the container vessel's DPA to get their version of events and they kindly provided CHIRP with their investigation report, which included a full-on-board navigational audit. It found that navigational procedures were not followed, nor the master's standing orders which included calling the master and additionally informing VTS that the vessel intended to enter the opposing traffic lane.

The report found incorrect ship handling, and inadequate hazard and risk identification due to poor situational awareness and the company introduced additional training to improve navigational competence across the fleet. This included Bridge Resource Management training for all new officers and periodic refresher training for navigation officers. They also increased the frequency of inspections by port captains, with additional focus on navigational procedures and their application.This incident was promulgated to the fleet, with masters instructed to convene team meetings to discuss this incident.

CHIRP wants to praise the company for its excellent response and subsequent actions to ensure navigational safety remains a top safety priority.

### Factors relating to this report

**Pressure –** This incident arose because of perceived time pressure. Slowing one vessel down so they arrived at the channel's entrance at different times would not have meaningfully delayed either vessel's journey. Slowing down generates additional time to think through a problem. Thinking about 'time' and not just 'space' is an excellent navigational skill to develop.

**Situational Awareness –** Workload and distractions is the factor which causes the highest loss of situational awareness. Having the master on the bridge would have provided the additional experience to the bridge team and shared the burden of information overload. Slowing the vessel down to allow more time to assess the risks will significantly improve situational awareness. How many deck officers feel empowered to slow the vessel down, do you?

**Alerting –** The bridge team on the tanker, nor any of the oncoming vessels in the opposing lane, warned the container vessel that it was in the wrong traffic separation lane, and it was only the intervention by the Coast Guard monitoring station approximately 15 minutes later that brought this to their attention.

*M1909*

# Collision between a passenger ferry and tug results in fatalities

## Initial report

A tug had been engaged to assist a RO-RO passenger ferry in berthing in high winds. The ferry's master held a pilotage exemption certificate for the port, so no pilot was embarked. The tug was manoeuvring close to the port bow of the ferry and attempting to connect a tow line when its stern collided with the ferry's bulbous bow, where it became pinioned, heeled to port and took on water. This caused the tug to capsize, resulting in the loss of 2 crew.

The tug manoeuvred close to the RO-ROs bow to connect the tow. However, once it had left the 'safe zone', the hydrodynamic interaction between the vessels' hulls drew the tug towards the ferry's bulbous bow

The ferry's speed through the water was too fast to connect a tow line safely. The high speed meant that the 'safe zone' was further away from the ferry's hull, and the tug had to use most of its available engine power to match the ship's speed, leaving minimal reserve power for the tug to manoeuvre.

The pilot-exempt master of the ferry was not required to have undergone additional training for tug assistance, which was usually requested during adverse and challenging weather conditions.

Water down-flooded through an open door and engine-room ventilation duct when the tug turned broadside on and heeled over. This allowed down-flooding to occur, further reducing stability and ultimately leading to capsizing.

The tug crew could not close the engine-room ventilation duct during operations because it was required to be open to supply air for the tug's engines.

The tug did not comply with stability requirements, which meant it was prone to excessive heeling during operations and early down-flooding.

## CHIRP Comments

Establishing a tow between a tug and ship should be conducted at as low a speed as practicable in the circumstances and conditions to give the tug greater manoeuvrability and avoid it departing from the "safe zone" where dynamic interaction is less likely to occur.

Ship masters (especially pilot-exempt masters) and tug masters must thoroughly understand the theoretical and practical aspects of safe tug/ship operations.

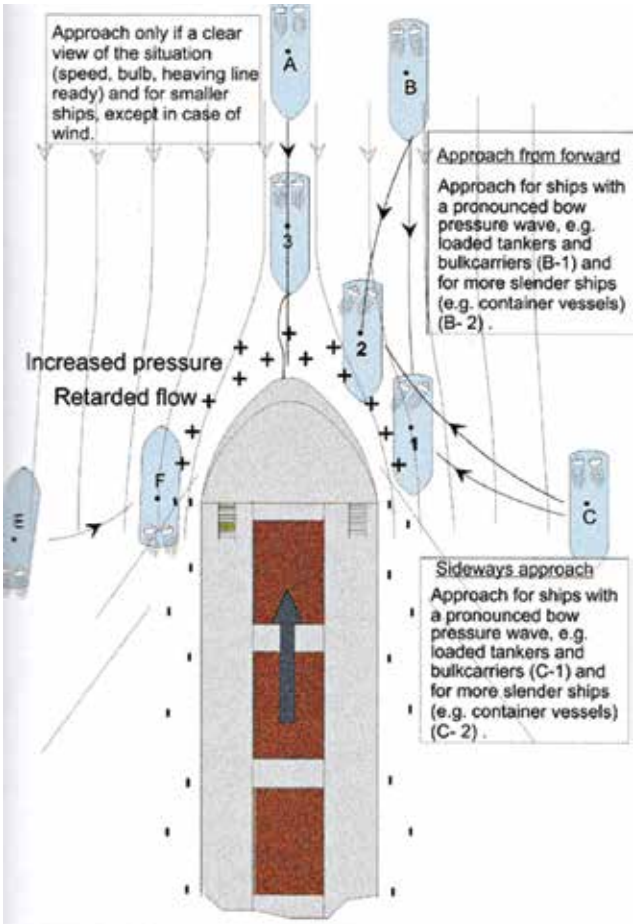


Diagram courtesy of Captain Henk Hensen – *Tug use in port: A practical guide.*

Tugs should be fit for the purpose for which they are being used, with sufficient power and manoeuvrability for the intended operation, and should always comply with stability requirements. Down-flooding will quickly erode any stability reserves and will be a significant factor contributing to a capsizing. During critical or high-risk operations, all doors and other openings that need not be opened should be securely closed.

It is considered necessary for tug masters to have a good understanding of the elements of tug stability. They need to know where the limits are and the consequences of tug handling practices not conforming to the rules of stability in normal circumstances.

A tug's stability is not a static condition but can change rapidly due to the evolving forces acting on the tow line and the dynamic interaction between the tug and its tow. These changing forces can negatively affect the tug's stability if they are not adequately monitored and controlled. In this case, as tragically shown in this report, it culminated in the capsizing of the tug with loss of life.

## Tugs should be fit for the purpose for which they are being used, with appropriately trained crews, and sufficient power and manoeuvrability for the intended operation

### Factors relating to this report

**Capability –** Do you understand the risks to your tug when operating in the vicinity of a vessel requiring a tow line? What checks do you make before attempting to make the tow line fast? Would you ask the vessel to slow down before approaching? See *Tug use in port: A practical guide*. by Captain Henk Hensen.

Does your company provide the necessary theoretical and practical stability training for tug masters and mates?

**Local Practices –** Are the requirements for engaging with a tug by a PEC master the same at every port? Do the IMPA have any criteria for PEC masters and their training? Should the port require that a PEC master be examined in managing the use of a tug?

**Pressure –** Was there any pressure not to take on a pilot, because the master had an exemption certificate?

**Alerting –** As a master with a PEC for the port, would you consider asking for assistance from an experienced pilot to manage tug use?

*M1895*

# Personal Injury: Multiple crew burns in engine room

An engine crew suffered burns from the fuel oil pump of the auxiliary boiler

Risk Category/Severity: High (2 LWC Lost Workday Case, 1 RWC Restricted Workday case, 1 FAC First aid case)

The reporter told us that the chief engineer held the daily meeting at 8 am to discuss the work plan for the day with the senior engineer and the rest of the engine officers and crew. Among others, the inspection and maintenance of the auxiliary boiler's No1 fuel oil pump filter was discussed. A Toolbox meeting was held regarding the precautions and hazards associated with the maintenance work.

The work commenced after lunch at around 13:40. The senior engineer was about to dismantle and remove the pump's filter cover when hot fuel and gases suddenly escaped.

The senior engineer, two wipers and one engine cadet assigned to the work suffered burns on their faces, skin, neck, and hands from the hot oil spray.

All injured crew were offered first aid and immediately transferred to the local hospital for further treatment and medical examinations. The senior engineering officer and the wiper were kept in the hospital, and the cadet and the other wiper returned to the vessel. The senior engineer and the wiper were eventually repatriated 11 days later.

The specific work was planned and had been carried out on the other fuel pump a month earlier with the same senior engineer accompanied by another engineer.

At the time of the injury, the senior engineer undertook the main work. There was no dedicated assigned supervisor as stated in the Permit to Work (PtW) - the senior engineer had been considered the supervisor for the job.

According to the witness statements, at the time of the incident the pump was switched to manual control and was secured in a stop position. The pump was isolated by closing the inlet and outlet valves. At that time, the system's delivery pressure indicated 1.5 bars. The engineer proceeded with unscrewing the bolts of the filter cover without releasing the pressure from the vent cock fitted to the system.

Following the chief engineer's feedback, the outlet and inlet valves were checked immediately after the incident. Both pressure gauges, one after the delivery valve and one after the suction valve, were working correctly.

Before the commencement of the work, a job hazard analysis, cold work, and pressure pipeline work permits had been carried out. From the review of the evidence provided, it was noted that the pressurised pipes had been considered as indicated on the work permits and the risk analysis form.

All four engine crew had received PPE and familiarised themselves with the company's SMS procedures. No work/rest hours non-conformities were applicable to the injured crew, and no other activities were taking place in the nearby area.

### CHIRP Comment

The uncontrolled release of stored pressure is a recurring factor in many reports received by CHIRP. Working on stored energy systems (heat, pressure, potential, tension etc.) always requires additional care, and CHIRP encourages the use of written checklists to confirm that the pressure is reduced, e.g. in this case, by ensuring the pressure relief valve was open before work was started.

Distraction or forgetfulness could have been a factor, especially given that the time gap between the toolbox talk in the morning and the work taking place in the afternoon was almost 6 hours. During that time, the material state of the system could have altered, and furthermore the team

could have forgotten critical pieces of information, e.g. whether the pipe was pressurised or not.The PtW system is an independent audit that a safe system of work is in place. By signing the PtW and then conducting the work, the senior engineer undermined the critical supervisory value of the PtW. CHIRP suggests that where the senior engineer is the only one qualified to do the work, another engineer assess the PtW prior to it being signed off. This does, though, rely on the senior engineer being willing to be held to account! The work had been completed a month earlier with two qualified officers. Cadets are not qualified and are still under training. The Permit to Work and the RA should have identified the experience required to carry out the job.

Although 1.5 bar pressure may not seem high, in anything other than a very short pipe it would be sufficient to eject a significant quantity of liquid as the pressure was released. The temperature of the liquid suggests that not enough time had been allowed for the liquid to cool after the pipe was isolated. Does this indicate that the team were under time pressure?

Toolbox talks are a good safety management tool, but they must be carried out in an environment where everyone can hear what is taking place and respond accordingly. The toolbox meeting was conducted in the morning, but the work didn't been repeated.

### Factors relating to this report

**Communications –** Communications appeared to be very ineffective. The PtW and RA discussed in the morning during the toolbox meeting identified the pressure in the system. However, it did not prompt the necessary action required when the work was carried out 5 hours later. If you were assigned to this work, would you want to hear the RA and the PtW requirements again?

**Capability –** This work had been carried out a month earlier with another engineer officer and presumably two officrs were considered sufficient to carry out the work. This time there was only one engineer. Did this lack of experience contribute to the incident?

**Culture –** The PtW specifies a supervisor to take charge of the work, but in this case the supervisor was the one doing the work. Why did the chief engineer during the toolbox meeting not assign another engineer? Was this challenged? If the senior engineer accepted being the supervisor, why did he do the job himself, removing a significant safety barrier?

As this work is controlled by a permit to work, if the requirements designed to ensure accountability are not achieved, then the work must not progress and be stopped.

*M1910*

# Foundering of a tug

A towing vessel was in transit when its stern compartments began to flood. The three crew members aboard attempted to pump out the water but were unsuccessful and subsequently abandoned the vessel. They were rescued, and the towing vessel later sank close inshore. No injuries were reported. The ship was later recovered but was considered a constructive total loss. Pollution in the form of an oil sheen was sighted when the tug sank.

The investigation determined that the probable cause of the sinking of the towing vessel was unsecured or open aft deck hatches, which resulted in the flooding of the vessel's aft compartments from water on deck, leading to progressive flooding of other compartments through openings in watertight bulkheads. Contributing to the flooding of the vessel was the owner's lack of a practical hull inspection and maintenance program.

The investigating authority noted that in the last five years, it had investigated five casualties involving towing vessels whose weather decks and openings were in poor condition—leading to flooding and subsequent sinking.

To protect vessels and the environment, it is good marine practice for owners to conduct regular oversight, inspection, and maintenance of hulls, including between drydock periods, regardless of inspection requirements.

Effective maintenance and hull inspection programs should proactively address potential steel wastage, identify hull and watertight integrity deficiencies, and ensure that corrosion issues are repaired promptly.

### CHIRP Comments

There have been a number of incidents of tugs foundering, and in several cases the common cause was the leaving open of weatherdeck doors . Although this may make it easier to access internal compartments it compromises the tug's watertight integrity and is an incorrect and unsafe local practice. Watertight doors must be closed during towing operations, especially during heavy weather.

This report again reinforces the need to understand the stability characteristics of the tug doing the towing.

## A common factor in recent tug foundering incidents was the leaving open of weatherdeck doors

### Factors relating to this report

**Local Practices –** Tug owners and operators must ensure weather deck doors are closed when towing. Training is crucial and should be from a recognised authority to ensure consistency. Even if the good practice has been passed down in your company, refresher courses should be part of the company's safety culture to ensure that best practice is followed.

**Capability –** Tug companies should assess their staff for their skills and emergency preparedness as part of their employment criteria. The ISM code demands that all identified risks are assessed – when was the last time you reviewed your risk assessment (RA) for towing operations?

**Culture –** What is the training culture in your company? Is knowledge passed on informally between employees or is it provided through recognised training courses given by expert training providers?

*M1900*

# Personal Injury (Medical Treatment Case)

## Initial report

While the vessel was at an anchorage, the Chief Engineer was doing maintenance work in the forecastle deck, building-up the starboard mooring chock by welding. See photos below.

During this activity, he suffered an eye injury when a metal fragment was embedded in his eye. Three days later, the injured Chief Engineer reported the incident to the master, complaining about eye pain and irritation. Fortunately the vessel was near a port and he was transferred xxx ashore for medical treatment. An eye specialist removed the particle and he was able to return on board fit for duty.

The incident occurred during the day and during regular working hours, and the chief engineer was adequately rested before the work activity commenced. The job was carried out as planned, and the relevant work permits and RA had been carried out.

The weather was a gentle breeze with a slight sea state. However, according to the vessel's reports, sudden wind gusts and updraughts started during the work activity.

From the Chief Engineer's statement, he was wearing eye protection when he started the job. However, as the work was carried out in a restricted place, the goggles were removed later.

## CHIRP Comments

The forecastle is particularly prone to wind updrafts, and eye protection should never be removed until the job is completed.

It is well-known that many types of eye protection can mist up with moisture, blurring the worker's vision. Some poor-quality goggles can be poorly fitting which makes them uncomfortable to wear, so the temptation to remove the goggles can be compelling. If this happens, stop the work, clean the goggles or adjust them, but never remove them while the work is still taking place.

We only have one pair of eyes, and every effort must be made to protect them.

Common thoughts – I do not need them; it will only take a second; no problem, I'll be ok; the goggles are uncomfortable; I'll use my sunglasses. Sounds familiar?

## Factors relating to this report

**Situational awareness –** The location of the work can be challenging given the updrafts, which can be hazardous due to flying particles when grinding and welding. Whilst there may be little or no wind when the work commences, this can change quickly as the vessel moves to the tide and the wind affects the work location.

The grinding tool also presents a serious hazard and must always be protected; the grinding disk shown in the report does not have a cover installed and should not have been used.

**Alerting –** The chief engineer was carrying out the work and was not challenged. Was the company culture robust enough to challenge/alert the chief engineer that the grinding disk was unsafe and should not be used and that goggles must always be worn to prevent debris from impacting the eyes and face?

**Overconfidence (Complacency) –** The chief engineer is usually an experienced officer. Was this overconfidence causal to the injury? The chief engineer took three days to report that his eye was in pain. Delays in getting to an eye specialist can often have severe consequences.

**We only have one pair of eyes, and every effort must be made to protect them**

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