Mariners' Alerting and Reporting Scheme

MARS Report No 345 July 2021

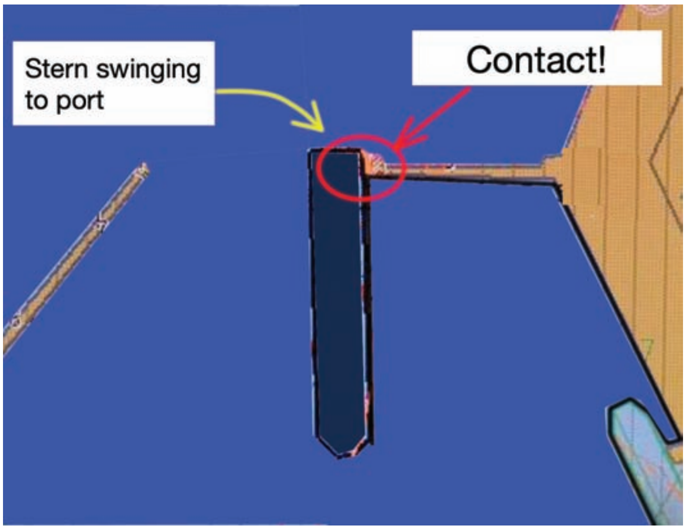
MARS 202132

Docking mishap

➔ A vessel was proceeding from anchorage to berth under pilotage. Two tugs were providing assistance; one was made fast aft and the other used for pushing where needed. The pilot was communicating with the tugs in the local language, which the Master did not speak. As the vessel proceeded, a second (docking) pilot boarded the vessel and quickly took over from the first pilot. The change of pilot happened at a critical stage while the vessel was turning in a basin prior to entering the breakwater.

Because of this developing situation, it was not possible to carry out a Master/pilot information exchange with the second pilot. When the vessel's bow entered the basin and the forward tug was pushing the bow to starboard, the Master realised that the vessel's stern was not going to clear the breakwater. He immediately ordered engines full ahead and helm hard to port, but these actions were too late to avoid contact on the vessel's port quarter.

Since this breakwater was without fenders, the vessel suffered some minor hull damage on contact. The company investigation found that, among other things, the change of pilots at a critical stage of the manoeuvre did not allow the docking pilot enough time to become accustomed to the prevailing conditions, position, speed, rate of turn, and position/status of the tugs.



The company investigation also found that the tug orders were given by the pilots in a language other than English. This had the effect of excluding the Master, making him less aware of the developing situation. Due to this communication gap, the Master could not effectively use tugs to control the vessel's swing.

Lessons learned

- Occasionally, the fact that tug orders are given in a local language and are not understood by the bridge team has contributed to a bad outcome. Until this unsafe condition is addressed, these accidents will continue to occur.
- In this case, the company decided to reinforce their navigational audits for compliance with docking procedures by using remote VDR audits and onboard navigational audits by independent third-party auditors.

MARS 202133

Fire in the engine room

As edited from MAIB (UK) report 2/2021

➔ A ro-ro cargo vessel was underway. At about 20.00, the engineer of the watch (EOW) left the engine control room (ECR) and started his hourly rounds of the engine room and machinery spaces. Shortly after entering the purifier room, he heard loud metallic knocking sounds coming from the engine room. Meanwhile, vibrations were being felt on the bridge by the OOW. He immediately reduced the controllable-pitch propeller (CPP) from 60% to 25%. He then saw that the fuel consumption meter was also fluctuating and giving abnormal readings, while various engine warning lights were illuminated.

The EOW opened the purifier room door, looked out into the engine room and saw smoke rising from the port forward end of the main engine. The noise and vibration levels rapidly increased and, sensing danger, he ran back into the purifier room and crouched behind one of the purifiers. Almost immediately there was a loud bang and flames flashed past the open purifier room door; the space quickly filled with thick black smoke. The ship blacked out, but within seconds the emergency generator started and the emergency lighting came on. Despite this, the smoke in the engine room had reduced visibility to almost zero.

The Master, who had been alerted by the strong ship vibrations, arrived on the bridge as the blackout occurred. The fire alarm system had been activated and the bridge alarm panel indicated that all zones within the engine room were affected. The Master put the vessel's CPP to zero pitch. He then instructed the OOW to sound the general alarm and make an intercom broadcast stating that it was a genuine emergency and instructing crew to their muster stations. At about the same time, the chief officer arrived on the bridge and reported that he had seen copious amounts of smoke being emitted from the funnel.

The engine room fuel systems' quick-closing valves and fuel pump emergency stops were activated from the control box adjacent to the ECR. In the purifier room, the EOW realised that his nearest escape route would take him past the main engine at cylinder head level. He decided instead to use the secondary escape route at the aft end of the engine room, even though this escape route was not fitted with an emergency escape breathing device (EEBD). He took a deep breath and then exited the purifier room. On entering the dense black smoke, he ducked underneath the main engine exhaust gas trunking and ran aft past the two auxiliary generators. The escape route led him to the first of three vertical ladders. When he climbed the first ladder, he struggled to get past the ladder platform guard rail safety chains. He fell back down the ladder three times, losing his torch in the process, before succeeding in mounting the ladder. About 10 minutes after the initial fire outbreak, the EOW escaped from the engine room through the funnel casing weathertight door on to the upper vehicle deck. He then collapsed, gasping for breath.

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Meanwhile, the engine room fire party had arrived on the upper vehicle deck and was running out fire hoses. They reported the EOW missing. A second muster took place on the upper vehicle deck, where the engine room fire flaps were located and were being shut. The EOW was located and was attended to by crew. A helicopter was requested from the local coast guard to evacuate him as soon as possible.

Now that all crew and passengers were accounted for, the fire flaps closed and the engine room fuel supply isolated, the engine room's CO_2 system was activated. Boundary cooling was initiated. The fire was declared extinguished about 3 hours and 40 minutes after it had begun.

The official investigation found, among other things, that:

- The fire was the consequence of a sudden major engine component failure, which led to the ejection of heavy engine parts from the crankcase and release of hot oil vapours into the engine room.
- Although the crew were confident the CO_2 had been released, there was no information in the bottle room to identify easily which spaces were protected by which CO_2 bottles. There were no visible means of identifying whether the gas bottle operating valves were open or closed.
- The accident demonstrates that more consideration could have been given to the number and location of EEBDs in this vessel's engine room even though the required number had been fitted. For example, an additional EEBD at the secondary escape ladder on the tween deck level would be a sensible addition.

Lessons learned

- Every fixed gas fire-extinguishing system control station should have clear instructions for the operation of the system and means to identify which bottles have been spent.
- EEBDs are not an onerous expense. Proper consideration should be given to fitting all escape routes on vessels with EEBDs, even at the cost of going over the number of EEBDs required by class.

MARS 202134

Strong winds send berthed vessel adrift

➔ A tanker was berthed port side to, with all lines run ashore except for the headlines, which were secured to a mooring buoy. Cargo discharge operations were begun, but the weather conditions were not very favourable: the wind was blowing 22-27 knots, with some stronger gusts. The cargo operation was not stopped or suspended even though the countersigned ship/shore checklist indicated the following operational weather limitations:

Wind 25 knots: Stop cargo operation
Wind 35 knots: Disconnect cargo arms
Wind 40 knots: Vessel to vacate berth.

By 01.18 discharging was completed and shore staff disconnected the cargo hose within 15 minutes. Wind strength had increased further and local pilots had rescheduled departure.

At 02.36, a strong gust of 65+ knots caused the forward mooring buoy chain to fail. The bow started to swing sharply to starboard, pushed by the wind, and in short order other lines began to fail. Soon, the vessel was connected only by the aft stern lines.

The Master quickly activated the general alarm. Ten minutes later, the main engine was ready but pilots and tugs were not available. The stern lines were cut and the vessel was clear of the berth. The vessel was successfully turned on to a course of about 275 degrees while the Master was in radio contact with pilots. Due to the strong wind, and hindered by the mooring buoy still connected to the vessel's forward lines, the vessel lost steerage, running aground in shallow water while still in the port.

The company investigation found, among others, that:

- The mooring buoy was not suitable to accommodate the four mooring lines forward. There was no indicated SWL
- The Navtex was not set to the local radio station, therefore local warnings were not received
- The Master and OOW had not developed or discussed any specific emergency plan to vacate the berth.

Lessons learned

- Setting predetermined weather limits to stop cargo ops and/or vacate the berth is a sensible risk reduction measure. Be sure to follow them.
- Close and continued attention to local weather conditions and warnings, at sea or while at berth, is one of the mariner's most important duties.
- Commercial pressures are sometimes at cross-purposes with vessel safety; which one do you favour?

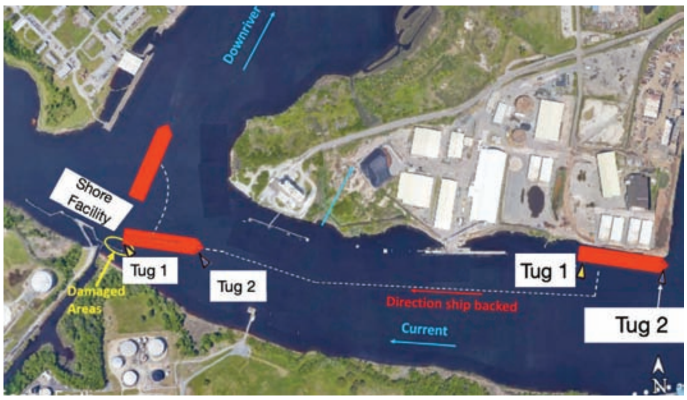
MARS 202135

Tug squeezed into shore facility

As edited from NTSB (USA) report MAB-20/37

➔ A bulk carrier was departing port with a pilot on the bridge to assist with the undocking and manoeuvre downriver. The operation was also assisted by two conventionally propelled tugs, one forward and one aft. The docking pilot did not discuss his undocking plan with the Master, nor did he give the tugmasters direct information on the manoeuvre. The usual practice was to back vessels downriver to the turning basin under tug guidance, turn the vessel approximately 90 degrees and then proceed downriver. Lines were cast off and dead slow astern was given.

As the manoeuvre progressed, the backing speed increased to about 2.9 knots. The aft tug (tug 1 in the diagram) was pushing at full power in an attempt to push the vessel's stern north, away from the shore facility. As the bulk carrier and tug approached the shore facility astern, the pilot requested that tug 1 stop pushing and that it be brought close by the bulk carrier. The tugmaster complied. By now the astern speed had reached 3.2 knots and the vessels were backing quickly into a shore facility. The pilot made several ahead engine orders to try to save the



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situation in addition to hard starboard rudder. These actions did not prevent the bulk carrier from squeezing the tug on to the shore facility, striking a concrete pile for a mooring dolphin and then a walkway. Although damage to the tug was minimal, the shore facility suffered about $1.47 million damage.

It transpired that conventionally powered tugs were not normally used for this manoeuvre. Instead, the norm was to use more efficient tugs with 360-degree azimuth power.

The official investigation found, among other things, that the speed at which the assisted vessel was being backed was too high for conventionally powered tugs to be used in an effective manner, resulting in contact with the shore facility. Another contributing factor was the less than adequate communication between the docking pilot and the bulk carrier's Master and also the tugmasters.

Lessons learned

- Communication is key: everyone involved should have the same understanding of the manoeuvre.
- When undertaking familiar tasks with unaccustomed equipment it may be wise to step back and re-evaluate the risks and procedures.

MARS 202136

Green seas on deck cause one fatality and four serious injuries

➔ A loaded bulk carrier departed on an eastbound Atlantic crossing in winter. Four days into the voyage and with the weather deteriorating, heavy seas were coming on board. The Master required that the spurling pipes be secured with cement, so the bosun and four crew proceeded forward for the task. The vessel's speed was not reduced prior to the task nor was the safety management manual consulted. No toolbox meeting was held before the crew went forward.

As the men were working at the spurling pipes, the ship encountered a large wave which broke over the bow and violently washed the men off their feet, dashing them into the ship's structure. One crew member suffered a serious head wound and the bosun was incapacitated. The victims were assisted back to the accommodation where the victim with the head wound was attended to. He was placed in the ship's hospital but quickly lapsed into unconsciousness and was placed on oxygen.

The Master diverted to the nearest port, which was 24 hours away. On arrival, the victim was rushed to hospital but was declared deceased on arrival. The bosun, whose mobility was seriously impaired, was repatriated, as were the other three crew with lesser injuries.

Port state control officers boarded the ship and took statements from the Master and some crew members. The safety management manual did not contain a 'Going on deck during bad weather' checklist, which was nonetheless a moot point because the SMS was not even consulted before the task.

Lessons learned

- The time-honoured practices of 'Securing for sea' should be observed, particularly when embarking on an ocean crossing in winter. One of the best practices in this endeavour is ensuring the spurling pipe covers are placed, secured and cemented prior to departure.
- Safety management manuals should contain guidance for all known risks and should be consulted as a matter of course – but so too should common sense be used before undertaking tasks. Slowing the ship and changing course so waves are not breaking over the bow where the crew are working seems an obvious course of action, but was not taken in this instance.
- A toolbox meeting, held before a potentially hazardous operation is undertaken, can help reduce risks through input received from all team members taking part.

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