The Nautical Institute
Marine Accident Reporting Scheme
MARS Report No 191 September 2008

MARS 200860

Unprofessional river pilot

The river pilot appeared on the bridge dressed as if straight from the beach and took over his duties. The only conversation he had with me was to inform me of three outbound vessels which we would be meeting. He then settled himself in the pilot's chair and began a long personal conversation on his cell phone, totally unrelated to the job in hand, while at the same time issuing orders to the helmsman. Since the helmsman's first language was not English, he had to pay extremely close attention to avoid missing any instruction. As the river passage progressed, the pilot's attention transferred from his cell phone to a hand-held device which he used to listen to music. Once the docking pilot boarded, the river pilot lay down on the wheelhouse couch with his music still playing.

During the passage, with pilot / master relations in mind, I refrained from mentioning my misgivings, preferring to wait until the vessel was safely moored alongside, while keeping a careful watch on proceedings. After the vessel was secured, I asked the river pilot if he would take a word of advice and began to tell him of my observations. Unfortunately, during this discussion the river pilot turned his back and walked off to complete his pilotage slip.

I have to say that I found his attitude and manner very unprofessional, disrespectful not only to myself but to my officers, who are always in uniform during coastal operations, and certainly not in keeping with usual high standards of pilots' associations worldwide. I feel obliged to submit this report in order that future mishaps may be avoided.

Editor's note: In cases such as this, the ship's bridge team must use their professionalism, tact and diplomacy to involve the pilot in the safe and efficient conduct of the passage. While the reporting master's concern is justified, veteran pilots can also provide many instances where the ship's master and officers have been found wanting in attitude, skills and knowledge. In bridge simulator exercises conducted by shore-based training institutes, a previously briefed 'outsider' playing the role of an 'aggressive' pilot recreates this unnerving but familiar situation with realism and provides the participants a good learning opportunity in bridge and 'conflict' management. Additionally, if professional associations actively circulate reports and case studies like these among both serving mariners and pilots, everyone will benefit.

MARS 200861

Watertight integrity and high level bilge alarms

Official Report Abridged from USCG Marine Safety Alert 1-08

In a recent maritime casualty, a vessel sank with loss of many lives. Preliminary findings indicate that the flooding of the vessel may have been exacerbated due to open or leaking watertight doors and other compartmental deficiencies which impacted the vessel's overall watertight integrity.

Vessel owners and operators are advised to implement these recommended preventive actions on board their vessels:

■ Watertight integrity

1. Inspect all watertight decks and bulkheads periodically to verify that progressive flooding cannot occur and that closure devices (such as watertight doors (WTDs) and duct closures) are in place and in working order.

2. Familiarise crew members with the locations of the WTDs and weather-tight closures throughout their vessels.

3. WTDs and hatches must be closed while at sea and as otherwise specified in the stability guidance provided to the master.

4. WTDs and hatches should be opened only briefly to allow passage and labelled appropriately to remind crew members to close them. If required to remain open to permit work, they must be continuously monitored so that they can be closed immediately. Any WTDs permitted to be open while the vessel is underway should be secured during drills to ensure they work properly.

5. Implement a WTD, hatches and weather-tight closures inspection and maintenance programme. Items to check include: straightness of the door, edges and compression bars, evidence of loose, missing, seized or damaged components; permanent set, gaps, cracks, paint, rust, or other foreign material on the packing material, efficiency and adequate lubrication of working parts such as dogs and hinges, and the spindle packings of the dog bolts. Parts that are found to be ineffective must be replaced.

6. Bulkhead and deck penetrations (electrical cables and piping) must be inspected frequently and properly maintained.

■ Bilge and high water alarms

1. All spaces must be kept dry unless permitted by the stability instructions provided to the master.

2. High-level bilge alarms should be set as low as possible to the deck or bilge well and positioned along the centremost area of the compartment, or in a location at which the fluids

will gravitate to first. In areas where bilge water routinely accumulates, the bilge high-level alarms should be placed just above the point where, under normal working conditions, the accumulation would be pumped to a holding tank, overboard, or through an oily water separation system if required. Alarms may be fitted with short time delays to prevent nuisance alarms caused by the rolling and pitching of the vessel.

3. Provide all the means necessary to ensure leakages stemming from machinery, equipment and other components are kept to a minimum at all times in accordance with good marine practice.

Editor's note: Hinged closures such as doors and trunk lids should also be tested for play by manually rocking them in the open position. Excessive play indicates ovality of the hinge hole, which may cause poor alignment, leading to insufficient sealing even after full tightening of the dogs.

MARS 200862
Lamellar tear in ballast hold

A 10-month-old capesize bulk carrier had done only four ballast voyages since delivery. During these voyages, there was evidence of seepage of ballast water from ballast hold no. 3 into cargo hold no. 4. The location of the 'leak' appeared to be at the connection between the corrugated bulkhead between holds 3 and 4 and the lower stool, centred about four metres to port of the centre-line. Dye penetrant tests did not reveal a crack in the weld, nevertheless, the management instructed the ship's staff to gouge the weld for about two – three metres and reweld the connection.

The ship's stability manual specifically required the filling of the ballast hold before proceeding to sea without cargo and prohibited its deballasting during navigation. Furthermore, filling and emptying of ballast in this hold required a minimum of eight to 10 hours. This precluded the repair operations from being carried out during the ballast voyage. Hence, access to this area was only possible for about two or three hours every voyage, towards the end of cargo discharge in holds three and four, when stevedores would be involved in clearing out the remnants of the cargo and ship's staff would be cleaning and preparing hold no. 3 for ballasting.

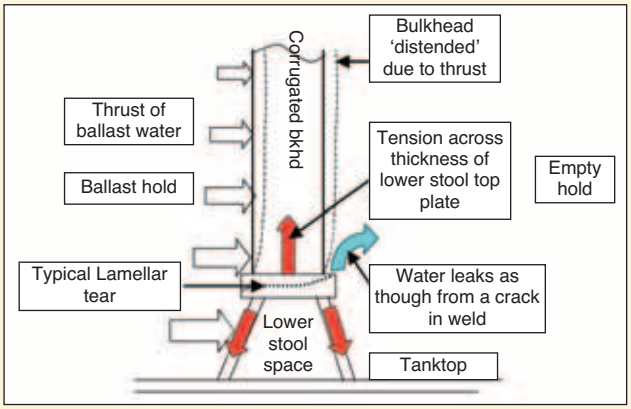
During the first change of master, with the ship about six months old, the relieving master was verbally informed of the situation and told that two previous attempts in gouging and rewelding in the location had failed to rectify the defect. The management advised the new master to continue with the same repair strategy of gouging and rewelding the connection.

Overcoming difficulties in obtaining hot work permits at the next two discharge terminals, the new master arranged for two more repeats of gouging and rewelding, this time, stationing an observer inside the lower stool space before and during the process. No trace of water was seen in this space but after rewelding and ballasting hold no. 3, water was again observed to leak into hold no. 4.

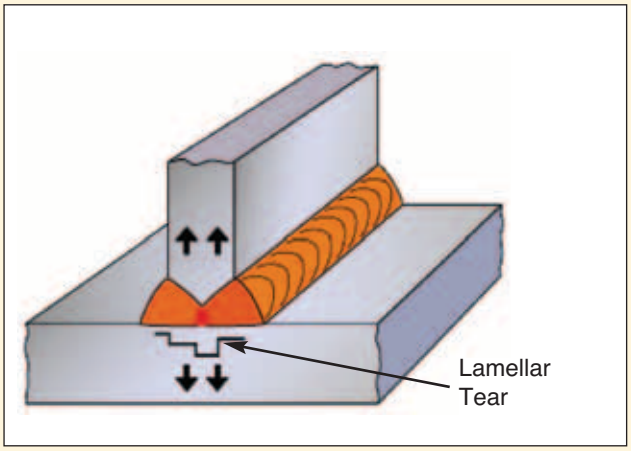
As far as the ship's staff could discern, the company had not informed the flag administration or the classification society of this defect. Furthermore, despite the defect apparently having been noticed within a few months of delivery, there was also no evidence on board of the managers having submitted a guarantee claim against the shipbuilder for this defect.

While the last repair attempt was in progress in a discharge port, a port-state control team boarded for the ship's maiden inspection in that memorandum region. The officers became curious, seeing the electric welding cable leading from the engine room along the upper deck, and followed it to the hot work site in hold no. 4. On learning from the ship's staff about the defect, they informed the classification society. A class surveyor soon boarded and after a brief inspection, diagnosed the problem as a lamellar tear in the lower stool plate and imposed a condition of class. He expressed his strong disapproval of the repair attempts by ship's staff without consulting class.

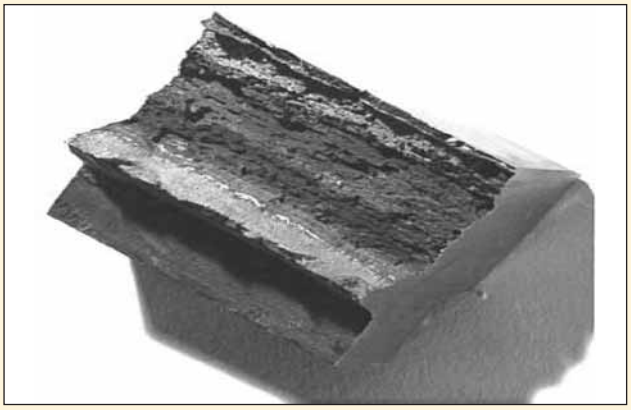
Unfortunately, in the eyes of the misguided management, the master was declared to be 'inefficient' in not getting the defect rectified and, after being 'reprimanded' for informing class and also 'accepting' a condition of class, was relieved of his command at the next port.



▲ 1. Side elevation of typical ballast hold showing how lamellar tear is caused



▲ 2. Close up of typical fillet welded joint at connection of hold transverse bulkhead and lower stool top plate



▲ 3. Cross-section of a typical lamellar tear showing 'porous' strata

Lessons learned

1. A lamellar tear must be suspected whenever there is leak through a plate and traditional methods do not detect a crack. Ultrasound is more reliable than x-rays in their detection.

2. The tear normally exists within the thickness of the plate and so will not normally be visible on the surface.

3. Locations where a plate is subject to high tensile forces across the thickness (not along the longitudinal axis) are particularly prone to lamellar tears. Hence, fillet joints are susceptible, whereas butt joints never have this problem.

4. The problem may be exacerbated by poor material, design, construction, increased plate thickness.

5. In a large bulk carrier's ballast hold, the head of water exerts a very large force on only one side of the bulkhead, and causes a tensile force across the thickness of the lower stool top plate. This can only be countered by adequate scantlings of the bulkhead and proper design of its joints.

6. The administration and classification society must be informed immediately whenever a structural defect is discovered and repairs must be only carried out with and under class supervision.

7. Solas and Marpol regulations require masters to inform the nearest coastal and port state authorities of any defect on the vessel that may affect her safety, structural integrity, navigation and impact on the environment.

MARS 200863

Oil spill from ruptured piping

On one of our vessels, the main bunker line was integral with a crossover line connecting the port and starboard manifolds, and the main riser branched off from near the centre line via a deck penetration, leading to the tank branch lines. A permanent chequered plate catwalk was fitted over this crossover line and due to difficulty of access, the ship's staff was not aware that the pipe was severely thinned and wasted due to corrosion.

While taking bunkers, the pipe ruptured under pressure and resulted in a minor oil spill on deck. Prompt action by the bunkering team averted the escape of oil overboard.

Editor's note:

1. All piping, especially oil lines, are required to be at least visually examined during annual safety construction (SAFCON) and international oil pollution prevention (IOPP) surveys.

2. In the above vessel, this would have required the removal of the catwalk plates for proper access and examination.

3. If the layout or other fittings makes it impossible or difficult for pipework to be closely examined and properly maintained, permanent alterations may be necessary with the prior approval of administration/ classification society.

4. Bunker lines must be pneumatically pressure-tested at least annually and records maintained.

5. In older vessels, it may be advisable to arrange for the regular monitoring of the wall thickness of exposed pipework and renewal of thinned sections.

MARS 200864

Steering motors wetted by sea water

Our container ship (24 years old) was approaching her planned anchor position and at the appropriate position, the main engine was ordered astern to create the required sternway. The fire pump was in operation to provide cooling water for the windlass hydraulic drive system. In the steering gear room, a branch sea-water line was led athwartships along the deckhead, traversing over the steering motors, to a hydrant valve.

Due to the hull vibrations normally generated while the propeller is going astern, which on this ship were particularly strong in the stern area, a large leak suddenly developed and sea water from the pressurised fire line sprayed on to the running steering pump motors. The engineers on manoeuvring duty in the engine room responded promptly to a 'low insulation' alarm and upon seeing the sea-water leak in the steering gear room, immediately turned off the electrical power to the motors and informed the bridge.

Fortunately, by this time, the ship was safely anchored and the sudden stoppage of the steering system was not of any consequence. This incident could have resulted in a very serious casualty if it had occurred while navigating in confined and congested waters.

The electrical motors and components were successfully cleaned out with solvents, dried out and made fully operational in the anchorage by ship's staff without incurring any delay to the vessel's schedule.

Root cause/contributory factors

1. Incorrect layout of sea-water piping directly over steering pump electrical motors;

2. Unknown to the ship's staff, due to age and vibration-induced chafing, sections of the pipe had become very thinned under the U-clamps, and finally gave way under operating pressure.

Lessons learned

1. Ship operators and staff must take every opportunity to appraise the layout of piping critically, especially those that can have serious or untoward consequences (oil lines near high-temperature installations, water lines near electrical installations, bilge / ballast lines through cargo spaces etc). If deficiencies are noted, the company must be informed with a near miss or dangerous occurrence report under the ISM Code and appropriate corrective steps, in consultation with administration / classification society, must be taken.

2. The condition of piping must be regularly assessed, particularly under clamps and in locations with restricted access, and pipe sections renewed if excessively thinned or worn.

3. Fastenings must be regularly checked and tightened and, if practicable, suitable padding material must be inserted between pipe and securing arrangement.

MARS 200865

Penalties for ballast overflow

A bulk carrier was discharging a cargo of ammonium sulphate. Towards the end of discharge operations, the vessel was pumping water into her designated ballast (DB) tanks. Due to a short delay in changing over the valves, a small amount of ballast water overflowed on deck from one of the air pipes.

Since all the scuppers on deck were plugged, the overflow was contained on board. However due to the vessel's appreciable stern trim, the water flowed along the upper deck and before the crew could divert the water into another ballast tank via the deck manhole, a small amount trickled over the deck edge at the stern.

The marine police immediately boarded the vessel, alleging pollution damage to the port, and imposed a large fine. The master pointed out that the ship was, in fact taking the water from the dock, which was quite muddy. Besides this, the overflow water mixed with cargo spilled from the grabs, left a brown residue on the deck. There was no trace of any oil or threat of pollution, but the authorities would not accept any explanation or reasoning.

Extreme precautions must be exercised during ballasting operations to ensure that ballast water does not overflow from tanks unintentionally.

Editor's note:

1. Extensive damage may be caused to electrical installations if ballast water is carelessly discharged on to the wharf, especially from vessels that have 'drop valve' arrangements for directly discharging topside ballast tanks.

2. It is advisable to 'flush through' ballast discharge lines before coming into port and ensure there is no trace of oil or other substances.

3. It is advisable to keep a portable pump and a receiving tank in full readiness for accumulated ballast, rainwater and/or snow melt in port.

4. As a general rule, DB tanks should be ballasted by gravity.

5. The deck team must be clearly briefed before starting a ballasting operation and a reliable means of communications must be in use.

6. In some ports where effluents from inland industries or water run-off from chemically treated farmland are present in the dock water, 'clean' sea water or spilled water ballast mixed with cargo residues, discharged from ships has been known to produce patches of foam and / or discoloured water near the ship's overboard outlets. In such cases, masters are advised to inform the local P&I club correspondent and to arrange for an independent chemist's service to analyse the dock water for dissolved reagents (reactants), in order to protect the ship from wrongful pollution damage claims.

MARS: You can make a difference!

Can you save a life, prevent injury, or contribute to a more effective shipping community? Everyone makes mistakes or has near misses but by contributing reports about these events to MARS, you can help others learn from your experiences. Reports concerning navigation, cargo, engineering, ISM management, mooring, leadership, ship design, training or any other aspect of operations are always welcome.

MARS is strictly confidential and can help so many – please contribute.

Editor: Captain Shridhar Nivas MNI
Email: mars@nautinst.org or MARS, c/o The Nautical Institute,
202 Lambeth Road, London SE1 7LQ, UK

The Nautical Institute gratefully acknowledges sponsorship provided by:
North of England P&I Club, The Swedish Club, UK P&I Club,
The Marine Society and Sea Cadets, Britannia P&I Club,
Lloyd's Register-Fairplay, Safety at Sea, Sail Training International

www.nautinst.org/mars
Search the MARS database online