The Nautical Institute
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Providing learning through confidential reports – an international cooperative scheme for improving safety

MARS 201208
Contact damage during double-banking manoeuvre

At a river port in West Africa, a bulk carrier under pilotage and with tugs assisting was to double-bank with a bulk cement storage vessel that was moored to a berth located on a sharp bend in the estuary. The cement vessel had several large pneumatic rubber fenders deployed on her offshore side. The bulk carrier had lowered both her bower anchors to just outside the hawsepipes for letting go. During the final approach, she encountered a strong cross-current which canted her bow sharply to starboard on to the cement vessel. The overhanging starboard anchor struck the cement vessel before the fenders on the waterline could cushion the impact and caused extensive damage to the cement vessel's side shell and internals. The accident was analysed and the underlying causes were identified as incorrect estimation of ebb current and lack of knowledge and skills on the part of the bridge team.

◀ Bulk carrier's bow with overhanging starboard anchor

Cement vessel's side shell holed and internals damaged by bulk carrier's anchor ▶

◀ Cement vessel's side shell dented and scratched

Corrective/preventative actions

The company decided to implement the following steps immediately:

1. Leadership training for key bridge team personnel;

2. Analysis of all critical operations and tasks;

3. Immediate investigation of all accidents/incidents and communication of findings and recommendations;

4. Improve emergency preparedness.

MARS 201209
Engine failure caused contact damage

Official report edited from MAIB Safety Digest 1/2011, Case 1

Two aframax tankers had just completed an offshore ship-to-ship (STS) transfer of diesel oil. As the last lines were slipped, the quarters of the two vessels began to close. In order to check this movement, the STS superintendent on board the designated manoeuvring vessel (on the right hand side) ordered dead slow ahead and 10° port rudder. However, the vessel's diesel engine failed to start. This information was relayed to the superintendent after a slight delay, by which time he had ordered slow ahead and a larger port rudder angle. He immediately broadcast a hurried and incomplete VHF safety warning but did not sound an alarm on the whistle, so the other tanker was not aware of the emergency. As the manoeuvring vessel's bow began to swing very slowly to port towards the other vessel, the superintendent ordered slow astern. This time, the engine started and the superintendent immediately ordered full astern followed by a series of engine and helm orders given in rapid succession. Seconds later, the manoeuvring vessel's port anchor struck the starboard lifeboat on the other vessel. It was later established that the engine failed to start due to a dirty air start pilot valve that blocked the starting air to the cylinders.

Lessons learnt

1. When manoeuvring in close proximity to another vessel or navigational hazard the possibility of something going wrong must be carefully considered. In such situations, bridge and engine room teams need to be trained and ready to respond quickly and effectively to engine and steering failures.

2. Good internal and external communications are vital when operating close to another vessel. Dedicated communications operators, the correct use of radio procedures and a common language are all essential to ensure this is achieved.

3. This was the superintendent's eighth consecutive STS operation, and it is possible that the cumulative effect of long working hours over a three week period adversely affected his alertness. Proper monitoring of rest hours helps to prevent the onset of fatigue, but Masters should also keep an eye out for the signs of fatigue among their crew and any person key to ship safety, such as STS superintendents and harbour pilots.

◀ Lifeboat damaged by manoeuvring tanker's anchor

MARS 201210
Injured by falling object

A team of seamen was transporting a newly-supplied garbage compactor from the upper deck to a higher deck aft of the galley area. When changing the lifting arrangement from above the work area, they requested assistance from a passing crewmember, who was not part of the assigned work team. As he approached the work area, a shackle was accidentally dropped from above, hitting him on the head. Fortunately, there was no injury.

Lessons learnt

1. The team failed to review the operation when the additional person was called to assist. In this case, the operation should have been stopped and the new team member properly briefed, in accordance with safe working practices;

2. Any additional personnel inducted into a task should wear appropriate PPE before entering the work area.

Corrective/preventative actions

Fleet circular issued to all vessels, instructing crew to:

1. Conduct proper risk assessments before commencing a task. In case of change in circumstances or personnel, the job must be stopped, risks re-assessed and only allowed to continue once appropriate control measures are in place;

2. Observe the 'Take 5' rule at various stages during the task;

3. Comply with the PPE matrix at all times;

Plan view of location of accident ▶

4. Plan the work carefully, allocating sufficient manpower for each task;

5. Hold a 'Tool Box Meeting' before commencing the operation to discuss the job, the procedures to be followed and personal responsibilities.

MARS 201211
Falling steel plates caused leg injury

In heavy weather, in the course of routine rounds in his watch, the 4/E noticed that steel plates stowed in a storage rack against a bulkhead were inadequately secured and were beginning to move. Without considering the hazards or informing the senior watchkeeping engineer (2/E), he decided to re-stow the plates and re-secure the rack unassisted. During this process, the vessel suddenly rolled heavily. The plates toppled, trapping and crushing the 4/E's left leg. The 2/E, who was in the workshop at the time, heard the noise of the falling plates and a cry from the trapped 4/E. He immediately rushed to the location and sounded the emergency alarm. The Emergency Team assembled and rescued the 4/E, who was immediately given first aid. Due to the serious injury, and under radio medical advice, the vessel deviated to the nearest port, from where the injured crewmember was flown to Singapore in an air ambulance, for further medical treatment to his broken leg.

Root cause/contributory factors

1. Failure to inform other personnel of a hazardous situation and failure to seek assistance;

2. Lack of experience and awareness – the young 4/E did not understand the risks in attempting to re-stow and re-secure the steel plates unassisted;

3. Inadequate securing system using only a single retaining bar and hook arrangement;

4. Hazardous environmental condition (heavy weather).

Corrective/preventative actions

Fleet circular issued to all vessels instructing crewmembers to:

1. Discuss this accident at the next onboard safety committee meeting (incident also to be included in a forthcoming company seminar);

2. Conduct a proper risk assessment before engaging in any task;

3. Always inform head of department of any hazardous condition and never to attempt an unauthorized job or task or hazardous task alone;

4. Senior officers and ratings to share with others their personal experiences in order to enhance safety awareness onboard.

▲ Ineffective securing arrangement of plate storage rack

▲ View of accident site after plates toppled

■ **Editor's note:** It would also be prudent to modify the design of the plate storage rack shown above, incorporating more positive restraining means such as stopper bars, screw fittings, wires/chains, wooden wedges and dunnage under the plates etc.

MARS 201212

Rescue boat capsized after launch

An offshore support vessel planned a routine launch of the rescue boat whilst at sea. A risk assessment was conducted and a permit to work was issued. The 2/O then left the bridge to brief the deck launching team (ABs 1& 2), and the boat's crew (deck cadets 1 & 2) on the procedures. The conditions were ideal with a light breeze, near-calm sea state and no traffic. Prior to launching, the 2/O held a toolbox meeting, reviewed the procedures and completed all pre-launch checks. It was visually confirmed that the painter was secure and that the painter release mechanism was locked. However, the outboard motor was not started prior to launching, as it had been been tested on muffs (a portable cooling water connection) the previous day. The 2/O gave clear instructions to deck cadet 2 that he was to stand by the painter and operate the release only after the engine was started in the water and the fall wire was unhooked.

The vessel was on autopilot on a steady course of about 2.5 knots, and after ensuring a good lee, the Master ordered the boat to be launched. However, as the boat entered the water, the painter release mechanism was operated prematurely, with the engine still to be started and the fall hook still connected. The rescue boat started to trail astern rapidly on the fall wire and the Master ran back into wheelhouse to stop the headway.

When the deck crew noticed that the painter had been prematurely released and that the boat was being dragged by the fall wire, they shouted down to the boat party to operate the fall wire hook release mechanism. To aid the quick release of the hook, they continued to pay out more length of fall wire, but due to the vessel's residual headway, the rescue boat continued to trail further astern. Instantly, the boat canted away from the vessel, and after a few seconds of being dragged sideways through the water, capsized, trapping the three crewmembers onboard. The two cadets managed to get clear of the boat quickly. However, the coxswain (2/O) struggled for some time before he was able to release the seat harness buckles. He was further hampered when his lifejacket inflated and snagged on the controls. Fortunately, he soon managed to surface and all three persons were safely recovered and given medical attention.

Result of investigation

1. A photograph taken immediately before launching the rescue boat confirms that the painter release mechanism was apparently locked;

2. However, the spring-loaded activation lever of the painter release mechanism was not in the 'fully home' position, and a simulation at the manufacturer's workshop showed that, in this position and subjected to cyclical forces from different angles, the hook holding the painter would open under load; i.e. the painter release mechanism was practically in the open position when the boat was launched contrary to the photographic evidence;

3. Further, as the boat was being swung out, the vessel's movement caused the rescue boat to swing appreciably, despite the light sea conditions. It is possible that when the deck cadet stationed in the bow held the grab rail fitted on the boat's bow cover to steady himself, he inadvertently also pulled the wire lanyard that was lying under the grab rail and unknowingly operated the painter release.

▲ Rescue boat prior to launching showing forward painter secured

▲ Original design showing painter release lanyard situated under the forward grab rail

▲ Modified arrangement, showing shortened painter release lanyard now located well clear of forward grab rail

◀ Ineffective spring action of painter release activation lever due to lack of lubrication, preventing automatic return to 'fully locked' position

Painter release activating lever in 'fully locked' position after being overhauled ▶

Root cause/contributory factors

1. Premature release of the rescue boat painter and failure to have engine running before the craft entered the water;

2. Locking lever of painter release mechanism not in correct position;

3. Faulty design in placing the painter release lanyard under the grab rail on boat's bow cover;

4. Residual headway of the mother vessel caused the 'dead' rescue boat to be dragged by the fall wire with its connection point at a considerable height above the boat's keel, causing the boat to capsize;

5. Failure to operate the fall release mechanism promptly before the boat capsized.

Corrective/preventative action

1. Damaged rescue boat repaired to original specifications, surveyed and passed by Class;

2. Painter release activation lanyard shortened to be positioned clear of the grab rail on the bow cover. This requires the boatman manning the painter release to reach across deliberately so as to release the painter once instructed by the coxswain;

3. Painter release mechanism overhauled and activating lever freed to reach proper locking ('fully home') position;

4. Company's procedures revised to specify following sequence for rescue boat operations.

Launching

I. Check that the painter release mechanism activating lever is in the 'locked' position;

II. Ensure that the painter is secured on the rescue boat and on the ship. This is to be confirmed by at least two members of the launch team;

III. The painter is manned by experienced crewmembers both on the vessel and on the boat;

IV. Engine to be started before or as the boat enters the water;

V. Fall wire hook to be released when boat is waterborne;

VI. Painter to be released only when boat's engine is driving the craft at the same speed as the vessel

Recovery (to be verified by at least two members of the boat's crew)

I. Painter end secured on release mechanism, ensuring activating lever is in 'locked' position;

II. Fall wire hook connected to lifting link and checked to be locked closed;

III. Engine to be stopped and painter tended to maintain boat alongside vessel;

IV. Davit to be operated and boat hoisted, swung inboard, stowed and crew disembarked.

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Reports will be carefully edited to preserve confidentiality or will remain unpublished if this is not possible.

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