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Casualty Circular No. 02/2015

Sub: Flooding of pump room with sea water during ballasting on board a tanker.

Preamble: The Fundamental purpose of Marine Accident Investigation is to determine the circumstances and the causes of the accidents that have been reported, with the aim to improve the safety of life at sea and the avoidance of accident in future. Towards this objective, shipping casualties, occurring on Indian ships are investigated, in pursuance with the mandated requirement of Part XII of the MS Act. Similar reports are received from foreign flag administrations for accidents occurring on ships where Indians have been involved. These reports are collated and disseminated to all concerned for information and learning.

01. What happened?

Ship's pump room got flooded, just after commencement of ballast operations while the vessel was discharging cargo of HSD alongside an oil terminal.

02. How it happened?

2.1 Vessel arrived at an oil terminal of the port to discharge a cargo of HSD, and the cargo discharge operations were commenced. At about 0800hrs, the

ballast pump no. 2 was started to take in ballast water on board. The ballast pump was on for just over 60 minutes when the chief Engineer noticed some water in the pump room and informed the Master. Meanwhile the Duty Engineer, who had just returned to ECR after the breakfast, noticed the "pump room high bilge alarm" and informed the Cargo Duty Officer in CCR, who further informed the Chief Officer.

2.2 Master along with Chief Officer went down in the pump room to close the sea suction valve, but failed due to rising level of water and eye irritation due to water splashing. Thereafter, all cargo operations including ballasting were stopped and electrical power supply was isolated. Another attempt to close sea suction valve was made by the Chief officer and the Trainee Nautical Officer (TNO), wearing SCBA sets. However, this attempt too had to be abandoned since the water level had increased till chest level.

2.3 Finally, the ingress of water stopped in the pump room, at 10.40 meters sounding, after reaching equilibrium with the outside level. Shore workshop, along with diving team, boarded the vessel and start transferring pump room bilge water to slop tank, using their own and ship's pneumatic pumps. Port authorities shifted the vessel to the outer anchorage, where diving team managed to close the sea suction valve in the pump room.

2.4 There was no injury to human life, no damage to environment as water was transferred to slop tanks and no significant damage to machinery located in the pump room.

2.5 Post repairs, survey by the Classification Society was carried out and ballast pump was found to be working satisfactory. Subsequently, the vessel re-berthed and completed discharging operations.

3. Why it happened ?

3.1 Most proximate cause:

a) Break down of bottom bush of pump casing and mechanical seal securing plate of number 2 ballast pump, resulting in gushing of sea water in to pump room.

b) Failure to attend "Pump room High level alarm", in time, as the ECR was unmanned at the time of incident and there was a considerable delay till duty engineer came to ECR and reported it to the duty Officer.

3.2 Contributory factors:

a) Pump room high level alarm is provided only in ECR and if ECR is unmanned, the alarm remains unnoticed.

b) Company SMS vol. II, sec 7.3 was not complied with by the ship's crew. Quote "The pump room watch shall be kept towards effectively monitoring the safe functioning of pumps and equipments provided therein" Unquote

c) ECR was not manned at the time of the incident, when the cargo oil pumps for discharging and ballast pump for ballasting, were in operation.

d) No remote operation of sea suction valves provided on board, only manual valves at the bottom platform of pump room are provided.

4. Lessons learnt:

a) Ship's crew shall strictly adhere to the procedures of critical operations, laid out in the company's Safety Management System.

b) ECR should be manned during cargo and ballast operations.

c) Pump room 'high bilge alarm' could also be provided in the CCR and wheel house, in addition to the ECR.

d) Remote operation of at least one sea chest valve, could be considered, for the pump room.

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To: Ship-owners/Ship operators/Ship Managers / Ship Masters