

MONTHLY SAFETY SCENARIO

JANUARY 2023

Cargo hold flooding

It was morning and outside there was a light breeze and some drizzle. The crew of the container vessel was preparing to wash down the main deck and cargo hatches before arrival in port the same afternoon. They had the rare opportunity to do this as there were no containers on deck, only in the cargo hold.

Fire hoses were connected, and the decision was made to use two fire pumps, and to close the valves on the fire line for the anchors. These valves are normally left open, but this action would increase the water pressure.

The crew then left for their lunch break leaving the fire pumps switched on and the valves closed.

The engineer on duty in the Engine Control Room noticed that the bilge alarms for cargo hold 1 and 2 had been activated. He acknowledged the alarms but did not carry out any further investigation as he assumed the alarms were activated because of the drizzly weather conditions outside. After lunch the bosun noticed that there was water in cargo holds 1 and 2. At this time there was about 0.5 metres of water in both holds. The Master told the



bosun to immediately investigate the origin of the leak. At the same time the Master started to discharge the water overboard. When the bosun entered the cargo hold he could see water flooding over the edge of the void space. He also noticed that water was leaking from the fire lines both port and starboard side. The fire pumps were immediately stopped.

The Master informed the Chief Engineer of the flooding. He advised that the alarms warning of a high level of bilge water had been activated several times, but that the duty engineer had not investigated them.

None of the void spaces were fitted with sensors which would indicate the presence of any water. The void spaces adjacent to cargo hold 1 and 2 had openings connecting them to the cargo holds. Unlike the other void spaces on the vessel, these void spaces were not watertight.

A couple of days later the crew opened up all void spaces and also found water in the void spaces adjacent to holds 3 and 4.



Inside the void spaces they also found that the rubber gaskets positioned between the sections of the main fire line were damaged.

It was evident that the closed valves had increased the water pressure so much that it had damaged the rubber gaskets and caused the water to flood the cargo holds. The crew replaced these with new gaskets made of hard plastic instead of rubber.

Questions

When discussing this case please consider that the actions taken at the time made sense for all involved. Do not only judge but also ask why you think these actions were taken and could this happen on your vessel?

1. What were the immediate causes of this accident?
2. Is there a risk that this kind of accident could happen on our vessel?
3. How could this accident have been prevented?
4. What sections of our SMS were breached if any?
5. Is our SMS sufficient to prevent this accident?
6. If procedures were breached, why do you think this was the case?
7. How often are void spaces inspected?
8. How often are cargo hold inspections carried out?
9. What are the procedures when a bilge alarm is activated?
10. How often are lines and pipes in tanks, void spaces and other spaces that are not usually entered inspected?
11. Are inspections like this included in the PMS?
12. Do we have any sensors in void spaces or tanks that will show if any water is present?
13. Was it acceptable to pump the water overboard?
14. How much water can enter our cargo holds until there is a risk to stability?
15. Do we have risk assessment procedures onboard that address these risks?
16. Would a work permit have identified these risks?