

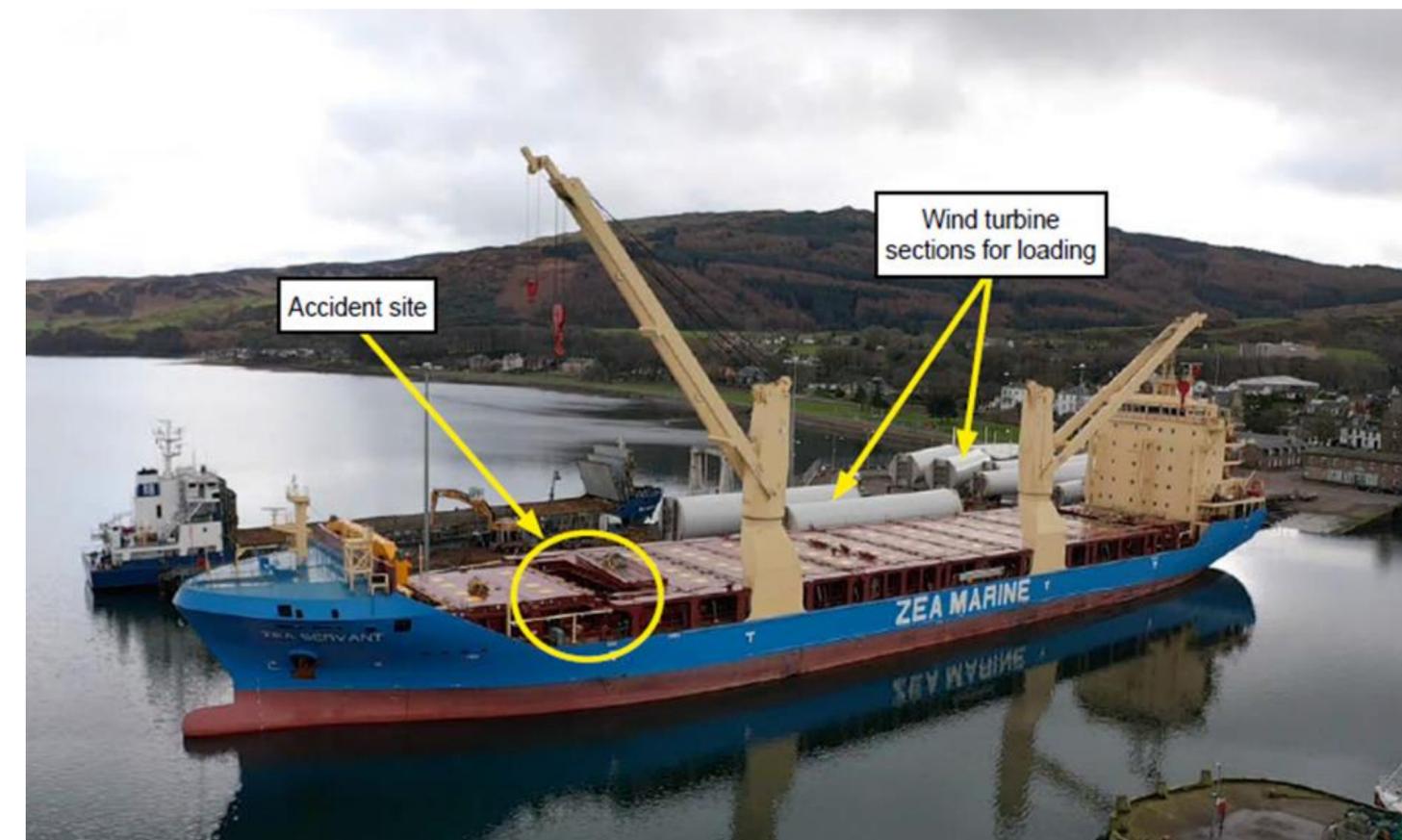
Fall of a Heavy Object, resulting in injury



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BACKGROUND

- A 11,000 GT general cargo ship built in 2018 was to load a cargo of wind turbine tower sections.
- The deck crew, supervised by the chief officer (C/O), began to prepare the ship for cargo loading.
- Following the safety briefing, the crew prepared to retrieve the hatch cover lifting gear (“the lifting gear”) from its storage location.
- The ship had not been built with a dedicated storage area for the hatch cover lifting gear. In result, the crew had devised a local arrangement to store the lifting gear in the duct space. However, it was an area with a significant number of potential snagging hazards, especially for lifting slings with shackles at their ends.
- The lifting gear had been stowed in the ventilation duct space ever since the ship was delivered by the shipbuilder 4 months earlier.



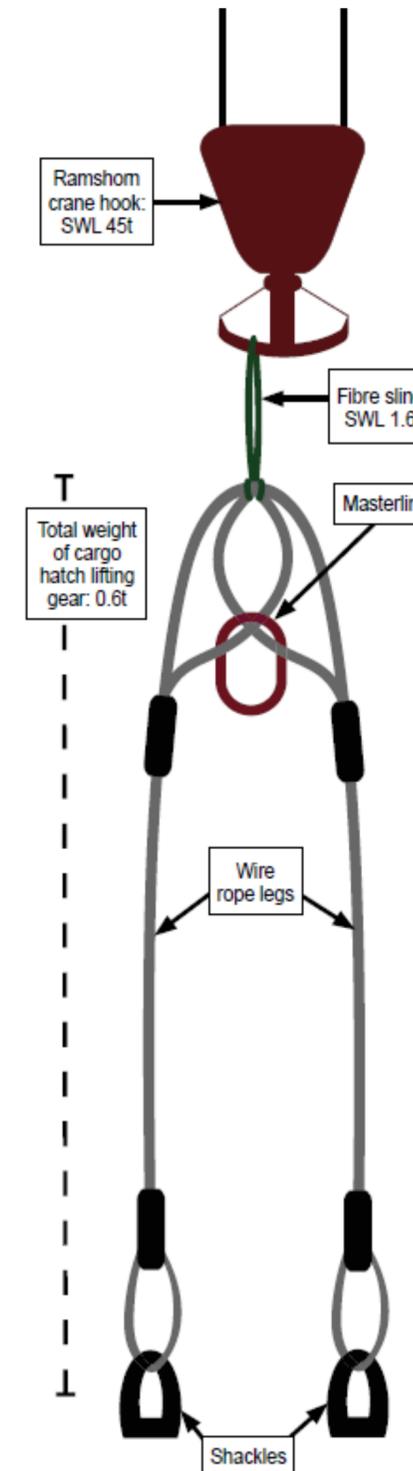
The ship in berth, showing accident site and wind turbine sections for loading.

Source: Marine Accident Investigation Branch (MAIB)

Fall of a Heavy Object, resulting in injury

BACKGROUND (continued)

- The lifting gear was made up of two slinging sets; each set weighed 0.6t and consisted of two 17m long, 52mm diameter wire rope legs with shackles, joined together with a master link. It was connected to the crane hook by a fibre sling with SWL of 1.6t.
- The ship's Safety Management System (SMS) did not contain a specific risk assessment or a procedure for the stowage and handling of the lifting gear, nor any guidance for the conduct of a lifting plan and the identification of fall zones.
- As there was no procedure to follow, the crew had adopted their own method of carrying out the lifting operation. The crew had used the same method on at least five previous occasions and had experienced similar snagging events. When these had occurred, the deck crew had manually freed the gear after the crane had stopped hauling.

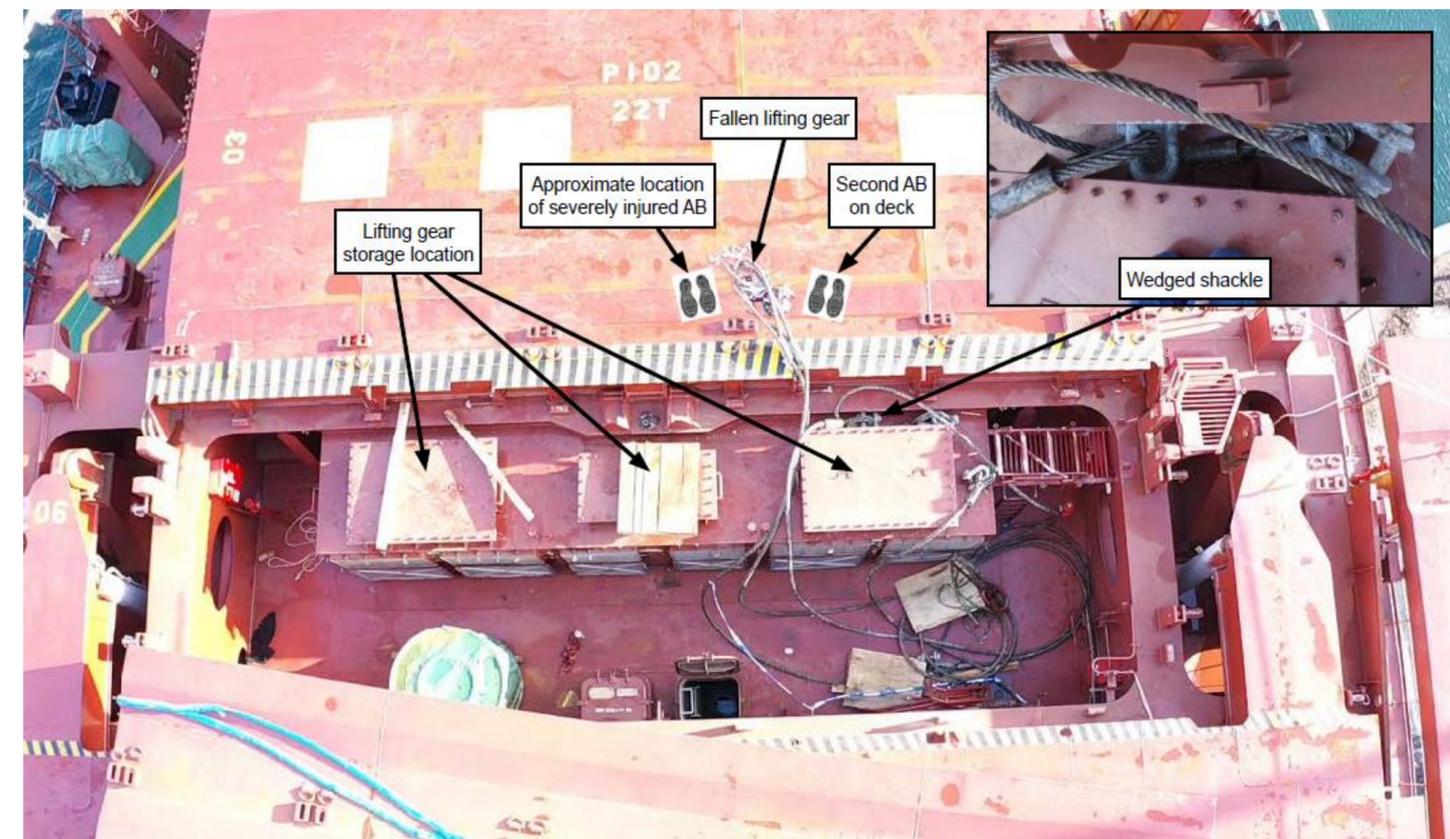


The lifting gear, attached to crane hook with fibre sling.

Source: Marine Accident Investigation Branch (MAIB)

THE INCIDENT

- Following the safety briefing, one of the able-bodied seamen (A/B) used the ship's forward crane to remove the cargo hold ventilation duct space cover, so that the lifting gear could be retrieved.
- Two other A/Bs then entered the ventilation duct space and attached the first of two hatch cover lifting gear sets to the crane's hook using a fibre sling.
- Both A/Bs then climbed out of the space and stood close to the hatch edge ready to guide the load and free any snags as it was lifted. Using a radio, the C/O instructed the A/B controlling the crane to commence lifting.
- After the load had been lifted about 2-3 metres, the gear snagged. The C/O ordered the crane driver to stop hauling and the two A/Bs on deck freed the snag by hand.

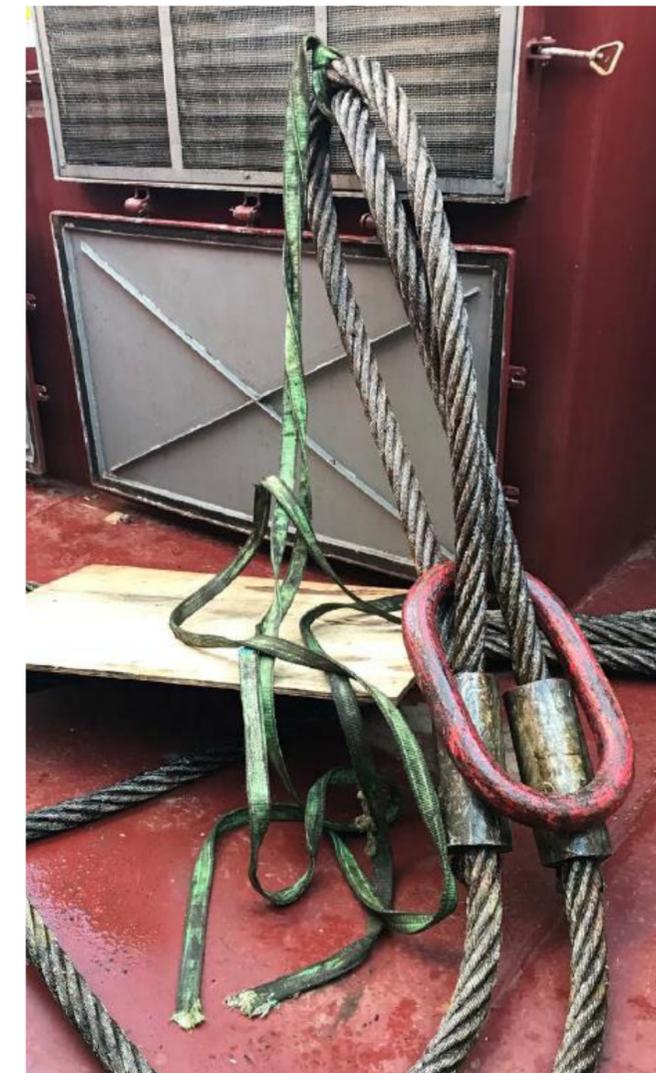


Ventilation duct space and incident site; inset: close-up of wedged shackle.

Source: Marine Accident Investigation Branch (MAIB)

THE INCIDENT (continued)

- With the two A/Bs remaining close to the edge of the hatch the C/O ordered the crane driver to start heaving again.
- Shortly after the lifting operation recommenced, a shackle at the lower end of the load became snagged on a ventilation trunk coaming.
- The C/O immediately instructed the crane driver to stop, but at the same time the fibre sling parted and the lifting gear fell to the deck, striking both A/Bs.
- One of the A/Bs suffered a severe head injury while the other suffered a minor hand injury. Ambulance paramedics were soon on the scene and treated both A/Bs before transferring them to a local hospital.
- The A/B who had suffered the serious head injury was later transferred to a dedicated neurological injury unit, before eventually being repatriated.



Broken fibre sling (after the accident).

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THE INCIDENT (continued)

- After the accident the parted fibre sling and five other similar slings from the ship were examined at an expert testing centre. The report of these tests stated that all six slings would have failed a visual inspection as they were soiled and had illegible identification markings.

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The questions below are intended to be used to help review the incident case study either individually or in small groups:

- **What do you think was the immediate cause of the incident?**
- **What other factors do you think contributed to the incident?**
- **What do you think were the barriers that should have prevented this incident from occurring?**
- **Why do you think these barriers might not have been effective on this occasion?**
- **What procedures are available for lifting on your ship? Do they include identification of Fall Zones?**
- **Does any lifting gear on your ship require hoisting by crane from its storage location? Was this location subject to a risk assessment?**
- **What would be the appropriate reaction if you experienced a snagging event during a lifting operation? Should it be reported?**
- **What measures are in place on your ship to prevent damaged slings from being used for lifting?**

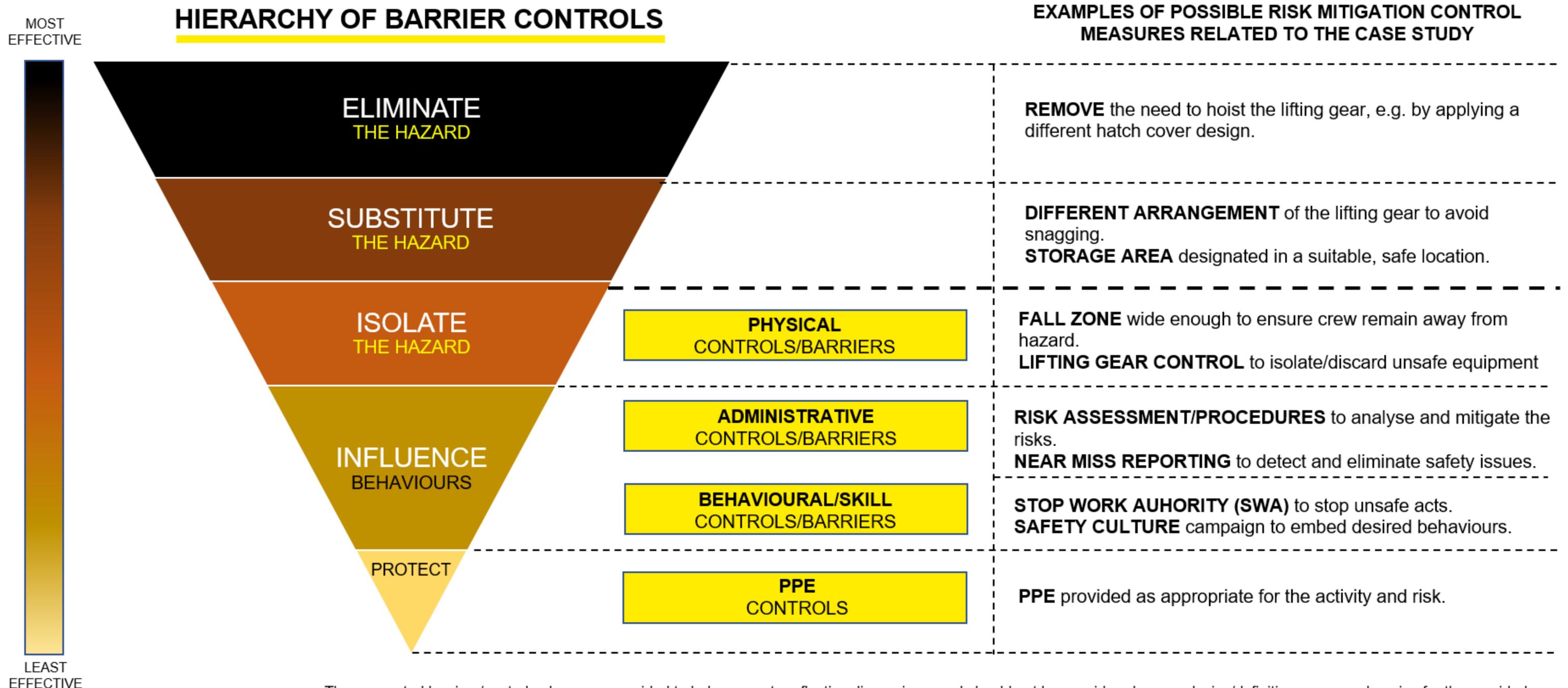
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LESSONS LEARNED

The following lessons learned have been identified based on the available information in the investigation report and are not intended to apportion blame on the individuals or company involved:

- **Intervention** – The operation was not called to a halt when the A/Bs positioned themselves close to the suspended load. Any of the present crew could have stopped the operation. An effective Stop Work Authority programme would have prevented the incident.
- **Normalising the Risk** – As the crew had been able to resolve the previously experienced snags without difficulty, this might have reinforced their belief that their actions were not unduly hazardous. Exposure to risk without consequence may result in a misplaced sense of safety and eventually contribute to an incident.
- **SMS Procedures and Risk Assessment** – The ship's SMS did not contain a specific procedure for the stowage and handling of the hatch cover lifting gear; no risk assessment had been completed for this activity. The involved crew had adopted their own method of carrying out the lifting operation which turned out to overlook some of the inherent risks.
- **Lifting Plan and Fall Zone Assessment** – The ship's SMS did not provide any guidance for the preparation of a lifting plan and the identification of fall zones.
- **Dedicated Storage Area** – The ship had not been built with a dedicated storage area for the lifting gear, therefore the crew had developed a local arrangement. A formal risk assessment process would have identified it as an unsuitable location.

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The suggested barriers/controls above are provided to help generate reflective discussions, and should not be considered as conclusive/definitive or comprehensive for the provided case study. The risk and control measures relating to any similar scenario or activity must always be appropriately assessed based on the specific onboard arrangement and circumstances.

CONCLUSIONS

The causes of this incident appear to be connected with the failure or absence of several risk controls and safety barriers in the ship's SMS, as well as the ineffective safety culture with the involved personnel. The hazards were not correctly identified and in result, the risk controls in place turned out to be insufficient.

A prior, systematic risk assessment of the storage location and the activity could have prevented the incident by considering alternative storage locations, and mitigating the inherent risks of the activity. As a part of this process, a fall zone assessment would have prevented the crew from positioning themselves too close to the suspended load.

Human Element causes played a significant role in this incident. Time pressure was a factor. The crew appeared to normalise the risk despite the previously experienced near misses, which could have resulted in the misplaced sense of safety. There was no effective a Stop Work Authority (SWA) in place, which should have resulted in an intervention and stopping the work in case of an apparent unsafe behaviour.

Finally, this incident highlights the need to support the effective safety culture on board, which permeates the organisation and helps prevent behavioural complacency.

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QUESTIONS