

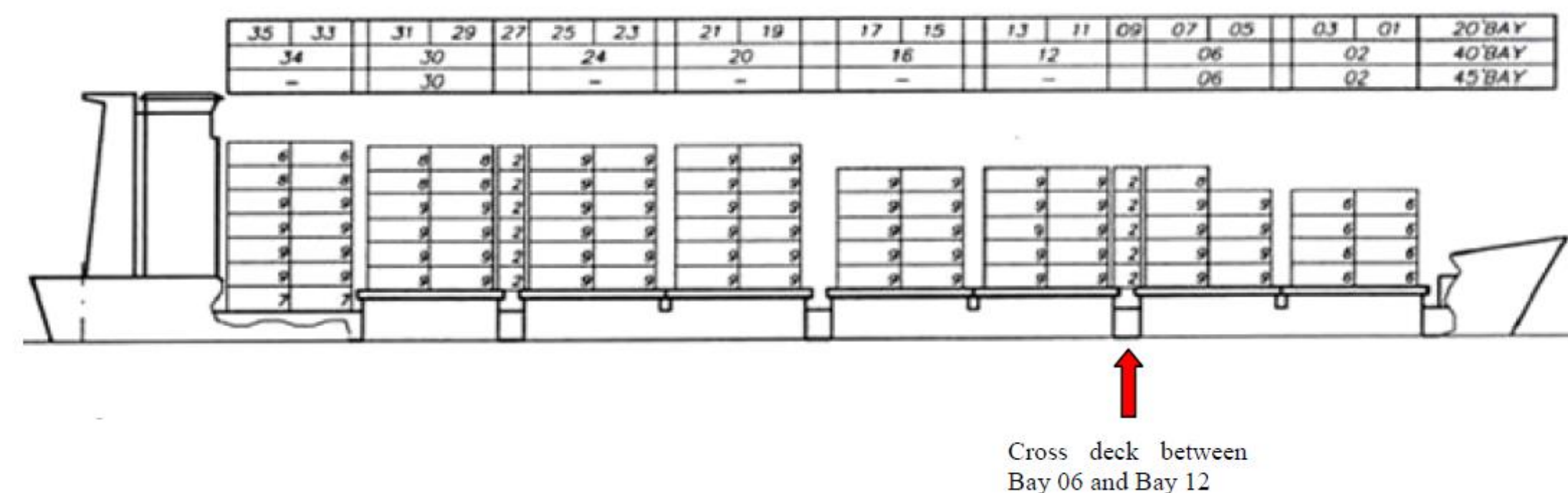
Serious Injury While Securing Containers



## Serious Injury While Securing Containers

### BACKGROUND

- The **BOSTON TRADER**, a 9,528GT multipurpose dry cargo ship built in 2004, was moored in the port of Oran, Algeria since 11 March 2019 and cargo operations were in progress.
- During the morning of 14 March 2019 the third officer (3/O), bosun (BSN) and two able bodied seamen (A/Bs) had been on watch since 0600. The bosun was keeping a watch on the ship's gangway, while one AB (AB1) was securing the containers loaded on deck and another (AB2) was on the pier checking and sealing containers about to be loaded.
- While the containers were being loaded, AB1 was positioned in the cross-deck between Bay 06 and Bay 12.
- On the day of the incident the injured AB1 had six hours of rest before resuming his duty at 0600, which met the relevant requirements. The investigation did not consider drugs or alcohol to have contributed to this incident.



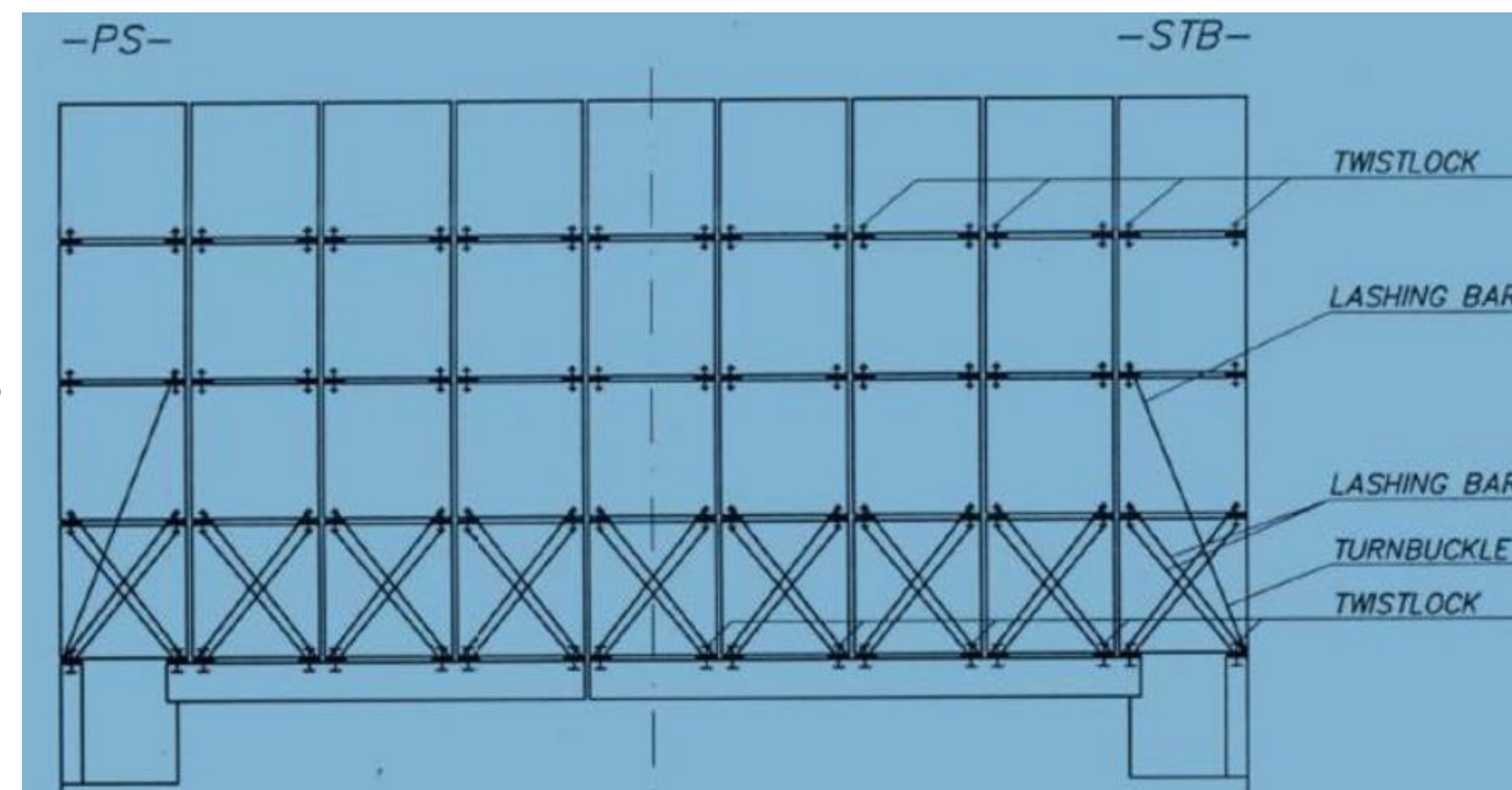
*Location of the incident:*  
*cross deck between Bay 06 and Bay 12*  
 Source: Investigation Report 04/2020 by Transport Malta



## Serious Injury While Securing Containers

### BACKGROUND (continued)

- The containers loaded on the third tier of the outboard ends had to be secured using a long lashing bar and tightened with a turnbuckle connected to it. The height of the long lashing bar was 5.07m and it was said to weigh more than 20kg.
- The person securing the containers would usually have to step onto the hatch cover, using it as a pedestal, to hook the lashing bar into the corner fitting of a container.
- Once hooked, the lashing bar would have to be brought diagonally across to be connected to the turnbuckle, which would then be screwed down to tighten the securing arrangement.

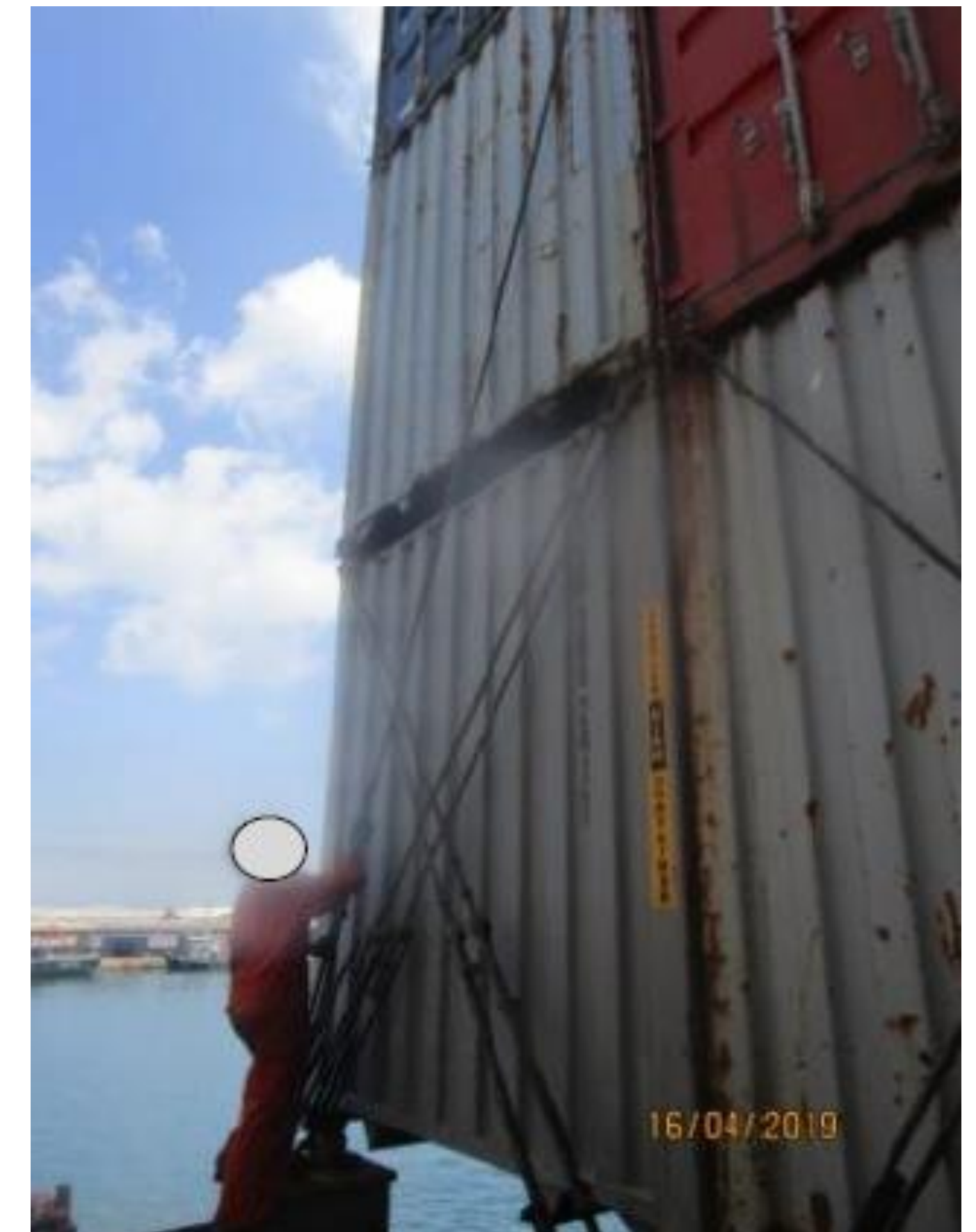


Container stowage and lashing plan – Bay 06  
Source: Investigation Report 04/2020 by Transport Malta

**Serious Injury While Securing Containers**

## **THE INCIDENT**

- A 40ft container was loaded in Bay 06 on the third tier, towards the outboard end of the starboard side of the ship. In order to secure it, AB1 stepped onto the hatch cover of cargo hold No. 2 and hooked up a long lashing bar into the corner fitting of the container. While holding the hooked-up lashing bar with one hand, he then stepped down from the hatch cover onto the cross deck in order to lift the turnbuckle with the other hand.
- At this point the lashing bar slipped out from the container socket and fell vertically down onto his right foot. The bottom end of the lashing bar cut through the safety footwear and injured his foot.



*Connecting a lashing bar to a turnbuckle*  
Source: Investigation Report 04/2020 by Transport Malta



## Serious Injury While Securing Containers

### THE INCIDENT (continued)

- The chief officer (C/O), along with the BSN, arrived at the location at 0851 and carried AB1 into the accommodation. The master informed the local agent of the accident and requested for emergency medical assistance, while the crew tried to stop the bleeding.
- At 0858 the agent, along with the local port authorities and a medical team, arrived on board. The medical team immediately transferred AB1 to a hospital ashore where he underwent surgery with one toe being amputated.
- Two days after the surgery the injured AB was discharged from the hospital and repatriated.



*The bottom end of the lashing bar*

Source: Investigation Report 04/2020 by Transport Malta

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## **REFLECTIVE LEARNING**

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 could have been 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 safety measures apply on your ship in case a work task requires you to lift and manually handle heavy objects?**
- **How do you ensure that your PPE footwear is worn correctly, and what happens if it requires replacement due to wear or damage?**
- **How would you react if you thought that your, or your team mates behaviour was affected by complacency?**
- **How would you report a near miss on your ship? What would you expect to happen afterwards?**

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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:

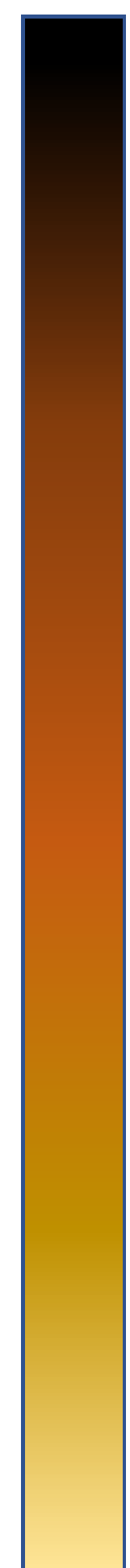
- **Risk control measures:** The risk assessment available for the securing of containers required certain risk control measures to be put in place in order to minimise the associated risks. Some of these measures were not actually in place at the time of the incident; the missing control measures included correct PPE and sufficient personnel.
- **Correct application of PPE:** The injured seafarer may have either worn his safety footwear improperly, or his foot slipped out at the time of the incident. The part of the shoe which was struck by the lashing bar did not match with the position where the injury was sustained, which occurred in the part of the foot usually well protected by the steel toecap.
- **Sufficient personnel for the securing of containers:** Taking into account the design of the long lashing bar and the securing arrangements, the investigation found that at least two persons were required to secure the containers: one to hold the hooked up long lashing bar and the other to connect it to the turnbuckle lying flat on the hatch cover.
- **Slipping of the lashing bar from the corner fitting:** A lashing bar would only lock into the socket of corner fitting, once rotated diagonally and connected to the turnbuckle. In view of the design, a lashing bar suspended vertically might slip out from the socket of the corner fitting, especially if not hooked correctly.
- **Familiarisation with lashing arrangements and procedures:** No formal system of briefing and familiarisation with the container securing procedures and ship arrangements existed on board at the time of the incident. However, the injured seafarer had joined the ship three months prior to the incident and the ship regularly called at the port of Oran.

## Serious Injury While Securing Containers

### HIERARCHY OF BARRIER CONTROLS

### EXAMPLES OF POSSIBLE RISK MITIGATION CONTROL MEASURES RELATED TO THE CASE STUDY

MOST  
EFFECTIVE



LEAST  
EFFECTIVE

**ELIMINATE**  
THE HAZARD

**SUBSTITUTE**  
THE HAZARD

**ISOLATE**  
THE HAZARD

**INFLUENCE**  
BEHAVIOURS

**PROTECT**

**PHYSICAL**  
CONTROLS/BARRIERS

**ADMINISTRATIVE**  
CONTROLS/BARRIERS

**BEHAVIOURAL/SKILL**  
CONTROLS/BARRIERS

**PPE**  
CONTROLS

**ELIMINATE** – not applicable as the need for lashing and securing containers is inherent to most container ships

**DIFFERENT DESIGN** of lashing gear to eliminate the need for manual handling of heavy items

**SUFFICIENT MANPOWER** provided for the task to ensure heavy objects are handled safely  
**DECK AREA** clear of trip hazards and with adequate space to ensure safe footing

**RISK ASSESSMENT / PROCEDURE** to identify and mitigate the risks, as well as monitor the implementation of risk controls.

**SAFETY CULTURE** to eliminate complacency and enable reporting near misses without fear of retribution  
**FAMILIARISATION** to provide ship-specific safety information

**PPE** provided as appropriate for the activity and risk  
**MONITORING THE USE** of PPE to ensure it is fit for purpose and used correctly

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.



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## **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 Safety Management System (SMS), as well as apparently suboptimal safety culture.

It appeared that the risk assessment for the securing of containers was incomplete and the implementation of the required risk control measures was not monitored effectively. The comprehensive risk assessment should have identified and addressed the risk of a lashing bar slipping from the corner fitting while being handled by only one person.

An activity is more likely to result in complacent behaviour where unsafe acts are ignored due to a false sense of safety resulting from completing it without an incident in the past. Complacent behaviour may in turn result in attempts to find false efficiency in completing the task with insufficient manpower and/or in insufficient time.

The ability to report near misses or minor injuries without the fear of retribution or apportioning blame is essential to identify weak spots and gaps in work safety on board. Effective safety culture should create an environment where such reports are encouraged, duly considered and where deemed necessary result in the implementation of adequate corrective and preventive actions. The overall aim is to ensure continuous improvement of safety through collective ownership and the participation of all crew members involved.

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**QUESTIONS**