MARS

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MARS 202543

Fatal fall into container bay

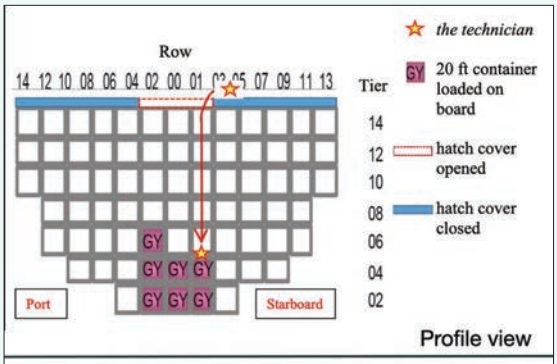
At night, a container vessel had discharged all containers and commenced loading outbound containers, including reefer containers. Some hatches were left open after discharge was completed.

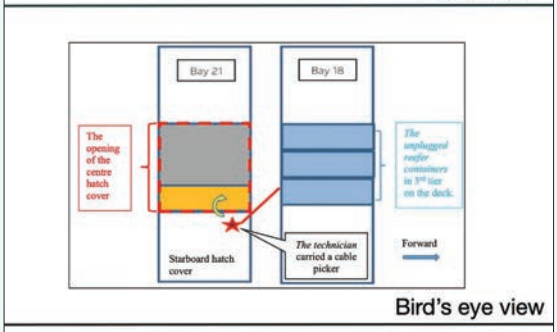
Eight shore technicians from a service company boarded the vessel to connect the vessel's power supply to the reefer containers. One of the technicians, standing at bay 21, was attempting to access the reefer connection cables of a container located above him at tier 3 of bay 18 using a cable picker. No one witnessed what happened next, but it is assumed that the technician did not notice or was otherwise unaware that there was an open hatch nearby.

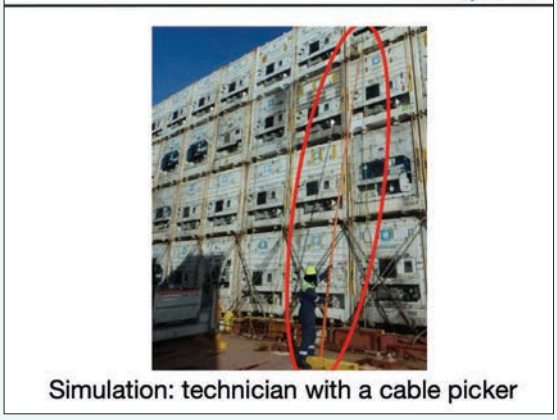
About 6.5 hours after the shore technicians had boarded, the technician was found motionless on top of a container in the hold, more than 10m below the deck. A rescue team arrived quickly but the victim was found deceased. His body was removed with the help of a shore crane.

The investigation found that the technician had been working alone near the open hatch cover. It appears the accident was a perfect storm of the common 'get the work done' attitude and practices common to the container trade, such as:

- No safety meeting before work;
- No safety instructions for wearing appropriate PPE during work;
- Lack of a risk assessment or control measures taken for working 'aloft';
- No action to close the hatch cover as soon as discharge cargo operation terminated;
- Less than adequate supervision of operations by crew.







Lessons learned

- Working on deck is no guarantee that you can't fall a great distance. Be aware of your surroundings – never work close to an unprotected fall hazard area without the correct equipment such as a fall arrest safety line.

- Potential fall hazard areas should be protected or otherwise closed off as soon as possible.
- A golden rule to ensure safety is to hold a safety meeting with onboarding contractors before they begin work.

As edited from Hong Kong SAR Mardep MAIB, report issued 19 July 2023

MARS 202544

Enclosed space fatality on oil/chemical tanker

An oil/chemical tanker was underway in ballast. Tank cleaning operations started with gas freeing, the previous cargo having been benzene. The tanks were then rinsed with fresh water and ventilated. Atmosphere tests were carried out, but it appears that while the explosive limit was measured, the oxygen content was not. There was still a strong smell when deck crew assembled near the entrance hatches to undertake the final mopping phase of the tank cleaning.

One of the deck crew, wearing only a filter mask, entered one of the cargo tanks without the knowledge of his co-workers or superior. As he descended the access ladder, he probably inhaled enough benzene vapour to render him unconscious. He fell to the bottom of the tank.

The bosun saw the hold entrance hatch open, looked down and saw the collapsed victim at the bottom of the tank. The alarm was raised and a rescue team equipped with breathing apparatus (BA) extracted the victim. Although first aid and oxygen were administered the victim was later declared deceased.

The investigation revealed a cascade of safety failures that contributed to this tragedy. The ship's Safety Management System (SMS) procedures were not followed, as atmosphere level checks for benzene and oxygen were not done. The victim entered the tank without proper authorisation, without a portable gas detector, and wearing an unapproved filtered mask that provided no protection against toxic gases or oxygen deficiency.

The root causes extended beyond individual actions to systemic safety management deficiencies. Despite having clear procedures in the SMS, the company failed to ensure proper implementation and oversight of enclosed space entry protocols. There was inadequate safety training and communication, particularly concerning the risks of entering spaces that had contained hazardous chemicals like benzene. The investigation also found that while the victim had significant experience on chemical tankers, the lack of clear operational guidance and safety culture contributed to his fatal decision to enter an untested tank using improper equipment.

Lessons Learned:

- Entry permits for confined spaces are not bureaucratic formalities but critical safety barriers. Every entry must be properly authorised, with mandatory atmosphere testing and appropriate Personal Protective Equipment (PPE.)
- Before any tank entry, gas detection must verify safe oxygen levels and absence of toxic substances. Portable gas detectors must be carried by all personnel entering enclosed spaces.
- Inappropriate safety equipment (for example filtered masks in toxic environments) must be removed from service and their absence enforced. Only approved self-contained breathing apparatus (SCBA) should be used in potentially contaminated spaces.

Companies must ensure that safety procedures are not only documented but actively practised, understood by all crew members (including providing translated materials for international crews), and regularly supervised by qualified officers.

Editor's note:

As edited from MSA (South Korea) report 2024-002

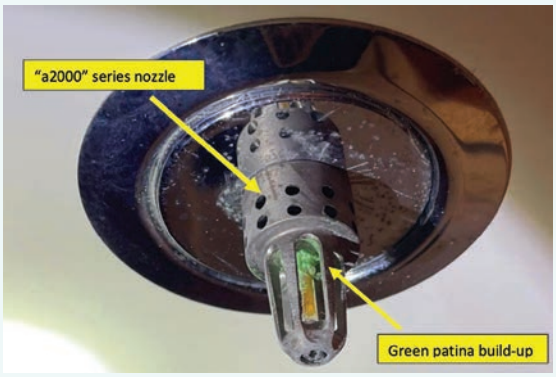
The website can be found at **https://www.kmst.go.kr**

Link down for maintenance at time of going to press

MARS 202545

Green patina: The uninvited guest that crashed the fire drill

A passenger vessel was undergoing a US Coast Guard inspection, including a test of the high-pressure water mist nozzles (part of the HI-FOG fire suppression system). The high-pressure water mist nozzles are designed to hold the standard line pressure of 25 bar (363 PSI). When the glass bulb thermal actuator reaches a certain temperature, it breaks, activating the release mechanism which allows water to flow through the nozzle at the standing pressure. The system then senses the drop



in pressure and automatically activates the high-pressure pumps, increasing the pressure to 140 bar (2,031 PSI). This increased pressure is required for the system to achieve an effective release of water as a mist.

Due to past failures, the manufacturer (Marioff) released a Service Bulletin (001/2012) recommending that if a nozzle fails to release at the standing pressure of 25 bar after the glass bulb is broken, the high-pressure pumps must be manually energised to raise the pressure to 140 bar. This should activate the release mechanism, allowing water to flow through the nozzle. During the examination this recommended action was taken, but did not activate the release mechanism of the nozzles as expected.

Upon closer inspection, it was found that the high-pressure water mist nozzles had accumulations of green patina, a sign of corrosion, which rendered them unable to release water after the glass bulb broke, even with 140 bar pressure.

Lessons learned

- Does your vessel have high-pressure water mist nozzles? Check for green patina!
- Sprinklers at the highest risk of corrosion include sprinklers more than 10 years old and those located in high moisture and corrosive atmospheres. Areas of high moisture could include outer decks, spas, pool areas, galleys, or even normal passenger and crew areas close to external doors.
- Contact the manufacturer if any signs of green patina build-up are observed on high-pressure water mist nozzles. Consider replacing the affected nozzles.

As edited from USCG Safety Alert 16-25

MARS 202546

Ro-ro loading fatality

A ro-ro vessel was in port and crew were loading trailers. A Terberg tractor unit (four-wheel drive truck type) is used to pull 40-foot trailers onto the vessel and to place them in position for the voyage. They are then secured for transit. The Terberg tractor, often referred to as a Tugmaster, is a specialised piece of equipment where the driver can rotate the seat through 180 degrees to face the direction of travel. In this instance, the Tugmaster used the port side ramp from deck three to deck five. On deck five, the load was reversed into position with a crew member guiding the driver.

The driver had restricted vision when reversing due to the size of the trailer. The guide used a whistle to signal to the tractor driver that the load was in position. The safety procedures called for the guide to position himself on the right-hand side of the load, standing in the safety zone provided by the adjacent ventilator shaft.

As the driver reversed, he had to place his head out of the side window of the tractor to maximise his range of vision. His seat was rotated to face aft and he reported that he did not hear the whistle telling him to stop. There were no other factors identified that could have distracted the driver from his task of placing the trailer in position.

Something caused the crewmember guiding, an experienced seafarer, to move directly behind the load he was directing into place. He was crushed and died from his injuries.

The investigation found, among other, that the victim's blood alcohol level was significant.

Lessons learned

- Loading trailers is a particularly hazardous job under the best of conditions. Several deaths have occurred on ro-ro carriers while undertaking guiding operations. Having an elevated blood alcohol level while guiding a load is a ridiculously foolhardy gesture that the victim paid for with his life.

As edited from MCIB (Ireland) report 273

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The Gdynia Maritime School
https://www.morska.edu.pl/en

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Philippine Merchant Marine Academy
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www.pla.co.uk

Poseidon Sea Pilots
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The PTC Group
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SDT Ultrasound
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Seagull Maritime AS
https://oceantg.com

Shipping Federation of Canada
https://www.shipfed.ca

Skuld
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Steamship Mutual
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