



DMAIB

DANISH MARITIME ACCIDENT
INVESTIGATION BOARD

HAV STREYM

Summary report on occupational accident

2 NOVEMBER 2019

**SUMMARY REPORT ON OCCUPATIONAL ACCIDENT
ON HAV STREYM 2 NOVEMBER 2019**

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Photo: Guard rail at main deck on HAV STREYM
Source: DMAIB

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This is a summary report on an accident investigated by the Danish Maritime Accident Investigation Board (DMAIB). The summary is a brief account of those findings, which are relevant for safety learning.

This summary concerns an occupational accident involving an able seaman who suffered severe injuries while opening hatch covers on board HAV STREYM during port stay in Karmøy, Norway, and focuses on the placement of control panels, which provided a restricted overview of the work area.



Figure 1: HAV STREYM
Source: DMAIB

The accident

HAV STREYM (figure 1) was a Faroese self-discharging general cargo ship primarily carrying various bulk cargo between ports in Norway and the Faroe Islands. The ship was manned with a master, chief officer, chief engineer, ship's cook and two able seamen.

In the evening of 2 November 2019, HAV STREYM arrived at Karmsund Bulk terminal, Karmøy, in Norway, and the crew prepared for loading the vessel. On deck, two able seamen (AB) prepared for opening the hatch cover to forward cargo hold number one.

Before opening the hatch cover, the excavator had to be moved aftwards. One AB therefore went to the excavator cab to operate the travelling gantry that carried the excavator. Meanwhile, the other AB stood by on the main deck at the hydraulic control station waiting for the travelling gantry to move aftwards, so he could open the hatch covers. When he heard the travelling gantry stop, he reckoned that the gantry had passed and the space above the hydraulic control station was clear. He climbed the guardrail to check the hatch covers visually to make sure they were clear to open (figure 2). As the AB climbed the railing, the gantry moved aftwards and the AB's upper body was jammed between the guardrail and the gantry (figure 2).

When the gantry had passed, the AB fell to the main deck below the hydraulic control station. The AB in the excavator received a call on his portable radio from the injured AB. The AB immediately rushed to the main deck where he found the injured AB lying on the deck. Meanwhile, the master received the same call on his radio and rushed to the hydraulic control station together with the ship's agent, who was present on the ship at the time. They called for an ambulance, which brought the AB to the hospital, where he was treated for severe internal injuries.



Figure 2: Guard rail and gantry that AB was caught between.
Source: DMAIB

The investigation

Due to the severity of the accident, DMAIB decided to investigate the accident. The investigation showed that the accident happened as a result of several coinciding factors, but the location of the hydraulic control station necessitated a work practice which was determinative for the course of events. This summary thus focuses on the deck's layout and the work practices for opening the hatch covers.

Operating the hatch covers

HAV STREYM was equipped with hydraulic folding hatch covers operated by hydraulic control stations forward and aft on the vessel's starboard side. On top of the hatch covers a travelling gantry carried an excavator which was used for loading and discharging the vessel (figure 3, next page).

The travelling gantry moved along the top of the hatch covers by use of chains. If the excavator was positioned on top of the hatch covers, it was necessary to move it so the hatch covers could be opened. The travelling gantry was operated from inside the excavator cab. The hatch covers were operated from a hydraulic control station mounted on the hatch coaming below the gantry. Inside the excavator cab, the hatch cover and the hatch coaming restricted the view to the main deck. This meant that the driver was unable to see persons on the main deck (figure 4, next page).



Figure 3: Deck layout
Source: DMAIB

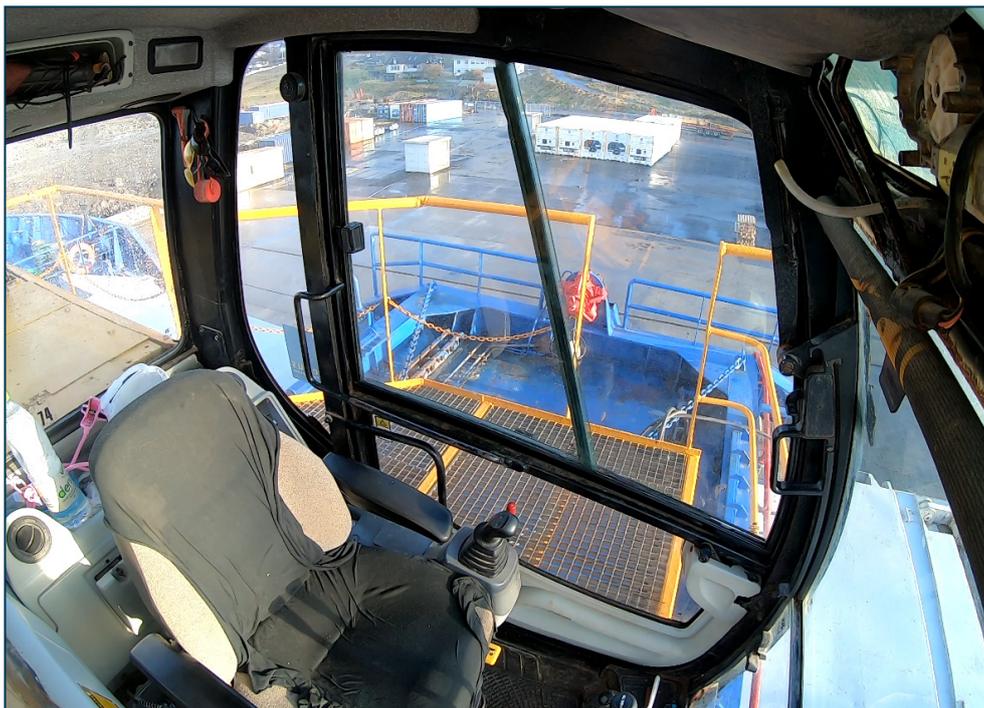


Figure 4: View to the starboard from the excavator cab
Source: DMAIB

The height from the main deck to the top of the hatch covers was 2.95 meters (figure 5). On the main deck at the hydraulic control station, it was not possible to see the top of the cargo hold. This meant that it was not possible to see the excavator cab or the hatch covers. In order to make sure that no persons were on the hatch covers before opening them, the AB operating the levers had to climb the railing as the operating levers in the control station were 1.25 m below the top of the hatch cover. To protect the ABs from the risk of falling over board when climbing the railing, the ABs had mounted a guardrail on the railing.

Deck lights to illuminate the hydraulic control station were in place, but not functional at the time of the accident. The deck area was only illuminated by lights mounted on the forward part of the accommodation and on the forecastle. During DMAIB's investigation, it was observed that this light had a blinding effect when working at the hydraulic control station, making it difficult to visually identify the position of the travelling gantry. Additionally, the hatch coaming and the gantry had the same colour, making it difficult to identify when the gantry was moving.



Figure 5: View from the main deck to the travelling gantry
Source: DMAIB

Work practice

Operating the hatch covers on HAV STREYM was a routine job for the ABs and was not considered as hazardous work. Hence, no particular procedures or work descriptions were established for this task. Depending on the work situation, it was done by one AB alone or by two ABs in collaboration. If one AB was assigned to the task, he would first operate the excavator and then go to the main deck to operate the levers for the hatch covers. When the ABs collaborated, one would operate the excavator, while the other AB operated the levers, which was less time consuming. On the day of the accident, the ABs collaborated.

The ABs were familiar with the equipment and their shared work process, and they did not feel the need to communicate during the operation. They had collaborated on this task enough times to know what action to expect from each other, though they were out of each other's vicinity. Furthermore, noise from the machinery gave the AB at the control levers cues on where the travelling gantry was. If an issue occurred that required the ABs to change their work practice, they communicated by radio.

Cause of the accident

The hydraulic control panel was mounted in a place, which gave a restricted overview of the hatch covers. To gain an overview of the hatch covers, the ABs therefore had to climb the railing. This inexpedient location of the hydraulic control station led to several risk factors. When standing on the railing, the AB was exposed to the risk of falling overboard. This risk was mitigated by installing the guardrail.

Additionally, when the ABs were working in collaboration, the AB operating the hydraulic control levers was exposed to the risk of being hit by the gantry. To mitigate this risk, the ABs relied on being able to visually and auditorily monitor the position of the gantry before climbing the railing.

On the day of the accident, the lighting conditions were such that the AB on deck could only rely on the noise from the gantry to determine its exact position. As the gantry made a short stop, he misjudged its position and climbed the railing before the gantry had passed and was jammed between the guardrail and the gantry.

Learnings

This accident exemplifies how risk mitigation can have adverse side effects when the circumstances change. In this case, the guardrail, which was designed to prevent the AB from falling overboard, became a hazard, because it made it possible for the AB to become jammed. However, the fundamental safety issue was the inexpedient location of the hydraulic control levers, which provided a poor overview of the hatch covers.

On HAV STREYM there was no other place to mount the hydraulic control levers, which offered a significantly better overview. Therefore, it would be more expedient to introduce measures, which separately mitigate the risk of falling overboard and the risk of becoming jammed. E.g. having a fixed ladder, warning lights, which indicate that the gantry is moving and where it is, etc.

Preventive measures

DMAIB has received information from the owner Frakt & Sand Sp/F on the preventive measures that have been initiated in order to prevent similar, future accidents.

- A safety light will be fitted on the excavator, which will indicate when the gantry is moving.
- A ladder will be fitted at the control station by the hatch coaming.

Ship particulars

Name:	HAV STREYM
Ship type:	General cargo ship
Nationality:	Faroe Islands
Port of registry:	Runavik
IMO number:	9126625
Call sign:	OZ2144
DOC company:	Frakt & Sand Sp/F
IMO company no.:	1247739
Year built:	1996
Shipyard/no.:	Nevskiy Sudostroitelnyy I Srz/001
Classification society:	Bureau Veritas
Lenght overall:	82.45 m
Breadth overall:	12.70 m
Draught:	5.31 m
Dead weight:	3,405 t
Propulsion power:	1,600 kW
Hull material:	Steel

