



**The Bahamas
Maritime Authority**

THE COMMONWEALTH OF THE BAHAMAS

M.V. STENA SPIRIT

IMO Number: 7907661

Official Number: 8001927



**Report of the marine safety investigation into a
fatality of a Passenger on a Passenger/Ro-Ro vessel on
20 September 2018**

The Bahamas conducts marine safety or other investigations on ships flying the flag of the Commonwealth of the Bahamas in accordance with the obligations set forth in International Conventions to which The Bahamas is a Party. In accordance with the IMO Casualty Investigation Code, mandated by the International Convention for the Safety of Life at Sea (SOLAS) Regulation XI-1/6, investigations have the objective of preventing marine casualties and marine incidents in the future and do not seek to apportion blame or determine liability.

It should be noted that the Bahamas Merchant Shipping Act, Para 170 (2) requires officers of a ship involved in an accident to answer an Inspector's questions fully and truly. If the contents of a report were subsequently submitted as evidence in court proceedings relating to an accident this could offend the principle that a person cannot be required to give evidence against themselves. The Bahamas Maritime Authority makes this report available to any interested individuals, organizations, agencies or States on the strict understanding that it will not be used as evidence in any legal proceedings anywhere in the world. You must re-use it accurately and not in a misleading context. Any material used must contain the title of the source publication and where we have identified any third-party copyright material you will need to obtain permission from the copyright holders concerned.

Date of Issue: 26 March 2019
Bahamas Maritime Authority
120 Old Broad Street
LONDON
EC2N 1AR
United Kingdom

CONTENTS

1. Glossary of abbreviations and acronyms
2. Summary
3. Details of involved vessel(s) and other matters
4. Narrative of events
5. Analysis and discussion
6. Conclusions
7. Recommendations
8. Lessons Learned

1 GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AB	Able Body Seaman
BMA	Bahamas Maritime Authority
CCTV	Closed-Circuit Television
dL	decilitre
g/l	gram/Litre
HGV	Heavy Goods Vehicle
SOW	Seaman on watch
STCW	The Standards of Training, Certification and Watchkeeping
UTC	Universal Time Coordinated

All times noted in the report are given in the style of the standard 24-hour clock without additional annotation and as local time in Gdynia, which was UTC +1 and CCTV recording/screenshot time is 2 minutes behind the actual time.

2 SUMMARY

- 2.1 At the time of this investigation, the vessel's sailing routine was two daily fixed voyages between the port of Karlskrona, Sweden and the port of Gdynia, Poland.
- 2.2 On 20 September 2018 at 1932 hours the vessel arrived at the port of Gdynia, Poland and at 1935 hours the unloading of vehicles (cars, HGVs and trailers) commenced from deck 3 and deck 5.
- 2.3 A passenger appeared on deck 5 port side at 1946 hours and walked around the parked vehicles and the Seaman on Watch (SOW) positioned on deck on three occasions times. From the CCTV footage it was observed that the passenger had disoriented movements while walking on the deck.
- 2.4 Moments before the accident, the passenger was crawling under a heavy goods vehicle (HGV) located on deck 5, lane 7, while the vehicles in lane 7 and 8, with engines running, were ready to be unloaded. At this instant, the vehicle was guided to move forward, simultaneously the passenger was positioned in front of the rear tyre as the vehicle moved forward, resulting in fatal crush injury being sustained. It could not be determined by the investigation team, during the course of the investigation, why the passenger decided to crawl under the vehicle.
- 2.5 The unloading operation was immediately stopped and nurse attended the passenger located under the vehicle. Subsequently the passenger was declared deceased.
- 2.6 The blood test report provided by District Public Prosecutor's Office in Gdynia during the post mortem examination conducted by Medical University of Gdańsk, determined that a presence of ethyl alcohol in concentration of 2.69% (g/l) was present.

3 DETAILS OF INVOLVED VESSEL(s) AND OTHER MATTERS

3.1 Details of vessel

3.1.1 Stena Spirit is a Passenger/Ro-Ro vessel built at Lenina Stocznia GDA, Gdańsk in 1988.

3.1.2 The vessel had the following principal particulars:

Call sign	C6ZK8
IMO number	7907661
MMSI number	311 058 100
Built	1988
Length overall	175.41 metres
Length between Perpendiculars	154.18 metres
Breadth	30.82 metres
Breadth moulded	30.46 metres
Propulsion power	29419 kW
Gross registered tonnage	39193
Net registered tonnage	17792
Type	Passenger/Ro-ro

3.1.3 At the time of the incident, the vessel was owned by Stena Bermuda Line Ltd and managed by Stena Line Scandinavia AB.

M.V. Stena Spirit– Marine Safety Investigation Report

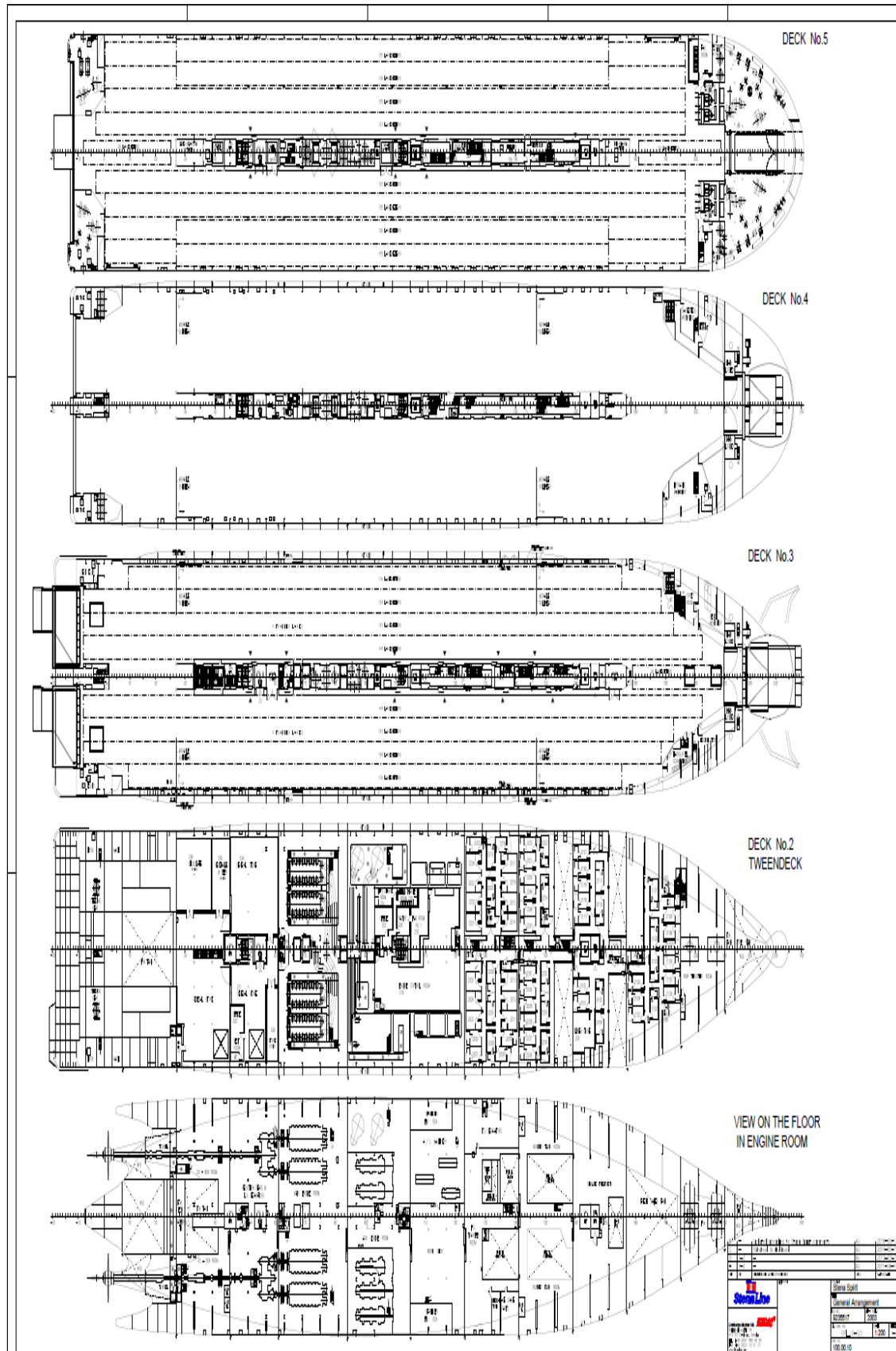


Figure 1: Stena Spirit general arrangement plan

3.2 Vessel Certification

- 3.2.1 Stena Spirit was first registered with the Bahamas Maritime Authority (BMA) in 2011 and has been with Lloyd's Register Classification Society since 1988. At the time of the incident, the vessel complied with all statutory and international requirements and certification.
- 3.2.2 The vessel was subjected to a Bahamas Maritime Authority Annual Inspection at the Port of Gdynia, Poland on 03 November 2017. No deficiencies or observations were identified.
- 3.2.3 The vessel had a Port State Control Inspection at the Port of Gdynia, Poland on 27 November 2017. Two deficiencies were recorded related to fire safety; unsafe means of escape and inoperative ready availability of the firefighting equipment, neither of which related to this incident occurrence.

3.3 Vessel cargo and passenger capacity

- 3.3.1 The vessel has a maximum capacity of 550 cars (without the HGV vehicles), 108 HGV vehicles and 1300 passengers.

3.4 Vessel trading pattern and location

- 3.4.1 At the time of this investigation, the vessel provided a dedicated transportation link between the port of Karlskrona, Sweden and the port of Gdynia, Poland for passengers and vehicles all year round. On completion of on-load of cargo, the vessel sailed to the next port as depicted within figure 2 below. between the port of Karlskrona, Sweden and the port of Gdynia, Poland.

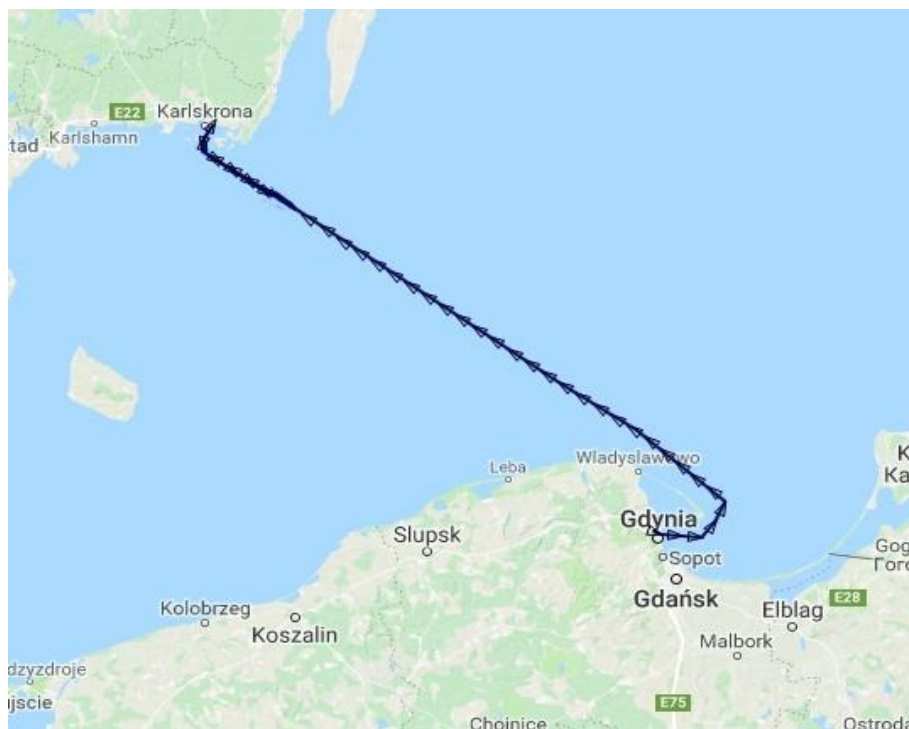


Figure 2: Vessel trading pattern

- 3.2 At the time of the incident the vessel was at Gdynia and conducting unloading operation of vehicles.

3.5 Crew Competency and Training

- 3.5.2 The Master, a Polish national held an unlimited Master Mariner Certificate at the management level (II/2)¹ required by the Standards of Training, Certification and Watchkeeping (STCW) issued by Poland and endorsed by the Commonwealth of the Bahamas on 01 August 2018 and was duly recognized in accordance with the provisions of the Regulation I/10 of STCW 1978 convention. At the time of incident the Master had 20 years of experience in the rank of Master and has been the Master of the Stena Spirit for the last 7 years.
- 3.5.3 The Chief Officer (CO), a Polish national held an unlimited Master Mariner Certificate at the management level (II/2) required by the Standards of Training, Certification and Watchkeeping (STCW) issued by Poland and endorsed by the Commonwealth of the Bahamas on 01 August 2018 and was duly recognised in accordance with the provisions of the Regulation I/10 of STCW 1978 Convention. He has been with the company for 10 years and had been serving on Stena Spirit for the last 7 years.
- 3.5.2 The 2 Seamen on Watch (SOW) responsible for vehicle deck movements were both Polish nationals and had 15 and 26 years experience respectively on this kind of vessel.

¹ Specification of minimum standard of competence for Masters and Chief Mates on ships of 500 gross tonnage or more.

4 NARRATIVE OF EVENTS

- 4.1 On 20 September 2018 at 1925 hours the vessel was approaching the port of Gdynia, Poland. The passengers were on the car deck to access their vehicles at this time.



Figure 2: CCTV footage² screenshot of passengers arriving on deck 5

- 4.2 At 1932 hours the vessel was at the berth with 219 passengers and 91 crew members on board.
- 4.3 At 1935 hours the unloading of the vehicles (cars, HGVs and trailers) from deck 3 and 5 commenced using the stern ramp.

² CCTV recording/screenshot time is 2 minutes behind the actual time.



Figure 3: CCTV footage screenshot with the appearance of the passenger on deck 5

- 4.4 At 1946 hours the passenger appeared at the port side of car deck 5, towards lane 6 (figure 3).
- 4.5 A moment later the passenger was observed to go in the space between the car and an HGV in lane 7 towards lane 8.

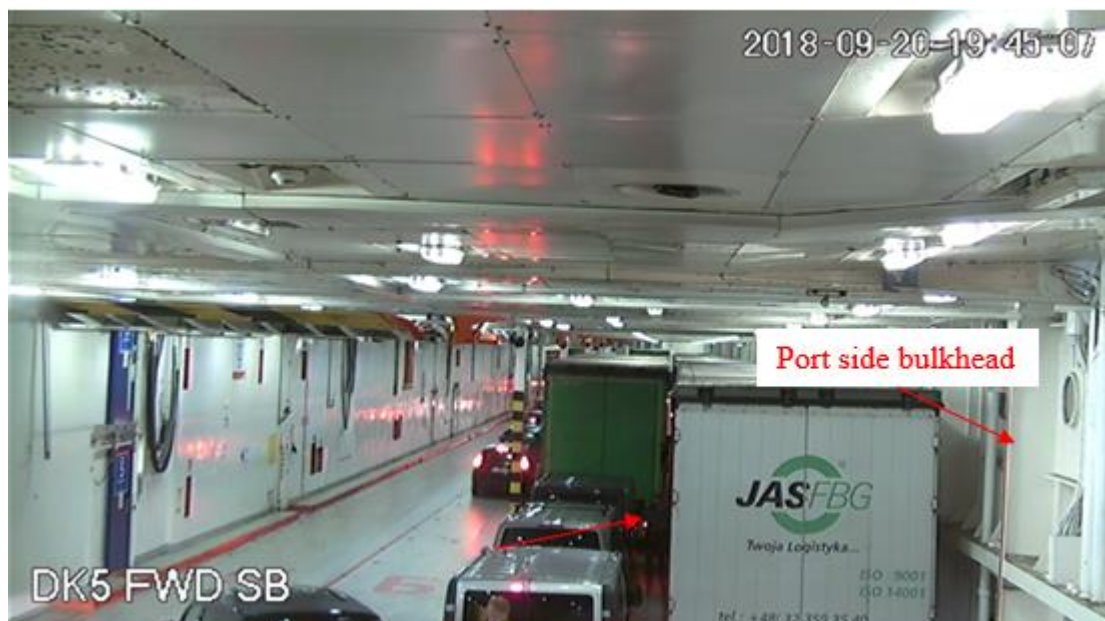


Figure 4: CCTV footage screenshot with the passenger going in between the two HGVs towards the port side bulkhead

- 4.6 A SOW was guiding cars towards lane 6 for the purpose of unloading (figure 5), while the passenger had gone in the direction of lane 8 towards the port side bulkhead and disappearing from view.



Figure 5: CCTV footage screenshot with SOW guiding the vessel towards lane 6 for unloading

- 4.7 A few seconds later the passenger reappeared in lane 7 between a car and HGV (figure 6) and went around the car and subsequently went in front of the HGV.



Figure 6: CCTV footage screenshot with the passenger reappearing in lane 7



Figure 7: CCTV footage screenshot with the passenger going around the car



Figure 8: CCTV footage screenshot with the passenger going again in front of the HGV

- 4.8 At 1948 hours the passenger reappeared in lane 7 from the space in front of the HGV in lane 8. He walked around the side of the HGV and towards the port side bulkhead of the vessel (figure 9 and figure 10).



Figure 9: CCTV footage screenshot with the passenger reappearing in lane 7



Figure 10: CCTV footage screenshot with the passenger going into the space between the HGV and port side bulkhead

- 4.9 At 1952 hours, the passenger was crawling below the HGV from lane 8 towards lane 7 (figure 11).

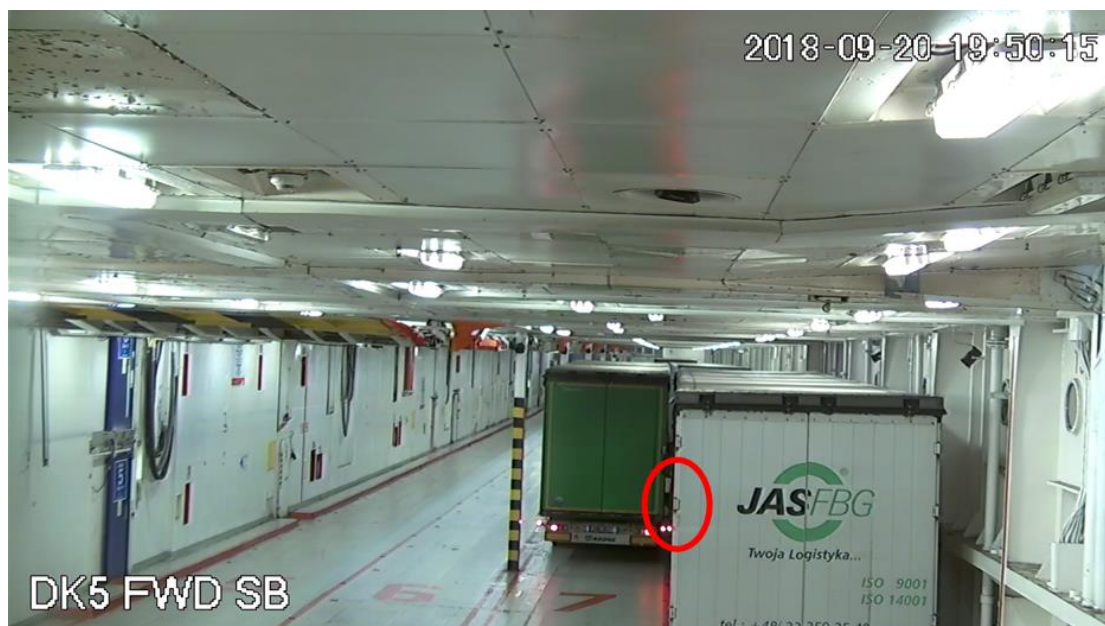


Figure 11: CCTV footage screenshot with the passenger crawling below the HGV

- 4.10 At this time, the SOW was instructing the HGV on lane 7 to move ahead. Unbeknownst to the SOW, the passenger was under the HGV and was crawling in the direction of lane 6, when the HGV simultaneously moved forward, resulting in entire weight of the left rear tyre of the HGV coming into contact with the passenger.
- 4.11 The two SOWs were walking toward the forward section of the vessel when one of them heard the crushing noise and saw the passenger under the rear left tyre of the vehicle in lane 7.



Figure 12: CCTV footage screenshot with location of the SOW at the time of the incident

M.V. Stena Spirit– Marine Safety Investigation Report

- 4.12 The SOW stopped the HGV by shouting “*stop*” and then informed the Chief Officer. Subsequently, the Master was informed who then called for the ship’s nurse to attend the scene.
- 4.13 The ship’s nurse arrived at the scene and found the passenger located under the left-hand rear tyre of the HGV. The passenger was examined and declared deceased.

5 ANALYSIS AND DISCUSSION

5.1 The passenger's movements on deck

- 5.1.1 From the CCTV footage the passenger first appeared on the vehicle deck, towards the midship section of the vessel in vicinity of lane 6 and proceeded towards the port side, lane 8 (figure 3). He then went around the vehicles and the SOW three times. It is clearly visible in the CCTV recording that the passenger's movements were disoriented as he walked on the deck and between the vehicles.
- 5.1.2 From the information available from Local Port Police, who attended the scene after the incident, it was found that the deceased was with a group of colleagues returning to Poland. The group consisted of 8 people (including deceased) and they were brought by bus to the ferry in Karlskrona, Sweden. Once the vessel docked in Gdynia, the group dispersed and traveled independently to their respective homes. The deceased usually had an arrangement with a HGV driver to take him to the motorway in the south of the city, where a relative would usually pick him up to continue the journey home.
- 5.1.3 From the evidence available during the course of the investigation, it is inconclusive why the deceased was walking around the vehicles (Figure 6, 7, 8 and 9). However, it is probable that he was trying to search for the HGV driver he had made arrangements with to undertake the next part of his journey.
- 5.1.4 From the CCTV footage it was observed that the passenger was crawling below the vehicles from lane 8 towards lane 7. At this instant, the vehicle on lane 7 was guided to move forward and the passenger was crushed under the vehicle's left rear tyre.

5.2 Cargo unloading operation

- 5.2.1 The vessel arrived at the port of Gdynia, Poland with 219 passengers onboard. 5 minutes before the vessel arrived at the berth, the passengers were permitted to enter the car deck to access their vehicles.
- 5.2.2 The vessel has two dedicated vehicle decks (deck 3 and deck 5) for cars and HGV vehicles to be parked. Each deck has one Deck Officer near the ramp and 4 Seamen on watch, 2 to starboard and 2 on the port side of the deck to guide the vehicle in and out of the vessel.
- 5.2.3 The incident took place on deck 5, port side. The Chief Officer was the deck Officer on duty and at the time of incident was near the stern door. The 2 SOWs were on duty in the vicinity of the parked vehicles, guiding the vehicles off the vessel. Additionally, one more SOW was on the deck and was starting his work shift.

- 5.2.4 One SOW was in front of the HGV on lane 7 and the other 2 SOWs, were on the aft side of the deck, guiding the vehicles and conducting the hand-over of the work shift.
- 5.2.5 The 2 SOWs were walking toward the forward part of the vessel when one of the SOWs heard the crushing noise. He saw the HGV moving and the deceased under it. He immediately stopped the unloading operation.

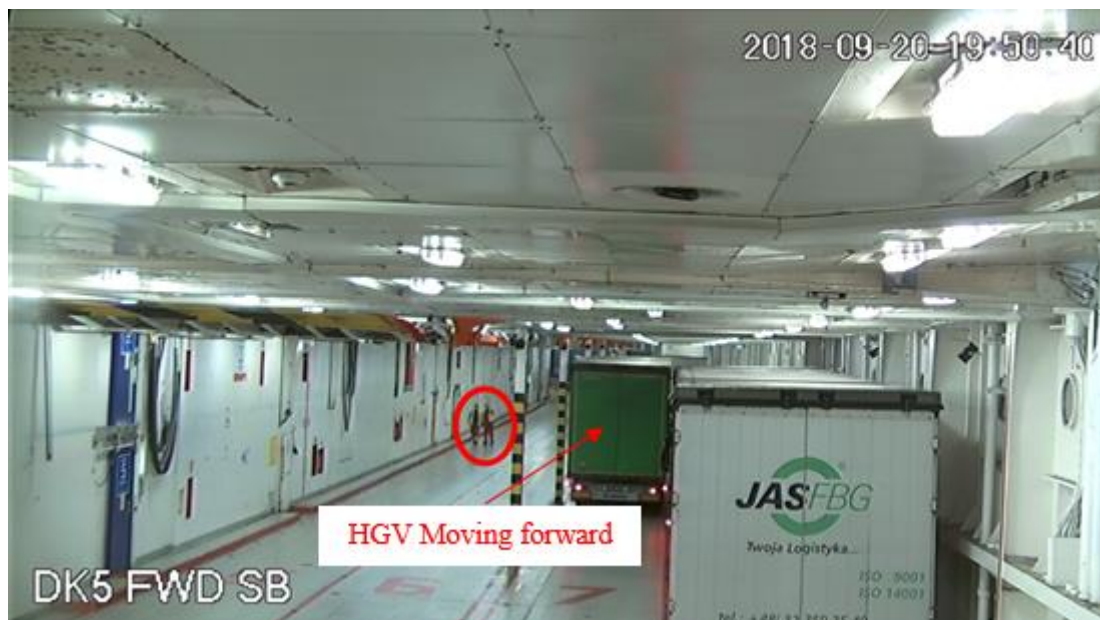


Figure 13: The 2 SOWs walking towards forward of the vessel and HGV moving forward

- 5.2.6 The third SOW was in front of the HGV pictured within figure 13, guiding the vehicle off the vessel.

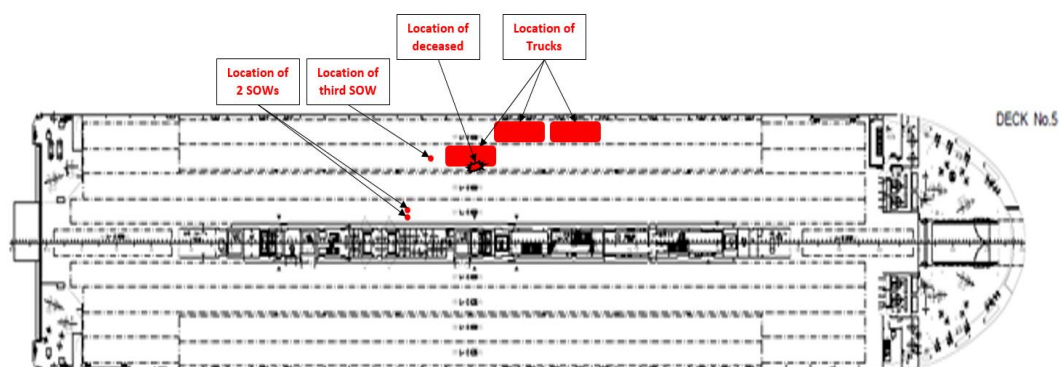


Figure 14: Illustrative diagram³ with location of SOW, Deceased and Vehicles

- 5.2.7 The International Management Code for the safe operation of ships and for pollution prevention (International Safety Management (ISM) Code) section 1.2.2.2 stipulates: *Safety-management objectives of the Company should, inter alia; assess all identified risks to its ships, personnel and the environment and establish appropriate safeguards.* The company safety procedures for Vehicle Deck Safety states that ‘All vehicles (including trailers, rolltrailers etc.) being

³ The diagram is for illustration purpose of the SOW, deceased and vehicles and not as per scale

reversed or manoeuvred into stowage positions on deck should do so under the direction of a signaller. Signallers should satisfy themselves that no person is in a position of danger, particularly in a strapping area behind a reversing vehicle.’ However, no specific procedures or guidelines exist for the crew to follow when the vehicles are moving forward.

- 5.2.8 At various instances the passenger walked around the vehicles and the SOW (figures 6, 7, 8 and 9). From the CCTV footage it was observed that the passenger’s movements were disoriented. However, the passenger was not questioned or approached for any suspicious behavior while he was walking on the vehicle deck. Passengers walking on deck were considered a normal activity, as passengers often walk around the deck to find their respective parked vehicles. Hence, no suspicion of any abnormal activity was observed by the SOW.

5.3 Vehicle access

- 5.3.1 The vessel has the capacity to carry a maximum of 550 cars (without the HGVs) and a maximum of 108 HGVs.
- 5.3.2 The vehicles are parked on deck 3 and deck 5, as guided by the duty Officer and SOW at the time of the loading operation.
- 5.3.3 At the time the investigation was conducted (on 7 October 2018) the vessel was not loaded at maximum capacity and it was observed that the vehicles were parked at a distance of 40-45 cm. The Chief Officer informed the investigator that this distance could be less if there were more vehicles onboard.



Figure 15: Distance between the parked vehicles⁴

- 5.3.4 The distance between the vehicles at the time of the incident remains unknown. From the CCTV camera images (figure 4) it can be seen that the

⁴ The photo was clicked on 7 October 2018.

vehicles were at close proximity at the time of the incident. However, the deceased was seen to walk around the vehicles. It cannot be concluded from the evidence available why the deceased decided to pass underneath the carriage of a vehicle instead of pass between the accessible space between them.

5.4 Substance abuse

5.4.1 The blood test report of the deceased showed the presence of ethyl alcohol in concentration of 2.69%(g/l).

5.4.2 The blood alcohol content of 2.69% (g/l) is equivalent to 2.69 g/l in weight to volume ratio, which is equivalent to a Blood Alcohol Concentration⁵ (BAC) of 0.269%. This level of concentration exceeds the national blood alcohol concentration limit for driving in Poland by 0.249%. It could be considered with a degree of certainty that the deceased would have felt the effect of alcohol which would likely have impaired his judgement.

⁵ Blood alcohol content is the amount of alcohol present in a volume of blood equal to 100 millilitres (ml) or its equivalent of 1 decilitre (dl).

6 CONCLUSIONS

- 6.1 The passenger appeared to enter deck 5 and immediately walk across lanes 6, 7 and 8. He walked around the vehicles three times while the SOW managed the unloading process. From the CCTV footage it was found that his movements were disoriented while walking on deck and appeared to lack any sense of direction or destination.
- 6.2 The passenger was not approached or questioned by any member of staff, in particular the SOW whilst walking between the vehicles. His movements were not considered unusual as passengers often walk in similar patterns whilst attempting to find their respective vehicle. In this instance the passenger crawled underneath a trailer when the HGV vehicle moved ahead. The rear left tyre of the trailer passed over the passenger resulting in a fatal injury. It is inconclusive from the investigation why the passenger decided to crawl under the HGV vehicle.
- 6.3 From the blood test report it was found that the passenger had 2.69% (g/l) of ethyl alcohol in the blood, this concentration of blood alcohol may have been sufficient for the passenger to experience symptoms of poor judgment.

7 RECOMMENDATIONS

Recommendation for the operator:

- 7.1 It is recommended to include within the Vehicle Deck Safety Procedures, a procedure to ensure the safety of passengers and crew during cargo operations, specifically related to the loading and unloading of vehicles.
- 7.2 Consider providing additional training to staff in identifying and assisting passengers who appear lost and are unable to locate their respective vehicle.

8 LESSONS LEARNED

- 8.1 Although access for emergency response team was not required after the incident. It was identified in the CCTV that access between vehicles was limited when fully loaded. Possibly preventing emergency response personnel wearing breathing apparatus from access between vehicles. The owners should consider developing guidelines to ensure access on deck and between the vehicles in case of an emergency is sufficient for emergency response personnel.
