



**Bundesstelle für Seeunfalluntersuchung**  
**Federal Bureau of Maritime Casualty Investigation**  
Federal Higher Authority subordinated to the Ministry of Transport,  
Building and Urban Affairs

Summary Investigation Report 190/07

**Serious marine casualty**

**Personal injury accident on the  
MS EMUNA on 5 May 2007  
at the South Quay in Brunsbüttel**

1 September 2007

The investigation was conducted in conformity with the law to improve safety of shipping by investigating marine casualties and other incidents (Maritime Safety Investigation Law - SUG) of 16 June 2002.

According to this the sole objective of the investigation is to prevent future accidents and malfunctions. The investigation does not serve to ascertain fault, liability or claims.

The present report should not be used in court proceedings or proceedings of the Maritime Board. Reference is made to Art. 19 Para. 4 SUG.

The German text shall prevail in the interpretation of the Investigation Report.

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## **1 Summary of the marine casualty event**

At around 19:20 h on 5 May 2007 the general cargo vessel EMUNA, sailing under Dutch flag, was en route from New Holland / Great Britain to Rostock. Before starting on the planned passage through the Kiel Canal the EMUNA tied up for a stopover at the South Quay in Brunsbüttel.

On the Northwestern Roadstead (NW-Reede) before Brunsbüttel the German canal pilot came on board via the pilot boat's transfer platform. Once at the South Quay in Brunsbüttel, a pilot ladder was deployed for the pilot to disembark. This pilot ladder had been damaged the previous day during an incident in Great Britain, when a pilot boat briefly got entangled with the ladder. The bottom steps, which had been partially detached in the incident, had been removed on board the EMUNA, whereupon the ladder was considered fit for further use.

When on the day of the accident the pilot, who had not been informed of the damage, stepped onto the pilot ladder, the ropes tore on both sides. The pilot fell a distance of several meters and landed on a wooden fender fitted in front of the quay wall. In doing so he suffered not insignificant injuries, as a result of which he was unable to work for three weeks.

Nobody else was injured. No environmentally harmful substances were released.

## 2 Scene of the accident

Type of event: Serious marine casualty, personal injury accident  
 Date/Time: 5 May 2007, 19:20 h  
 Place: Brunsbüttel, South Quay  
 Latitude/Longitude:  $\phi$  53°53,7' N  $\lambda$  009°09,2' E

Detail of Chart 3010, BSH

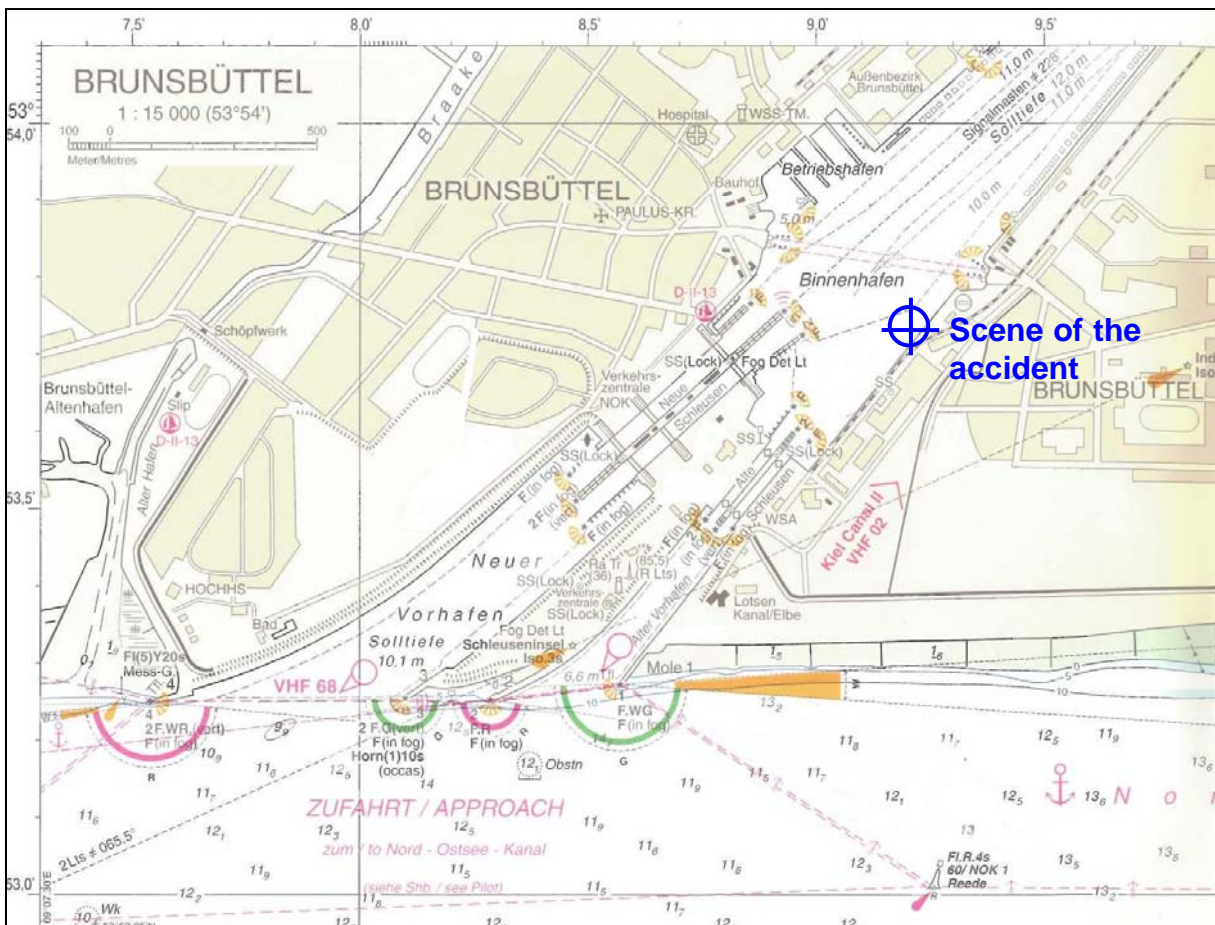


Figure 1: Chart

### 3 Information concerning the vessel

#### 3.1 Photograph of the vessel



Figure 2: Vessel photograph of MV EMUNA

#### 3.2 Data

Name of the vessel:	EMUNA
Type of vessel:	General cargo vessel
Nationality/Flag:	Netherlands
Port of registry:	Werkedam
IMO number:	9238387
Call sign:	PBCB
Vessel operator:	Deo-Juvante BV, Netherlands
Year built:	2001
Shipyard / Yard No.:	Barkmeijer Stroobos BV, Netherlands/296
Classification society:	Bureau Veritas S.A.
Length over all:	89.99 m
Breadth over all:	12.50 m
Gross tonnage:	2,337
Deadweight:	3,193 t
Draught at time of accident:	Forward 1.30 m, aft 3.00 m
Engine rating:	794 kW
Main engine:	Wärtsilä 8L20
Speed:	10.5 kn
Hull material:	Steel
Crew:	5

## 4 Course of the accident and investigation

### 4.1 Accident

At around 19:20 h on 5 May 2007 the general cargo vessel EMUNA, sailing under Dutch flag, was en route in ballast from New Holland / Great Britain to Rostock. On the Northwestern Roadstead (NW-Reede) before Brunsbüttel prior to the entrance to the Kiel Canal the EMUNA took a German canal pilot on board, who boarded the vessel via the transfer platform on the pilot boat. After passing the lock, the EMUNA tied up starboard side to for a stopover at the South Quay in Brunsbüttel.

A pilot ladder was deployed on the bulwark grab rail in order to allow the pilot who had come on board on the NW Roadstead to disembark. The ladder had been damaged the previous day in the course of an incident in Great Britain. In the course of that incident, a British pilot boat had briefly become entangled with the pilot ladder while pitching due to the prevailing sea conditions. This exercised significant stress on the ladder's rope, so that the ropes on one side of the lower portion of the ladder tore. Thereupon, the EMUNA's Dutch master had the two bottom steps of the pilot ladder removed. The ladder was not simply replaced with a new one since it was assumed that after removal of the two steps it would again be fully usable.

On the day of the accident the canal pilot tested the soundness of the knots before using the ladder by stepping onto the top step of the ladder with one foot and placing weight on it. No abnormalities were found at this stage. The pilot had not been informed of the incident in the UK. The ladder was secured on board by the master and held on the land side by a seaman of the EMUNA, who had left the ship while it was transiting the lock and who had proceeded to the South Quay on foot. When the canal pilot climbed down the pilot ladder, both side ropes tore above the first step. He fell from a height of approx. 2.5 m and landed feet first on a wooden fender fitted in front of the quay wall.

The injured pilot himself notified his colleagues on land by radio and requested help. He was able to climb unassisted from the fender onto the dock, where he waited for the arrival of the emergency services together with the crew of the EMUNA and the colleagues who had been summoned.

The pilot was taken by ambulance to the Westküstenklinik Brunsbüttel (West Coast Clinic of Brunsbüttel) for medical examination. Because of his not insignificant injuries, he was unable to work for three weeks.

### 4.2 Injuries

At the Westküstenklinik Brunsbüttel the injured pilot was diagnosed with contusions to the legs, more particularly of the lower legs and calves. When striking the wooden fender, the pilot also suffered a knee injury that required further treatment.



### **4.3 Investigation by the Water Police**

The Water Police Brunsbüttel began investigating shortly after the accident had occurred. The scene of the accident was inspected, and the EMUNA's ship's command was interrogated. The broken pilot ladder was visually inspected and then secured. The reports and photographic documentation produced were placed at the disposal of the Federal Bureau of Maritime Casualty Investigation (BSU).

### **4.4 Survey of the MV EMUNA by the BSU**

The EMUNA was surveyed by two BSU investigators on 9 May 2007 when it was on its journey back from Rostock through the Kiel Canal. The ship's command and crew were co-operative, enabling detailed reconstruction of the circumstances of the accident. The relevant ship's documentation and certificates were inspected and copied. The scene of the accident was documented and surveyed.

The pilot ladder, which had in the meantime been replaced in Rostock by the command of the EMUNA, was also viewed.

### **4.5 Analysis by the BSU**

#### **4.5.1 Pilot ladder**

The pilot ladder secured by the Brunsbüttel Water Police was examined by the BSU investigators within the scope of the survey of the EMUNA.



Figure 3: Overall view of the pilot ladder

The pilot ladder has a total of 15 steps; two of these are spreaders that prevent the ladder from twisting. Except for the bottom step, which is made of rubber, all other steps are made of knot-free hardwood.

The length of the ladder is 4.20 m from the first step including the two lowest steps removed before the accident, and 3.60 m without these two steps. The steps measure 550 mm in length on the outside and 400 mm on the inside, and are 25 mm deep. The distance between steps is 305 mm. The spreaders measure 1.80 m.

The side ropes consist of non-coated natural fibres. The ropes were hawser-laid (z-lay). The length of the side ropes above the first step is 1.60 m on one side and 1.80 m on the other. The ladder has two ropes on either side, which are separated above and below each step by plastic wedges, and wooden wedges in the two steps before the last. Each wedge has a metal clamp at the pointed end, which brings the ropes together again.

Both the construction of the ladder and its dimensions in principle meet the requirements for pilot ladders set out in Rule 17 of the International Convention for the Safety of Life at Sea (SOLAS) as well as those of the International Standard for Pilot Ladders pursuant to ISO 799.<sup>1</sup>

Further damage was found on the EMUNA's pilot ladder in addition to the tearing sites dating from the incident in the UK on 4 May 2007 and to the accident related damage of 5 May 2007. The following illustration clearly shows the location and nature of the damage.

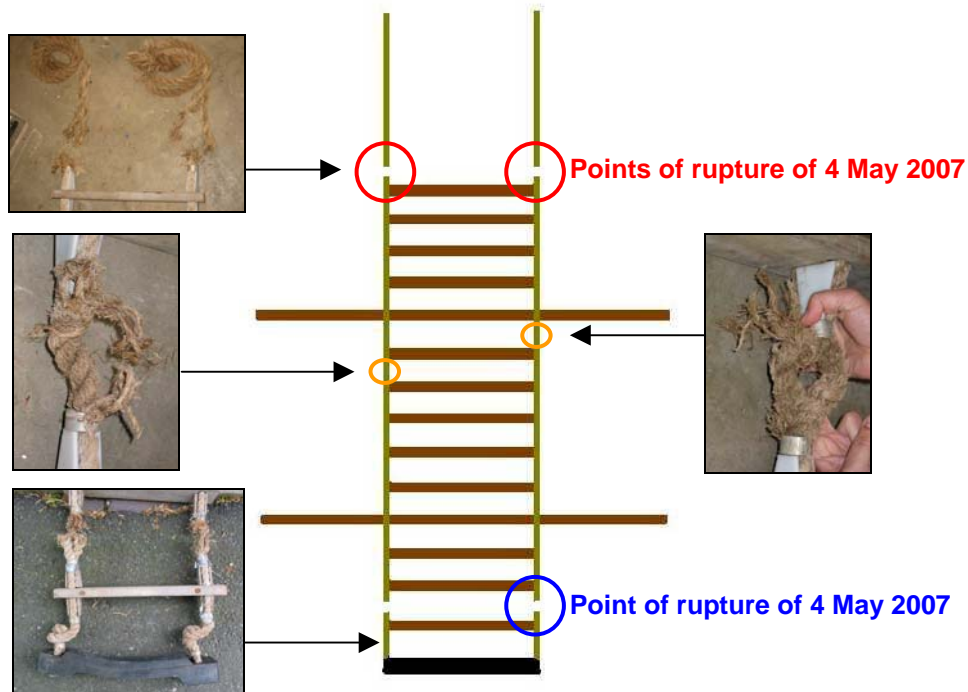


Figure 4: Illustration of pilot ladder with damage

<sup>1</sup> At 1.60 m and 1.80 m the length of the upper ends of the side ropes does not meet the international standard according to ISO 799, which requires a minimum length of 3 m.

#### 4.5.2 Scene of the accident

The pilot ladder was deployed amidships on the EMUNA's starboard side (cf. Figure 5).



Figure 5: Accident scene on board, taken on 9 May 2007

On the day of the accident, the pilot ladder hung entirely outboard. No bulwark ladder was used. Two eyes, on which a pilot ladder can be secured, are fitted on board the EMUNA opposite the bulwark gate (cf. Figure 6).



Figure 6: Pilot ladder attachment eyes

On the day of the accident the pilot ladder was not affixed to the eyes by means of its side ropes, but, instead, directly tied to the bulwark grab rails aft of the bulwark gate (cf. Figure 5). In this way the canal pilot could step through the bulwark gate and onto the pilot ladder.

The draught of the EMUNA on the day of the accident deviated from that shown in Figure 5 and corresponding to the day of the inspection in that it was 1.30 m forward and 3.00 m aft instead of 3.60 m forward and 4.20 m aft. According to the measurements taken during the inspection of the EMUNA on 9 May 2007 and taking into account the draught of 5 May 2007 it can be assumed that the freeboard was of approx. 4 m on the day of the accident.

The fact that on the land side wooden fenders are affixed to the concrete quay wall minimised the consequences of the accident for the canal pilot (cf. Figure 7).

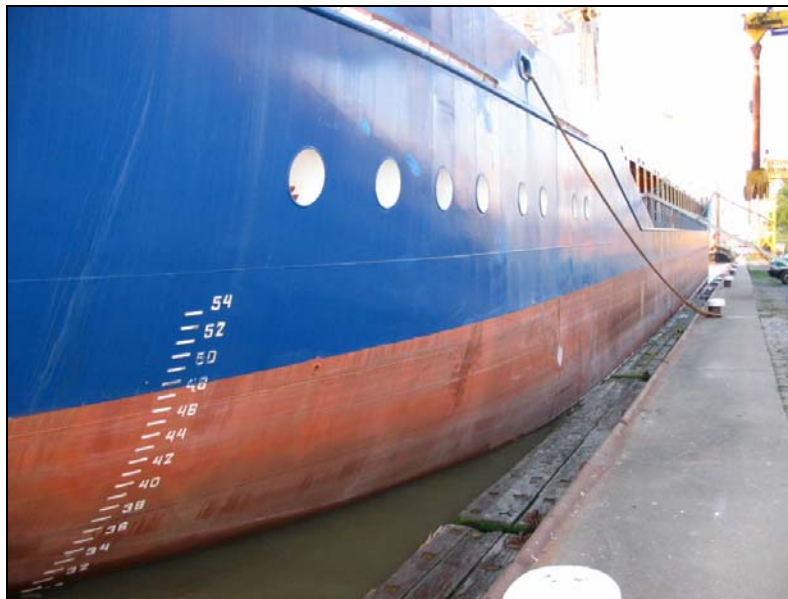


Figure 7: Scene of the accident, land side, taken on the day of the accident

## 5 Summary

This marine casualty is due to the use of a damaged pilot ladder. In spite of the significant material stress due to the preceding entangling of a pilot boat and externally perceptible damage the ladder was once again used on the day of the accident in order to allow the canal pilot to disembark.

With the exception of the removal of the two lowest steps, no further measures had been taken on board the EMUNA to verify the resiliency of the pilot ladder after the incident. The ladder was considered to be fully fit for use.

The EMUNA's command immediately replaced the pilot ladder at Rostock, its next port of call. As a result of the accident, the entire crew was sensitised to the issues of material stress on pilot ladders.

The BSU therefore does not find it necessary to issue further safety recommendations.

## 6 Sources

- Statements of the master of the MV EMUNA and of the injured canal pilot
- Vessel's certificates and other documentation:
  - Excerpt from the bridge log for 4 May 2007 and for 5 May 2007
  - Crew list
  - Minimum Safe Manning Certificate
  - Vessel's Certificate of Measurement
  - Certificates according to the ISM Code: Document of Compliance (DoC) and Safety Management Certificate (SMC)
- Investigation reports and photographic documentation of the Brunsbüttel Water Police
- Nautical chart of the Federal Maritime and Hydrographic Agency (BSH)