



**Bundesstelle für Seeunfalluntersuchung**  
Federal Bureau of Maritime Casualty Investigation

## **Interim Investigation Report**

### **Serious Marine Casualty 95/21**

**Allision with pier/dry dock by  
the Vehicles Carrier ENDURANCE  
after a line parted in Bremerhaven on 13 March 2021**

16 March 2022

Pursuant to the second sentence of Article 28(1) of the Law to improve safety of shipping by investigating marine casualties and other incidents (Maritime Safety Investigation Law – SUG) in conjunction with the second sentence of Article 14(2) of Directive 2009/18/EC of the European Parliament and of the Council of 23 April 2009 establishing the fundamental principles governing the investigation of accidents in the maritime transport sector, the Federal Bureau of Maritime Casualty Investigation publishes an interim investigation report within a period of 12 months of a very serious or serious marine casualty if it is not possible to complete the corresponding investigation report within that period.

This interim investigation report should not be used in court proceedings or proceedings of the Maritime Board. Reference is made to Article 34(4) SUG.

The German text shall prevail in the interpretation of this interim investigation report.

Issued by:  
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## 1 FACTUAL INFORMATION

### 1.1 Photograph of the ship



Figure 1: ENDURANCE<sup>1</sup>

### 1.2 Ship particulars

Name of ship:	ENDURANCE
Type of ship:	Vehicles Carrier
Flag:	United States of America
Port of registry:	Wilmington
IMO number:	9121273
Call sign:	WDE9586
Owner:	American Roll-On Roll-Off Carrier, LLC (ARC)
Shipping company:	ARC
Year built:	1996
Shipyard:	Mitsubishi Nagasaki
Classification society:	DNV
Length overall:	264.6 m
Breadth overall:	32.29 m
Draught (max.):	12.255 m
Gross tonnage:	72,708
Deadweight:	48,988
Main engine:	25,007 kW
(Service) Speed:	19.50 kts
Hull material:	Steel
Hull design:	Double hull

<sup>1</sup> Source: Hasenpusch Photo-Productions.

### 1.3 Voyage particulars

Port of departure:	Not applicable (accident happened at ship's berth)
Port of call:	Not applicable (accident happened at ship's berth)
Type of voyage:	Merchant shipping/international
Cargo information:	None/ballast
Manning:	23
Draught at time of accident:	D <sub>r</sub> = 6.0 m, D <sub>a</sub> = 8.6 m
Pilot on board:	No
Number of passengers:	None

### 1.4 Marine casualty or incident information

Type of marine casualty:	Serious marine casualty, line parted and allision with pier/dry dock at the Lloyd Werft dockyard
Date/Time:	13 March 2021/0945 <sup>2</sup>
Location:	Bremerhaven, Verbindungshafen, Westpier
Ship operation and voyage segment:	Not applicable
Place on board:	Fore and aft manoeuvring stations
Consequences:	After all 14 mooring lines had parted, the ship drifted to Dock III on the opposite side of the Lloyd Werft dockyard. It was possible to shift the ENDURANCE to a safe berth with tug assistance.

#### Damage to the ship:

- tear of about 0.8 m in length on the ship's side (port side) nearly 3 m above the waterline;
- hole in the bulbous bow;
- dent and paint abrasions of about 1.5 m in length at the stern on the starboard side.

#### Damage to the berth in Verbindungshafen:

- a bollard cover was torn off;
- three of the bollard's four bolts were torn off;
- a 55x25 cm piece of concrete had chipped off;
- a roll fender was pressed in;
- scrub marks in the tarmac were visible in the area of the Vehicles Carrier 's lowered ramp;
- a lifebuoy bracket was buckled and destroyed.

#### Damage to the Lloyd Werft dockyard:

- two floating pontoons were pushed into the previously damaged concrete quay;
- a fender tore off and sank;
- at the southern end of the floating dock, the forward end of the right-hand edge of the deck

<sup>2</sup> All times shown in this report are local (UTC + 1 h).

was pushed inwards and the deck was bent downwards in this area.

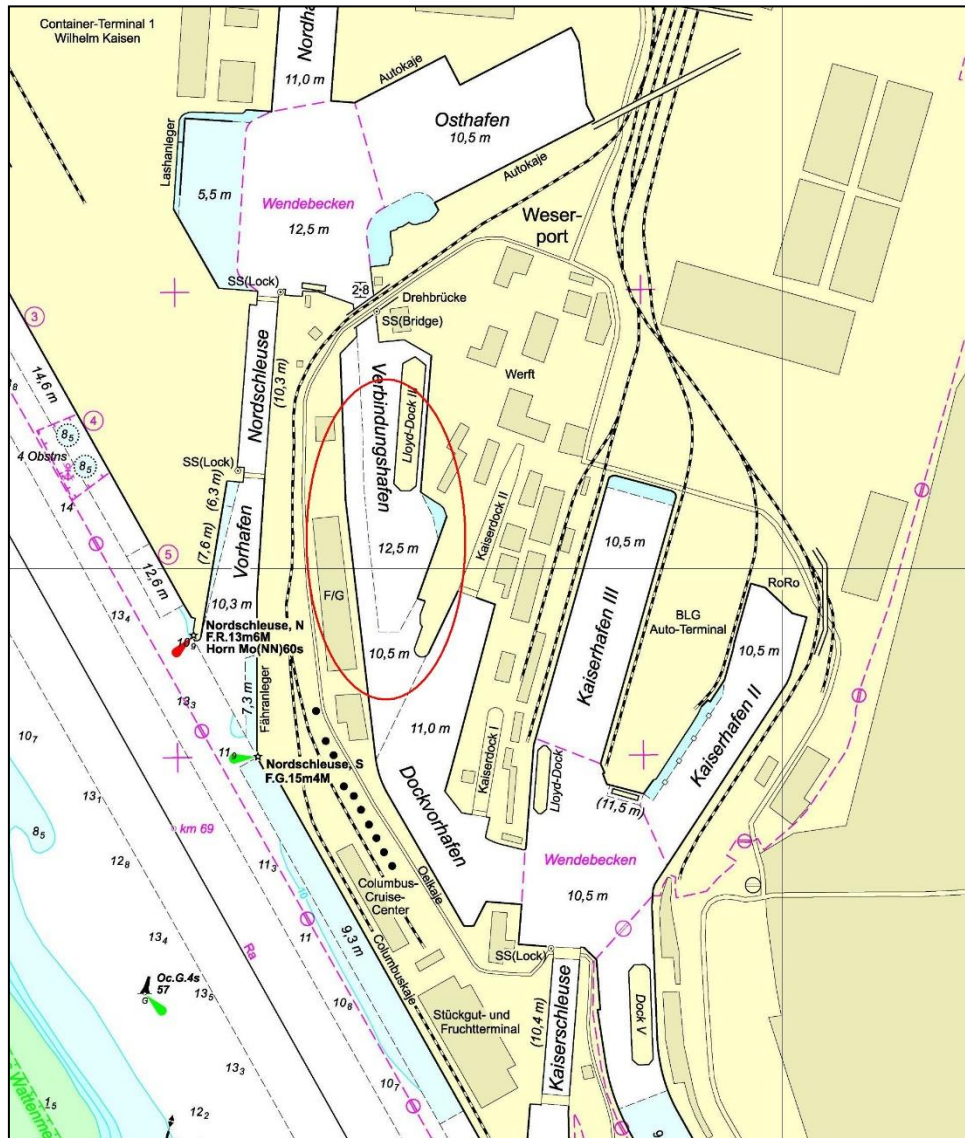


Figure 2: Scene of the accident<sup>3</sup>

### 1.5 Shore authority involvement and emergency response

<p>Agencies involved:</p> <p>Resources used:</p>	<p>Hanseatic City of Bremen Port Authority, Harbour Pilot Corporation Bremerhaven, Bremen Ports GmbH &amp; Co. KG, Bremen Police – Waterway Police (WSP) Bremerhaven, Ship Safety Division (BG Verkehr)<sup>4</sup>.</p> <p>Tugs RT INNOVATION, RT EMOTION, VB BREMERHAVEN, VB HUNTE, two pilots on board.</p>
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<sup>3</sup> Extract from Navigational Chart Nordsee, Deutsche Küste – Bremerhaven; BSH 1541.

<sup>4</sup> BG Verkehr: German Social Accident Insurance Institution for Commercial Transport, Postal Logistics and Telecommunication.

Actions taken:

In particular, the emergency measures included dropping the starboard anchor, starting the main engine and raising the lowered ramp. Shortly afterwards, the ENDURANCE was shifted to the more sheltered berth in the Kaiserhafen III dock with the assistance of four tugs and two pilots.

## **2 SUMMARY**

At about 0945 on 13 March 2021, all 14 mooring lines on the Vehicles Carrier ENDURANCE parted in offshore winds with gusts of up to 50 kts (10 Bft) while she was moored in Bremerhaven's Verbindungshafen.

The master was already on the bridge because of the prevailing wind conditions at the berth. At 0930, he requested tug assistance on VHF and instructed two of his deck officers to inspect the lines. When the lines parted, he dropped the starboard anchor, started the main engine, raised the lowered vehicle ramp and notified the port authority.

The ENDURANCE had already drifted to the opposite side and damaged facilities in the Lloyd Werft dockyard before the tugs that had been requested to assist arrived.

The ENDURANCE was initially shifted to the old berth with the assistance of three tugs and a pilot. Due to the unchanging wind conditions, the ship was moved from there to the Kaiserhafen III dock, which had a more sheltered berth available, shortly afterwards with the assistance of a fourth tug and second pilot.

The ENDURANCE had already moored on 9 March 2021 with five lines and two fore springs at the bow, as well as five lines and two aft springs at the stern. In view of the weather forecasts for the next few days, the master had one additional line deployed at the bow and one at the stern.

According to the shipping forecast published by Germany's National Meteorological Service, south-westerly winds of 5–6 Bft, veering south and later west, increasing to 7-8 Bft and heavy squalls would prevail on 13 March.

Apart from the additional lines, the master also kept an anchor ready to drop and requested that tugs be put on standby so as to keep the ENDURANCE at the pier with tug assistance if needed due to the wind forecast combined with the exposed berth.

Using these measures, the master had already successfully managed to weather the gale force winds (7-8 Bft) with heavy squalls (10 Bft) approaching from the west-south-west two days earlier. Two tugs had kept the ENDURANCE at the pier for four hours; one was sufficient for another five hours.

The tugs did not arrive in time on the day of the accident.

After receipt of the accident report by WSP Bremerhaven, the BSU had the VDR data and the lines secured. Comments were obtained from various interested parties and a preliminary investigation was performed to determine whether a safety investigation should be carried out in accordance with Article 11 SUG. The decision is based on the severity of the marine casualty and possible findings for the prevention of future marine casualties.

Since the accident only resulted in minor material damage, the following questions in particular gave rise to the decision to perform a safety investigation:



- what are the responsibilities of the port authority with regard to the allocation of a safe berth and safe mooring?
- has the port taken proactive measures to avoid similar accidents?
- are there any ports that carry out proactive measures?
- what measures are or could be taken?
- what technical developments are there to minimise the risk of/due to lines parting?

Following the decision to perform a safety investigation, staff of the BSU went to the scene and inspected the berth in the port and the ENDURANCE. Face-to-face discussions were held with the ship's command and the port authority.

Parts of the lines used on the day of the accident were sent to Tension Technology International Ltd for assessment.

The investigation is largely complete and the investigation report with analysis, conclusions, actions taken and safety recommendations is currently being prepared. All interested parties will be given the opportunity to comment before publication.