

Report on the investigation into the  
cause of a serious injury  
on board MT COASTALWATER  
on 27 October 2019



Picture : Ruud-Marcel Fleetmon



## **Extract from European Directive 2009/18**

(26) Since the aim of the technical safety investigation is the prevention of marine casualties and incidents, the conclusions and the safety recommendations should in no circumstances determine liability or apportion blame.

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## Glossary of abbreviations and acronyms

Bft	Beaufort
B.V.	LTD Private Limited Company (Besloten Vennootschap)
E.g.	For Instance
IMO	International Maritime Organization
kW	kiloWatt
LOA	Length Over All
Lbpp	Length Between Perpendiculars
MT	Motor Tanker
m	Metre
SW	South West
UTC	Universal Time Coordinated
VHF	Very High Frequency



# 1 Marine Casualty Information

## 1.1 Resume

On October 27<sup>th</sup>, 0010 (UTC+2), a crewmember on board the Dutch flagged chemical tanker MT COASTALWATER seriously injured his right hand during mooring operations in the Boudewijn lock at the Port of Antwerp (Belgium). After surgery, four of his fingers needed amputation.

His hand got jammed at the winch, between two turns of mooring rope when guiding the mooring rope on the storage drum.

## 1.2 Classification of accident

According to Resolution A.849(20) of the IMO Assembly of 27 November 1997, Code for the investigation of Marine Casualties and Incidents, a marine casualty means an event that has resulted in any of the following:

- the death of, or serious injury to, a person that is caused by, or in connection with, the operations of a ship; or
- the loss of a person from a ship that is caused by, or in connection with, the operations of a ship; or
- the loss, presumed loss or abandonment of a ship; or
- material damage to a ship; or
- the stranding or disabling of a ship, or the involvement of a ship in a collision; or
- material damage being caused by, or in connection with, the operation of a ship; or
- damage to the environment brought about by the damage of a ship or ships being caused by, or in connection with, the operations of a ship or ships.

A serious injury means an injury which is sustained by a person in a casualty resulting in incapacitation for more than 72 hours commencing within seven days from the date of injury. Consequentially, the incident was classified as a

### ***MARINE CASUALTY - SERIOUS INJURY***





### 1.3 Accident Details

Time and date	October 27 <sup>th</sup> , 2019, 0010 (UTC +2)
Location	Boudewijn lock, Antwerp, Belgium
Persons on board	11 (crew + pilot)
Injured	1
Deceased	0



## 2 Synopsys

### 2.1 Narrative (UTC+2, unless specified)

On October 26<sup>th</sup>, chemical tanker MT COASTALWATER departed from Antwerp bound for Brunsbüttel, Germany. Inside the Antwerp docks, the vessel had discharged a cargo of benzene and had bunkered. At 2330 she departed towards the Boudewijn lock. A dock pilot was on board.

There was a 5-6 Bft SW wind, as measured by different anemometers in the port of Antwerp. The wind was coming in abeam on portside.

At 2355, the vessel received permission to sail into the lock and to moor portside alongside. MT COASTALWATER was the only vessel in the lock.

Figure 1 shows a general overview of the vessel in the lock.

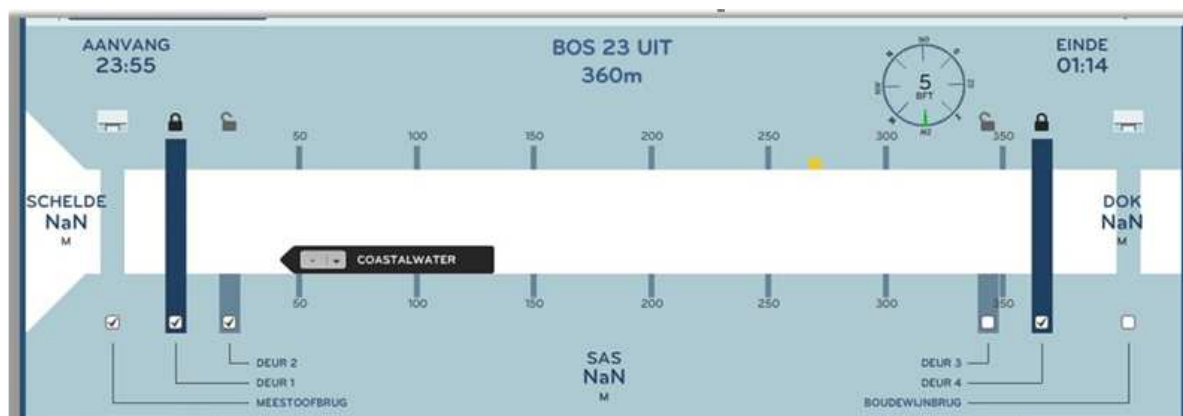


Figure 1 - MT COASTALWATER in the lock

The mooring configuration consisted out of one stern line, one fore line and one fore spring. The forward mooring station was manned by two crewmembers. The mooring station aft was manned by one crewmember. Communication on board between crewmembers on deck and bridge happened by means of two way VHF radios on the same working channel.

A sufficient length of mooring lines was unrolled from the storage drum on the winch and laid out on deck.

At 0005 the next day, October 27<sup>th</sup> 2019, the spring line fore and the stern line were given ashore. The mooring ropes were given ashore by means of heaving lines. The boatmen put the mooring ropes on the bollards.

At 0008 the fore spring was made fast. The fore line was given ashore and the slack could be taken out of the stern line. The stern of the vessel at that moment was 3-4 metres away from the quay. The bow of the vessel was already touching the quay. The vessel was not moving forward anymore. Engines were put on slow ahead to manoeuvre the vessel parallel to the quay. When the fore line was almost tightened, the stern line was still slack

At 0010 the person at the aft mooring station was contacted again to pick up the slack in the stern line. He answered that he could not do that since he had just broken his fingers.

The third officer and the fourth engineer were in the cargo control room. They heard the message that the person at the aft mooring station got wounded and they went on deck to assist him

An ambulance was called immediately thereafter with assistance of the boatmen and the port traffic controller.

At 0015 the vessel was all fast.

At 0030 the ambulance arrived and transported the victim to the hospital.



### 3 Factual information

#### 3.1 Vessel's details



Figure 2 - MT COASTALWATER

Picture: Fleetmon.com

Type: Chemical Tanker

Flag: The Netherlands

Port of registry: Papendrecht

IMO : 9205158

Call Sign : PEDM

Shipyard : BREKO shipbuilding & repair, Papendrecht

Year of built : 2000

Owner: Coastalwater Management Company B.V.

LOA: 91.25m

Lbpp: 88.14m

Beam (moulded): 12.00m

Depth (moulded): 6.8m

Draught (moulded) : 5.26m

Gross tonnage: 2140

Net tonnage: 956

Number of tanks: 10 cargo+ 2 slop

Number of mooring winches: 2 hydraulic, single mooring

Propulsion: Controllable pitch propeller

Engine power: 1768 kW

Engine type: ABC type 8 MDZC

Speed: 11 knots



## 4 Analyses

### 4.1 Number of persons at the mooring station

A company procedure was in place requiring at least two persons at a mooring station during mooring operations..

During this mooring operation on October 26<sup>th</sup>, there was sufficient crew available to have two persons present at the aft mooring station.

There was only one stern line to be given ashore.

It was found feasible on board to only place one man at the aft mooring station when only one mooring line was to be handled. It had occurred before that the mooring station was manned by one person only.

No port regulations about a minimum amount of mooring lines was in place. An information leaflet regarding port tug and mooring operations in the port advised to use two fore lines and two aft lines in the locks, see Figure 3.

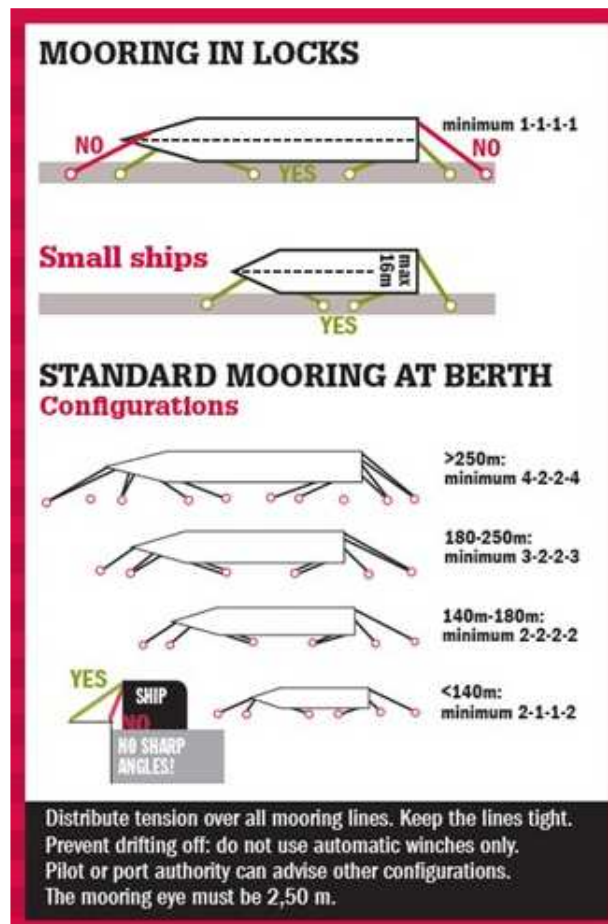


Figure 3 - Information leaflet



## 4.2 Winch operation

Before mooring commenced, the mooring ropes were laid out on deck. The amount of rope on deck had to be sufficient to easily cover more than the distance to the bollards at the quayside, to make sure that the boatmen could easily put the mooring rope over the bollard.

Once the rope was on the bollard, it could be hauled. This could be done by using the drums of the winch.

The winches on board MT COASTALWATER consisted out of a central motor with a single axle on each side. On each axle there was a warping head and a drum. The drum consisted out of two parts : a storage drum where the mooring rope was stored without tension and a tension drum where a limited amount of mooring rope (up to two layers) could be put under tension when the vessel was moored. This is indicated in Figure 4.



Figure 4 - Aft winces on board MT COASTALWATER

As there was a lot of rope laid out on deck, it needed to be spooled on the storage drum first. To spool the rope regularly on the drum, some manual guidance was needed. The last meters had to be spooled on the tensioning drum and when heaving the rope onto the tensioning drum, the slack could be picked up and the rope could come under tension.

There is a notch in the metal plate between the storage drum and the tensioning drum, as can be seen in Figure 5.

Manual handling was required to guide the mooring rope from the storage drum through the notch onto the tensioning drum.





*Figure 5 - Picture of reconstruction of the accident*

The winches on board MT COASTALWATER did not have spring loaded control valves. When putting the winch into a turning position, the winch started turning. When releasing the lever, the winch continued turning. To stop the winch, the lever had to be brought back into neutral position.

When spooling the mooring rope onto the drums, the winch was continuously running slowly. The person at the aft mooring station was positioned as indicated in Figure 5. He had no overview over the mooring rope and the quay side.

He was guiding the mooring rope onto the storage drum and when guiding the rope onto the tensioning drum, he had not noticed that the aft of the vessel was moving away from the quay.

Due to the vessel's movement, the rope came under tension and his hand got trapped between the rope and the layer of rope underneath.  
He reacted by putting the winch lever in reverse position.





## 5 Cause of the accident

There was insufficient situational awareness at the aft mooring station. There was only one person present and he was standing with his back to the mooring line.

The winch configuration and the mooring plan were contributing factors:

As the winch could turn continuously without holding the lever and as the mooring plan included only one mooring line aft, it was found feasible for the crew on board to execute the job with one person only.

Manual handling was required to spool the mooring rope properly on the storage drum (and from the storage drum onto the tension drum).



## 6 Conclusion

### 6.1 Safety Issues

There was only one person at the aft mooring station as it was found feasible by the crew to handle one mooring rope by one person only with the equipment as found on board. The on board procedure stated that at least two persons needed to be present at a mooring station as additional attention and handling for proper storage on the drum is required.

The company was not aware that mooring happened with only one person at a mooring station in some circumstances.

The winches were turning continuously when they were put in a running position. This configuration made it possible to work without a winch operator who operates the lever continuously. When nobody is standing by at the winch lever and when manual handling of the ropes on the winch is necessary, no immediate action to stop the winch can be taken when someone gets stuck between two layers of rope.



## 6.2 Actions Taken

The company:

- has issued a circular letter over the entire fleet that it is not allowed to execute mooring operations with one person only.
- investigates whether a spring loaded valve can be installed to avoid that the winch can run continuously when the lever is put in a running position.





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