



DUTCH
SAFETY BOARD

Chief mate lost overboard in severe weather

Victoriaborg, Atlantic Ocean



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Victoriaborg, Atlantic Ocean, 23 December 2013

The Hague, March 2015

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Dutch Safety Board

The aim in the Netherlands is to limit the risk of accidents and incidents as much as possible. If accidents or near accidents nevertheless occur, a thorough investigation into the causes, irrespective of who are to blame, may help to prevent similar problems from occurring in the future. It is important to ensure that the investigation is carried out independently from the parties involved. This is why the Dutch Safety Board itself selects the issues it wishes to investigate, mindful of citizens' position of independence with respect to authorities and businesses. In some cases the Dutch Safety Board is required by law to conduct an investigation.

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NB: This report is published in the Dutch and English languages. If there is a difference in interpretation between the Dutch and English versions, the Dutch text will prevail.

Introduction	5
Sequence of events and background information	6
Analysis and conclusions	9
Annex A. Ships particulars Victoriaborg	12
Annex B. Causes and sequence of events surrounding the breakdown of the steering installation.....	13
Annex C. Comments on draft report	15

International obligation to investigate

A crewmember of a ship registered in the Netherlands went missing in the Atlantic Ocean to the northwest of France. The absence of the missing person was discovered after a fire alarm that was followed by a crew check. The accident occurred in poor weather conditions in open sea. The body of the crewmember washed ashore several weeks later.

This constitutes a very serious accident as specified in the Casualty Investigation Code of the International Maritime Organisation (IMO) and EU Directive 2009/18/EC. This means that the Netherlands as the flag state has a duty to ensure that a safety investigation is carried out. The duty to investigate is also stipulated in the Dutch Safety Board Decree (Besluit Onderzoeksraad voor Veiligheid).

Scope and question to be examined

The investigation focuses on the causes and circumstances surrounding the loss of the missing person and the initiated follow-up actions.

Simultaneously with the loss of the chief mate, the steering engine installation suffered serious damage. This hindered any search action and possible rescue. A summary of the investigation into the damage suffered by the steering engine appears in Appendix B.

SEQUENCE OF EVENTS AND BACKGROUND INFORMATION

Ship and crew

The shipping company Wagenborg Shipping B.V. is responsible for the management of the Dutch motor vessel Victoriaborg. The hull was built in 2001 at Daewoo-Mangalia Heavy Industries S.A and Bodewes-shipyard Volharding in Foxhol, Hogezeand completed the vessel. At the time of the accident, the vessel was carrying a cargo of pyrites, steel coils and steel sheets. The vessel was en route from Rotterdam to Wilmington (United States). At the time of the accident, ten crewmembers were on board, three of Ukrainian, two of Russian, one of Vietnamese and four of Philippine nationality. The working language was English.

The Ukrainian chief mate had been employed at Wagenborg since 2010 as chief mate, and at the time of the incident had been working on board the Victoriaborg for 96 days. The chief mate was in possession of the certificate of competency for chief mate.

The Victoriaborg and the shipping company Wagenborg Shipping B.V. operate a safety management system (SMS) organised in accordance with the International Safety Management (ISM) code. A Shipboard Operating Manual (SOM) is present on board the ship. The SOM contains procedures and instructions for operational tasks on board and for emergency situations, exercises, professional health and safety, the environment and damage.

Weather conditions

On 23 December 2013, at the position of the Victoriaborg (northeastern section of the Bay of Biscay), there was a storm with average wind speeds of 45 knots¹ (85 km/h) with gusts of up to 70 knots (130 km/h) from a south/southwesterly direction with an Significant wave height² of 7.5 metres.³ The air temperature was 10 degrees Celsius and the seawater temperature was 13 degrees Celsius.

1 The knot is a unit of speed equal to one nautical mile (1.852 km) per hour.

2 The significant wave height is defined traditionally as the mean wave height (trough to crest) of the highest third of the waves.

3 Source: windalert.com.



Figure 1: Position of the accident. (Source: maps.google.com)

Sequence of events

The 20th of December 2013 at 10:00⁴ the Victoriaborg departed from Rotterdam bound for Wilmington. The weather forecast predicted rough weather during the voyage. To prepare the vessel for the weather ahead the chief mate walked rounds over the vessel on 21st and 22nd December accompanied by the bosun and deckhand to check all openings, doors, holds and anchor chains. During the rounds the ship had reduced speed to allow the crewmembers to walk safely on deck.

In the morning of 23 December, weather conditions worsened. Waves broke over the hatches of the hold and the open decks, including the quarterdeck. The cook and bosun searched inside the accommodation for a possible leak in the pantry, because seawater had been observed there. At that moment, it was not possible to determine where the seawater had come from. At around 13.30 hours⁵, water was once again observed in the pantry. This time the chief mate and boatswain went in search of the cause of the leak. The inside of the pantry hatch and the air vent were dry; the cause was not discovered. The chief mate then instructed the boatswain to dry the pantry, after which the boatswain and chief mate left the galley and headed for the accommodation. At that time, the chief mate was wearing the clothes and slippers he always wore in the crew accommodation.

At 13.54 hours⁶ several alarms sounded including the fire alarm. At the time of the alarm, the chief engineer and second engineer were in the engine room. When the alarm

4 All stated times in the report are local times.
 5 All stated times in the report are local times.
 6 Time according to analysis of VDR information.

sounded, they went to the control room and saw that the emergency switchboard, starboard fan and the emergency lightning malfunctioned. The chief engineer and second engineer then went to the emergency generator room where the emergency switchboard was located. The outside door which gives access to the quarterdeck, was found open and unlocked. There was approximately 40 cm of water in the generator room. The emergency generator had started automatically. The water in the emergency generator room caused a short-circuit.

Alarmed by the continuous sounding of the alarm the crew reported to the bridge. The chief mate was not present. The captain therefore issued the order to search for the chief mate. The chief mate was not found in the accommodation. It was noted that his work clothing (jacket, helmet and work shoes) were not present in his cabin. At 14.12 hours,⁷ a man overboard distress call was transmitted on the ship's maritime VHF set. The man overboard position was marked in the logbook at 14:00 and 14:15. No use was made of the man overboard buoys with smoke and light signals, which were attached to the bridge wing.

Following the distress call, contact was made with the MRCC Corsen⁸ and a Search and Rescue (SAR) operation was launched. Due to the broken-down steering engine installation, the Victoriaborg was unable to participate in this operation. The closest motor vessel Energy Pride turned around to assist in the search. An SAR aircraft was also deployed. At 19.00 hours, the SAR operation was halted, without result.

On 26 December, a tug reached the Victoriaborg and a towing line was attached to the disabled vessel. The towing of the vessel was laborious caused by the weather and the vessels behaviour under tow. After repeated breakage of the towline and the support of other tugboats the vessel was safely anchored at Saint Malo⁹ roads at 1 January 2014. The body of the chief mate washed ashore, several weeks later.

7 Time according to analysis of VDR information.

8 Time according to analysis of VDR information.

9 France.

ANALYSIS AND CONCLUSIONS

Leakage in pantry

Unfortunately it is impossible to determine precisely at what moment or under what circumstances the chief mate was lost overboard. No one saw the chief mate fall overboard. However the Dutch Safety Board considers it plausible that the chief mate went on deck in bad weather to further investigate the origins of the leak in the ship's pantry.

With that in mind, he probably wished to inspect the emergency generator room which is located above the pantry. To reach this room, he had to go via the deck. While he was on deck, a wave probably washed over the quarterdeck, carrying the chief mate overboard, thereby leaving the door to the emergency generator room open.

The chief mate probably went on deck without any protective clothing such as a lifejacket. All lifejackets were still hanging in place, after the chief mate went missing.

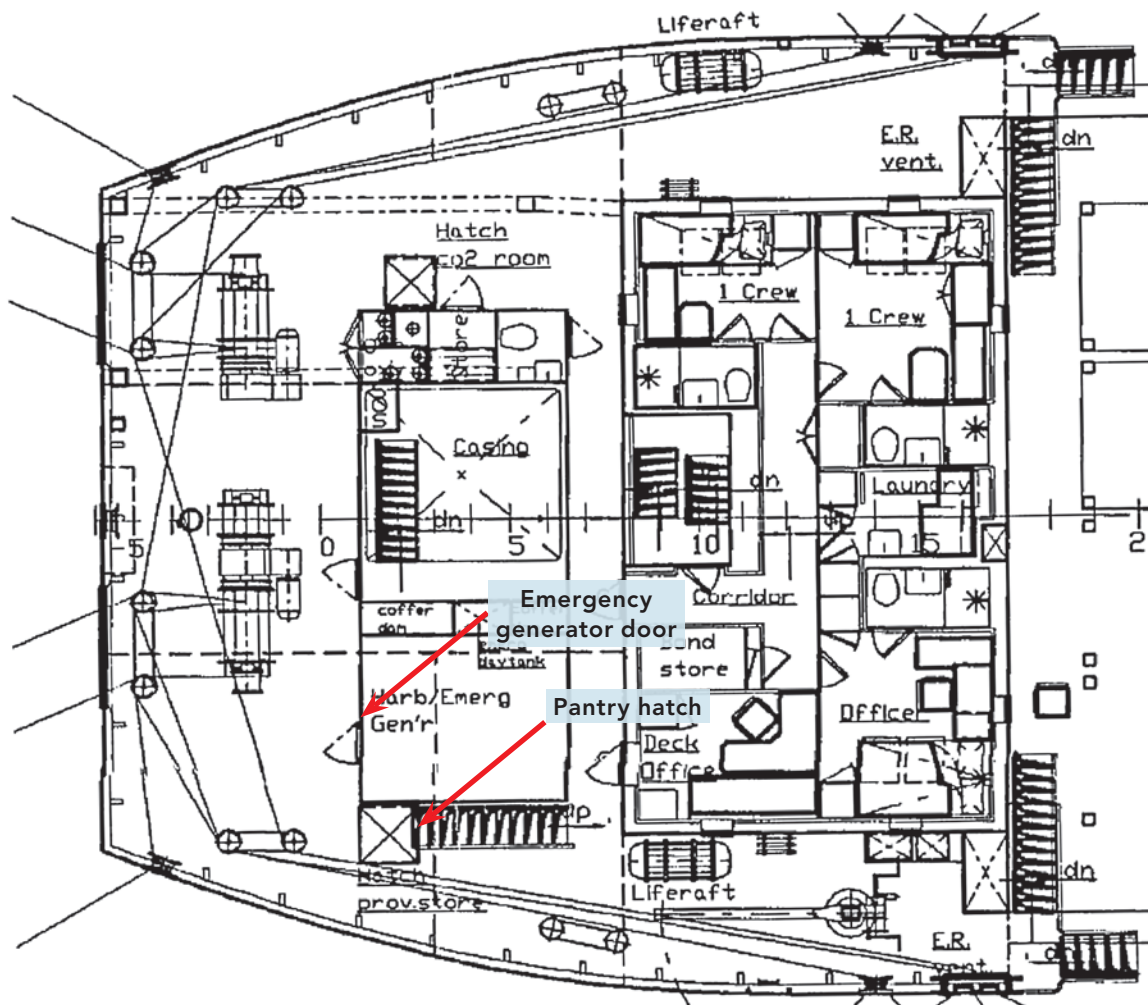


Figure 2: Quarterdeck of Victoriaborg. (Source: Wagenborg B.V.)

This caused water to enter the emergency generator room. This in turn led to the short-circuit in the emergency switchboard. The short-circuit caused the electrical failure of the emergency lighting, starboard fan and the electric motor of steering pump number 2. This caused a fall down of hydraulic pressure in the steering gear. The other pump was not started in due time. The low hydraulic pressure for a considerable time led to significant damage to the steering gear (see Appendix B). The smoke detector in the emergency generator room was activated by the short-circuit causing the fire alarm.

During the search for the cause of the leak in the pantry, the cause of the leak could not be found. It was subsequently observed in port that water must have leaked via the sealing rubbers of the pantry hatch. Traces of seawater were present (see figure 3: left and right). The cause was probably a large volume of seawater on the quarterdeck.



Figure 3 Left: Hatch to pantry.

Right: Pantry ceiling. (Source: Dutch Safety Board)

Going on deck in bad weather

Statements from crewmembers reveal that on the day of the accident, the weather was so bad that no daily tasks were carried out. Furthermore, on the day before the accident, an inspection round had been walked on deck, during which additional measures were taken to prevent crewmembers being washed overboard as a consequence of bad weather conditions. These facts were known to the crew.

The captain stated that he had issued an order to prevent crewmembers going on deck, via the chief mate and the chief engineer. There were no rules in place on board the *Victoriaborg*, dealing with going on deck in bad weather if this became necessary. The shipping company's safety management system does include a general instruction for deck work. The safety management system also includes a general instruction for unforeseen tasks. The general instruction for unforeseen tasks includes a risk assessment that must be carried out before starting an unforeseen task, including a safety briefing.

The chief mate, boatswain and ship's cook held no further discussion concerning the solving of the leak in the pantry. No mention was made of possibly going on deck to identify the cause of the leak. Therefore no assessment was made of the risks involved in

going on deck. It is no longer possible to determine what deliberations the chief mate made before going on deck.

Shipping company

The shipping company took a number of actions in response to the accident. An article was placed in the shipping company's information sheet, giving notice of the accident. To increase safety awareness, the shipping company issued a questionnaire to all its seagoing personnel. The shipping company has also tightened up the procedure for working on deck.

It is no longer possible to determine what deliberations the chief mate made, before going on deck. His assessment of the weather conditions and the risk of going on deck is also unknown. There was no further discussion between the individuals involved in the investigation into the leak in the pantry. The investigated incident raises the question whether safety awareness and the safety culture on board played a role in the occurrence of this accident. This question cannot be answered in this specific investigation. The Dutch Safety Board is however carrying out a separate investigation into safety awareness and the safety culture in shipping. The conclusions of this report will be included in this investigation.

This accident yet again underlines the importance of carrying out a careful assessment in consultation with others, before going on deck, in bad weather. Subsequently, if in this assessment the decision is made to go on deck, the correct safety measures must be taken.

SHIPS PARTICULARS VICTORIABORG

Call sign:	PBDS
IMO number:	9234276
Flag state:	The Netherlands
Home port:	Delfzijl
Vessel type:	General cargo with container capacity
Owner:	Wagenborg Shipping B.V.
Classification society:	Bureau Veritas
Year of construction:	2000
Shipyard:	Daewoo-Mangalia Heavy Industries S.A., Hoogezand, Netherlands
Length overall (Loa):	132.23 m.
Length between perpendiculars (Lpp):	124.59 m.
Breadth:	15.87 m.
Actual draught:	9.65 m
Gross Tonnage:	6361
Engines:	Wartsila 6R38
Propulsion:	1 variable speed propeller
Maximum propulsion power:	4015 kW
Maximum speed:	15.0 knots

CAUSES AND SEQUENCE OF EVENTS SURROUNDING THE BREAKDOWN OF THE STEERING INSTALLATION

Introduction

At the time the mate went missing, the steering engine installation suffered serious damage. As a consequence of this damage, the Victoriaborg did not take part in the search and rescue operation for the chief mate, and the ship spent 18 days at sea, before docking in the nearest port.

This appendix describes the investigation into the cause, the sequence of events and the lessons learned from this additional incident.

Sequence of events

At 13.54 hours, the steering engines sounded an alarm on the bridge. The steering engine alarm occurred simultaneously with the fire alarm. The duty mate observed that the ship could no longer continue sailing on auto pilot, and switched over to manual control. In response to the fire alarm, the captain came to the bridge. Having arrived at the bridge, he observed an alarm in steering engine pump 2 and switched to steering engine pump 1.

In response to the fire alarm, the chief engineer and second engineer investigated the emergency generator room. Here, too, they saw that steering engine pump 2 and other electrical equipment was no longer functioning. The chief engineer reacted by shutting down the connection between the main switchboard and the emergency switchboard, in order to avoid further short-circuits and a black out.¹⁰ The chief engineer then went to the bridge, leaving the second engineer behind in the steering engine room.

On the bridge, in the meantime, the captain had ordered a search for the missing chief mate. When this search proved fruitless, the captain attempted to have the ship turn around, at which point he noticed that the rudder was no longer functioning. He then contacted the chief engineer. The chief engineer then went to the steering engine room, where he attempted to operate the rudder in situ. This was not possible, as severe damage had been caused to the steering engine installation.

¹⁰ Black out: the loss of all power supply on the ship, and all equipment (light, ventilation, etc.) on board.

Analysis

Steering installation

The steering engine installation on board the Victoriaborg consists of a rudder and steering engine, equipped with two independent hydraulic steering engine pumps, which deliver pressure to the steering engine to bring about the required rudder position, and hence steer the ship. The steering engine pumps are each governed by an electrical motor. The electrical motors are powered independently of one another, by connecting one motor to the ship's power supply via the main switchboard and the other via the emergency switchboard. In this way, a certain degree of redundancy is installed, and the steering engine remains available in the event of a power failure. At the time of the accident, steering engine pump 2 was connected via the emergency switchboard, and was responsible for running the steering engine.

Because water entered the emergency generator room, a short-circuit occurred. The short-circuit meant that the power supply to the electrical motor in steering engine pump 2 was interrupted. Because the steering engine pump was no longer operational, the hydraulic pressure was not maintained at the required level. The other steering engine pump was not immediately started up, as a result of which hydraulic pressure was not re-established for some time.

The manufacturer launched an investigation in response to the damage to the steering engine installation. This investigation revealed that the considerable internal damage to the steering engine was caused by the loss of oil pressure. Insufficient oil pressure meant that the movement of waves had caused the rudder to swing back and forth. As a consequence, the rudder received a number of severe impacts, causing the steering engine to move as far as the end stops. This in turn resulted in considerable damage to the steering engine. It is expected that this damage could have been prevented by maintaining the oil pressure, by rapidly starting the other steering engine pump.

The recommendation from the investigation into the steering engine is that if external loads are applied to the rudder, one of the two steering pumps must be switched on to absorb and compensate for the loss of oil pressure caused by leaks around the internal seals of the steering engine. Maintaining oil pressure prevents the rudder being given free play, by the loads acting on the rudder. The bridge staff and technical staff of the ship must be aware of this condition so as to prevent damage to the steering engine.

COMMENTS ON DRAFT REPORT

In accordance with the Dutch Safety Board Act, a draft version of this report was submitted to the parties involved for review. The parties were requested to check the report for any factual inaccuracies and to provide additional information, where applicable. The report was submitted to the following parties for review:

- Sailors' next-of-kin
- Rederij Royal Wagenborg b.v.

With the exception of the sailors' next-of-kin, all parties availed themselves of the option of commenting.



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