



Danish Maritime Accident  
Investigation Board

# MARINE ACCIDENT REPORT

## April 2012



**ORANESS**

**Accident to seafarer on 10 November 2011**

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**This marine accident report is issued on 10 April 2012**

**Case number:** 201113349

**Front page:** ORANESS. Photo: Hilmar Snorrason.

The marine accident report is available from the webpage of the Danish Maritime Accident Investigation Board [www.dmaib.com](http://www.dmaib.com).

### **The Danish Maritime Accident Investigation Board**

The Danish Maritime Accident Investigation Board is an independent unit under the Ministry of Business and Growth that carries out investigations with a view to preventing accidents and promoting initiatives that will enhance safety at sea.

The Danish Maritime Accident Investigation Board is an impartial unit which is, organizationally and legally, independent of other parties

### **Purpose**

The purpose of the Danish Maritime Accident Investigation Board is to investigate maritime accidents and to make recommendations for improving safety, and it forms part of a collaboration with similar investigation bodies in other countries. The Danish Maritime Accident Investigation Board investigates maritime accidents and occupational accidents on board Danish merchant and fishing vessels as well as accidents on foreign ships in Danish territorial waters.

The investigations of the Danish Maritime Accident Investigation Board procure information about the actual circumstances of accidents and clarify the sequence of events and reasons leading to these accidents.

The investigations are carried out separate from the criminal investigation. The criminal and/or liability aspects of accidents are not considered.

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# 1 SUMMARY

ALL TIMES ARE IN LOCAL TIMES (GMT – 1).

ORANESS departed Sarpsborg on 7 November 2011 on a voyage for Szczecin. Due to damage to the main engine, the ship anchored at Copenhagen Roads at 16.55 on 9 November 2011. An examination revealed that the cylinder head on cylinder number one was broken.

It was decided to change the cylinder head while at anchor.

A ship's assistant and a motorman dismantled the damaged cylinder head in order to replace it. They were familiar with the task as they had carried it out the day before on another cylinder.

In order to lift the cylinder head, a crane mounted on the ceiling of the engine room had to be used. The crane is running on an H-beam and can be moved by dragging it in the longitudinal direction. To make a lift with the crane it is necessary to remove a grating on the upper deck in the engine room, leaving an opening in the deck.

While moving the crane to a position above the damaged cylinder, the ship's assistant fell into the opening in the deck, landed on top of the main engine and fell further down on to the floor plates.

In the fall, he broke three ribs. A few hours later, he was evacuated and hospitalized.

This report does not contain any recommendations

## 2 FACTUAL INFORMATION

### 2.1 Photo of the ship



Figure 1: ORANESS  
Photo: Hilmar Snorrason

## 2.2 Ship particulars

Name of vessel:	ORANESS
Type of vessel:	Chemical tanker
Nationality/flag:	Denmark (DIS)
Port of registry:	Svendborg
IMO number:	8146786
Call sign:	OWAB2
DOC company	Simonsen MH
IMO company no. (DOC)	0243438
Year built:	1985
Shipyard/yard number	Tille Scheepsbouw B. V. – Kootstertille/246
Classification society	Det Norske Veritas
Length overall:	78.63 m
Breadth overall:	12.70 m
Gross tonnage:	1,804
Deadweight:	2,440 t
Draught max.:	4.68 m
Engine rating:	1,300 kW
Service speed:	11.0 kts
Hull material:	Steel
Hull design:	Double hull

## 2.3 Voyage particulars

Port of departure:	Sarpsbord, Norway
Port of call:	Szczecin, Poland
Type of voyage:	Merchant shipping, international
Manning:	11
Pilot on board:	No
Number of passengers	0

## 2.4 Marine casualty or incident information

Type of marine casualty/incident:	Accident to seafarer
IMO classification	Serious
Date, time:	10 November 2011 at 01.00 LMT
Location:	Copenhagen Anchorage, Road no. 2
Position:	55°45.3' N – 012°39.2' E
Ship's operation, voyage segment	At anchor
Place on board	Engine room
Consequences:	One seafarer injured

## 2.5 Shore authority involvement and emergency response

Involved parties:	Danish Alarm Control Centre, 112 Admiral Danish Fleet Copenhagen Airport Rescue Radio Medical Falck Ambulance Assistance
Resources used:	Rescue boat from Copenhagen Airport Rescue Advice from Radio Medical Transport from airport to hospital
Actions taken:	Injured person brought ashore and taken to hospital.



### 3 NARRATIVE

ORANESS departed Sarpsborg on 7 November 2011 on a voyage for Szczecin.

Due to damage to the main engine, the ship anchored at Copenhagen Roads at 16.55 on 9 November 2011. The cylinder head on cylinder number one was broken. A service engineer came on board to help establish the cause of the damage to the cylinder head and the measures to be taken.

After having examined the cylinder head, it was decided that the cylinder head was to be changed.

The chief engineer decided that the repair was to be done by the motorman and the ship's assistant who was later injured.

The day before, the same operation had been carried out as the cylinder head on cylinder number seven had been shifted. This work had been done by the motorman, the ship's assistant and the chief engineer. The two crew members were thus familiar with the operation and they were also known as experienced and skilled workers.

When the shift of the cylinder head on cylinder number one commenced at 23.00 on 9 November 2011, the chief engineer was in the engine room assembling the cylinder head that had been shifted on to cylinder number seven the day before. This cylinder head was to be mounted on cylinder number one.

At approximately 00.30 on 10 November 2011, the chief engineer left the engine room to rest. He told the motorman and the ship's assistant that they should call him when the cylinder top was dismantled and ready to be lifted off. The service engineer was to be called for as well since he would like to examine the damages to the cylinder head.



*Figure 3 showing the H-beam and the roller with shackle to carry the crane*

In order to lift the cylinder top it is necessary to use a portable electrical crane. The crane runs on an H-beam mounted in the ceiling of the engine room and going along the length of the engine room.

After having shackled the crane to a runner on the H-beam, the crane is positioned by dragging it in the longitudinal direction.

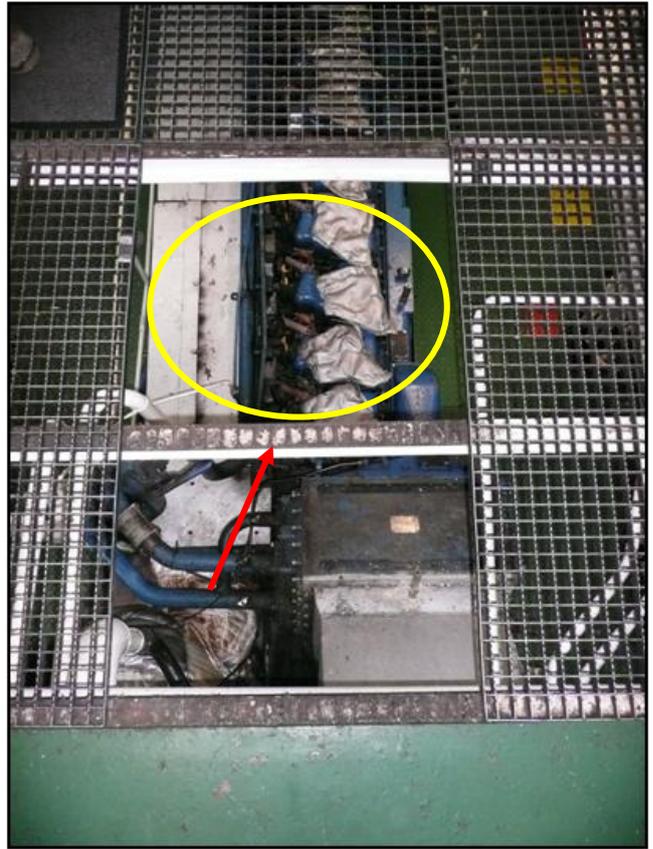
In order to lift a cylinder head, it is necessary to remove sufficient grating on the deck above the cylinder top.

Before dismantling the cylinder top, the grating on the deck above the main engine was therefore removed. After having dismantled the cylinder top, it was ready to be lifted up.

The ship's assistant went to the deck above the main engine and started pulling the crane forward to position it above cylinder number one.



*Figure 4 showing the section of grating to be removed*



*Figure 5 showing the opening the ship's assistant fell through and the beam he hit in the fall*



*Figure 6 showing the path the ship's assistant fell*

Suddenly the ship's assistant fell through the opening where the grating had been removed. In the fall, he hit a stringer with his chest. He landed on top of the main engine after a fall of approximately 2.5 metres face down on his hands and knees. Thereafter, he fell from the top of the engine and on to the floor plates. He was wearing working clothes and safety shoes, but no safety helmet.

After the accident, the motorman ran to the living quarters and informed the chief officer that the ship's assistant had fallen from the platform above the main engine and down on to the top of it and was now lying on the floor plates beside the main engine. The motorman also roused the rest of the crew members.

The master and the chief officer immediately hurried to the engine room. In the engine room, they found the ship's assistant lying on the floor plates next to the main engine. He was moaning and clearly in pain. He was conscious. He was questioned about what had happened, but had no recollection about the fall or the possible reason for it, except for being inattentive of the opening in the grating.

After a short examination, it was decided to evacuate him for treatment ashore. The ship's assistant was stabilized and a neck collar was mounted on him.

A stretcher was rigged and the ship's assistant was placed on it. Subsequently, he was evacuated through the emergency exit in the control room and taken to the galley for further examination and awaiting evacuation. His pulse and respiration was checked. He was still conscious and complained about severe chest pains. In the galley he was given oxygen.

After advice from Radio Medical he was given morphine to kill the pain. He was very pale and his state of consciousness began to decrease.

After the accident, the hole in the deck was covered with grating and the work with the cylinder head was postponed until the next morning.

The next morning at 08.00 the work was resumed. The grating was removed again and ropes were rigged in order to prevent persons from falling into the opening in the grating.

### **3.1 The evacuation**

After having examined the ship's assistant, the master went to the bridge and contacted the port authorities in Copenhagen Port to require assistance to bring the injured seafarer ashore. The port authorities informed that they could not provide boat assistance.

At 00.30 the master called 112 from where his call was redirected to the Admiral Danish Fleet. While waiting for response, he contacted Radio Medical. They advised him to give the injured ship's assistant morphine subcutaneously to kill the pain.

The Admiral Danish Fleet called back and informed that transportation was arranged by rescue boat from Copenhagen Airport.

The rescue boat departed the airport at 02.32 and arrived approximately at 03.00. At 03.10 the injured ship's assistant was on board the rescue boat and taken ashore. At 03.24 he was taken to hospital by ambulance.

### **3.2 The safety system**

On board ORANESS, the SMS system is an electronic system stored on computers. The shipping company sends out CDs with changes to the system when it is revised. The SMS system can also be accessed via an internet connection. It is therefore not necessary to have a hard copy of the ISM system on board. But nevertheless, an updated hard copy was found in the deck office. The system is written in English.

The Risk Assessments are updated by the chief officer. They are adapted on board to be specific for ORANESS.

The Risk Assessments were known to the Polish crew members, but the contents were not known in details as their general knowledge of English was not sufficient to read the Risk Assessments. Any necessary information about safety in relation to work tasks was communicated by the officers.

The crew members stated that safety and instruction was an important issue. If any crew member observed safety breaches, attention was called to it and corrective actions taken. All crew members took part in the safety meetings.

There was good contact and communication between the officers and other crew members. All the ratings and the 2<sup>nd</sup> officer spoke Polish and this was the language they used to communicate with each other. Communication between the ratings and the officers and apprentices was in English. Occasionally the 2<sup>nd</sup> officer was used as an interpreter. The crew said that in everyday work there were no problems communicating.

Whenever a new and unfamiliar task was to take place, tool box meetings were held.

Whenever a crew member unfamiliar with ORANESS signed on, he or she went through a familiarization program. This included relevant information about emergency exits, fire hatches, shut-down of ventilation and where to assemble in case of fire or evacuation of the ship.

Safety meetings are held every month.

Shortly after the evacuation of the injured ship's assistant, the crew was gathered in the mess room to take part in an extraordinary safety meeting where they were briefed about the accident.

### **3.3 Consequences of the accident**

In the fall the ship's assistant broke three ribs and was unfit for work for a period of 68 days. He is now back in service with the company.

## **4 ANALYSIS**

Due to damage to a cylinder in the main engine, the cylinder head had to be removed. Two crew members, a ship's assistant and a motorman, were assigned to make the repair in cooperation with the chief engineer. This task had been performed on the day before on another cylinder and the two crew members were familiar with the operation.

On the day before the accident, the injured ship's assistant had had 15 hours of rest and he had been working two hours prior to the accident and felt well rested.

While dismantling the cylinder head, the chief engineer had left the engine room asking the crew to be called when the spare cylinder head was to be mounted.

In order to lift the cylinder head by help of a portable crane, it is necessary to remove sufficient grating in the deck above the engine, thus leaving an opening in the deck.

Before dismantling the damaged cylinder head, two sections of grating were removed. No protective measures were taken to prevent falling into the opening in the deck.

After dismantling the cylinder head, the ship's assistant went one deck up to drag the crane forward to position it above the damaged cylinder. It is very likely that he had his back to the opening while dragging. When reaching the opening in the deck, he fell into it, hit a stringer and landed on top of the main engine.

## **5 CONCLUSION**

The ship's SMS system and Risk Assessments did not contain any specific descriptions about fencing and shielding openings that could lead to falls to lower levels.

The use of the crane to lift machinery components through openings in the deck in the engine room was a routine task. Besides it is likely that the limited size of the opening in the deck gave an impression of less danger. This fact has contributed to inattentiveness in relation to the danger of falling to a lower level.

*It is the assessment of the Investigation Board that, due to the fact that the ship's assistant was performing a routine task, he was inattentive of the danger of falling to a lower level. Because the opening in the deck was not fenced or shielded, he fell through it.*

## **6 PREVENTIVE MEASURES TAKEN**

After the accident, an extraordinary safety meeting was held in order to discuss and establish a safety procedure to avoid falls to a lower level.

The company has forwarded an incident report to the ships in the company's fleet emphasizing the danger of falling to a lower level in general and the danger of falling in particular where grating has been removed.

On board ORANESS, a system of sceptres and hand ropes has been produced making it possible to shield and fence openings in the upper deck in the engine room when sections of grating are removed.