Danish Maritime Accident Investigation Board

MARINE ACCIDENT REPORT
August 2013

NORD GOODWILL

Fatal accident to seafarer on 28 October 2012

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Front page: The launch. Photo NORD GOODWILL

The marine accident report is available from the webpage of the Danish Maritime Accident Investigation Board.

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 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.

Marine accident reports and summary reports

The Danish Maritime Accident Investigation Board investigates about 140 accidents annually. In case of very serious accidents, such as deaths and losses, or in case of other special circumstances, either a marine accident report or a summary report is published depending on the extent and complexity of the accident.

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1. SUMMARY

On 23 October 2012, NORD GOODWILL was moored in buoys at the Tema Offshore Oil Terminal. On the same day, a crew change was about to take place. The transportation to and from Tema was done by launch. To embark the launch, a pilot ladder was rigged from the deck of NORD GOODWILL to about one metre above the surface of the sea.

When trying to embark the launch, the ship's chief engineer fell into the water from the lowest step of the pilot ladder. 10-15 minutes later he was recovered by the launch.

After having been recovered, he was rushed to a hospital ashore where he was declared dead on arrival.

After the accident actions have been taken by Dampskibsselskabet Norden A/S.

Prior to the accident, the Danish Maritime Authority has submitted a guidance to enhance safety during transfer operations to the IMO.[1]

The Danish Maritime Accident Investigation Board does not have any safety recommendations in relation to the accident.

2. FACTUAL INFORMATION

2.1 Photo of the ship

Figure 1: *NORD GOODWILL*
Source: www.shipspotting.com / Wim van der Moolen

[1] The International Maritime Organization.

2.2 Ship particulars

Name of vessel:	NORD GOODWILL
Type of vessel:	Chemical and product tanker
Nationality/flag:	Denmark (DIS)
Port of registry:	Hellerup
IMO number:	9448334
Call sign:	OZCJ2
DOC company:	Dampskibsselskabet Norden A/S
IMO company no. (DOC):	0310059
Year built:	2009
Shipyard/number:	Guangzhou Shipyard International Co. Ltd./06131056
Classification society:	Det Norske Veritas
Length overall:	183.19 m
Breadth overall:	32.23 m
Gross tonnage:	30,241
Deadweight:	50,326 t
Draught max.:	12.60 m
Engine rating:	9,960 kW
Service speed:	15.0 knots
Hull material:	Steel

2.3 Voyage particulars

Last port of call:	Amsterdam, the Netherlands
Port of call:	Tema, Ghana
Type of voyage:	Merchant shipping, international
Manning:	23
Pilot on board:	No
Number of passengers:	0

2.4 Weather data

Wind – direction and speed:	South 8 m/s
Swell:	Slight swell at about 1 to 1.5 m
Water temperature:	28°C
Visibility:	Good
Light/dark:	Light

2.5 Marine casualty or incident information

Type of marine casualty/incident:	Fatal accident to seafarer
IMO classification:	Very serious casualty
Date, time:	23 October 2012 at 1530 LMT
Location:	Tema Roads, Ghana
Position:	05º33.9’ N – 000°02.9’ E
Ship’s operation, voyage segment:	Moored in spider mooring
Draft:	10.50 m
Freeboard:	8.50 m
Place on board:	On pilot ladder while disembarking
Consequences:	One crew member drowned

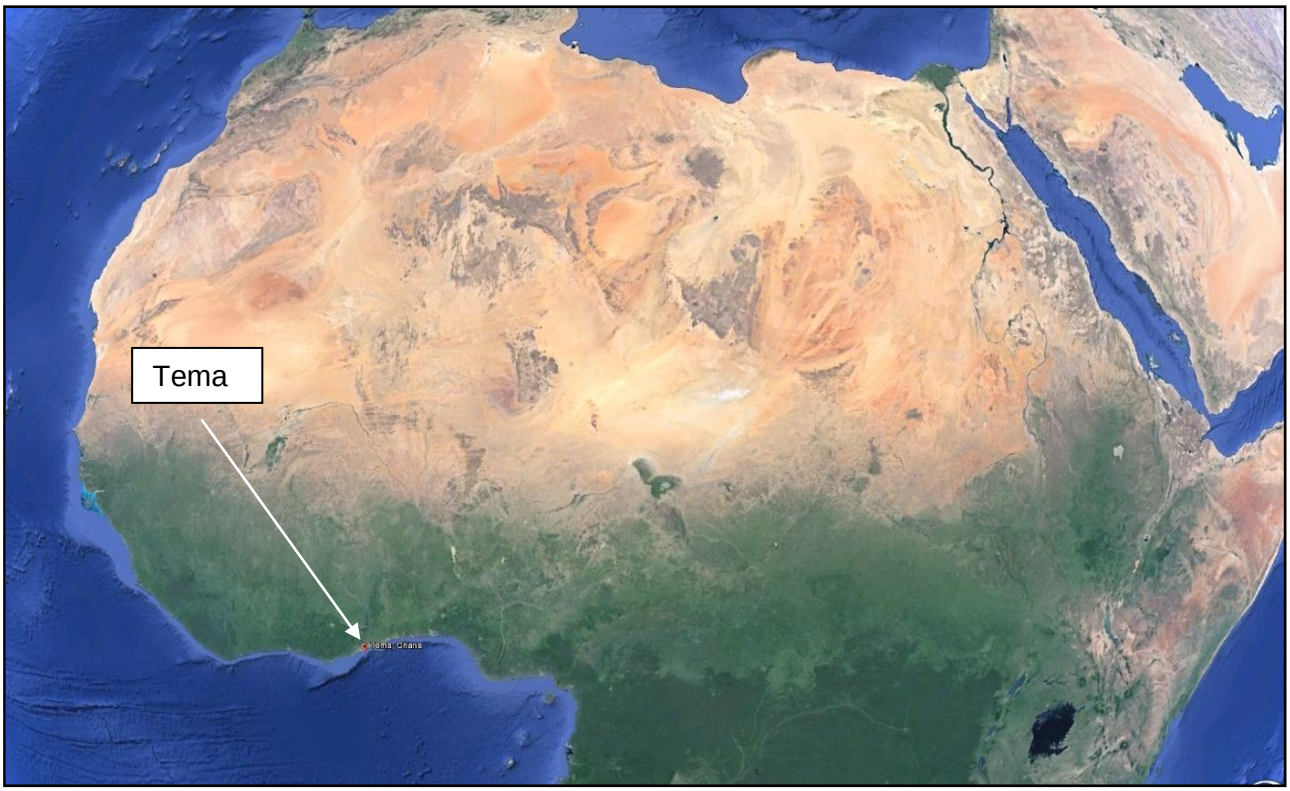


Figure 2: Position of Tema, Ghana
Source: Google Earth

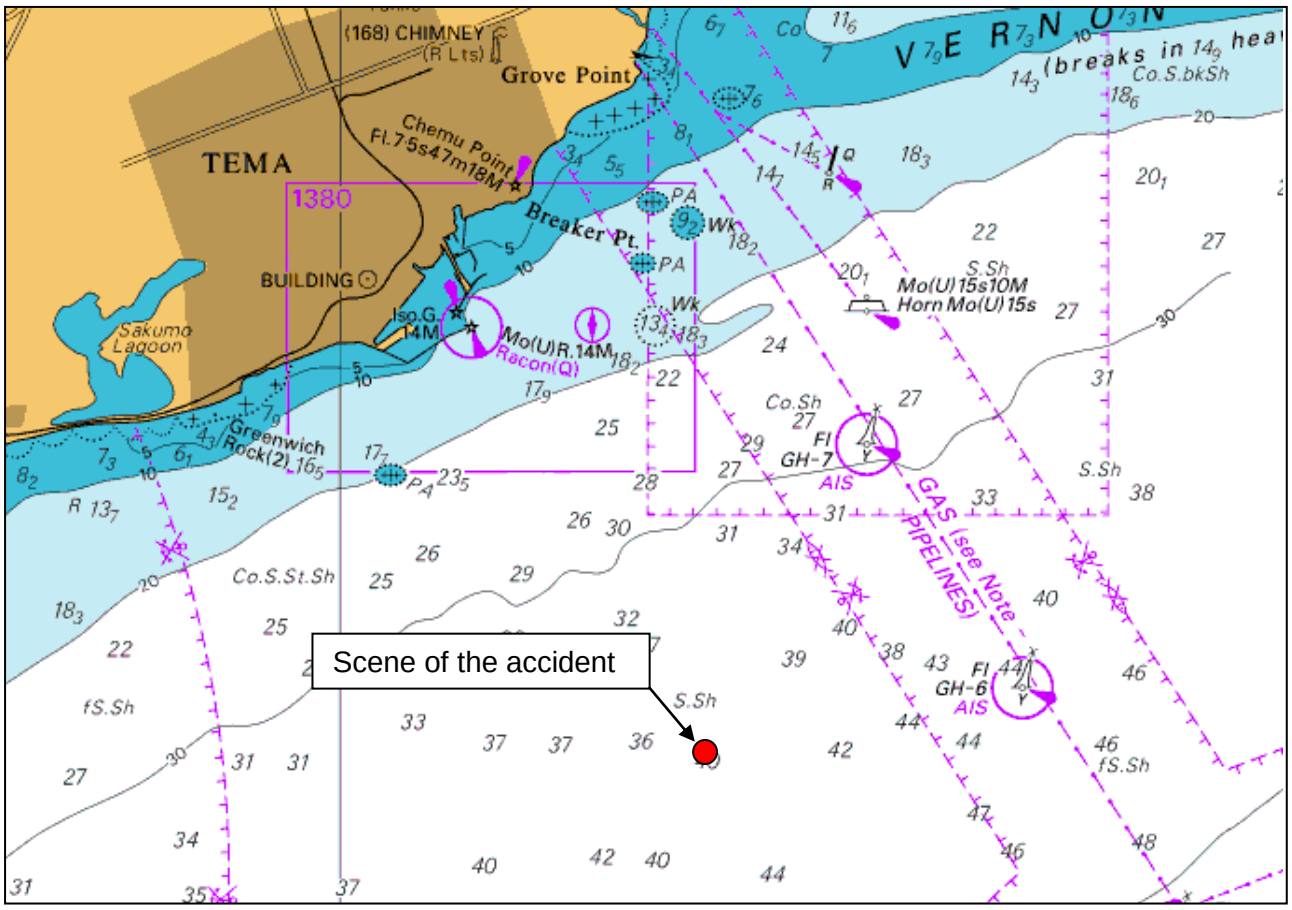


Figure 3: Position of NORD GOODWILL
Source: The United Kingdom Hydrographic Office / DMAIB

2.6 Shore authority involvement and emergency response

Involved parties:	Hospital ashore
Resources used:	Launch and NORDGOOD WILL
Speed of response:	10-15 minutes to recover the chief engineer. Transportation time to local hospital unknown.
Actions taken:	The chief engineer brought ashore to local hospital

2.7 Involved crewmembers

Chief engineer	Signed on 18 July 2012. 58 years of age. Has served as a 2nd engineer since 1988 and as a chief engineer since 1995. At the time of the accident he was on his second contract with NORDEN.
Master	Signed on 8 September 2012. Had served at sea since 1980.

3. NARRATIVE

3.1 Background

On 21 October 2012, NORD GOODWILL arrived at the Tema Offshore Oil Terminal fully loaded. The ship was moored in a spider mooring at a distance of 4.5 m from Tema Harbour. On 23 October 2012, a crew change was planned to take place. In the morning, some crew members were transported to the ship by a launch. In the afternoon, seven crew members were planned to disembark at 1530 using the same launch.

3.2 Sequence of events

In the afternoon, the crew members and repairmen to disembark gathered on deck. In order to embark the launch, a pilot ladder was to be used. The launch manoeuvred alongside where the pilot ladder was rigged and the two repairmen went down the ladder first. The chief engineer asked to be the third person to climb the ladder. As he climbed down, the launch was alongside beneath the ladder. When the chief engineer reached the last step, a crew member in the launch got hold of him in order to help him down on the deck. The chief engineer did not let go of the pilot ladder as expected and shortly after the launch went down due to swell. As the boat went down, the crew member in the launch had to let go of his grip. At the same moment, the chief engineer lost his foothold and fell down the pilot ladder until his waist was in the water. He managed to get a grip of the ropes at the last step of the ladder. Figure 4 shows the approximate position of the chief engineer after the fall. As the water rose due to swell, he was submerged in water to his chest and, when it fell, he was almost out of the water. The chief engineer tried to climb up the ladder but was unable to do so. After the fall the launch moved away from the ship's side in fear of squeezing the chief engineer between the launch and the ship's side.

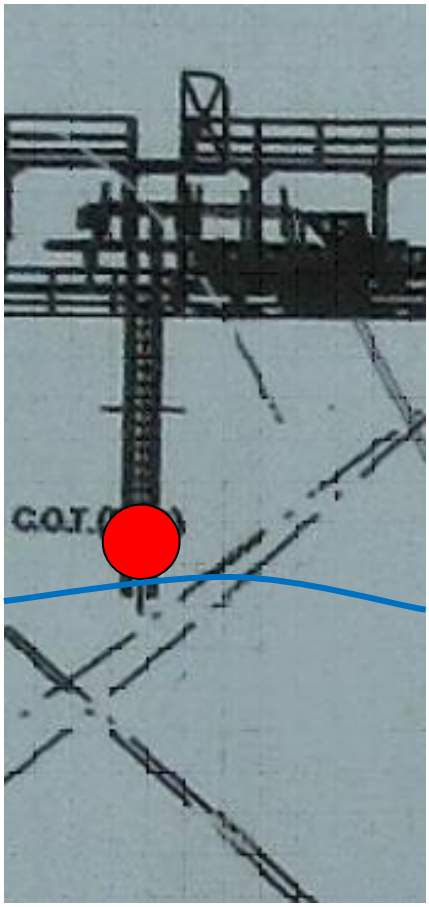


Figure 4:
The position of the chief engineer at the pilot ladder before the fall.
Source: DMAIB

3.3 The attempt to rescue the chief engineer

The fall of the chief engineer was observed instantly and a lifebuoy hanging at the gangway close to the pilot ladder was thrown into the water. Due to a slight current, the life ring drifted away and the chief engineer was therefore unable to get hold of it.

Close to the gangway there was another lifebuoy. The chief officer got hold of the lifebuoy and climbed down the pilot ladder in order to get the chief engineer into the lifebuoy until he could be recovered by the launch. The chief engineer was still holding on to the ropes at the end of the pilot ladder when the chief officer reached him. The chief officer asked the chief engineer to let go of the pilot ladder which the chief engineer did. The chief officer managed to get the lifebuoy around the chief engineer in a correct manner. The chief engineer took an active part in this by diving into the lifebuoy and getting his arms around it.

A heaving line was handed to the chief engineer and he was holding on to it. The other end of the heaving line was on board NORD GOODWILL. After having gotten into the lifebuoy, the chief engineer did not move or give any sound whilst in the water, but still he was holding onto the heaving line all the time.

As it seemed impossible to recover the chief engineer by means of the pilot ladder, the launch was asked to come alongside in order to pick up the chief engineer. It took 10-15 minutes for the launch to manoeuvre alongside. When the launch was alongside, the heaving line was handed over to the crew of the launch from NORD GOODWILL.

The oxygen apparatus and the defibrillator were prepared for use, but when they were ready for use, the chief engineer was being pulled away from NORD GOODWILL. It was not an option to use the rescue boat because the razor wire on the superstructure made its launching impossible. The razor wire mounted on the ship in different places was part of the piracy protection.

The crew on the launch was asked to pull on the heaving line. Close to the launch, the chief engineer was submerged for a short moment while still in the lifebuoy. His head was under the water for approximately 15 seconds at a distance of 5 metres from the launch. As he was alongside the launch, he was hauled on board with some difficulty. At that time he was still breathing but exhausted.

On board the launch, he was placed on his back for a couple of minutes and one of the launch crew members pressed his stomach in a rhythmic way. After some minutes he was placed in a recovery position. At that time, water and white foam were coming out of his mouth.

The master of NORDEN GOODWILL contacted the launch by VHF and asked it to proceed to harbour in order to hospitalize the chief engineer. The agent was asked to call for an ambulance to be ready on arrival of the launch at Tema.

At 1730 hours the vessel was informed by the agent that the chief engineer was dead.

3.4 Arrangement for embarkation/disembarkation

When embarking or disembarking NORD GOODWILL at sea, two different riggings are used. One of them is by means of the pilot ladder solely, and the other one is by means of a combination consisting of the gangway and a pilot ladder.

Figure 5 on page 9 shows the embarkation/disembarkation arrangement by means of a combination of the gangway and a pilot ladder. The blue line on the figure indicates the approximate swell along the ship's side at the time of the accident.

The gangway is shown in a position not relating to the day of the accident. In order to function as a combination, the gangway has to be hoisted to a position where the platform of the gangway is approximately halfway between the surface of the sea and the ship's deck. When the ship is fully loaded, the freeboard is reduced to a minimum. At the day of the accident, the freeboard was 8.5 metres. This means that the gangway had to be raised to an inclination close to horizontal. As the pilot ladder can be moved in a longitudinal direction, it is possible to use a combination when the ship is fully loaded.

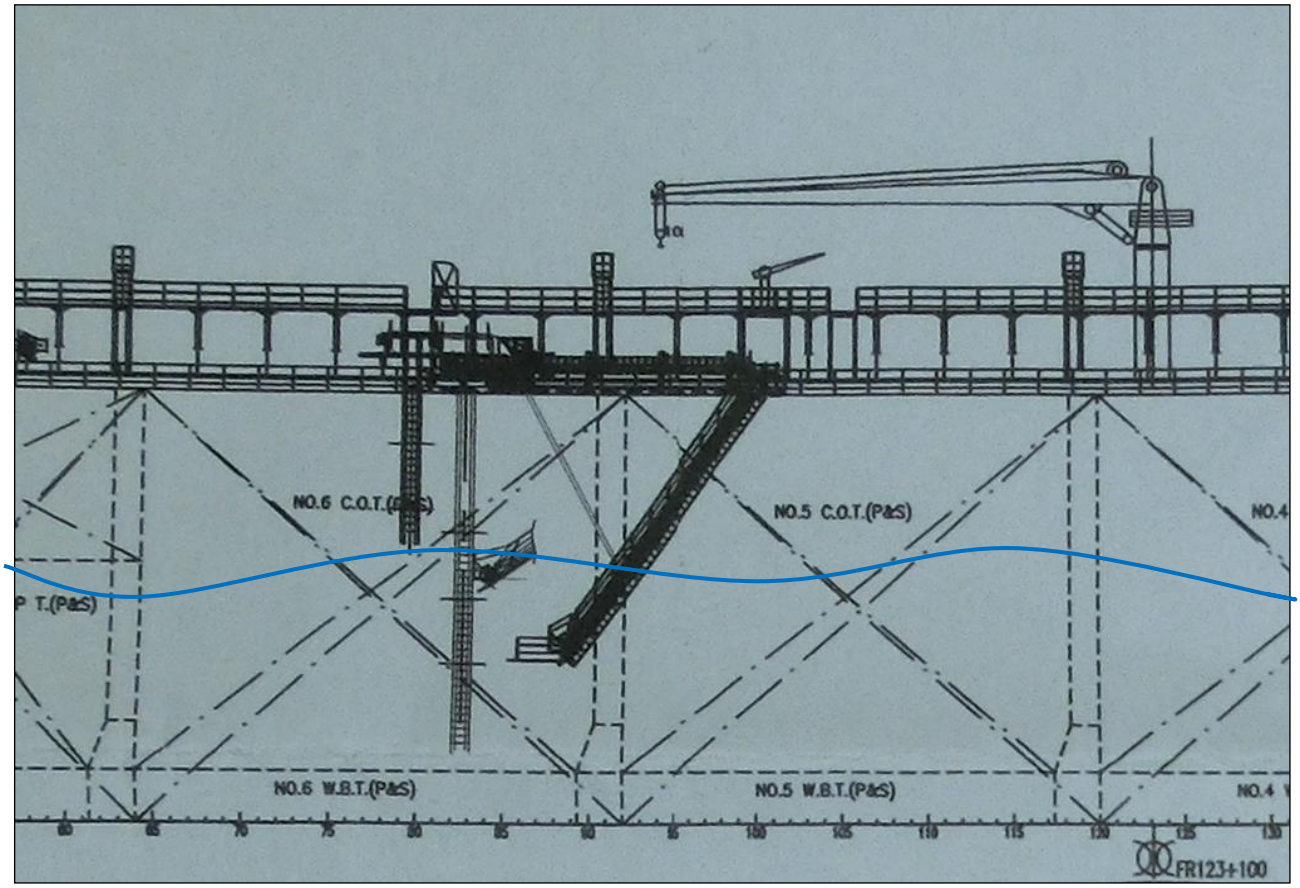


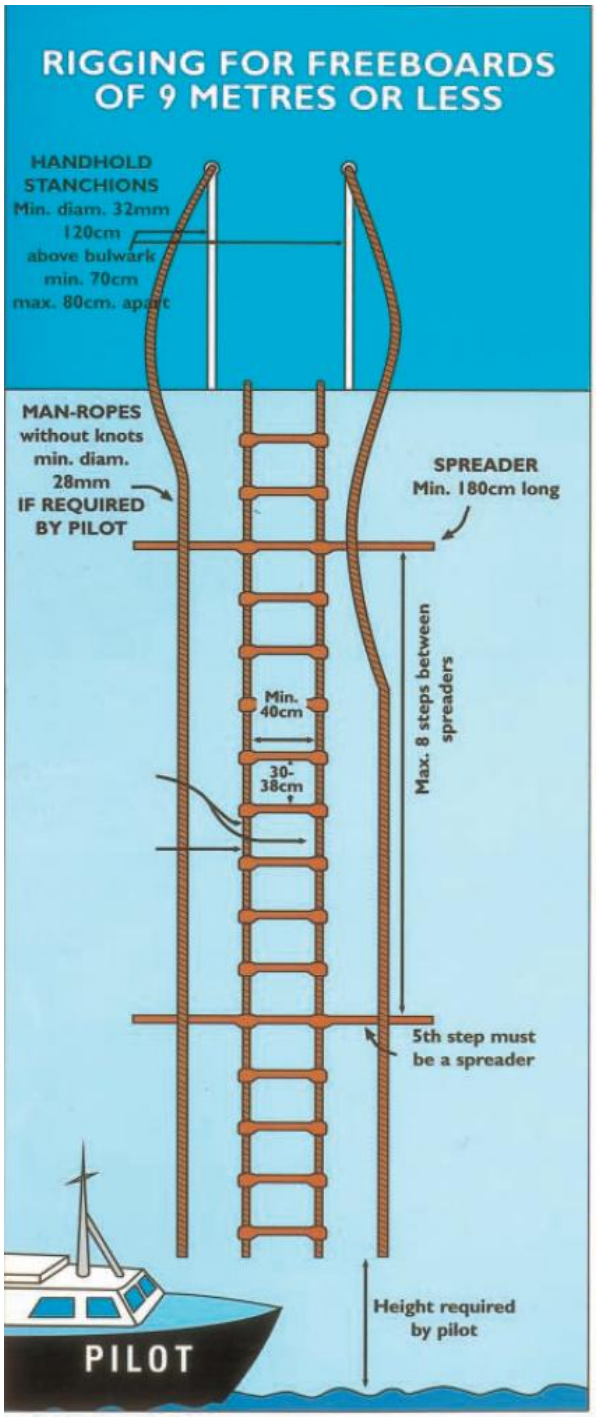
Figure 5: Embarkation/disembarkation arrangements at sea
Source: D/S NORDEN

The decision whether to use a combination or not was taken by the master who based his decision on the pilot boarding arrangements stipulated in the IMO requirements and on the IMPA[2] recommendations. It was common practice to do so.

Figure 6 on the next page shows an extract of Annex 2 to IMO Resolution A.960.

As the freeboard was less than 9 metres, the master decided not to use a combination. In the morning, preparations were made to rig the pilot ladder on the starboard side giving leeway during the transfer. As the ship was in a danger zone due to piracy, it was necessary to remove the razor wire to clear the deck where the pilot ladder was to be set. The pilot ladder was lowered until the last step of the ladder was approximately half a metre above the mean water level.

[2] International Maritime Pilot's Association.



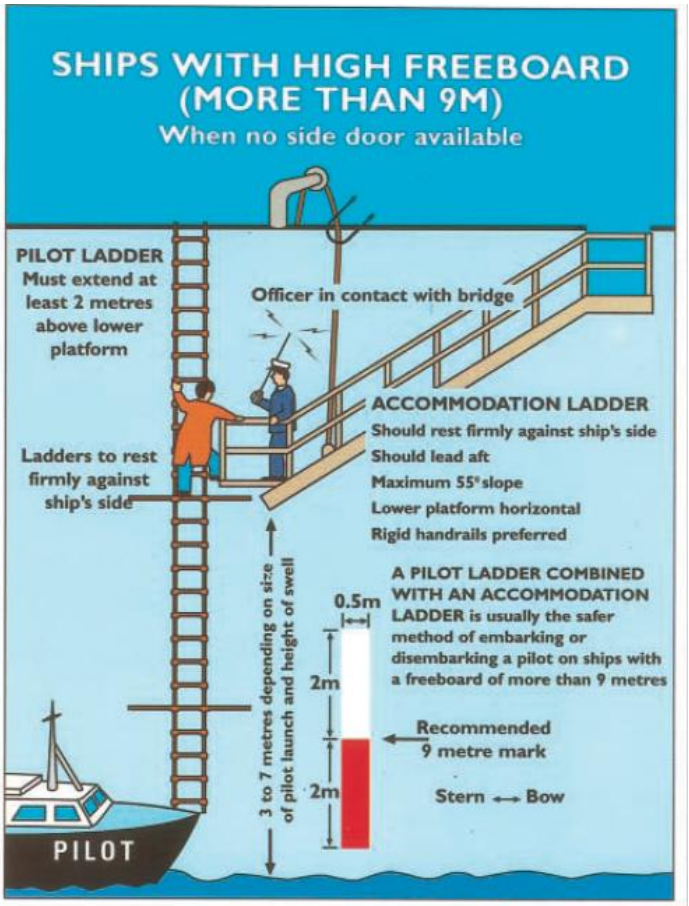


Figure 6: Extract of Annex 2 to IMO Resolution A.960
Source: IMO

3.5 The launch

The launch used for the embarkation in the morning of 23 October 2012 and disembarkation in the afternoon the same day was a local boat arranged for by the agent. The launch is approximately 10 metres long and 3 metres wide.

When embarking the launch, persons had to step directly onto the deck on the launch. There was nothing to hold on to. It was thus difficult to get on board in a safe way without help. One or two of the crew members on the launch therefore took a grip on embarking crew members holding them around their waist and guiding them on board.

It was observed that there were problems with the engine. At one point in time, the engine had stopped for a while and the crew was seen trying to solve the problem. Meanwhile the launch was drifting.

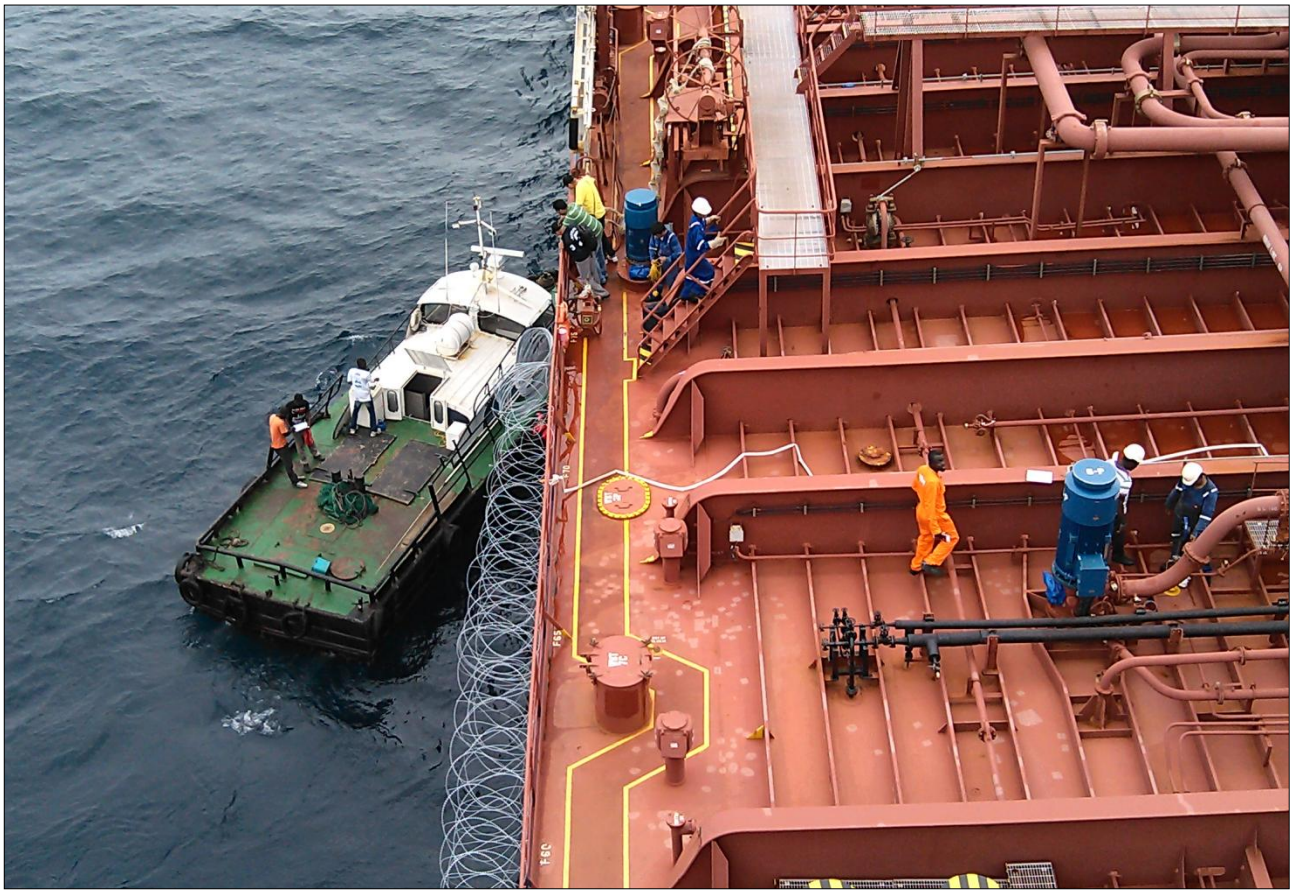


Figure 7: The launch alongside in the morning of 23 October 2012
Source: NORD GOODWILL

3.6 Safety Committee Meeting

Shortly after the accident, a short briefing was held with participation of the crew.

In the evening of 27 October 2012, an extraordinary safety meeting was held. Besides information about the accident, the agenda contained suggestions for corrective actions.There were three suggestions:

- *"The launch could be fastened with a painter in order to keep it alongside during crew embarkation/disembarkation."*
- *"Crew members should wear inflatable lifejackets during transfer from ship to launch."*

- *"It was suggested that the crew department requests the agent to ensure that service launches are suitable for personnel transportation."*

4. ANALYSIS

In the tanker trade it is common practice to transfer personnel at anchor or when moored at oil terminals at sea.

Embarkation and disembarkation is done either by a pilot ladder or by a combination of the ship's gangway and a pilot ladder. Normal practice on board NORD GOODWILL was to use the pilot ladder solely when the freeboard was less than 9 metres. There were no procedures in the shipboard main manual (safety management system) relating to the transfer of personnel at sea. Inflatable lifejackets and/or fall arresters were not used when embarking/disembarking by means of a pilot ladder.

The agent decides which launch is to be used for the transfer of personnel. It is the crew department who finds the agent. In normal circumstances, there is no dialogue between the crew department and the agent about the suitability of the launch.

The launch did not have any life-saving appliances on board. It had nothing suitable to hold on to when embarking it. The crew consisting of three local persons had difficulty manoeuvring the launch. After the fall of the chief engineer, several attempts were made to close in on the chief engineer before succeeding. In the timeframe after the fall and the recovery, the engine fell out. From the time when the chief engineer fell into the water, some 10-15 minutes elapsed. There was a lack of operational readiness for a man-over-board situation. All these circumstances meant that the time spent recovering the chief engineer was prolonged.

The period during which the chief engineer was in the water may have tired him. This is indicated by the fact that he did not speak, move or react in any way while in the water except for holding onto the heaving line. The tiredness contributed to his inability to keep his head above the water.

According to the death certificate, "*the cause of death was drowning and the direct cause of death was asphyxia by submersion."*

Though the chief engineer apparently had his head above the water except for a short span of time just before he was recovered, it is possible to drown due to spasms in the larynx cutting off the air supply in the respiratory passages.

First aid to a person suffering from drowning is to give cardiopulmonary resuscitation (CPR) as soon as possible. This involves pressing air into the drowned person's lungs by exhaling air into the lungs through the person's nose or mouth. In addition, chest compressions should be given at a minimum rate.

Observations indicate that, after having been recovered by the launch and before the launch headed for shore, the chief engineer was placed on his back and given no CPR.

It was not possible to use the rescue boat because of piracy protection rigged on the superstructure involving razor wire. It is estimated that it will take 30 minutes to prepare a launch of the rescue boat. Had it been possible to use the boat on the day of the accident, it would not have been considered as the situation with the chief engineer in the water was not considered dangerous. Besides, the crew assisting with the transfer of personnel are basically the same as those who launch and operate the rescue boat.

The ship's safety management system did not contain any procedures on the embarkation and disembarkation of personnel at sea.

5. CONCLUSIONS

A fall into the water should always be considered a dangerous situation. Calm weather and high seawater temperatures do not mean that there is no danger.

The ship's shipboard main manual did not contain any procedure regarding the transfer of personnel to/from a launch/barge.

The launch used for disembarkation was unsuitable.

The chief engineer died due to drowning, probably caused by submersion of the head for a short period of time. The danger related to submersion of the head was increased due to the lack of an inflatable lifejacket and due to the time that it took to recover him. The use of a combination was not chosen as the draft was less than 9 metres. Climbing 8.5 metres down the pilot ladder could have exhausted the chief engineer.

After having been recovered, he did not receive cardiopulmonary resuscitation.

It was not relevant to use the rescue boat. The use of razor wire as piracy protection meant that the ship was unable to use the rescue boat, thus endangering the ship's safety readiness.

6. PREVENTIVE MEASURES TAKEN

After the accident, Norden published Safety Alert Bulletin No. 21/2012 – "*Fatality during transfer of personnel to launch".*

On 1 November 2012, Norden established document 7.10.10 for the shipboard main manuall (SMS). The document is revised on 1 March 2013. The subject of the document is "*Transfer of personnel to/from barge."*

The document states among other things:

- It is the judgement of the master to decide whether it is safe to transfer personnel between the ship and a launch and as far as possible to assess the launch for its ability to manoeuvre and for its design for use as launch.

- A proper risk assessment with work instructions must be made.

- Personnel to be transferred by launch shall wear inflatable life jacket. In cases where the transfer is by barge lying steady alongside persons shall as well be equipped with harness and fall arrester

- The use of combination shall always be considered whenever possible even if the freeboard does not exceed 9 metres.

In order to enhance and ensure a common understanding regarding safety, seminars are held twice a year in Copenhagen, the Philippines and India. This means that, over period of two years, almost all officers will have participated in such a seminar. The fatal accident in connection with the crew change involving NORD GOODWILL on 23 October 2012 at the roads of Tema has been an issue at one of those of these seminars.

Magazines containing news and information about changes to the SMS systems are sent to all ships and relevant parties in the organisation. The same news items are uploaded to an extranet to which all relevant persons have access.

7. INITIATIVES

The Danish Maritime Authority has informed that, during the May 2013 session of the IMO Sub-Committee on Training and Watchkeeping, an international IMO guidance for the transfer of persons at sea was drafted. The draft is based on a guidance issued as early as in 2010 by the Danish Maritime Authority.

It is expected that the draft will be approved by the IMO's Maritime Safety Committee during its next session to be held in the spring of 2014.