



DANISH MARITIME AUTHORITY



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**MARINE ACCIDENT REPORT
DIVISION FOR INVESTIGATION OF MARITIME ACCIDENTS**

**THOR GITTA
Fatality and injury
21 May 2009**

Division for Investigation of Maritime Accidents. Danish Maritime Authority,
Vermundsgade 38 C, DK 2100 Copenhagen
Phone: +45 39 17 44 00, Fax: +45 39 17 44 16 CVR-nr.: 29 83 16 10
E-Mail: oke@dma.dk - www.sofartsstyrelsen.dk

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Apart from the picture on the front page which is taken by Juergen Braker all pictures in this report is taken by Erland Rasmussen.

The casualty report is available on our homepage: www.dma.dk.

The Division for Investigation of Maritime Accidents

The Division for Investigation of Maritime Accidents is responsible for investigating accidents and serious occupational accidents on Danish merchant and fishing vessels. The Division also investigates accidents at sea on foreign ships in Danish waters.

Purpose

The purpose of the investigation is to clarify the actual sequence of events leading to the accident. With this information in hand, others can take measures to prevent similar accidents in the future.

The aim of the investigations is not to establish legal or economic liability.

The Division's work is separated from other functions and activities of the Danish Maritime Authority.

Reporting obligation

When a Danish merchant or fishing vessel has been involved in a serious accident at sea, the Division for Investigation of Maritime Accidents must be informed immediately.

Phone: 39 17 44 00
Fax: 39 17 44 16
E-mail: oke@dma.dk

Cell-phone: +45 2334 2301 (24 hours a day).

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1 Summary

All times are in local times (UTC +7)

THOR GITTA left Fremantle 19 May in the afternoon on voyage to Dar Es Salaam with a cargo of small trucks in the lower hold and containers on the weather deck.

After departure the ship encountered bad weather with strong winds, heavy seas and swell. When sailing in bad weather it is custom to check the lashings on the cargo. In the morning of 21 May the chief officer and two ratings entered the holds to inspect the lashings. On the way back from the lower hold they discovered that some bins and drums on the tween deck filled with heavy lashing gear had broken loose and was sliding from side to side.

In order to lash the bins and drums one able seaman (AB) got caught between a sliding bin and the ship's side. Due to the imminent danger he ran to the ladder leading to the weather deck to escape from the tween deck. While climbing the ladder he lost his grip and fell into the lower hold. As a consequence of the fall he died.

Trying to lash the loose bins the chief officer suffered injury to his lower leg and foot.

The accident occurred about 290 nm WNW of Fremantle. After the accident the ship returned to Fremantle where it arrived 23 May at 0600.

2 Conclusion

The causes that led to the fatality of the AB and injury of the chief officer were the following:

- The fatality was caused by a fall of 6 metres to a lower level. (7.1)
- The lack of any kind of fall arrest appliances. (7.1)
- The heavy metal bins sliding from side to side. (7.2)
- The lashing bins were not fit for the service they were used in, and no risk assessments of the replacement of drums with the bins had been made. (7.2)
- The unsuitable securing arrangements in the cargo spaces had enabled the lashing bins to work their way loose in heavy seas (7.2)
- The bins were originally secured in an area in the tween deck which did not have any dedicated lashing points on any vertical surface thus reducing the effectiveness of the lashing applied in Fremantle. (7.2)
- Bad weather (7.3)
- The planning of securing the moving bins and drums was insufficient. (7.4)
- No workplace risk assessments were worked out focusing on the specific work on board THOR GITTA. (7.4)

3 Preventive measures

As a consequence of the fatality and injury the company has initiated following preventive measures:

- Metal drums are not used any more to store lashing gear. They are replaced by metal bins.
- The metal bins containing the lashing gear will be stored in open top containers. The containers have 4 feet sides. The containers can be stored safely in any container bay in both the holds and on the weather deck. The securing of the container is done by help of twist locks.
- Fall arrest systems have been mounted in the access shafts to the holds both fore and aft.
- The safety instructions and workplace risk assessments for entering the holds have been revised.
- To enhance safety extraordinary safety meetings will be held and work instructions given.

These preventive measures are implemented on THOR GITTA's sister ship THOR INGEBORG as well.

The other ships in the fleet have received information (lesson to be learned) about the fatality and injury. Where steel drums are used for storage of lashing gear they are to be replaced by metal bins.

4 Recommendations

1. The shipping company is urged to promote a general discussion about safety management on board their ships not only focusing on procedures to make standard operations safe; but also enhancing Safe Culture on board in order to make crewmembers think pro-actively and identifying hazards before they turn into an actual risk.
2. When planning tasks on board the crew shall be involved thoroughly and the risk assessments shall be made in a way that ensures it can be documented.
3. The shipping company is called upon to make sure that assessments are carried out whenever undertaking technical dispositions regarding their ships.

5 The investigation

The Investigation Division has interviewed the master, the chief officer and an ordinary seaman (OS). Furthermore information is received from the shipping company and the Australian Transport Safety Bureau and Fremantle Police.

6 Factual Information

6.1 Accident data

Type of accident (the incident in details)	Fatality to seafarer due to fall and injury to another seafarer
Time and date of the accident	21 May 2009 at 0930
Position of the accident	30°13' S - 108°28' E
Area of accident	Indian Ocean 380 nm WNW of Fremantle
Injured persons	One fatality and one person injured
IMO Casualty Class	Very serious

6.2 Navigation Data

Stage of navigation	During transit
Port of departure	Fremantle
Date and time of departure	19 May 2009 at 1450

6.3 Ship data

Name	THOR GITTA
Home port	Svendborg
Call sign	OZBK2
IMO No	9137727
Owner	Thor Ingeborg K/S
ISM responsible operator	T-Red A/S
Register	DIS
Flag State	Denmark
Construction year	1996
Type of ship	General Cargo Ship
Tonnage	4,078 GT
Classification	Germanischer Lloyd
Length	101.30 m
Engine power	3,960 kW
Area served	World Wide

6.4 Weather data

Wind – direction and speed	WNW 14 – 17 m/s
Sea	8 m wave height and large swells
Visibility	Good
Light/dark	Light

6.5 The Crew

Number of crewmembers	14
Number of crewmembers certified to act as bridge watch	3
Watch on the bridge	2 - shift
Occupation on board the ship at the time of the accident (crewmembers relevant to the accident)	Age, Certificate of Competency, other certificates, training, service at sea.
Master	Age 62 years. Holder of Certificate of Competency as Master, STCW II/2. Also holding certificate in GMDSS. Has been going to sea since 1964 and he passed Master examination in 1971.

	He has been working for T-Red A/S since December 2003. He signed on THOR GITTA 30 March 2009. He is trained in disease treatment and disease prophylaxis on board ships.
Chief officer	Age 49 years. Holder of Certificate of Competency as Master, STCW II/2. Has been serving as an officer since February 1980. Signed on THOR GITTA 14 March 2009. It was his second contract with T-Red A/S.
Able seaman	Age 37 years. Has received extensive maritime education. Serving on merchant ships since 1995. Has been working for T-Red A/S since April 2008.
Ordinary seaman	Age 32 years. Has 3 years education on maritime college in the Philippines. Has been going to sea since 2002. Signed on THOR GITTA 5 February.

6.6 Narratives

THOR GITTA is a General Cargo Ship of 4,078 GT. It has a lower hold and a tween deck in the full length of the ship. The tween deck can be positioned on three levels depending on the height of the cargo carried in the lower hold. Two water ballast side tanks are located at the forward end of the hold. The top of these tanks stands about 1.5 m above the tween deck's number one pontoon and have 20 ft container footings located at the corners. The ship carries general cargo and containers in tramp trade. On this particular voyage there were small trucks in the lower hold and containers on the weather deck. The tween deck was empty except from dunnage, bins and drums with lashing gear. The ship departed Fremantle 19 May in the afternoon on voyage to Dar Es Salaam.

6.7 The Crew

The total number of crew was 14. Amongst the crew there were three navigation officers including the master, two able seamen and 3 ordinary seamen. At sea the chief officer and 2nd officer worked a 2-shift watch. Four deck ratings worked a 6 hour watch-keeping routine, on a week on/week off basis, both at sea and in port. During the week when they were not on watchkeeping duties, they were engaged in day work activities along other crew members.

6.8 Safety instructions and workplace risk assessments

The master explained that crew members, when signing on, received instructions regarding the general circumstances related to the safety on board. These instructions were given by the chief officer. Further instruction was given along when called for. It occurred that experienced crew members instructed and showed less experienced crew members how to perform work tasks and the elements of risks connected to these tasks.

Copies of the ship's ISM-system and workplace risk assessments are situated in folders in the deck office. These folders were shown to new crew members and their purpose explained. The crew members were aware of the work place risk assessments.

This documentation is in English. The workplace risk assessments were the standard ones worked out by Seahealth Denmark. No workplace risk assessments were worked out focusing on the specific work on board THOR GITTA.

6.9 The securing of the cargo

At about 1100 on 19 May, cargo- and lashing operations were completed. The trucks in the lower hold were lashed with chain lashings. The lashing had been done by stevedores from ashore. The chief officer supervised the lashing work and found it OK. There was cargo in the lower hold only. Occasionally the lashing is done by the crew. On numerous occasions the crew had done the lashing work and was therefore familiar and experienced with this work. During voyages it is normal procedure to inspect the lashings. It takes three persons to inspect the lashings in case that some lashings have to be tightened. It takes two persons to tighten the chain lashing and one person to place the lock in a new position.

At an extraordinary survey in Mumbai 30 June – 1 July 2009 the Danish Maritime Authority revealed that:

“Cargo securing manual/PMS hold no records of periodical inspections of lashing gear.”

6.10 Stability

After departure the chief officer and master discussed the ship's stability. The chief officer wanted to reduce the stability because calculations showed a GM_t of 1.50 m. As a result the ship had very short periods of rolling and pitching.

Due to considerations of the stability when loading, the ships double bottom tanks and aft peak tank was filled with sea water. Together with heavy cargo in the lower hold this disposition made the ship stiff at departure. To reduce the GM_t ballast water in the double bottom tanks and the aft peak tank was discharged. The next day, 20 May, the ship received information from the agent regarding the weight of the containers on the weather deck. Information given on departure had been wrong and the correct values were given. A re-calculation of the stability showed that the ship still had an excessive GM_t giving a period of roll of 9 – 10 seconds.

6.11 Communication

Prior to the inspection of the lashings in the lower hold, the chief officer told the AB and OS to stay close to him and listen to the instruction he might give. Communication with the master on the bridge was done by VHF.

6.12 Inspection of the cargo and preparations before the inspection

On the morning of 20 May, in preparation for expected rough weather, the cargo lashings in the hold were inspected. The inspection found the lashing to be in good order.

At 0730 on the day of the accident the master and the chief officer agreed to inspect the lashings again due to the bad weather for the last 24 hours. During the night the ship had moved heavily with short rolling- and pitch periods. The ship had also experienced slamming. It was a common procedure to inspect the lashings when the ship has been or was in a bad weather condition.

About the time of the accident the weather was very bad. The waves were 8 metres high and there was heavy swell. This caused the ship to move heavily in the sea.

In order to make the movements of the ship as small as possible during the inspection the master reduced the speed to between 2 – 4 knots and the ship was turned up against the wind. The ship was thus in steerage way. When the ship was hove-to it did not take water on the weather deck any more.

On the day of the accident the OS was aroused by the deceased AB who was on watch. The OS was of duty due to a Danish holiday. He was ordered to take part in the inspection of the lashings together with the AB and the chief officer.

At 0845 the chief officer, AB and OS went forward to carry out the inspection. All three were wearing working clothes, hard hat, gloves and safety shoes. Each had also a torch light and a VHF. It was not the first time they carried out this type of inspection. After turning on the light in the holds they entered the lower hold by a vertical steel ladder. No unusual noise or movements were observed. Moving from fore to aft they inspected the lashings. The inspection revealed that the lashings on the trucks were in good order. By VHF the master was informed of this. After this message there was no communication on the radio for approximately 10 minutes. As some containers were loaded at the aft part of the lower hold they had to exit through the fore entrance.

During the inspection in the lower hold the movements of the ship were moderate.

6.13 The containers with lashing gear

The containers with lashing gear were placed on the tween deck. They consisted of 4 metal bins and 2 metal drums. A bin is a steel box with open top 100 x 80 x 60 cm. When filled with lashing gear they carry a considerable weight. If loaded with twist lock the weight is about 2 ton. At departure the bins and drums were lashed by means of web binders against the ship's side. Two bins in starboard side and the other two in port side. Each bin had its own lashing.



A metal bin used lashing gear



Bin filled with lashing gear

The barrels were secured in port side by one shared lashing. It was the crew who had secured the bins and drums. After inspection of the cargo the day before the accident extra web binders were used to secure the bins and drums. This was done because of the bad weather.

6.14 The accident

On their way back to the fore entrance the AB and the chief officer heard “some banging” on the tween deck. The chief mate looked up and, between the gap in the tween deck pontoons, he could see that three lashing bins were sliding about 2 m from side to side across the deck. By the ladder they climbed up to the tween deck. They found that a lashing bin had moved about 2 metres off the ships side and all the bins and metal drums were disengaged from their lashing.

The chief officer asked the AB and the OS to help securing the bins and drums. At this particular time the ship was laying relatively calm in the water with only minor rolling. Successfully they managed to secure two of the bins with web binders before the ship suddenly took some heavy lurches. The result was that the remaining bin and drums started to slide from side to side. Because of the dangerous situation the chief officer shouted: “Take care – take care”. The chief officer and the OS jumped aside. The AB tried to secure the remaining bin but due to the movements of the ship he lost his balance. He was shortly after hit in the back by the moving bin and caught between it and the ship’s side. The OS jumped backward, seeking protection aft of the starboard water ballast tank. When the bin slid away the AB got up and ran to the ladder to exit the tween deck. The chief officer tried to stop the moving bin by holding on to it, but it was too heavy. He was dragged after the bin from side to side. The chief officer had all his attention on the AB and did not focus on his own safety. When holding on to the bin the chief officer got his leg and foot squeezed between the bin and the ship’s side. He got a flesh wound on the right lower leg and contusion to the toes on the left foot.

The AB now got hold of the ladder with both hands and had also both feet on one of the steps. He started to climb up but after a few steps he lost his grip and fell down into the lower hold. It is not known whether his fall on the tween deck or getting hit by the bin caused any indisposition. There was no communication between the AB and the two other when he went for the ladder.

The chief officer now jumped to a safe position on top of one of the water ballast side tanks. He called the master on VHF and shouted to him to stop the rolling of the ship. He informed the master that there was a need for help and oxygen to the AB. After the movements of the ship had decreased he left the top of the tank and called the master again requesting medical assistance as the AB was badly hurt. The OS waited until the movements of the ship became calmer after which he entered the lower hold to see what had happened to the AB. The AB was still breathing. A little blood was seen around his mouth. The chief officer left the tween deck and went to the ship’s hospital where he met the master who was fetching the first aid bag.

The master immediately ordered the 2nd engineer to go and assist the AB. Other crew members were called to join the 2nd engineer. The master called the 2nd officer to relieve him on the bridge and rushed to the scene of the accident.

6.15 Health Treatment

The first person to arrive at the site of the accident was the OS. He found the AB lying on the tank top. The AB was unconscious and unable to talk but he was breathing. The OS tried in vain to get in contact with the AB.

Shortly after the accident the 2nd engineer and other crewmembers entered the lower hold and gave the AB first aid. The AB was placed in recovery position. Cuts and bruises in the face were observed and blood was trickling from his mouth, nose and

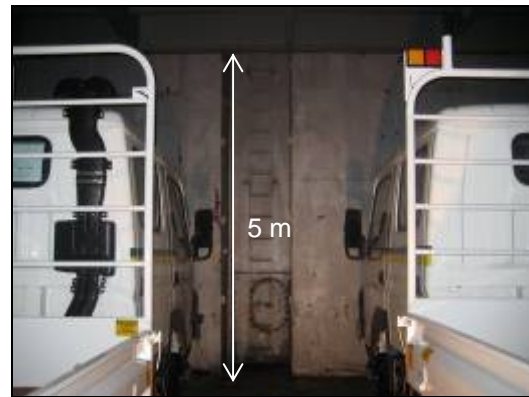
right ear. When the master arrived the AB had difficulty in breathing and weak pulse was observed. After placing a neck collar the AB was turned to his back and the respiratory passages cleansed. The AB received cardiac massage and was ventilated with a resuscitation bag and mask. After a short time no pulse was noticeable.

At 1030 Radio Medical (RM) was contacted. RM requested a pupil reaction to be carried out. As the pupils were large and there was no reaction RM declared the AB as deceased at 1045. Afterward it was established that the AB died due to the traumas caused by the fall.

The chief officer who had suffered a flesh wound to his lower leg and contusion to a foot received first aid at the ship's hospital. At 1340 RM was contacted once again to get medical advice concerning the chief officer. Treatment was prescribed and hospitalization advised on arrival Fremantle.

6.16 Scene of the accident on board the ship

The ladder leading from the weather deck to the tank top is a metal ladder of a type commonly used in ships. It was not fitted with any kind of fall arrest appliances. There were no platforms from the hatch opening and down to the tank top in order to reduce the height of a fall. There were neither ladder hoops nor arrangements for fall prevention equipment in the form of rails or wires.



Ladder seen from the tank top



How to enter the tween deck from the ladder

To enter the tween deck it is necessary to straddle with one leg on the ladder and the other one on the tween deck. To facilitate this manoeuvre a rail to hold on to is welded to the side of the shaft.

In the position the tween deck had at the time of the accident there was a distance from the tween deck to the tank top of 5 metres.



Ladder seen from the tween deck



Ladder seen from the entrance to the hold

6.17 Legislation

Provisions for work space and workstation arrangement and equipment are stated in:

“Notice from the Danish Maritime Authority B – The Construction and Equipment, etc. of Ships – Chapter B II-4 A.”

Amongst other regulations chapter B II-4 A prescribes:

Regulation 7 – Prevention of falls

1. *In areas where it can be foreseen that there is a risk of falling more than 2 m to the level below in connection with work carried out, this risk shall be met effectively. This can be done by setting up rails, fences, coverings and similar measures with the same level of safety. Where this is not possible, arrangements for fitting fall protection equipment shall be established.*
2. *Around hatches, companionways or similar openings in decks the coaming height of which is less than 0.75 metres measured from the top edge of the deck and which lead to spaces with a depth of more than 1.5 metres, it shall be possible to set up fencing of a height of at least 0.90 metres consisting of rails, handropes, chains or the like. In connection with these hatches, openings, secure ladders and/or steps on the hatch coaming shall be provided. The necessary space shall be provided around hatch coamings.*
3. *In engine rooms, cargo tanks, cargo holds, pump rooms, storerooms and similar places, staircases and ladders between level differences of 2 m or more shall be designed in such a way that it is possible to pass from one level to the next completely safely. Thus, staircases and ladders shall have a suitable inclination, which shall be less than 70 degrees in relation to the horizontal plane, and which shall have railings⁵⁾ along their entire length. In exceptional circumstances, where this is not possible, regulation 7.3 shall be observed.*
4. *Staircases or ladders with an inclination in relation to the horizontal plane of 70 degrees or more and with a height of more than 5 m above the deck or similar surface shall be provided with fittings to prevent falls when people pass between the levels. Such fittings shall, in the first instance, be either ladder hoops or arrangements for fall prevention equipment in the form of rails or wires.*
 - 4.1. *Ladder hoops shall be fitted from a height of 2.20 m above the surface. The ladder hoops shall continue at least 1 m above the level that the ladder leads to and shall at least comply with DVS 50027 or similar standards. Rest plat-*

- forms shall be established at every 5 m. At the platforms, the sections of the ladder shall be displaced by at least 90 degrees in relation to each other.*
- 4.2. *The arrangements in the form of wires or rails shall be mounted uninterruptedly along the entire length of the access route and at least 1 m above the level that the ladder leads to. Rest platforms shall be established at appropriate places so that the overall distance of the staircase/ladder section does not exceed 15 m.*
 - 4.3. *The rest platforms shall be of an appropriate size, but at least 600 x 600 mm, and be provided with anti-slip covering and a guardrail with knee and toe rails at least 1 m in height.*
 5. *Where it is not possible to mount ladder hoops or arrangements for fall protection equipment, measures with the same level of safety shall be taken to prevent falls when people pass between levels.*

These provisions apply to “New ship” where “New ship” is defined as: *A ship whose keel has been laid or which is at a similar stage of construction on 1 January 2001 or later.*

Technical regulation on occupational health in ships is stated in:

“Notice A from the Danish Maritime Authority”

In extract the regulations prescribes:

Regulation 2 Planning and organisation of work

1. *The work shall, at all stages, be planned and organised so as to ensure safe and healthy working conditions. It shall be ensured that no designs, plans, detailed solutions and working methods that may be dangerous to or otherwise impair health and safety in connection with the performance of work are prescribed or assumed used. Furthermore, it shall be ensured that the overall exposure in the working environment does not, in the short or the longer term, impair the health or safety of the employees.*
2. *The planning and organisation of work shall, furthermore, be carried out taking due account of the preventive principles stated in annex I. Insofar as the assessment made in this connection is of particular importance to the health and safety at work, it shall be made in writing.*

Regulation 3 Performance of work – general requirements

1. *All aspects related to the work shall be performed so as to ensure health and safety, both in the light of a separate assessment and an overall assessment of the occupational health conditions that may affect the physical or mental health of the employees in the short or the longer term.*

6.18 Work/rest hours

Records of hours of rest for May 2009 show the following:

- On 20 May the *master* had 12.5 hours of rest. In this 24 hours period there was a coherent period of 7.5 hours of rest. Before the accident on 21 May the *master* had rested coherently for 7.5 hours.

- On 20 May the *chief officer* had 12 hours of rest. In this 24 hours period there was 2 coherent period of 6 hours of rest. Before the accident on 21 May the chief officer had rested coherently for 6 hours.
- On 20 May the *AB* had 12 hours of rest. In this 24 hours period there was 2 coherent period of 6 hours of rest. Before the accident on 21 May the AB had rested coherently for 6 hours.
- On 20 May the *OS* had 14 hours of rest. In this 24 hours period there was 2 coherent period of 7 hours of rest. There are no records for 21 May.

7 Analysis

7.1 The access to the holds

The access to the holds is through entrances in the fore and after part of the hold. Vertical steel ladders are leading from the hatch openings in the weather deck. There are not any platforms to reduce a fall from the ladder. Neither hoops nor arrangements for fall prevention equipment in the form of rails or wires were installed. From the tween deck to the tank top there was a distance of 5 metres. This enabled the possibility of a free fall of more than 5 metres while climbing up the ladder from the tween deck.

7.2 The bins

All the bins and drums were placed on the tween deck. None of the crew members had ever experienced that the lashings on the bins and drums had broken before.

The lashing bins came on board in Northern Europe in the end of March 2009 and had thus only been on board for approximately two months before the accident.

The bins had been ordered to replace “44 gallon” drums used to store unused lashing equipment. The master had originally ordered replacement drums, but the order was changed ashore as it was believed that the drums were unsafe and unreliable.

Prior to the introduction of the bins, no risk assessment was undertaken on the use of these containers in a ship where it was necessary for these containers to be moved, depending on the position of cargo within the hold. There were also no risk assessment carried out, either ashore or on board, on the difference in weight between a laden lashing bin and a laden drum, the latter being significantly lighter.

The bins were simply introduced into service and were secured in the same way the drums had been on previous occasions.



Web binder to secure the bins



The metal “feet” of the bins

There were lashing points/lifting points on the tops of the bins, and dedicated lashing points were available in the majority of the tween deck space, both on the hold's bulkheads and in the deck itself (flush elephant foot sockets.) However in the section of the tween deck in which the bins were secured, there were no dedicated lashing points on any vertical surface. There were several lashing points in the pontoon itself but none were in the immediate vicinity of the bins.



Drum caught between two sections of the tween deck

Consequently, the strops were secured to the container footings on the top of the port water ballast tank. On the bottom of the bins were metal bars. The bins and drums were standing directly on the tween deck and as the strops led upwards it did not apply any downward pressure on the bins. These circumstances had reduced the friction between the bin and tween deck contrary to bins and drums nested on wood.



Skid marks from the moving bins

It is likely that the continuous movement of the ship had slackened the web binders making the necessary force to break them considerable smaller.

7.3 The Weather

At the time of the accident the weather was rough with wind from WNW about 17 m/s. The waves had a height of 8 metres and in addition there were swells. This caused the ship to roll and pitch heavily.

In order to make the rolling and pitching as small as possible, the ship was hove-to and the speed was reduced to manoeuvring speed. Even though the movements were reduced by these manoeuvres it is no guaranty for excessive movement of the ship due to abnormal waves and swell. At the time of the accident the ship was hit by swell from abeam causing the ship suddenly to roll heavily.

7.4 The planning and the securing of the moving bins and drums

After having realized the situation with the sliding bins and drums on the tween deck the three crew members entered the tween deck. While standing at the fore part of the tween deck they were in no imminent danger. The only communication between the chief officer and the two ratings was a request for help to secure the sliding drums and bins. There were no discussions of how to solve this task or about the obvious risk in the attempt to lash the bins and drums. In general no workplace risk assessments were worked out focusing on the specific work on board.

7.5 Rest hours.

At sea and in port the chief officer and 2nd officer worked a 2-shift watch. Four deck ratings worked a 6 hour watchkeeping routine, on a week on/week off basis, both at sea and in port. During the week when they were not on watchkeeping duties, they were engaged in day work activities along other crew members.

The ship arrived at Fremantle 18 May at 2200 hours and stayed in port for 16 hours. Prior to berthing in Fremantle the ship had been on a voyage from Dampier. The duration of this voyage was approximately three days and nights. On the voyage before and during the stay in Fremantle the deceased had worked as day worker. At the time of the accident he was keeping the 0600 – 1200 watch. The accident took place 1 day and 9 hours after departure.

It cannot completely be ruled out, that the AB could have been influenced by the bad weather in combination with the work roster. The hours of rest for the AB were in compliance with the Order, ILO convention 180 and part A, Chapter VIII of the STCW code for crewmembers engaged in watchkeeping.