



DANISH MARITIME AUTHORITY



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

**UNO
Accident to seafarer 22 March 2010
Injury while using grinder**

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The picture on the front page shows UNO in Hamburg.
Picture by the Division for Investigation of Maritime Accidents.

The casualty report is available on our homepage: www.dma.dk at the following link:
<http://www.dma.dk/Investigation/Sider/Mainpage.aspx>

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.

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1 Summary

ALL TIMES ARE IN LOCAL TIMES (GMT – 2)

The general cargo vessel UNO was on voyage from Nordenham, Germany, to Hamburg with a cargo of large cable containers. The ship departed Nordenham 20 March 2010. Before departure the cable containers were secured by help of lashings and cargo stoppers. On arrival the cargo securing was to be removed before discharging. The cargo stoppers that were welded to the tanktop were to be removed by the crew with angle grinders. During the removal of the cargo stoppers an AB cut two fingers seriously on his left hand.

2 Conclusions

Immediate causes (6.1)

Unsafe actions:

- The Division of Investigation of Maritime Accident finds it was dangerous to use angle grinders to remove the cargo stoppers.
- The Division of Investigation of Maritime Accident finds that the way to secure the cargo from sliding was inexpedient.
- The Division of Investigation of Maritime Accident finds the fact that the cargo stoppers were to be removed before discharging the cargo enhanced the risk of an accident.
- The Division of Investigation of Maritime Accident finds that the person who planned the work and the crew members cutting off the cargo stoppers did not reflect properly to the risk of the work.

Unsafe surroundings:

- The Division of Investigation of Maritime Accident finds that the limited working space made it difficult to remove the cargo stoppers in a safe way.
- The Division of Investigation of Maritime Accident finds that the defective angle grinder endangered the user and increased the risk of damage because it could not stop if let go.

The safety system (6.2)

- The Division of Investigation of Maritime Accident finds that the use of personal safety protection equipment was inadequate.
- The Division of Investigation of Maritime Accident finds that the deck hands had a poor knowledge of the work place assessments as the assessments were not accessible and due to the fact that they were written in English. A language the deck hands not were familiar with.
- The Division of Investigation of Maritime Accident finds that the removal of the cargo stoppers was not planned properly.

Safety culture (6.3)

- The Division of Investigation of Maritime Accidents finds that the owner, the ISM responsible operator and the master of the ship had not developed a good safety culture on board.

3 Recommendations

The Division of Investigation of Maritime Accidents has the following recommendations:

1. The Division for Investigation of Maritime Accidents recommends the ISM responsible operator and the owner to include in the safety system ways to ensure that all crewmembers master the working language on board at such a level, that it does not threaten the safety on board.

Work risk assessments / Safe Job Analysis are not always prepared in advance and in details for tasks that perhaps is carried out seldom. Therefore, according to the company's Safety Management System, risks and safety should be talked over and a Safe Job Analysis must be prepared before initiating any such job.

2. The Division for Investigation of Maritime Accidents recommends the ISM responsible operator and the owner to implement in the safety system that the ship's management ensures a proper dialog regarding safety issues between the crew members and that special attention is given to make sure that any given instruction is understood by everybody whenever planning any work.

4 The Investigation

The Division for Investigation of Maritime Accidents visited UNO 27 March 2010 to carry out investigation and examination on the scene of the accident. The ship was then at berth in Hamburg.

Statements were taken from the master, the chief officer, the injured AB and the OS.

5 Factual Information

5.1 Accident data

| | |
|--|--|
| Type of accident (the incident in details) | Cut in the hand while using grinder |
| Character of the accident | Injury to seafarer |
| Time and date of the accident | 22 March 2010 at 1100 |
| Position when the accident occurred | Hamburg |
| Injured person | An Able Bodied Seaman |
| Evacuation of the injured person | The injured AB was hospitalized in Hamburg |

5.2 Ship data

| | |
|-----------|------------|
| Name | UNO |
| Home port | Fredericia |
| Call sign | OUYH2 |

| | |
|--------------------------------|--------------------------------|
| IMO No | 8505630 |
| Owner | Uno Aps |
| ISM responsible operator/owner | Bjerrum & Jensen Svendborg Aps |
| Register | DIS |
| Flag State | Denmark |
| Construction year | 1986 |
| Type of ship | General Cargo Ship |
| Tonnage | 1,473 GT |
| Length | 79,02 m |

5.3 Weather data

| | |
|------------|-------|
| Light/dark | Light |
|------------|-------|

5.4 The Crew

| | |
|---|--|
| Number of crewmembers | 6 |
| Watch on the bridge | 6 on / 6 off |
| Minimum Safe Manning | 6 |
| Occupation on board the ship at the time of the accident (crewmembers relevant to the accident) | Age, Certificate of Competency, other certificates, training, sailing time. |
| Master | Age 63. Has been serving at sea since he was 15 years old. He signed on UNO 2 February 2010. For the last 1½ years he has been employed by the shipping company. |
| Chief officer | Age 44. Has been serving at sea as a chief officer for the last 10 years. He signed on UNO 4 January and signed off the day after the accident. |
| AB (The injured seafarer) | Age 48. Has been serving as a fisherman from 1982 to 1993. From 1999 he has been serving as OS/AB in the merchant fleet on different types of ships. He signed on UNO 17 October 2009. It was his first assignment on board this ship. |
| OS | Age 52. Has attended a seaman school for twelve month 30 years ago. Since his basic training he has been serving as a seaman. He signed on UNO in January 2010. He has been employed by the shipping company for 2 years. |

5.5 Narrative

UNO, a general cargo ship with a tonnage of 1,473 GT was on voyage from Nordenham, Germany, to Hamburg. The cargo consisted of six cable containers that were to be discharged to another ship, M/V WLADISLAV ORGAN, at the Buss Hans terminal. UNO departed Nordenham 20 March in the morning and anchored in the Elbe the same evening. The anchor was weighed 21 March at 0400 and UNO was alongside M/V WLADISLAV ORGAN at 0545.

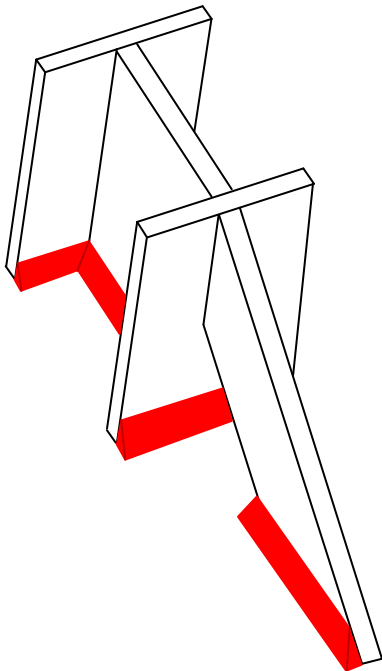
5.6 The securing of the cargo

The six empty cable containers were loaded in the hold. When in place the cables then were wound up in the containers. After the loading was completed the cable containers were to be secured. As per charter the securing of the cargo was to be carried out by a lashing company. The removal of the lashings and cargo stoppers were to be done by the ship's crew. The cargo was secured by lashings leading from the top of the cable containers and down to the deck in order to prevent them from tilting in case of rough weather. The height of the containers was approximately 2 metres. To prevent the containers in sliding cargo stoppers were welded on the tank-top.

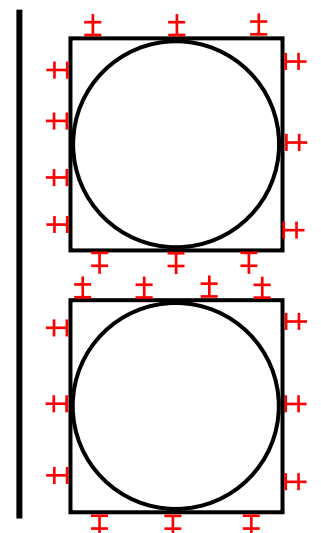
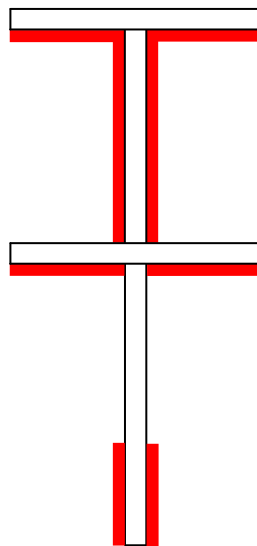


Winding of the cable in the cable container

The cargo stoppers were pieces of a steel beam with an H-profile. The dimensions of the stoppers were approximately 25 x 25 x 25 centimetres. Each of the six platforms carrying the cable containers were secured on all four sides with three or four cargo stoppers.



A cargo stopper. Weldings marked with red



Cable containers and cargo stoppers seen from above

5.7 Preparation, instructions

The cargo stoppers were to be cut off with angle grinders. Knowing the number, size and efficiency of the grinders on board UNO, the lashing company had borrowed the ship two bigger and more powerful angle grinders to cut off the stoppers. The grinders were to be returned to the lashing company after use. The removal of the lashings and cargo stoppers was agreed between the master and the lashing company and stated in the charter party. It was also stated in the charter party that the removal of the cargo stoppers were to be done before discharging the cargo.

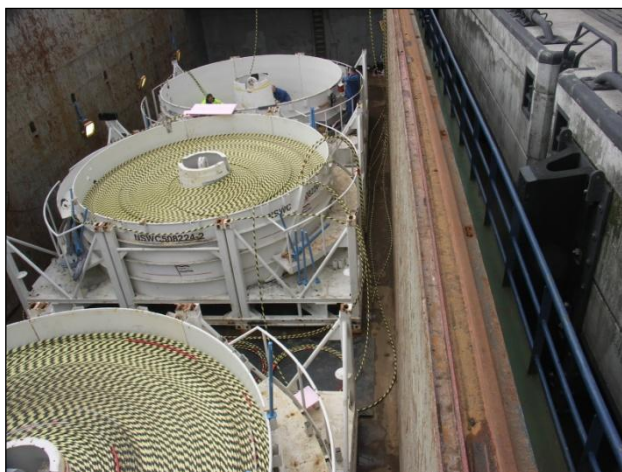
The grinders belonging to the lashing company had a bigger disk, higher revolutions and had an effect of 2000 W in contrast to the ships own that had a rated power of 1500 W. The more powerful grinders were to be used where possible. The size of the disk did not allow cutting the welding inside the profile of the stoppers. The ships own grinders with a smaller disk were used to cut in the narrow corners of the stoppers.

According to the chief officer the AB and OS were instructed of how to do the work. The instruction was given in Russian. A language all three spoke fluently. The AB and the OS informed the chief officer that they were familiar with removing cargo stoppers with angle grinders, as they had done this work on several occasions before, twice on board UNO.

5.8 Scene of the accident – The hold

The ship has one cargo hold in the length of the ship. The hold can be divided in a lower hold and a tween deck. On this particular voyage the tween deck was not rigged.

Due to the size and placing of the cargo only narrow passages were left for coming and going and working in the hold.



The hold

5.9 The Accident

At the day of the accident the chief officer had told the AB and the OS to cut off the cargo stoppers using angle grinders.

The work commenced at 0700 hours.

It turned out to be very difficult to remove the cargo stoppers as they were welded very close to the foundation on which the cable containers were placed. Furthermore the working space was very limited. The diameter of the containers almost matched the breadth of the hold. Between the cable containers and the sides of the hold there was only half a metre and between the cable containers there was the same limited space.

Due to the difficulty with cutting off the stoppers the chief officer ordered the cargo to be discharged before cutting the rest of the cargo stoppers.

At about 1100 hours while the AB was using one of the ships own angle grinders to cut a welding inside the profile the grinder suddenly jumped upwards and hit his left hand cutting the ring- and long finger seriously. Nobody witnessed the accident.

At the time of the accident the AB was wearing overall, safety shoes, gloves and a cap. He also used safety goggles to protect the eyes.

Immediately after the accident the AB climbed out of the hold on his own.



The defektive angle grinder

5.10 The crew and working routines.

According to the master the crew is typically from East European countries such as Poland, Russia and the Baltic States. The exception is the master who is Danish. The working language on board is English. The communication is sometime troublesome as the English skills of some crew members sometimes are poor. Orders and instructions are therefore explained in different ways and repeated until they are understood.

At sea the master and the chief officer work a two shift routine. The master is on watch 06-12. Every morning the AB and the OS attend the bridge to receive orders for the work of the day. The AB and the OS work as day men when at sea. Normally they also work as day men in port unless the cargo operations render it necessary to work 2 shifts. The basic tasks are cleaning and other ordinary ships work. If weather permits the work is done outdoor. The deck hands did not participate in watch keeping duties such as look out.

According to the master the deck hands are normally very skilled as they typically have been sailing for many years. As they are skilled they are not normally instructed regarding the daily work. In case they have any questions about the work the master or chief officer gives the necessary instructions. According to the master safety on board is discussed when ever needed.

5.11 Work/rest hours

The division for Investigation of Maritime Accident has received records of rest hours for the master, the OS and the engineer. The record of rest hours for the injured AB could not to be found.

Records of hours of rest for the master show that he had had 12 hours of rest and the engineer and the OS had had at least 16 hours of rest in the 24-hours period before the accident.

5.12 Safety on board

When crew members sign on they are given a general instruction in safety on board and they are presented to a familiarization check list that are to be filled out as a crew member acquire the knowledge of the items mentioned in the check list. The responsibilities according to the rolls are also explained.

Whenever a specific task is to be performed the crew are instructed in relation to the task. The working language on board is English.

According to the master safety meetings are held with regular intervals. At these meetings problems and safety issues are discussed. It is a rule that a crew member working alone has to report within a given time. If a crew member do not report as agreed his absence will be examined.

If one of the officers observes any irregularity or any breach to safety rules or precautions attention is called to the matter.

The ship has an SMS-system on board.

According to the master the work place assessments are based on the standard ones issued by Seahealth Denmark and they are written in English. A language the deck hands were not familiar with on a level enabling them to read the work place assessments. The work place assessments could not to be found when the Investigation Division visited the ship.

The shipping company makes internal audit on a regular basis. When visiting the ship audit reports were shown to the Investigation Division.

The day of the accident the master initiated an extraordinary safety committee meeting at 1430 in order to clarify the circumstances of the accident. All crew members participated in the meeting.

At the meeting there was a discussion on the importance of thorough inspection and testing of all tools before taking it in use and never to use tools with any kind of malfunction.

5.13 Health treatment / evacuation / consequences

When the AB after the accident came on deck he received first aid by the master. The agent called for an ambulance. The ambulance arrived after approximately 10 minutes and the AB was brought ashore on a stretcher. The ambulance was coming from the casualty ward situated on the terminal. The AB was later brought to a hospital for further treatment.

The AB is at present in physical rehabilitation and according to the physicians he should be able to take up work as a sea man again in August 2010.

5.14 Port State Control

At 10 November 2009 UNO was subject to a Port State Control in Porsgrunn, Norway.

No deficiencies in relation to the accident were found.

6 Analysis

6.1 Immediate causes

Unsafe actions

The cargo stoppers were to be removed with angle grinders. Pieces of a beam with H-profile were welded on the tanktop. Due to the profile of the stoppers it was very difficult to cut them off as the working space in the hold was limited and there was close proximity to the cargo. The risk of the grinder disk getting stuck and subsequently out of control was present.

The Division of Investigation of Maritime Accident finds it was dangerous to use an angle grinder to remove the cargo stoppers.

The way to secure the cargo from sliding on the tanktop was done by welding H-profiled cargo stoppers on the tanktop in a way making it difficult to remove them in an easy and safe manner.

The Division of Investigation of Maritime Accident finds that the way to secure the cargo from sliding was inexpedient.

As stated in the charter party the cargo stoppers were to be removed before discharging the cargo.

The Division of Investigation of Maritime Accident finds that the fact that the cargo stoppers were to be removed before discharging the cargo enhanced the risk of an accident.

In defiance of the limited working space, the inexpedient fastening of the cargo stoppers and the use of the defect angle grinder there were no reflection from crew members involved in the removal of the stoppers regarding the safety of the work.

The Division of Investigation of Maritime Accident finds that the person who planned the work and the crew members cutting off the cargo stoppers did not reflect properly to the risk of the work.

Unsafe surroundings

Due to the dimensions of the cargo occupying almost the breath of the hold, and the fact that the cable containers were placed close to each other only very limited working space were left for the work with removing the cargo stoppers.

The Division of Investigation of Maritime Accident finds that the limited working space made it difficult to remove the cargo stoppers.

The angle grinder used when the accident occurred was defect. The on/off bottom was locked in the on-position. The AB started and stopped the grinder by plugging and unplugging it. The grinder could therefore not stop if the user let go of the tool.

The Division of Investigation of Maritime Accident finds that the defective angle grinder endangered the user and increased the risk of damage because it could not stop if let go.

6.2 *Contributory causes*

The safety system

The crew was equipped with personal safety equipment. At the accident the AB did not use a safety helmet but a cap.

The Division of Investigation of Maritime Accident finds that the use of personal safety protection equipment was inadequate.

The work place assessments based on the prototypes from Seahealth Denmark were not to be found anywhere. According to the deck hands the assessments were presented to them when signing on, but they did not know the content of the assessments as they were written in English. A language the deck hands only read with difficulty.

The Division of Investigation of Maritime Accident finds that the deck hands had a poor knowledge of the work place assessments as the assessments were not accessible and due to the fact that they were written in English. A language the deck hands not were familiar with.

In relation to the removal of the cargo stoppers no specific toolbox meeting had been held. Only superficial instructions had been given.

The Division of Investigation of Maritime Accident finds that the removal of the cargo stoppers was not planned properly.

6.3 *Safety culture (6.3)*

Rest hours for the injuries AB could not be found when the Investigation Division visited the ship. The workplace assessments could neither be found. While at sea, it was common practice that the deck hands worked as day men. The deck hands did not participate in watch keeping duties such as look out.

The Division of Investigation of Maritime Accidents finds that the owner, the ISM responsible operator and the master of the ship had not developed a good safety culture on board.