Bundesstelle für Seeunfalluntersuchung
Federal Bureau of Maritime Casualty Investigation
Bundesoberbehörde im Geschäftsbereich des Bundesministeriums
für Verkehr, Bau- und Wohnungswesen

Investigation Report 88/03

5 January 2004

Very serious marine casualty:

Fatal accident of the Second Nautical Officer on board MV PETUJA

on 11 March 2003
in Hamburg

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1 Summary

At about 04.00 h in the morning on 11 March 2003 the 35-year-old second nautical officer fell about 12.5 m down from the catwalk between hatches 1 and 2 into hatch 2 during loading work on the Container Vessel PETUJA lying in the Port of Hamburg. He sustained injuries as a result to which he succumbed three hours later, despite immediate recovery and medical aid in the hospital.

The cause of the accident cannot be ascertained in full detail.

2 Scene of the accident

Nature of the accident: **Very serious marine casualty, fatal accident**
Date: **11 March 2003**
Location: **Hamburg, Waltershofer Hafen, Predöhlkai VI / VII**

Section from Sea Chart 3010, BSH

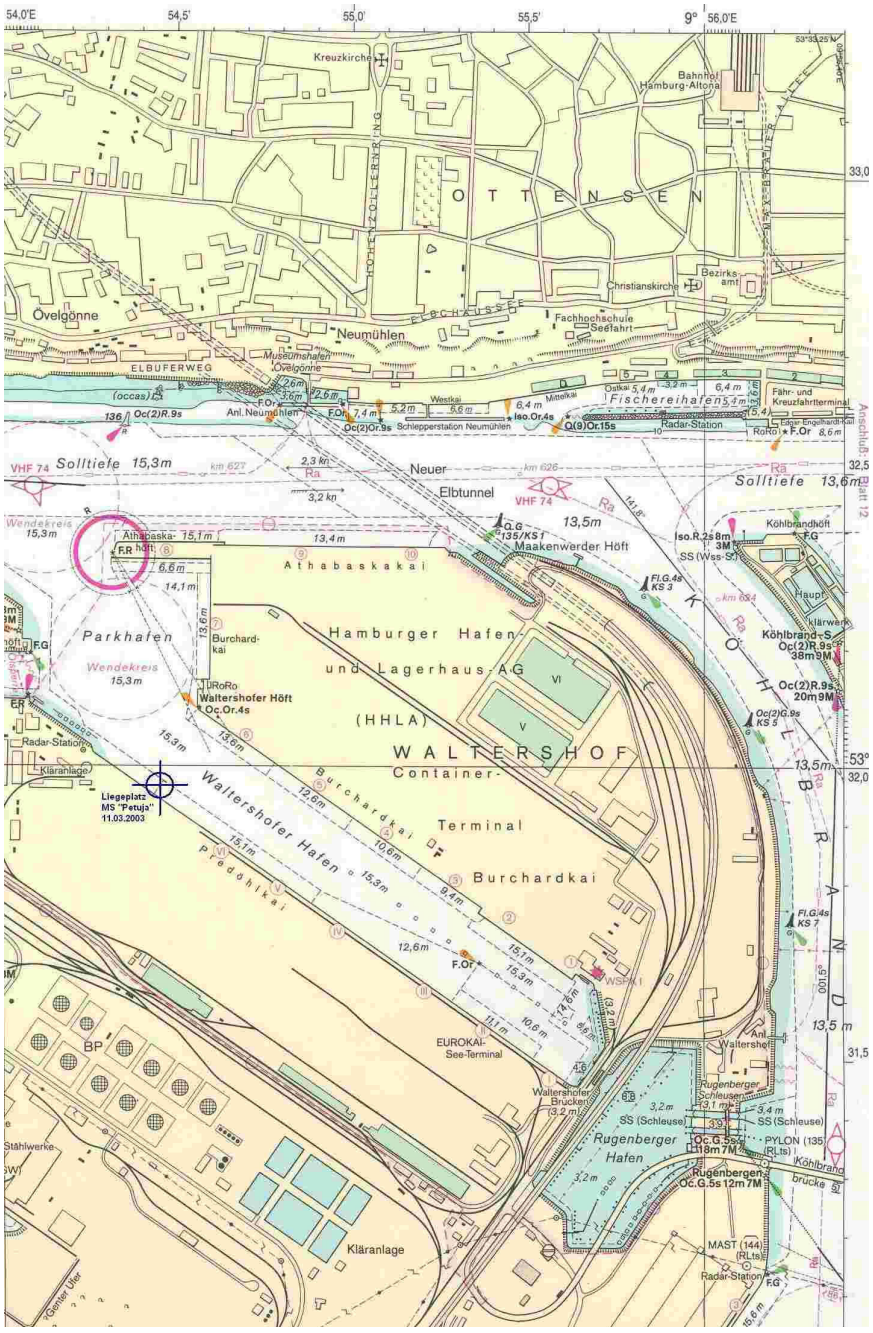

Figure 1, Scene of accident PETUJA

3 Vessel particulars/Photo

Figure 2, PETUJA

Name of vessel:	PETUJA
Port of registry:	Hamburg
Nationality/Flag:	Federal Republic of Germany
Trading range:	Coastal trading
IMO Number:	9138367
Ship's call letters:	DGPE
Type of vessel:	Container vessel
Crew:	10
Classification:	Germanischer Lloyd 100 A5 E
Year built:	1997
Construction yard:	J.J. Sietas KG Schiffswerft GmbH & Co, Hamburg
Construction:	Steel
Length over all:	121.94 m
Moulded beam:	18.20 m
Max. draft:	6.69 m according to construction
Gross tonnage	6.362
Engine rating:	3.055 kW
Engine type:	Diesel
Speed:	16.4 kn
Personal injury:	1 fatality

4 Course of the accident

PETUJA left Bremerhaven at 18.50 h on Sunday, 9 March 2003, and made fast in the Südwesthafen in Hamburg at 04.20 h the next morning. Between 22.30 h and 23.15 h PETUJA shifted to the Predöhlkai quay No. 6-7 in the Waltershofer Hafen. Only containers were loaded and discharged.

The second officer was on sea watch on Monday from 00.00-04.00 h and had his port watch from 12.00-18.00 h. On Tuesday he started his port watch at midnight and this was intended to last until 06.00 h in the morning. He had a rest period during the shifting on Tuesday.

On Tuesday at 03.45 h in the morning the deckhand on watch on PETUJA opened hatch 2 at the instruction of the terminal supervisor in order to discharge three containers. After this he went to the superstructure in order to wake up his successor. The successor took over his port watch at 04.05 h and directly after he had gone forward on deck on the port side he saw two to three persons swaying in a cage under the container bridge over hatch 2. As he looked into the hatch 3 persons were standing round on the tank top. He was unable to make out anything more exact since his view was obstructed by a person in front of him. After this he went looking for the second officer on watch in the superstructures in order to report his observation to him.

After searching for him without success the deckhand went back to hatch 2 and made his way to the three persons in the hatch, believing that the second officer would be with them. When he reached the tank top he recognised that the injured person was the second officer. A paramedic was already carrying out first aid and asked him to wake the master and the chief mate.

The vessel's command was woken at about 04.15 h. The chief mate immediately proceeded to hatch 2 where the second officer had already been placed on a stretcher by the shore helpers and carried away. At this time the injured man was no longer responsive.

When the master came on deck the second officer was already being recovered from the hatch and set down on shore by the rescue crew with a cage hanging from the container bridge. The second officer was unconscious and a little later was taken by ambulance to the hospital in Altona.

The container bridge operator LG7 and a straddle carrier operator had observed the second officer falling into the hatch and had notified the terminal paramedic and set off the emergency call.

The container bridge LG7 was just shifting to hatch 1 of PETUJA. The operator saw that hatch 2 was opened and that someone was working at the aft edge of hatch 1 who suddenly stumbled and fell into hatch 2.

The straddle carrier operator was standing at bollard 65 in the traffic lane and waiting for the start of discharge work. Suddenly he saw someone falling into the hold on a level with the hatch middle. After this the operator left the straddle carrier and together with a lasher who was on the quay wall proceeded into the hatch. When he arrived there he found the injured man lying turned on his back. He was conscious and no wounds could be seen; he was wearing winter clothing. He said in English that he felt pain in his arm and leg. He also had difficulty in breathing. Attempts were made to keep the injured man conscious and to place his head more comfortably. After this the terminal paramedic arrived who covered the injured man with a thermo blanket and called for the ambulance.

The river police WSPK1 were notified of the accident at 04.04 h. On arriving at Predöhlkai quay 7 they were expected by terminal staff and notified of the course of the accident. The rescue and emergency physician car arrived at 04.20 h. The rescue staff were taken to the scene of the accident with the bridge cage. The emergency physician ascertained internal injuries and fractures. The injured man was lying midships at the forward edge of hatch 2 on his back with his legs forward. After first aid care by the emergency physician the injured man was taken ashore at 04.45 h with the bridge cage and carried to the ambulance. After further medical care of the injured man the ambulance drove at 05.03 h to the Altona General Hospital. At 06.53 h the physician treating him in the hospital reported by telephone that the injured man had died as a consequence of his severe injuries.

The master was provisionally prohibited from leaving the port since due to the loss of the second officer the regulations of the Ship Crewing Certificate were no longer satisfied.

5 Post-mortem

The post-mortem of the injured man took place on 12 March 2003 at the Institute of Legal Medicine in Hamburg. The post-mortem report was submitted to the BSU. The cause of death was ascertained to be bleeding shock. The clinical picture was of a major dull effect of force with the centre against the right-hand side of the body and the right arm. All these injuries ascertained are compatible with a fall from the height of about 10 m. The death of the injured man is without doubt a consequence of the accident.

6 Investigation

On 4 April 2003 the BSU was informed of the fatal accident of 11 March 2003 by the See-BG as responsible accident insurance body and was able to commence its own investigations.

The investigations by the river police revealed that the injured man had been at the aft edge of hatch 1. The hatch was closed and loaded with containers. The injured man was on the approx. 0.5 m wide catwalk. Hatch 2 follows on from hatch 1 at the same level (see figure 3) and hatch 2 was open. The cargo compartment was empty except for three layers of containers on the port and starboard sides. The person involved in the accident fell into the part of the hold without any cargo, landing on the tank top (see figure 4).

The investigations by the State Detective Office revealed that the deckhand of the port watch of PETUJA last saw the person involved in the accident on the date of the accident at about 03.00 h in the morning, and that when hatch 2 was opened at about 03.50 h nobody was lying in the cargo hold. According to the statements by the witnesses the person involved in the accident must have been on the catwalk between hatch 1 and hatch 2 prior to his fall (see figures 5, 6) and must have fallen without any third party assistance. There were no securing measures at the aft edge of hatch 1, for instance with a handrail. At the time of the accident the person involved in the accident had no tasks involving work on the catwalk.

According to a statement by a witness, directly before the accident the person involved in the accident had been standing at the aft edge of hatch 1, midships, at the empty container position. The sides of the hold were loaded with containers, only the middle of the hatch was empty. It was not possible to clarify what the person involved in the accident was doing there. It was simply observed that he fell into hatch 2.

One supposition is that the person involved in the accident had been checking loaded containers on hatch 1 and had then stumbled at the aft edge of hatch 1 over the lashing rods or eyes or container fittings on deck from hatch 1 into the open hatch 2. It was not possible to observe whether he fell forwards or backwards.

The person involved in the accident made the last logbook entry at 04.00 h in the morning of the day of the accident. He entered his weather observation that coincided with the official expert opinion by the German Meteorological Service.

The weather conditions at 04.00 h CET on 11 March 2003 were good. According to the expert opinion a constant south-west wind with an average force of 3 bft. was blowing in the area of the Waltershofer Hafen. There were no conspicuous gusts. The air temperature was 9° C and visibility was 15 km. The sky was almost completely covered with an altocumulus layer of clouds, with a lower limit about

500 m above ground. There had been no rain throughout the entire night. A light rain only started in the course of the late morning of 11 March 2003.

On the day of the accident the person involved in the accident was wearing winter clothing. It is to be assumed that he was wearing safety shoes and a helmet since this is standard on the vessel.

There are no precise procedural instructions for port watches on this vessel in the International Management Code for the Safe Operation of Ships and for Pollution Prevention (ISM-Code). On MV PETUJA the officer on duty supervises the loading and discharging operations from the bridge (see figure 7). The cargo computer and the stowage plans as well as the switch control of the deck and hatch lighting (see figure 8) are on the bridge. The persons on watch from shore and sea are connected with each other via "walkie talkies" and telephone.

The hatches are normally opened on instruction by the officer on watch. The hatch controllers are located on the starboard side of the hatch middle (see figure 9) and can be reached via a platform. From the platform it is possible to observe the movement of the hatch covers, which in the case of hatch 2 move aft. In the open position the MacGregor folding lids of hatch 2 can be seen from the bridge. Generally the officer on watch and the deckhand are on deck to open the hatch. MV PETUJA is an open-top container vessel, in other words hatches 1, 2 and 4 of the 4 holds have hatch covers, while hatch 3 is always open.

The hatch is normally reached via the side deck on the sea side during loading and discharge operations, when the shore side is on the port side. No railing is placed on the hatches as a guard against falling (see figure 10) before a neighbouring hatch is opened, if only the side decks are to be used for walking and no work is to be carried out on the hatch.

In the port the deckhands continue their four-hour sea watch, while the officers on duty release each other every six hours. The sea watch is released every four hours for everyone. The person involved in the accident worked from 00.00 - 04.00 h and from 12.00 - 18.00 h on 9 March, and from 00.00 - 05.00 h and 12.00 - 18.00 h on 10 March, then from 00.00 h until his accident at about 04.00 h on 11 March 2003.

The vessel operator uses a ship management agency to provide the crew, except for the master, chief mate and chief engineer for PETUJA. The assignment periods for the crew hired by the third-party agency are six months for officers and nine months for the crew. The second officer involved in the accident had been on board MV PETUJA since 3 November 2002 and had already been engaged on the vessel for three months in the year 2001. He was considered to have a very high sense of responsibility and had held a course on "Safety measures at loading hatches" for the crew on the day before his accident.

Normally MV PETUJA has to shift several times in the port of Hamburg. During her time in Hamburg she had six different berths within three days before leaving for the Kiel Canal on 12 March 2003.

7 Assessment

There are no eye witnesses for the accident on board. On shore only the container bridge and straddle carrier operators were able to observe the actual fall into the hatch. It was not possible to clarify what the person involved in the accident had been doing on hatch 1 and in the area of the catwalk between hatch 1 and hatch 2.

The person involved in the accident was probably at the empty container position at the aft edge of hatch 1 (see figures 4 and 5) in order to check the stowage or lashing of the containers and turn to the open hatch 2 also. The deck lighting and hatch lighting of PETUJA were switched on and the deck was illuminated in the way of hatch 1 and 2 by the container bridge shifting to hatch 2. It must have been clear to the person involved in the accident that hatch 2 was open and that he was in a danger area that was not secured. The fall into hatch 2 can have been caused by distraction or stumbling or a disturbance of the sense of balance.

The general condition of the person involved in the accident, who had already been on night watch for four hours and had been working on board already for five months without being relieved, may have been a contributory cause. In this connection it should be noted that MV PETUJA is assigned in feeder service between North Sea and Baltic Sea ports, has short periods at sea and in port, and is constantly in a heavy-traffic trading area with a swift succession of loading and discharge operations with a crew of 10 man. The port of Hamburg is visited every week on a round trip.

8 Conclusions by the BSU

The cause of the accident cannot be ascertained in complete detail. Only preventive measures can help to prevent falls into hatches.

Loading and discharge operations are not described in detail in the procedural instructions of the ISM Code. However, safety instructions in accordance with the ISM Code were provided on board, the contents of which are unknown. In fact the person involved in the accident had instructed the crew about securing hold hatches the day before his accident.

The feeder service on MV PETUJA is very stressful for the crew by comparison with other container journeys with longer voyage periods. Shifting in the port of Hamburg alone (here six different berths) leads to considerable strain on the crew in the port.

9 Safety recommendations

The crew should avoid the area of open hatches when there is no sufficient safeguard, e.g. by a railing.

During loading and discharge operations the side deck on the sea side should be used as far as possible when carrying out work. The catwalk between the hatches should be fundamentally avoided.

Shorter relief periods for the crew can avoid any exhaustion conditions among the crew.

The cargo management in the port of Hamburg should if possible be organised in such a way that the cargo in a vessel can be discharged or loaded at a minimum of berths.

10 Sources

The investigation report relates to the investigations by the river police, the State Detective Office, the See-BG, an expert opinion by the Institute of Legal Medicine in Hamburg, findings and interviews, and an inspection of the vessel by the Federal Bureau of Maritime Casualty Investigation.

Further institutions involved in the examination are the BSH and the Office for Labour Protection, as well as the German Meteorological Service in Hamburg.

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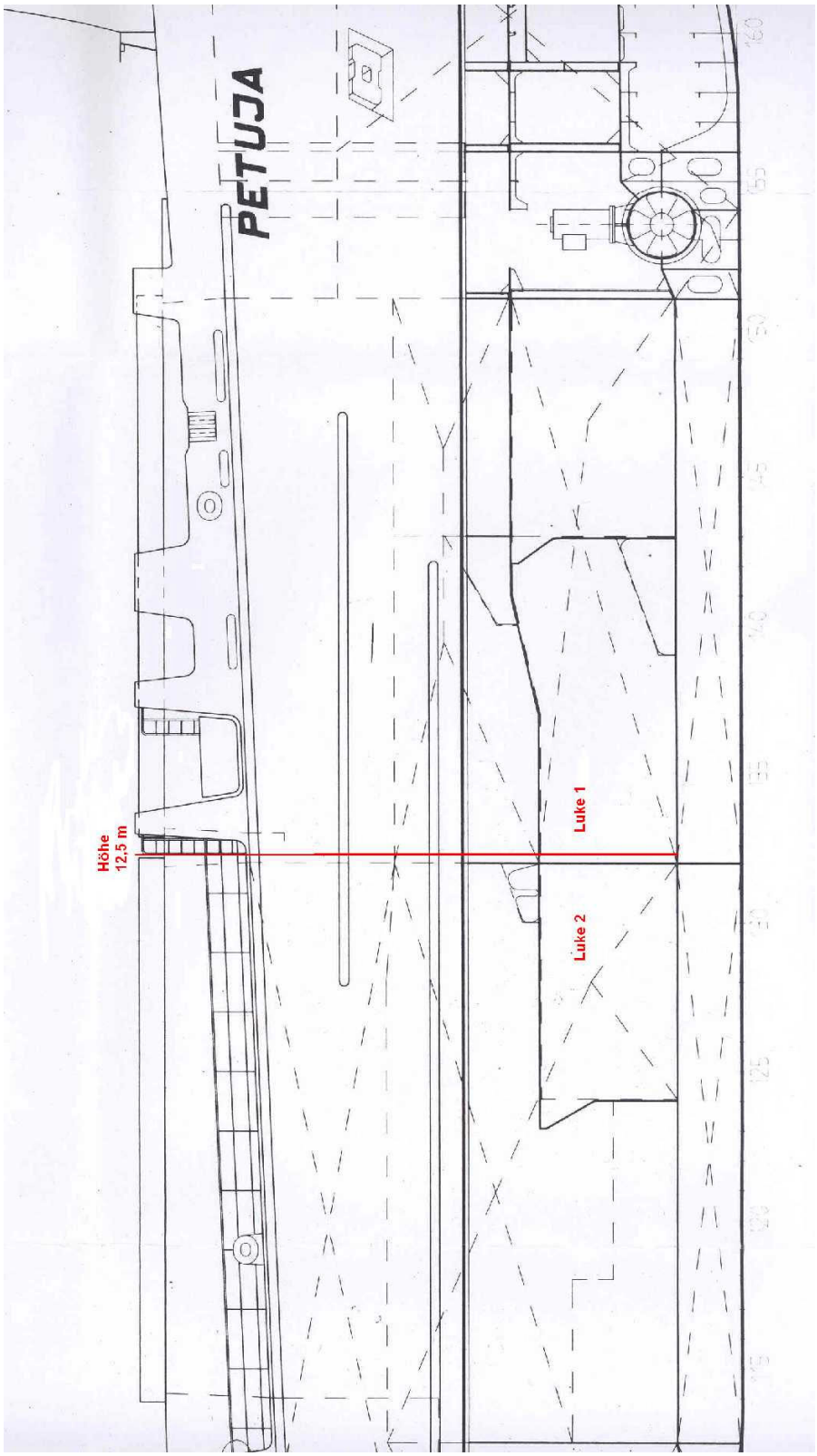

Figure 3, Side elevation, hatch

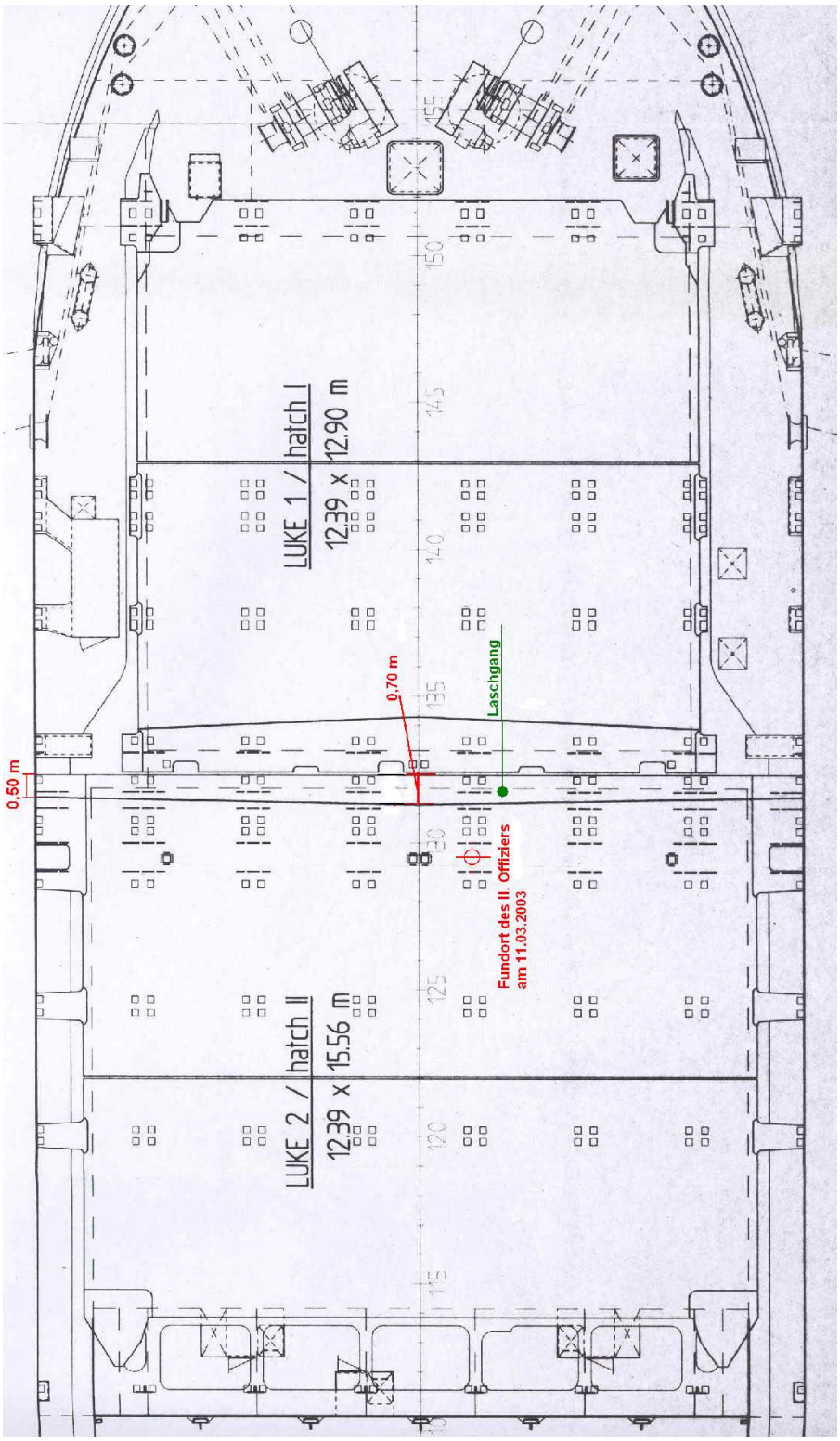

Figure 4, Top view, hatch

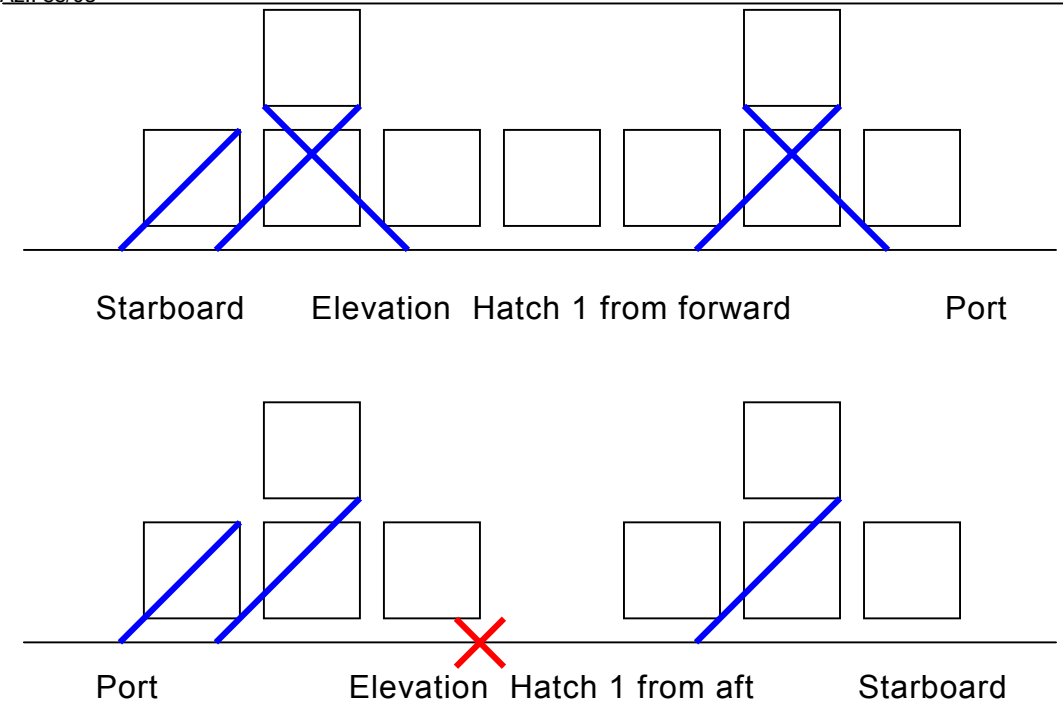

Figure 5, Loading and lashing of the containers on hatch 1

Figure 6, View from the bridge

Figure 7, Switch consol deck and hatch lighting

Figure 8, Hatch controller Hatch 1

Figure 9, Catwalk between Hatches 1 and 2