



DUTCH
SAFETY BOARD

Fatal accident during transfer at sea

Annelies Ilena, Cool Expreso,
Southern Pacific Ocean



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Annelies Ilena, Cool Expreso,
Southern Pacific Ocean, 7 August 2014

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Dutch Safety Board

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A fatal accident occurred on board the reefer ship, Cool Expreso, on 7 August 2014 at approximately 13:55 hrs LT.¹ The accident took place during transfer at sea of pallets containing frozen fish packages from the fishing vessel Annelies Ilena. At the end of the shift, the final pallet was labelled by an Annelies Ilena crew member on board Cool Expreso. The pallet shifted and trapped the crew member between the railing and the pallet, fatally wounding the crew member.

Both ships were sailing under the Dutch flag. Following this incident, the Dutch Safety Board instituted an investigation. This was a very serious accident as referred to in the Code for the Investigation of Marine Casualties and Incidents adopted by the International Maritime Organisation (IMO), and in EU Directive 2009/18/EC. This means that the Netherlands, as the flag state, has a duty to conduct a safety investigation. This statutory investigation duty is also set out in the Dutch Safety Board Decree (Besluit Onderzoeksraad voor Veiligheid). This report describes the relevant facts of the incident and the direct and underlying causes. The report concludes with lessons that can be drawn from this incident.

¹ All times stated in this report are local times.

RELEVANT FACTS AND BACKGROUND INFORMATION

Incident

On 6 August 2014 at approximately 16:00 hrs, the reefer ship Cool Expresso met fishing vessel Annelies Ilena at a prior agreed position² for the transfer at sea of frozen fish packages. The transfer took place in international waters, outside Chile's exclusive economic zone. Initially, the transfer had been planned for the same afternoon, but was postponed until the next day because of significant swell.

The Annelies Ilena crew that was to participate in the transfer was given the previous night off. The Annelies Ilena crew that was to participate in the transfer discussed activities involved the transfer the following morning, 7 August.

The vessels manoeuvred towards each other on 7 August at approximately 07:00 hrs. The fishing vessel approached Cool Expresso on the starboard side and at 08:45 hrs the vessels were moored together. To reduce the vessels' rolling movements caused by the swell, an easterly course was maintained, also during transfer. To prevent the vessels' bridge wings from damaging each other, the Annelies Ilena was tilted to starboard through the intake of ballast water.



Figure 1: Location of the ships during the incident. (Source: Google Earth)

2 38-00S, 081-30W.

A tallyman,³ two handlers,⁴ two labellers⁵ and a crane driver⁶ were transferred from Annelies Ilena to Cool Expreso via a crane cage using Annelies Ilena's crane. A tallyman from Cool Expreso was also present during the activities. It is standard practice for a reefer ship to provide its own staff to operate the crane, but in this case the Cool Expreso crane was operated by the Annelies Ilena crane driver.

On board Cool Expreso, the second officer supervised the transfer of fish packages on deck and their storage in the cargo holds. The work in the Cool Expreso cargo holds was carried out by Annelies Ilena crew.

The transfer of frozen fish packages started at around 12:00 hrs. The Annelies Ilena cranes were used to place a platform containing two pallets loaded with fish packages weighing approximately 2000 kg from the Annelies Ilena hold to the gangway on board Cool Expreso. There, the packets of frozen fish were counted and labelled before using the Cool Expreso crane to place the pallets in the Cool Expreso hold.

3 Person on board the ship who records the loading and unloading.

4 Handling means attaching the cargo to the crane. The handler is the person attaching the cargo to the crane.

5 Person who attaches labels to the cargo, including best before date labels.

6 The driver of the crane.



Figure 2: Annelies Ilena (left) and Cool Expresso (right) during transfer. (Source: Parlevliet en Van der Plas B.V.)

The incident occurred during transfer of the final platform of pallets, just before the end of the shift. The pallets were placed on the Cool Expresso gangway and one crew member was still busy labelling the packages. The platform with pallets was attached to the crane and the other Annelies Ilena crew members were preparing themselves for transport back to their own ship. Around 13:55 hrs they heard a scream. They then saw that the pallets, through hoisting, had shifted on the gangway. Because of this, the crew member who was still labelling the packages was trapped between the pallets and the railing. The crew member was trapped with his back towards the pallets. Directly after hearing the scream the pallets were swung out of the way by the crane driver, which released the crew member. The crew member tried to walk away, but collapsed a few seconds later.



Figure 3: Platform with pallets containing packages of frozen fish. (Source: Parlevliet en Van der Plas B.V.)

The victim was then taken to the Annelies Ilena ship's hospital. Shortly after this, at 14:43 hrs, the crew member died in the ship's hospital as a result of internal bleeding and cardiac arrest.

Witness statements were conflicting regarding whether the platform was attached to the crane or not during the incident. One crew member from Cool Espresso stated that the platform containing pallets was being hoisted, which made the platform shift towards the railing.

Vessels and crew

Vikingbank B.V in Valkenburg, daughter company of Parlevliet en Van der Plas B.V. in Katwijk aan Zee, is the owner of Annelies Ilena. The Parlevliet en Van der Plas B.V. shipping company manages Annelies Ilena and was founded in 1949. It is an international fishing company with more than 1,500 employees across the world. The construction of Annelies Ilena started in 1998 in Kristiansund, Norway, by Umoe Sterkoder Shipbuilding A/S. The fishing vessel was put into operation in 2000 under the name Atlantic Dawn and sailed under the Irish flag until 2007. Since then, the ship has sailed under the Dutch flag under the name Annelies Ilena.

At the time of the incident, Annelies Ilena had 66 crew members on board: 32 Peruvians, 8 Mauritians, 7 Russians, 6 Dutch, 6 Irish, 3 Lithuanians, 3 Ukrainians and 1 Venezuelan. The victim was a 52-year-old Peruvian. The official language on board was English.

Celtic Klipper Shipping Company N.V., located in Willemstad, Curaçao, is the owner of Cool Expreso and has been involved in international logistics since its establishment in 2010. Cool Expreso is managed by Seatrade Groningen B.V. The reefer ship was constructed in 1994 at the Van Diepen shipyard in Waterhuizen and was named Cool-Express.

At the time of the incident Cool Expreso had 13 crew members on board: 6 Filipinos, 5 Russians and 2 Dutch. The official language on board was English.

Safety management

Annelies Ilena is a fishing vessel and falls under the Torremolinos Protocol.⁷ This means that Annelies Ilena is exempted from the obligation to introduce a safety management system (SMS). Although Parlevliet en Van Der Plas was developing an SMS at the time of the incident, this had not yet been introduced. A Risk Inventory & Evaluation (RI&E) was carried out in 2003 regarding transfer at sea. In this RI&E, the risks of transferring pallets containing frozen fish packages at sea were identified and recommendations were made regarding safety improvements during transfer. This RI&E, however, only described the operations that are carried out on board the fishing vessel and not the operations carried out on board the reefer ship. The observation and recommendation originating from the RI&E regarding the incident involves the crew wearing a helmet. This recommendation was adhered to during the accident.

Cool Expreso does have an SMS, formulated in accordance with the International Safety Management (ISM) code. This includes the Code of Safe Working Practices for Merchant Seamen (COSWP). The COSWP contains such things as procedures and instructions for operating cranes. Although Cool Expreso has an SMS, no use was made of this by the Annelies Ilena crew during implementation of operations on board Cool Expreso.

Meteorological data

The meteorological data available closest to the accident are from 7 August 2014 at 12:00 hours, approximately one hour prior to the incident. The wind intensity was 3-4 Beaufort (Bft)⁸ (7-15 knots, 12.1-28.7 km/h) from a west-southwesterly direction, with a wave height of 2 to 3 metres. The air temperature was approximately 13 degrees Celsius. It was dry and cloudy.

⁷ International treaty for the safety of fishing vessels.

⁸ The Beaufort scale is used to indicate wind intensity. The scale was formulated in 1805, by the Irishman Francis Beaufort. The scale is based on the force exercised by the wind per surface unit, not on the wind speed as measured on the ship. Since 1838 it has been standard practice to use the Beaufort scale in the ship's log to indicate wind intensity.

Transfer at sea

Chile does not permit foreign vessels to fish in the exclusive economic zone (EEZ). The EEZ is a zone in which a state has special rights, including rights to the available raw materials and fishing. This zone stretches to 200 nautical miles from the coast. The transfer of fish also falls under this legislation, which means that fishing vessels may not transfer their load in a Chilean port. Transferring in a port is safer than transfer at sea as there is less sea swell. Sailing to a port outside Chile at which Annelies Ilena could have transferred the frozen fish was considered as being too expensive. That is why it was decided to transfer at sea. On Annelies Ilena, transfer at sea takes place two to three times per year. The previous Annelies Ilena transfer at sea took place two weeks prior to the incident. This was an exception, because Cool Expreso had been delayed by three weeks. Part of the fish cargo had already been collected by another reefer ship as the Annelies Ilena hold had started to become fully loaded. Annelies Ilena then continued to fish until the arrival of Cool Expreso.

Before transfer at sea can commence, the vessels are moored together, after which the fishing vessel tows the reefer ship. Sailing during transfer reduces the effects of swell on the transferring vessels. Transfer at sea takes place in shifts. Each shift works 6 hours before being relieved. When transferring packages of frozen fish, two pallets containing these packages are placed on a platform. This is then placed by the Annelies Ilena crane on the reefer ship's gangway. Labels are attached to the packages here, including catch date and best before date labels. The Cool Expreso crane is then used to place the pallets in the Cool Expreso hold. During labelling, the pallets are not attached to one of the cranes. Communications between the shift and the crane driver are visual; if the crew members handling the pallets walk away, it is agreed that this is a sign for the crane driver to hoist the pallets into the hold.

The timeline method and MAIIF/IMO analysis method were used to investigate this incident. This identifies failure mechanisms as well as operational and organisational factors enabling safety problems and shortcomings to be detected.

The analysis examines the topics that contributed to the incident.

Shifting of the pallets

None of the crew members who were present during the incident saw that the platform containing the pallets with packages of frozen fish had shifted. It is plausible that the motion of the ship contributed to this shifting, but this was not the only force. The platform on which the pallets are placed is provided with an anti-slip coating. The combination of the anti-slip coating and the weight of the pallets ensures that the pallets do not shift easily. Another force is needed to cause the platform containing the pallets to shift. The Cool Expreso crew member eye witness statement seems to indicate that the platform containing the pallets was being hoisted, which resulted in the platform shifting and causing the crew member to become trapped between the pallets and the railing. As the crane driver was able to swing the pallet away from the victim immediately after hearing the scream, the Dutch Safety Board considers it likely that the pallets were attached to the Cool Expreso crane.

The pallets that shifted were the final load that the shift was to transfer before being relieved. The platform containing the pallets had already been attached to the Cool Expreso crane prior to labelling being completed, probably so that the crew members could get ready to be hoisted over to their own ship. The Safety Board considers it likely that the crane driver interpreted the crew members walking away (apart from the victim) as the agreed sign to hoist the pallets and place these into the hold. The hoisting of the pallets then caused the victim to become trapped between the pallets and the railing, because the platform containing the pallets did not only move vertically, but also horizontally. From the position of the crane driver it was not possible to see the victim between the pallets and the railing.

Labelling

The labelling of packages with frozen fish is compulsory. According to the shipping company there are several locations at which labelling can take place. The Annelies Ilena crew did this on board the reefer ship. Other locations at which labelling could have taken place include the refrigerated holds on both Annelies Ilena and Cool Expreso, or on the Annelies Ilena gangway. Labelling in the refrigerated holds has the disadvantage that label glue freezes before the labels can be attached. Labelling on the Annelies Ilena

gangway has an advantage and a disadvantage compared to labelling on the Cool Expreso gangway. The advantage is that Annelies Ilena is larger and is therefore more stable, resulting in less motion associated with sea swell. The disadvantage is that it requires an extra crane manoeuvre; the pallets would need to be taken from the Annelies Ilena hold and placed on the Annelies Ilena gangway for labelling before being transferred to Cool Expreso.

Inexperienced crane driver

It is standard practice in transferring at sea that the reefer ship supplies the crane driver to operate the crane on the reefer ship. Two weeks prior to the incident Annelies Ilena also transferred at sea to another reefer ship. This reefer ship had its own crane driver. Cool Expreso did not offer its own crane driver; the captain of Cool Expreso had found in previous transfers that his crane drivers had little experience and worked slowly. Additionally, there were only three crew members on board Cool Expreso available on deck during transfer; not enough for the two transfer teams that would work at the same time. That is why it was agreed the day before the incident that Annelies Ilena would provide the crane drivers. The Annelies Ilena crane drivers had little experience with hoisting activities as carried out on board the reefer ship. A big difference is that on the reefer ship more people walk around the pallets during hoisting than on Annelies Ilena.

Joint safety meeting

In the Shipping Occurrences Report 2014-2015 the Dutch Safety Board noted that the number of accidents partly or entirely caused by crane operations is very high, which shows that there is a real risk associated with loading and unloading. A person giving hand signals to the crane driver could have prevented the crane driver from starting to hoist while someone was still busy with the pallets. This was also prescribed by the Cool Expreso SMS, the ship on which the crew members were working.

The Cool Expreso SMS was, however, never discussed. Such a discussion may have happened had a safety meeting taken place. In general, if two ships with an SMS carry out joint operations, they compare each other's SMS in order to resolve any conflicts between them. In spite of the fact that the crew knew that transferring at sea was a high-risk operation, the crew members of both ships did not hold a safety meeting together. There was no SMS on board Annelies Ilena. The Cool Expreso crew could have taken a more active role in this, considering they are used to working with an SMS and are also exposed to the risks during transfer at sea. The Parlevliet en Van Der Plas new SMS, formulated after the incident, does include safety measures that could possibly prevent a similar incident in the future. Operational safety improvements that Annelies Ilena's shipping company has introduced since the accident are noted in appendix B.

The chosen working method for the transfer is efficient but is, however, also prone to error. While the available regulations (the Cool Expreso SMS) prescribed a concrete provision (the presence of someone who gives hand signals to the crane driver) that could have prevented the crane driver from making an error of judgement.

Different approach of transfer at sea

There is another possible approach to transfer at sea. A good starting point in carrying out safe crane operations is that as few people as possible are present in the crane's operating area. Labelling of the packages on the gangway of the receiving vessel is in conflict with this starting point and, in the Safety Board's judgement, it would be better for this to take place at another time. If fewer people are present around the crane operations, this reduces dependence on the correct application of safety measures.

CONCLUSIONS

Following the investigation the Board considers it likely that the deceased crew member became trapped between the platform containing pallets and railing when the pallet was hoisted while the crew member was still attaching labels.

- The standard practice was to attach the pallets to the crane only after labelling had finished. During this incident, to get themselves ready for return to their own vessel, the platform containing pallets was attached before labelling was finished.
- The crane driver could not see the victim from his position. Had someone given hand signals to the crane driver, this problem would have been resolved.
- It is noteworthy that none of the crane drivers (both on Annelies Ilena and on Cool Expreso) had much experience with crane activities as carried out on board the reefer ship.
- Although transfer at sea was considered a high-risk operation by the Annelies Ilena crew, no safety meeting took place, which meant that possible risks were not identified. Even when one of the ships as no SMS, a safety meeting should take place and a more active role is expected from the crew used to working with an SMS.
- The safety measures that were present, as described in the Cool Expreso SMS, were therefore not discussed or applied. The SMS prescribes that crane operations should be supported by someone who gives hand signals to the crane driver.

LESSONS LEARNED FROM THE INCIDENT

- In spite of the fact that the Annelies Ilena crew considered the transfer at sea, which involves crane activities, as being a high-risk operation, no safety meeting was held. Crane activities can be performed more safely by identifying risks and applying present safety measures during implementation of these activities.
- If multiple ships are involved in an operation, make sure that the crew of each ship is involved in safety meetings.
- Ensure that as few people as possible are located within the operating region of the crane during crane operations by carrying out operations not directly related to the loading operations at a different moment. In the light of the possible safety benefits, practical and commercial objections to such an adaptation to work processes should not automatically prevail.

VESSEL SPECIFICATIONS

Annelies Ilena	
Call sign:	PHKE
IMO number:	9204556
Flag state:	The Netherlands
Home port:	Katwijk aan Zee
Vessel type:	Trawler
Classification society:	Det Norske Veritas A/S NV
Year of build:	2000
Shipyard:	Umoe Sterkoder Shipbuilding A/S
Length overall (LOA):	144.6 m
Length between the perpendiculars:	134.3 m
Breadth:	24 m
Actual draught:	11.4 m
Gross tonnage:	14055
Engines:	MAK Marine Diesel 8M43
Propulsion:	2 propellers - fixed pitch
Maximum propulsion power:	7,299kW
Maximum speed:	20.0 knots

Cool Expreso	
Call sign:	PDKK
IMO number:	9085479
Flag state:	The Netherlands
Home port:	Breskens
Vessel type:	Reefer ship
Classification society:	Bureau Veritas
Year of build:	1994
Shipyard:	Shipyard Van Diepen
Length overall (LOA):	126.29 m
Length between the perpendiculars:	118.36 m
Breadth:	16.31 m
Actual draught:	6.5 m
Gross tonnage:	5471
Engines:	MAK Marine Diesel 8M552C
Propulsion:	1 propeller - fixed pitch
Maximum propulsion power:	5.400 kW
Maximum speed:	17.0 knots

MEASURES TAKEN BY THE SHIPPING COMPANY

At the time of the incident, Annelies Ilena's shipping company was already formulating an SMS. Instructions have now been included in this SMS for implementing transfers of packages of frozen fish at sea. Several instructions relevant to this accident are:

- Organising a safety meeting before the transfer is implemented.
- Appointing a coordinator during the transfer on both vessels.
- Designating someone to give hand signals to the crane driver during transfer.

REVIEW

In accordance with the Dutch Safety Board Act, a draft of this report was presented to the following parties:

- Parlevliet en Van der Plas B.V.
- Seatrade Groningen B.V.

These parties were asked to check the report for factual inaccuracies and ambiguities.

All comments have been processed in the report.



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