MCIB

Marine Casualty Investigation Board

Bord Imscrúdú Taismí Muirí

REPORT OF THE INVESTIGATION INTO AN INCIDENT INVOLVING *'MV EPSILON'* ON 8th FEBRUARY 2016

REPORT NO. MCIB/258
(No.6 OF 2018)

The Marine Casualty Investigation Board (MCIB) examines and investigates all types of marine casualties to, or on board, Irish registered vessels worldwide and other vessels in Irish territorial waters and inland waterways.

The MCIB objective in investigating a marine casualty is to determine its circumstances and its causes with a view to making recommendations for the avoidance of similar marine casualties in the future, thereby improving the safety of life at sea.

The MCIB is a non-prosecutorial body. We do not enforce laws or carry out prosecutions. It is not the purpose of an investigation carried out by the MCIB to apportion blame or fault.

The legislative framework for the operation of the MCIB, the reporting and investigating of marine casualties and the powers of MCIB investigators is set out in The Merchant Shipping (Investigation of Marine Casualties) Act, 2000.

In carrying out its functions the MCIB complies with the provisions of the International Maritime Organisation's Casualty Investigation Code and EU Directive 2009/18/EC governing the investigation of accidents in the maritime transport sector.

MCIB
Marine Casualty Investigation Board

Leeson Lane, Dublin 2.
Telephone: 01-678 3485/86.
email: info@mcib.ie
www.mcib.ie

REPORT OF THE INVESTIGATION INTO AN INCIDENT INVOLVING *'MV EPSILON'* ON 8th FEBRUARY 2016

REPORT NO. MCIB/258
(No.6 OF 2018)

The Marine Casualty Investigation Board was established on the 25th March, 2003 under the Merchant Shipping (Investigation of Marine Casualties) Act, 2000.

Report MCIB/258 published by The Marine Casualty Investigation Board.
Printed 14th November 2018.

CONTENTS

1. SUMMARY

On the afternoon of Sunday the 7th February 2016, *'MV Epsilon'* sailed from Cherbourg in France bound for Dublin, Ireland. Having departed Cherbourg, the vessel crossed the English Channel in a north-westerly direction. It then proceeded in a westerly direction along the English Channel in the direction of Land's End. As the vessel proceeded west, the steadily increasing westerly wind and sea conditions reduced its speed over the ground. As the night progressed, the vessel's speed was further reduced due to the effects of the worsening weather and sea conditions. The vessel continued around Land's End in a north-westerly direction before turning on to a north-easterly course.

As the wind and weather continued to deteriorate, the Master took the decision to seek shelter in Barnstaple Bay. Having entered the bay and assessed the conditions for anchoring, the Master decided it would be unsafe to anchor and advised all shipboard departments of his intention to 'slow-steam' back and forth across the bay until the weather conditions improved. During one turn the vessel rolled heavily and the cargo on decks one, three, four and five shifted causing damage to cargo and some injuries to crew and to passengers. Once the weather improved sufficiently, the vessel departed from Barnstaple Bay and resumed its passage to Dublin Port, arriving on the morning of the 9th February 2016.

Note all times are local time = UTC +1

2. FACTUAL INFORMATION

2.1 Vessel Description

Name of vessel:	*'MV Epsilon'*.
Class of vessel:	Ro-Ro Passenger Ferry.
IMO Number:	9539054.
Tonnage:	26,375gt.
Flag State:	Italy.
Management:	Matrix Ship Management.
Chartered by:	Irish Ferries Ltd.

2.2 Intended Voyage Particulars

Departure:	Cherbourg, France at 16.16 hrs on the 7th February 2016.
Intended Arrival:	Dublin, Ireland at 11.30 hrs on the 8th February 2016.
Actual Arrival:	Dublin, Ireland at 11.51 hrs on 9th February 2016.

2.3 Conditions at time of Incident

Weather:	Wind: Westerly storm Force 10 (48 to 55 knots).
	Visibility: Good (> 5 nautical miles).
Sea State:	High (6.0 to 9.0 metres).

2.4 Marine Casualty Information

Date and Time:	8th February 2016, approximately 11.50 hrs.
Type of Casualty:	Serious Marine Casualty.
Location of Incident:	Barnstaple Bay, England.
Vessel Damage:	Damage to bulkheads on cargo Decks four and five. Damage to port side lifeboat fibreglass canopy.

Cargo Damage:	59 cars, vans and caravans damaged to various extents. Approximately 40 freight units damaged to various extents. Cargo from some freight units spilled and/or damaged (see Appendix 7.1 Photographs on board No. 1, 2 and 3).
Injuries:	Injuries to ten passengers and two crewmembers.
Fatalities:	None.
Environmental Impact:	None.

3. NARRATIVE

3.1 The *'MV Epsilon'* is a roll-on/roll-off passenger ship engaged in voyages from Ireland to France and the United Kingdom. It is an Italian owned ship and flies the flag of Italy. The ship is chartered to Irish Ferries and is managed by the ship management company Matrix Ship Management, hereinafter referred to as 'The Company', which is responsible for the safe operation of the ship.

3.2 The Company is responsible under the International Maritime Organisation SOLAS Convention and the International Safety Management (ISM) Code for the Safe Operation of Ships and Pollution Prevention. The Company is cerfified under the ISM Code and holds a Document of Compliance and the vessel also holds a Safety Management Certificate.

3.3 As part of the ISM System, The Company is required to develop procedures for the safe operation of the ship.

3.4 The vessel operates on a busy schedule and accordingly it operates a two-watch system with in effect two crews on board each working a twelve hour shift. Specifically it has two Masters and the Master in command is referred to as the duty Master. The Company has developed procedures setting out the work routines and the Master's responsibilities and the change of command for the Masters.

3.5 The ship was engaged in short cross channel passages from Dublin to Holyhead during the week and then it undertook a single long passage to France at the end of each week. The cycle repeats with the alternative of short sea crossings and long passage to the continent. Therefore, the ship operates on a five and a half days per week with two round trips from Dublin to Holyhead in the United Kingdom and the ship keeps operating this system to maintain sleep patterns whilst completing the return voyage to France. Therefore, for the purposes of this report the ship may be described as engaged in a mixed-mode operation.

3.6 On the *'MV Epsilon'* one of the Masters is designated as the senior Master and this Master remains in command of the vessel during his period on board. This is set out in ISM procedure PER 14 'Masters Responsibility' (see Appendix 7.2 Extracts from ISM Procedures). The senior Master is the duty Master during day-time and is referred to as the senior Master in this report.

3.7 On Sunday the 7th February at 16.16 hrs, the vessel departed Cherbourg, France bound for Dublin, Ireland. The cargo on board at the time consisted of 59 cars, vans and caravans, 44 semi-trailers, 30 articulated trucks, one road train, one item of farm machinery and two empty horse boxes. There was a total of 54 crew and 138 passengers on board.

[1] IMO SOLAS Chapter IX: Management for the safe operation of ships: Regulation 1 – Definitions:
Company means the owner of the ship or any other organization or person such as the manager, or the bareboat charterer, who has assumed the responsibility for operation of the ship from the owner of the ship and who on assuming such responsibility has agreed to take over all duties and responsibilities imposed by the International Safety Management Code.

3.8 The weather forecast for the voyage was reviewed by the senior Master prior to departure and he noted that it indicated adverse weather conditions on passage due to storm Imogen. The main source of weather forecasts on *'MV Epsilon'* was 'Nowcasting', a contracted forecasting service provided by Meteo Group. In their subsequent statements, both the senior Master and the night-time duty Master said that this was the primary source of weather forecasts for the voyage. A facility existed within 'Nowcasting' to create a route forecast. The vessel's route was programmed onto the bridge computer, however, neither of the duty Masters had ever used the route forecast facility, preferring instead to scroll manually through the information for the intended voyage. Both Masters were familiar with 'Nowcasting' and could obtain and interpret the forecast data as required.

3.9 Although 'Nowcasting' was the primary source of forecasting on board, the vessel also had access to other forecasts by internet, Navtex and Very High Frequency (VHF) radio. All forecasting organisations had been advising of the approach of storm Imogen in the hours and days leading up to this incident. No records are available of other forecasts.

3.10 It is noted that the forecast was not updating on the bridge computer. Electronic records indicate that 'Nowcasting' was not updated on this computer from 02.29 hrs on the 7th February to 13.02 hrs on the 8th February. This program was set to update automatically every six hours however, this facility does not work if the computer is logged out. On board ICT policy settings cause the computers on *'MV Epsilon'* to log out automatically after five minutes of non-use, so it is necessary to initiate a manual download. On board personnel noted that there was an intermittent problem downloading the 'Nowcasting' forecasts to all the ship's computers. It is not clear whether the forecast was not updated on the bridge computer due to a malfunction or a failure to initiate manually the download. However, other computers on the vessel were downloading as in section 4.8 below, including the download at 13.11 hrs on the 7th Feburary upon which the decision was made to sail. In his statement, the night-time duty Master said that he checked the bridge computer a number of times during his watch on the night of the 7th February and was under the impression that the information was up to date.

3.11 There were no weather limits, either statutory or company imposed, on the *'MV Epsilon'*. The guideline weather limits that had been agreed between the Masters of the vessel and discussed with the management company were 8.0 m significant sea height from abaft the beam and 6.0 m significant sea height from forward of the beam.

3.12 The senior Master was not unduly concerned about the adverse weather forecast as he expected to run ahead of the weather and be in the shelter of the Irish coast before the seas exceeding the agreed limits were expected.

3.13 Due to the expected conditions on the crossing, the senior Master ordered that all cargo be secured according to the vessel's 'Red Code' cargo lashing system. He also

advised all departments on board by email, to secure all spaces in anticipation of heavy weather. The 'Red Code' lashing system was developed specifically for this vessel from experience and is based on the cargo securing manual (see Appendix 7.1 Photograph No. 4).

3.14 The vessel's cargo securing manual is a generic, 62 page document (see Appendix 7.3 Revised *'MV Epsilon'* CSM Extract) that was supplied with the vessel when taken over from the previous Italian operators. The Company carried out a review of the vessel's securing arrangements in 2014 after its first winter on the Irish Sea. Three lashing codes (see Appendix 7.4 Lashing Chain Certificate) were developed specifically for the vessel. The 'Green Code' is used where significant wave heights of less than 3 m are expected on the voyage, the 'Yellow Code' is used where significant wave heights of greater than 3 m and less than 4 m are expected and the 'Red Code' when significant wave heights of greater than 4 m are expected.

3.15 During his 07.00 hrs handover to the senior Master on the morning of the 7th February, the night-time duty Master expressed the view that the weather conditions were not suitable for the scheduled sailing from Cherbourg and that the sailing should be delayed until the storm had passed through. The senior Master was of the opinion that the sailing could proceed as the vessel would get ahead of the worst of the weather. He stated he would keep watch on the forecast during the day in the run up to the scheduled departure time. The final decision to sail rested with the senior Master alone. The senior Master stated that he has never been put under any pressure by The Company to prosecute a sailing.

3.16 The Company and the owner utilise a 4-level system for sailing cancellations:

- Level 1 – Sailing Confirmed
- Level 2 – Sailing To Be Confirmed (internal only)
- Level 3 – Sailing In Doubt (passengers advised)
- Level 4 – Sailing Cancelled

In the days and hours leading up to the sailing from Cherbourg, no sailing levels were issued.

3.17 In the months leading up to this voyage, the vessel's stabilisers had required regular maintenance. Problems included erratic fin control, the port fin sticking at maximum angle and other issues. These problems were fully addressed by a manufacturer's representative who attended the vessel on the 26th and 27th January 2016. Following this visit, no further problems were noted although the starboard fin hydraulics required maintenance. The fins are set to auto-house when the speed log indicates a speed of less than six knots. When the vessel sought shelter, the Chief Engineer reduced the auto retraction of the fins to below four knots of speed.

3.18 Having departed from Cherbourg, the *'MV Epsilon'* proceeded approximately northwest across the English Channel and at 18.30 hrs joined the west bound lane of the 'Casquettes' Traffic Separation Scheme (TSS), continuing approximately west along the English Channel towards Land's End. During this west bound leg of the journey, the vessel was experiencing steadily increasing wind and seas from ahead, which was from a westerly direction. The conditions affected the vessel such that its speed was reduced to 16 knots, from a fair weather of 21 knots, between 18.30 hrs and 23.59 hrs.

3.19 From 01.00 hrs to 04.00 hrs on the 8th February, the vessel's speed was further reduced to 10 to 12 knots due to the effects of further increasing westerly wind and sea conditions.

3.20 At 04.15 hrs the vessel entered the 'Off Land's End' TSS. Rather than turn onto a northerly heading to follow the scheme with the wind and seas on the port beam, the vessel entered the scheme at an angle on a north-westerly heading before turning onto a north-easterly heading. The night-time duty Master contacted the local Coast Guard to inform them of the vessel's intentions to leave the TSS due to the sea conditions making a northerly course along the TSS impractical.

3.21 At 04.30 hrs on Monday the 8th February, *'MV Epsilon'* rounded Land's End. By this stage, the options of sheltering from the worsening weather conditions on the south coast of England had passed. There were two bays in the English Channel that would have provided shelter to varying degrees. The first of these was Lyme Bay between Portland Bill and Start Point which the vessel passed at 19.00 hrs to 20.00 hrs. The second, although slightly smaller, was the bay between Start Point and Lizard Point which the vessel passed at 23.00 hrs to 01.00 hrs. There was also a third, smaller bay between Lizard Point and Land's End which the vessel passed at 03.00 hrs. The option to divert into any one of these bays was available during the westbound passage through the English Channel, although it was noted that the bays were already very busy with ships taking shelter and diversion would have required careful planning and navigation to avoid any close quarters situations with other vessels.

3.22 The night-time duty Master who was on watch at this time, in his subsequent statement, said that he had made the decision not to seek shelter in any of the aforementioned bays, but rather to continue around Land's End because, with a partial southerly element to the wind and sea conditions, he anticipated better shelter would be available in the Bristol Channel. The forecast showed lower sea heights in this area and this would also allow the vessel to make further progress and avoid turning the vessel around in the adverse conditions in the English Channel.

3.23 At 04.50 hrs after rounding Land's End, the night-time duty Master altered course to the north east along the coast. The vessel exited the east side of the TSS and continued northeast parallel to and approximately 10 miles off the Cornish Coast. The options for shelter along this section of coastline were limited to Barnstaple Bay, the Bristol Channel or in the lee of the Isle of Lundy.

3.24 At 07.00 hrs the senior Master relieved the night-time duty Master and took over the watch. He judged that Barnstaple Bay would afford the vessel sufficient shelter until the weather improved and would also provide the possibility of anchoring the vessel.

3.25 At 10.00 hrs *'MV Epsilon'* entered Barnstaple Bay, which provided some degree of shelter. Due to the limited sea room available, the vessel had to slow steam close to the shore line and make turns every 30 minutes or so. At 10.20 hrs the senior Master ordered 'Stand-By Engines' and put a helmsman on the wheel at the centre console to hand steer instead of using the auto helm facility. The senior Master judged the sea heights in Barnstaple Bay to be in the region of 2 to 3 m which were significantly lower than those experienced outside the bay. He noted that considering the size of the subsequent vessel rolls, these must have been greater. It is also suspected that the sea state in the Bay was somewhat confused due to the refraction of waves around the headland and the reflection of waves from the shore.

3.26 Following entry into Barnstaple Bay, the vessel completed its first turn to port, through north with a maximum rudder angle of 30°, onto a heading of west-north-west at 10.22 hrs. At this time the senior Master made the decision that the weather conditions were unsuitable for anchoring and that the vessel would have to slow steam until the weather improved.

3.27 The second turn at 11.10 hrs was to starboard, again through north with a maximum rudder angle of 30°, onto a heading of east-south-east across the Bay.

3.28 At the eastern most end of the track, at 11.45 hrs, the vessel made turn three through north to bring ìt back onto a heading of west-north-west. The speed at this time was eight to ten knots and the rudder was hard over to port (maximum 35°). It was during this turn, at 11.50 hrs, that the vessel began a series of rolls to starboard and port, each time rolling further than the last until it rolled hard to starboard reaching an angle of approximately 33°. At this point several vehicles broke loose from their restraints and shifted, causing damage to other vehicles on cargo decks one, three, four and five and damage to bulkheads on decks four and five. There were also a number of passenger and crew injuries during this turn. The vessel then stabilised and continued on an east-south-east/west-north-west track back and forth across Barnstaple Bay making approximately 26 more turns without further incident until the weather calmed sufficiently to resume passage. During this period the crew worked to secure the cargo in its shifted position and to attend to all injuries.

3.29 At 03.00 hrs on Tuesday 9th February, as the weather improved, the vessel departed Barnstaple Bay and continued on passage to Dublin, arriving at 11.51 hrs and was met by a doctor, customer service agents and vehicle removal contractors. The vessel was also subjected to an inspection by Port State Control.

4. ANALYSIS

4.1 The ISM Procedures for The Company clarify that even with two Masters on board that when the senior Master is on board that the senior Master remains in charge. Thus, in the case of the *'MV Epsilon'* the decision making to sail and decisions about seeking shelter are ultimately determined by the senior Master.

4.2 It is noted that the vessel operates in a form of mixed mode operation where it operates on a five and a half days per week basis with two round trips from Dublin to Holyhead and then the ship keeps this system in operation completing the return voyage to France.

4.3 It is noted that the vessel used the ISM form: 'Record of Change of Command (Deck 30)' (see Appendix 7.2 Extracts from ISM Procedures). However, it is noted that this form states: 'This form is ONLY for use on RO-PAX ships operating on short-sea services involving two or more round trips in each 24 hour period. All other ships will continue to follow standard change of command.'

4.4 The vessel was engaged in a mixed mode operation with several short passages interspersed with a long passage. Thus the Deck 30 form was appropriate for use for the short cross-channel passages. The form was not appropriate for use on the longer passages to France as the condition on the form cannot be complied with on such voyages.

4.5 It appears that the night-time duty Master considered that the weather conditions justified a decision to defer the sailing until the weather improved. The day-time duty Master who was the senior Master determined that the ship would sail.

4.6 It is noted in the ISM documentation that it states in PER 34 that the duty Master 'has complete responsibility for the ship and those on board'. However, it is noted in PER 14 that where there is a senior Master that 'he will still remain in command of the vessel during his period on board'. Thus the senior Master is in command even when not on duty and when on board the ship (see Appendix 7.2 Extracts from ISM Procedures).

4.7 The senior Master was the Master at the time of sailing but this does raise an issue about how the two Masters on a ship in such circumstances make a decision on sailing.

4.8 The weather forecasts provided by 'Nowcasting' were downloaded to the ships computers in various locations at various times as follows:
07/02/16 at 02.29 hrs – Bridge
07/02/16 at 06.23 hrs – Ship's Office
07/02/16 at 07.04 hrs – Day Master's Cabin
07/02/16 at 13.11 hrs – Day Master's Cabin

08/02/16 at 01.12 hrs – Ship's Office
08/02/16 at 07.24 hrs – Day Master's Cabin
08/02/16 at 09.11 hrs – Day Master's Cabin

The above forecasts indicated the following:

Download Time	Area	Time	Wind	Significant Sea	Maximum Sea
07th/13:11	English Channel	07th/17.00 - 07th/23.59	SW – W 45 kts	5.5m – 7m	7m – 11m
	English Channel	08th/00.01 08th/04.00	WSW 45-50 kts	6m – 8m	9m – 12m
	Celtic Sea	08th/00.01 – 08th/04.00	WSW 48-52 kts	7m – 8.5m	12m – 14m
	Celtic Sea	08th/04.00 – 08th/08.00	WSW 53-58 kts	8.5m – 10.5m	14m – 17m
	Celtic Sea	08th/08.00 – 08th/12.00	W 58 kts	10.5m – 12.5m	17m – 21m
08th/01:12	English Channel	08th/00.01 – 08th/04.00	WSW 45-50 kts	6m – 8m	9 – 12m
	Celtic Sea	08th/04.00 – 08th/08.00	WSW 52-57 kts	8.8m – 11m	14m – 18m
	Celtic Sea	08th/08.00 – 08th/12.00	W 58 kts	10.5m – 12.5m	17m – 21m

It is understood that principal decisions such as the decision to sail from Cherbourg, were based on the forecast downloaded at 13.11 hrs on the 7th February.

4.9 In his later statement the senior Master said that he had no undue concern about the weather forecast as he expected to 'run ahead of the weather'. This confidence may in part have been due to the fact that he was basing his decisions on the forecast of 13.11 hrs on the 7th February and was not aware of any updates.

4.10 A review of the 'Nowcasting' records shows that:

- At a planned voyage speed of 21 knots, the vessel would have experienced seas in excess of 8.0 m for approximately four hours from 03.00 hrs to 07.00 hrs on 7th February, with a significant sea height of 9.1 m at 06.00 hrs. At this time the vessel would have been in the northern Celtic Sea approaching the Irish coast.

- At a planned speed of 18 knots, the vessel was forecast to experience seas in excess of 8.0 m for approximately five hours from 04.00 hrs to 09.00 hrs on 7th February, with the significant sea height peaking at 9.5 m at 07.00 hrs.

- At a planned speed of 16 knots, the vessel was forecast to experience seas in excess of 8.0 m for approximately six hours from 05.00 hrs to 11.00 hrs on 7th February, with the significant sea height peaking at 11.2 m at 09.00 hrs.

- At a planned speed of 14 knots, the vessel was forecast to experience seas in excess of 8.0 m for approximately seven hours from 07.00 hrs to 14.00 hrs on 7th February, with the significant sea height peaking at 12.0 m at 11.00 hrs.

Any further reduction in vessel speed would have led to still further increases in sea height, well in excess of the agreed limits.

The senior Master later commented that his interpretation of the forecast of 13.11 hrs on the 7th February was that if the vessel maintained a voyage speed of 18 – 20 knots, then seas over the agreed limit of 8.0 m were not anticipated. He expected to make Land's End by 02.00 hrs and make good speed up the Celtic Sea.

4.11 Despite the night-time duty Master's concerns voiced during his hand over to the senior Master at 07.00 hrs on the 7th February, he was overruled by the day-time duty Master (as he was the senior Master) and the sailing was prosecuted as scheduled.

4.12 The stabilisers were functioning correctly throughout the voyage and during the cargo shift roll. Their effectiveness was reduced whilst slow steaming across Barnstaple Bay due to the reduced ship speed of below 10 knots.

4.13 Both the cargo securing manual and the 'Red Code' lashing system were based on IMO Resolution A.581 (14), (see Appendix 7.5 IMO Resolution A.581 (14)), Guidelines for Securing Arrangements for the Transport of Road Vehicles on Ro-Ro Ships. This gives minimum values for the strength of lashings and the number of lashings for vehicles as well as the minimum strength values for the securing points on the deck of the ship. It does not include securing arrangements for cars or small vans. Both the day-time and senior Masters had expressed their satisfaction with the 'Red Code' as a safe lashing system.

4.14 All vehicles were secured according to the 'Red Code' lashing system, not the cargo securing manual. The crew of the *'MV Epsilon'* and management of The Company were satisfied that the 'Red Code' lashing system was superior to the cargo securing manual requirements as it had been developed specifically for the vessel from experience with the vessel. Although it was not a requirement, the Chief Officer decided to chock all the cars and small vans on this particular voyage by means of placing restrictions under their wheels.

4.15 Following the review of vehicle securing arrangements carried out in 2014, it was decided to replace the original bottle screw type lashings with lever bar type lashings as the bottle screw ones were found to be prone to shock loading, causing failure of some of the vehicle lashing points. The review also revealed that most vehicles presented for shipment were not fitted with the securing points as required by Resolution A.581(14) and that on many of those that were, the securing points were sub-standard. This finding was not unusual and had been widely highlighted as an industry problem when in 2009 the Marine Accident Investigation Branch (MAIB) of the United Kingdom published a report into an incident when an articulated trailer left the deck of a fast ferry. Resolution A.581(14) also states that the Master should not accept a road vehicle for transport if it does not comply with the necessary requirements, but that in exceptional circumstances he may at his discretion accept the vehicle, taking account of the condition of the vehicle, the intended voyage, the expected weather conditions and having arranged an adequate alternative securing system. The International Maritime Organisation (IMO) has published revised Guidelines for the Preparation of the Cargo Securing Manual, MSC.1/Circ.1353. Rev. 1. A copy is annexed in Appendix 7.6 of this report.

4.16 Following the cargo shift, there was extensive evidence of vehicle securing points having broken away from shifted vehicles (see Appendix 7.1 Photograph No.1).

4.17 During turn three in Barnstaple Bay, the vessel heeled from port to approximately 33° to starboard through amplitude of approximately 45° in 12 seconds. It was at the end of this roll, whilst heeled to approximately 33°, that the cargo shift occurred. The calculations in the cargo securing manual assume accelerations based on a roll amplitude of 38.2° and a roll period of 14.7 seconds. Both of these parameters were significantly exceeded in the cargo shift roll, i.e. the roll was greater and swifter than that assumed as maximum in the manual.

4.18 On arrival in Dublin, the vessel was subject to a Port State Control inspection which found that the cargo securing manual was ‘not as required’.

5. CONCLUSIONS

5.1 Both Masters were very experienced and familiar with the vessel and the route. Fatigue was not a factor in this incident.

5.2 The senior Master was on board and was in overall command of the vessel and decided that the vessel should sail.

5.3 'Nowcasting' was the primary source of weather forecasting on board. Neither Master was familiar with the route forecast function and therefore did not use it.

5.4 The forecast which the senior Master reviewed gave the hourly data for the Celtic Sea. However, it did indicate that the sea conditions would exceed the 8.0 m agreed limit before the vessel reached the shelter of the Irish coast. This was exacerbated by the fact that the forecast was not automatically updating on the bridge computer.

5.5 The senior Master noted the concerns of the night-time duty Master at the morning handover. However, the senior Master was of the view that the vessel could outrun the weather and reach the shelter of the Irish coast before the worst of the weather arrived.

5.6 The night-time duty Master did not take the opportunity of seeking shelter before rounding Land's End although options to do so were available to him. His decision to round Land's End, as it was likely that better shelter was available on the south coast of England, turned out not to be the case.

5.7 Once Land's End was rounded Barnstaple Bay was amongst the options for shelter in that area considering the worsening conditions.

5.8 The failure of vehicle securing points during the cargo shift roll contributed to the damage caused to the cargo on board.

5.9 The vessel's 'Red Code' lashing system was considered by The Company to be a reasonable variation of the cargo securing manual as it is based on vessel and route experience and requires total lashing strengths in excess of that required by the manual. However, it was not approved by the flag state Italy, or a recognised organisation acting on their behalf, as required by the IMO SOLAS Convention. The subsequent Port State Control inspection highlighted that the manual was 'not as required'.

5.10 It is a statutory requirement that the cargo securing manual must be approved and that the ship is to be operated in accordance with the approved manual only.

5.11 If The Company considered that the cargo securing manual was not adequate, it should have amended it and submitted it to the flag state for review and approval. Pending this, the ship must be operated in accordance with the existing approved cargo securing manual.

5.12 The reason for the roll which caused the cargo shift was possibly due to a high and unique wave train added to by the refraction and reflection of waves around the headland and from the shore that synchronised with the vessel's roll period.

5.13 The ship operated in a mixed mode operation consisting of a repeating cycle of short-sea cross-channel voyages during the week and with single longer voyages to the continent at the end of the week. It is noted that the *'MV Epsilon'* used the Deck 30 form for change of command which was acceptable for short voyages but was specifically not to be used for longer voyages. Thus it appears that the change of command was not carried out in accordance with the required procedures.

6. SAFETY RECOMMENDATIONS

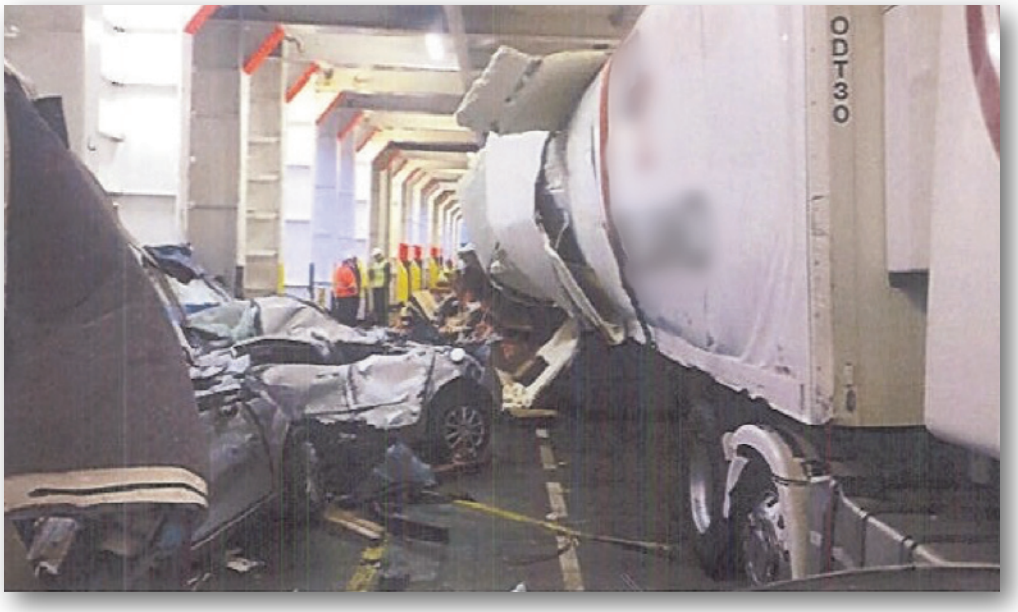
6.1 It is recommended that Italy, as the flag state, reviews and considers the conclusions highlighted in this report in relation to the safety management system, weather forecasting and cargo securing.

6.2 The Company should:

- Clarify the roles of the senior Master and the duty Master in order to ensure the effective safety management of the ship and the change of command in mixed mode operation.
- Consider and review the training and system requirements for weather forecasting on their ships.
- Ensure that the cargo securing manual is approved by the flag state for their ships.
- Ensure that the appropriate cargo securing arrangements are used on their ships and that their ships are operated accordingly.

7. APPENDICES

Appendix 7.1 Photographs.



Photograph No. 1

Photograph No. 2

Appendix 7.1 Photographs.

Photograph No. 3

Photograph No. 4

Appendix 7.2 Extracts of The Company's ISM Procedures.

MATRIX

PER 14 Masters Responsibility

Issued by: MSQ Manager
Approved by: Managing Director
Revision No: 02
Status Date: 01 Oct 14

Previous Next

Master

Responsibilities

- The Master is responsible and accountable to Owners, Charterers as well as National and International Organisations and MATRIX Ship Management Ltd for the safe and efficient operation of the vessel. The Master has the authority and responsibility to implement MATRIX Ship Management Ltd's policies on board. The Master is at all times responsible for the safe operation of his ship, as described in MATRIX Ship Management Ltd's QSEMS Manual.
- The Master has the authority and discretion to take whatever action he considers to be necessary always in accordance with MATRIX Ship Management Ltd policy, having due regard to the interests of the crew, ship, marine environment and his principals.
- MATRIX Ship Management Ltd policy does not in any way relieve the Master of his duties or obligations towards Company orders and instructions. The Master can and indeed must depart from the system provided by MATRIX Ship Management Ltd where particular circumstances so dictate.
- Ensure that all shipboard activities are planned, organised and executed in the most cost effective manner and in accordance with MATRIX Ship Management Ltd's Quality and Safety Management system, charterer's requirements, National and International regulations.
- Ensure through the Shipboard Management Team the cost effective maintenance and operation of all vessel machinery and equipment, maintaining minimum down-time.
- Communicate and work with MATRIX Ship Management Ltd shore-based staff at all times to ensure optimum vessel operational and navigational readiness and effectiveness and keep them continuously updated as to ship and voyage status.
- Ensure that voyage plans and vessel navigation are designed to safely achieve a minimum cost of cargo transportation.
- Ensure that cargo handling, stowage and transportation is controlled in a safe and environmentally acceptable manner, with minimum delays or loss.
- The Master is to ensure that Charterers and Owners specific instructions are adhered to as required. Where there is any doubt or conflict with MATRIX Ship Management Ltd procedures, MATRIX Ship Management Ltd to be contacted for clarity and confirmation of requirements.
- Ensure effective working relationship with shore-based personnel.
- Ensure that safety, pollution prevention, emergency preparedness and health hazard drills, exercises and training is imparted to all ships staff according to MATRIX Ship Management Ltd's policies and instructions and international regulations.
- Ensure that all Officers and crew are briefed and trained to meet job requirements, especially those responsible for Quality and Safety requirements.
- Ensure within the framework of statutory regulations and MATRIX Ship Management Ltd's policies and instructions, that constructive employee relationships are maintained.
- Ensure that all shipboard administration is carried out in an accurate and timely manner and in line with MATRIX Ship Management Ltd's policies and instructions and international regulations.
- The Master reports to the Ship Manager on any vessel technical matters and the Quality Manager of any matters related to MATRIX Ship Management Ltd's Quality and Safety System.

In implementing MATRIX Ship Management Ltd's Policy and Procedures aboard, the Master must ensure that:

- He and his Senior Officers have fully familiarised themselves with the entire contents of the MATRIX Ship Management Ltd Safety & Quality Management system;
- Good, clear understanding between each person on board is guaranteed;
- Good, clear communications and understanding between the vessel and MATRIX Ship Management Ltd's office is established and maintained throughout;
- Appropriate orders and instructions are issued to the crew in a clear and simple manner, including documented Standing Orders as well as Bridge, Night and other orders, e.g. allocation of specific additional responsibilities to crew members. All watch-keeping officers are to sign all log books and standing orders to confirm they have read and understood the orders;
- The crew are motivated to follow MATRIX Ship Management Ltd's policy and procedures for Quality, Safety and Pollution Prevention;

Appendix 7.2 Extracts of The Company's ISM Procedures.

MATRIX SHIP MANAGEMENT LTD

RECORD OF CHANGE OF COMMAND (Deck 30)

Annexed to the Official Log Book of

MV _____ **Consecutive No:** _____

The Master's whose names and signature are entered below, beside the date, time and place (or position) indicated, have taken command of this ship. They have taken under their responsibility all books, papers and documents relating to the safe navigation and operation of this ship and the safety of passengers and crew on board.

Time	Date	Place or Position	Master Taking Command		Signature of former Master
			Name	Signature	

Command shall only be handed over at a time and place where it is safe and practical to do so. Traffic manouvres, ship handling, pilotage and emergency situations shall not be considered safe and practical times to effect change of command.

This form is **ONLY** for use on board RO-PAX ships operating on short sea services involving 2 or more round trips in each 24 hour period. ALL other ships will continue to follow standard change of command procedures as per PER 10 Change of Command.

Version 01 Dec 11 Page 1 of 1 Form Deck 30

Appendix 7.2 Extracts of The Company's ISM Procedures.

MATRIX SHIP MANAGEMENT LTD

PER 34 Work Routines

Issued by: MSQ Manager
Approved by: Managing Director
Revision No: 02
Status Date: 31 May 13

Previous Next

Staff Involved
All Crew

Purpose
To establish procedures that will ensure that crew work routines comply with hours of work regulations and that sufficient crew are on duty at all times.

Procedure
Due to the busy work schedules and trading patterns of the ferries there is a requirement for some ships to operate a two-watch system, with, in effect, two crews onboard, each working a twelve hour shift.
Other ferries within the Owners fleet operate a longer overnight schedule which requires fewer personnel on duty at night while the fast craft only operates during daytime hours and stops at night.
Some ranks may be required to work split shifts but this will always be kept to a minimum and will always comply with hours of work regulations.

The Senior Master will, in consultation with other Heads of Department, agree and implement the daily crew work routines which will ensure that crewing levels are adequate for all stages of the ship's daily operation whilst at the same time ensure crew receive adequate rest periods in accordance with Flag requirements issued in conformity with MLC 2006 and STCW Convention and that all requirements are complied with in full.
The main requirements of the Regulations are:

- All crewmembers must be provided with a rest period of not less than:

(i) 10 hours in any 24-hour period;
(ii) 77 hours in any 7-day period.

- The hours of rest may be divided into **no more than two periods**, one of which shall be at least six (6) hours in length and the interval between consecutive periods of rest shall not exceed 14 hours
- The requirements for rest periods laid down in paragraphs one and two above need not be maintained in the case of an emergency or other overriding operational conditions. As soon as practicable after the normal situation has been restored, any crewmembers who have performed work in a scheduled rest period shall be provided with an adequate period of rest.
- Musters, fire-fighting and lifeboat drills, and drills shall be conducted in a manner that minimizes the disturbance of rest periods and does not induce fatigue.

Hours of Work:
To ensure that all officers and crewmembers are aware of their work schedule, the form **Pers 09 Table of Shipboard Arrangements** for officers and crew shall be prominently displayed in the officer and crew messrooms, on the Bridge and in the ECR to ensure that all crewmembers are aware of their work schedule and rest periods. The form shows each rank's work period and rest period. The form includes watcheepers and non-watchkeepers.

Watch keeping schedules:
The efficiency of watch keeping personnel must not be impaired by fatigue and, at the commencement of watches, watch keepers must be sufficiently rested and otherwise fit for duty.
There is a duty of care on Masters and Heads of Department to observe individual crew members' condition before assignment to watches. This must include mental and physical factors other than fatigue, which may have a negative effect on fitness.

Points to Consider:
The following points should be considered when drawing up crew working hour schedules:

- Does the ship operates 24 hours per day
- Does the ship operate with two crews each working a 12-hour shift
- Does the ship lay-over at night
- Is the ship on a longer passage with the night spent at sea
- What schedule does the ship operate and when is the ship in Port
- What are the busy times when additional manpower is required
- Is there a requirement to have some crew on split shifts

Appendix 7.3 Revised '*MV Epsilon*' CSM Extract.

R I N A - I S S T 7 4 8 1

M/V EPSILON **N.B. 228**

3.5 Supplementary requirements for ro-ro ships

The following guidelines are applicable to ro-ro ships which regularly carry road vehicles on international voyages in unsheltered waters. The vehicles concerned are represented by trailers with a maximum total mass between 3.5 t and 40 t and articulated road trains with a total mass not more than 45 t: buses are not included in these guidelines

3.5.1

The foreseen arrangement of trailers on upper and main deck of the ship which this Manual is addressed is shown in the plans at the end of this chapter. Cars can be stowed and secured on the double bottom according to the related arrangement plan.

The cargo decks of the ship are provided with securing points which strength characteristics have been summarised in the technical sheets of chapters 2.1. Portable securing devices to be used for securing of vehicular cargoes have been described in chapter 2.2.

Similarly, securing points should be provided on the road vehicles for securing the vehicles to the ship and should have an aperture capable of accepting only one lashing. The securing point and aperture should permit varying directions of the lashing to the ship's deck. The internal free passage of each aperture should be not less than 80 mm with a not circular shape.

On each side of the vehicle the minimum number of securing points should be provided according to the requirements of the hereunder Table.

Total vehicle mass VM (t)	Minimum number on each side	Minimum strength (kN)
3.5 t ≤ VM ≤ 20 t	2	(VM x 12) / ns
20 t ≤ VM ≤ 30 t	3	
30 t ≤ VM ≤ 40 t	4	

(ns = number of securing points on each side of the vehicle)

Each securing point on the vehicle should be marked in a clearly visible colour.

Securing points should be capable of transferring the forces from the lashings to the chassis of the road vehicle and should never be fitted to bumpers or axles unless they are specially constructed and the forces are transmitted directly to the chassis.

The Master should not accept a road vehicle for transport on board of the ship if not complying with the above mentioned requirements.

In exceptional circumstances, the Master may, at his discretion, accept the vehicle for shipment, after taking into account the condition of the vehicle, the intended voyage, the expected weather conditions and after arranging an adequate securing system.

Lashing should consist of chain or any other device and be made of material having strength and elongation characteristics at least equivalent of those of steel chain. The strength of the lashing, without permanent deformation, should be not less than 120 kN.

Lashings should be attached in such a way that it is possible to tighten them if they become slack. Where practicable and necessary, the lashings should be inspected at regular intervals during the voyage and tightened as necessary.

Lashings should be attached to the securing points with hook or other devices so designed that they cannot disengage from the aperture of the securing point if the lashing slackens during the voyage. Only one lashing should be attached to any aperture of the securing point of the vehicle.

Lashings should be attached to the securing points on the vehicle in such a way that the angle between lashing and horizontal plane lies preferably between 30° and 60°, bearing in mind that the optimum angle against sliding is about 25°, while the optimum angle against tipping is generally found between 45° and 60°.

Road vehicles should be stowed on board so that the chassis are kept as static as possible by not allowing free play in the suspension of the vehicles. This can be done by compressing the springs by tightly securing the vehicle to the deck, by jacking up the chassis prior to securing the vehicle or realising the air pressure on compressed air suspension systems. For such vehicles, the latter method is preferable for voyages of more than 24 hours duration.

Cargo Securing Manual Pag.54

Appendix 7.3 Revised *'MV Epsilon'* CSM Extract.

Where jacks are used on a vehicle, the position of the jacking-up points should be clearly marked and the chassis should be strengthened in way of the jacking-up points. Semi-trailers should not be supported on their landing legs during sea transport unless the landing legs are specially designed for that purpose. Wheels should be chocked to provide additional security in adverse conditions, while vehicles with diesel engines should not be left in gear during the voyage.

The parking brakes of each vehicle or of each element of a combination of vehicle should be applied and locked.

3.5.2

In designing securing arrangement for trailers and road vehicles, the following requirements have been considered:

longitudinal distance between securing points in general not exceeding 2.6 m;

transversal distance between securing points in general not exceeding 3.0 m: this distance is reduced in the forward and after parts of the ship;

minimum strength without permanent deformation of each securing point not less than 120 kN.

Particular attention in specifying minimum strength requirements for securing devices has been paid to ship motions with consequent accelerations and to other considerations relevant to the effectiveness of the cargo securing arrangement (metacentric height, heel angle after damage, etc.).

3.5.3 Approved Securing Arrangements for Short Sea Routes between Ireland, United Kingdom and Northern France

Based on extensive experience of operating the vessel on short-sea routes of less than 24 hours' duration within the above area, the following securing arrangements have been approved:

3.5.3.1

On routes between **Ireland and United Kingdom** where the Route Weather Forecast indicates **Significant Wave Heights of less than 4.0 metres**:

All standard freight vehicles (Artics and Unaccompanied Drop Trailers up to 44 tonnes) to be secured with at least 2 x 100 KN securing devices on each side. All such freight vehicles stowed at the forward or aft ends of the vessel and those not stowed within a block stow to be secured with at least 2 x 100 KN securing devices on each side and in addition to be chocked with 4 x wheel chocks.

No cars or passenger vans etc. to be stowed within a block stow alongside freight vehicles. Securing devices to be applied at an angle of between 30 and 60 degrees in transversal direction (not more than 30 degrees in longitudinal direction) and be 'criss-crossed' at the forward and aft end of vehicles where practicable and without damaging the vehicle.

3.5.3.2

On routes between **Ireland and United Kingdom** where the Route Weather Forecast indicates **Significant Wave Heights of more than 4.0 metres and less than 6.0 metres:**

All freight vehicles less than 20 tonnes to be secured with at least 2 x 100 KN securing devices on each side. All such freight vehicles stowed at the forward or aft ends of the vessel and those not stowed within a block stow to be secure d with at least 2 x 100 KN securing devices on each side and in addition to be chocked with 4 x wheel chocks.

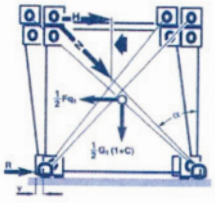
All standard freight vehicles (Artics and Unaccompanied Drop Trailers greater than 20 tonnes and up to 44 tonnes) to be secured with at least 3 x 100 KN securing devices on each side. All such freight vehicles stowed at the forward or

aft ends of the vessel and those not stowed within a block stow to be secured with at least 3 x 100 KN securing devic es on each side and in addition to be chocked with 4 x wheel chocks.

No cars or passenger vans etc. to be stowed within a block stow alongside freight vehicles.

Securing devices to be applied at an angle of between 30 and 60 degrees in transversal direction (not more than 30 degrees in longitudinal direction), and be 'criss-crossed' at the forward and aft end of vehicles where practicable and without damaging the vehicle.

Appendix 7.4 Lashing Chain Certificate.



[redacted]

Factories act 1961
Docks Regulations 1934, regulations 19(a) and 22(a)
ILO Convention N°152

DATE 13/10/2014

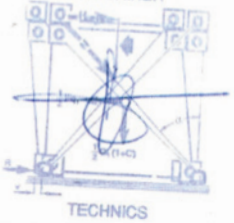
CERTIFICATE N°14001775

This is to certify that the following, hereunder, mentioned item(s) have been manufactured and duly tested / inspected by us with our approved testing equipment.
(Lloyd's Register of Shipping - Germanischer Lloyd - Bureau Veritas - American Bureau of Shipping - RINA)

			Strenght (kN)		
Type	Qty	Description	WLL/MSL	PL	MBL
LC-112/3/13	350	Chain,l=3 mtr,dia 13 mm, welded-in hook & eleph.foot	MSL(te) 100	110	200
S-560	350	Lever without 3 links & flat hook for 13 mm chains	MSL(te) 100	110	200

We Hereby Certify on behalf o [redacted] *that the above mentioned specifications & results are true and correct to the best of our knowledge and belief.*

CONTAINER



TECHNICS

Your order reference : 4500189926 - M/V EPSILON
Supplied to : M/V EPSILON

File nr.: 14001775

eDoc: no

kN = KiloNewton MSL=Max.Securing Load (for securing devices) te=Tension
PL=Proof Load WLL=Safe Working Load (for lifting devices) sh=Shear
MBL=Min.Breaking Load co=Compression

Appendix 7.5 IMO Resolution A.581(14).

RESOLUTION A.581(14)

Adopted on 20 November 1985
Agenda item 10(b)

GUIDELINES FOR SECURING ARRANGEMENTS FOR THE TRANSPORT OF ROAD VEHICLES ON RO-RO SHIPS

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety,

RECALLING ALSO resolution A.489(XII) on safe stowage and securing of cargo units and other entities in ships other than cellular containerships and MSC/Circ.385 of 8 January 1985 containing the provisions to be included in a cargo securing manual to be carried on board ships,

BEARING IN MIND resolution A.533(13) on elements to be taken into account when considering the safe stowage and securing of cargo units and vehicles in ships,

TAKING ACCOUNT of the revised IMO/ILO Guidelines for the Packing of Cargo in Freight Containers and Vehicles,

RECOGNIZING that the marine transport of road vehicles on ro-ro ships is increasing,

RECOGNIZING ALSO that a number of serious accidents have occurred because of inadequate securing arrangements on ships and road vehicles,

RECOGNIZING FURTHER the need for the Organization to establish guidelines for securing arrangements on board ro-ro ships and on road vehicles,

REALIZING that given adequately designed ships and properly equipped road vehicles, lashings of sufficient strength will be capable of withstanding the forces imposed on them during the voyage,

REALIZING FURTHER that certain requirements for side guards, particularly those positioned very low on road vehicles, will obstruct the proper securing of the road vehicles on board ro-ro ships and that appropriate measures will have to be taken to satisfy both safety aspects,

BELIEVING that application of the guidelines will enhance safety in the transport of road vehicles on ro-ro ships and that this can be achieved on an international basis,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its fifty-first session,

1. ADOPTS the Guidelines for Securing Arrangements for the Transport of Road Vehicles on Ro-ro Ships set out in the Annex to the present resolution;

2. URGES Member Governments to implement these Guidelines at the earliest possible opportunity in respect of new ro-ro ships and new vehicles and, as far as practicable, in respect of existing vehicles which may be transported on ro-ro ships;

Appendix 7.5 IMO Resolution A.581(14).

3. REQUESTS the Secretary-General to bring these Guidelines to the attention of Member Governments and relevant international organizations responsible for safety in design and construction of ships and road vehicles for action as appropriate.

ANNEX

GUIDELINES FOR SECURING ARRANGEMENTS FOR THE TRANSPORT OF ROAD VEHICLES ON RO-RO SHIPS

PREAMBLE

In view of experience in the transport of road vehicles on ro-ro ships, it is recommended that these Guidelines for securing road vehicles on board such ships should be followed. Shipowners and shipyards, when designing and building ro-ro ships to which these Guidelines apply, should take sections 4 and 6 particularly into account. Manufacturers, owners and operators of road vehicles which may be transported on ro-ro ships should take sections 5 and 7 particularly into account.

1 SCOPE

1.1 These Guidelines for securing and lashing road vehicles on board ro-ro ships outline in particular the securing arrangements on the ship and on the vehicles, and the securing methods to be used.

2 APPLICATION

2.1 These Guidelines apply to ro-ro ships which regularly carry road vehicles on either long or short international voyages in unsheltered waters. They concern:

.1 road vehicles as defined in 3.2.1, 3.2.2, 3.2.3 and 3.2.5 with an authorized maximum total mass of vehicles and cargo of between 3.5 and 40 tonnes; and

.2 articulated road trains as defined in 3.2.4 with a maximum total mass of not more than 45 tonnes, which can be carried on ro-ro ships.

2.2 These Guidelines do not apply to buses.

2.3 For road vehicles having characteristics outside the general parameters for road vehicles (particularly where the normal height of the centre of gravity is exceeded), the location and the number of securing points should be specially considered.

3 DEFINITIONS

3.1 "***Ro-ro ship***" means a ship which has one or more decks either closed or open, not normally subdivided in any way and generally running the entire length of the ship, in which goods (packaged or in bulk, in or on road vehicles (including road tank-vehicles), trailers, containers, pallets, demountable or portable tanks or in or on similar cargo transport units or other receptacles) can be loaded or unloaded normally in a horizontal direction.

Appendix 7.5 IMO Resolution A.581(14).

3.2 In these Guidelines the term road vehicle[1] includes:

.1 ***Commercial vehicle*** which means a motor vehicle which, on account of its design and appointments, is used mainly for conveying goods. It may also be towing a trailer.

.2 ***Semi-trailer*** which means a trailer which is designed to be coupled to a semi-trailer towing vehicle and to impose a substantial part of its total mass on the towing vehicle.

.3 ***Road train*** which means the combination of a motor vehicle with one or more independent trailers connected by a draw-bar. (For the purpose of section 5 each element of a road train is considered a separate vehicle.)

.4 ***Articulated road train*** which means the combination of a semi-trailer towing vehicle with a semi-trailer.

.5 ***Combination of vehicles*** which means a motor vehicle coupled with one or more towed vehicles. (For the purpose of section 5 each element of a combination of vehicles is considered a separate vehicle.)

4 SECURING POINTS ON SHIPS' DECKS

4.1 The ship should carry a Cargo Securing Manual in accordance with resolution A.489(XII) containing the information listed and recommended in paragraph 10 of the Annex to that resolution.

4.2 The decks of a ship intended for road vehicles as defined in 3.2 should be provided with securing points. The arrangement of securing points should be left to the discretion of the shipowner provided that for each road vehicle or element of a combination of road vehicles, there is the following minimum arrangement of securing points:

.1 The distance between securing points in the longitudinal direction should in general not exceed 2.5 m. However, there may be a need for the securing points in the forward and after parts of the ship to be more closely spaced than they are amidships.

.2 The thwartships spacing of securing points should not be less than 2.8 m nor more than 3 m. However, there may be a need for the securing points in the forward and after parts of the ship to be more closely spaced than they are amidships.

.3 The minimum strength without permanent deformation of each securing point should be 120 kN. If the securing point is designed to accommodate more than one lashing (y lashings) the corresponding strength should be not less than y x 120 kN.

4.3 In ro-ro ships which only occasionally carry road vehicles, the spacing and strength of securing points should be such that the special considerations which may be necessary to stow and secure road vehicles safely are taken into account.

5 SECURING POINTS ON ROAD VEHICLES

5.1 Securing points on road vehicles should be designed for securing the road vehicles to the ship and should have an aperture capable of accepting only one lashing. The securing

[1] Reference is made to ISO Standard No. 3833 (under revision).

Appendix 7.5 IMO Resolution A.581(14).

point and aperture should permit varying directions of the lashing to the ship's deck[1].

5.2 The same number of not less than two or more than six securing points should be provided on each side of the road vehicle in accordance with the provisions of 5.3.

5.3 Subject to the provisions of notes 1, 2 and 3 hereunder, the minimum number and minimum strength of securing points should be in accordance with the following table:

Gross vehicle mass (GVM) tonnes	Minimum number of securing points on each side of the road vehicle	Minimum strength without permanent deformation of each securing point as fitted (kN)
3.5 t ≤ GVM ≤ 20 t	2	$\frac{GVM \times 10 \times 1.2}{n^*}$
20 t < GVM ≤ 30 t	3	
30 t < GVM ≤ 40 t	4	

* Where n is the total number of securing points on each side of the road vehicle.

Note 1: For road trains, the table applies to each component, i.e. to the motor vehicle and each trailer, respectively.

Note 2: Semi-trailer towing vehicles are excluded from the table above. They should be provided with two securing points at the front of the vehicle, the strength of which should be sufficient to prevent lateral movement of the front of the vehicle. A towing coupling at the front may replace the two securing points.

Note 3: If the towing coupling is used for securing vehicles other than semi-trailer towing vehicles, this should not replace or be substituted for the above-mentioned minimum number and strength of securing points on each side of the vehicle.

5.4 Each securing point on the vehicle should be marked in a clearly visible colour.

5.5 Securing points on vehicles should be so located as to ensure effective restraint of the vehicle by the lashings.

5.6 Securing points should be capable of transferring the forces from the lashings to the chassis of the road vehicle and should never be fitted to bumpers or axles unless these are specially constructed and the forces are transmitted directly to the chassis.

5.7 Securing points should be so located that lashings can be readily and safely attached, particularly where side-guards are fitted to the vehicle.

5.8 The internal free passage of each securing point's aperture should be not less than 80 mm but the aperture need not be circular in shape.

5.9 Equivalent or superior securing arrangements may be considered for vehicles for which the provisions of table 5.3 are unsuitable.

[1] If more than one aperture is provided at a securing point, each aperture should have the strength for the securing point in the table in 5.3.

Appendix 7.5 IMO Resolution A.581(14).

6 LASHINGS

6.1 Lashings should consist of chain or any other device and be made of material having strength and elongation characteristics at least equivalent to those of steel chain. The strength of the lashings, without permanent deformation, should be not less than 120 kN.

6.2 Lashings should be so designed and attached that, provided there is safe access, it is possible to tighten them if they become slack. Where practicable and necessary, the lashings should be examined at regular intervals during the voyage and tightened as necessary.

6.3 Lashings should be attached to the securing points with hooks or other devices so designed that they cannot disengage from the aperture of the securing point if the lashing slackens during the voyage.

6.4 Only one lashing should be attached to any one aperture of the securing point on the vehicle.

6.5 Lashings should only be attached to the securing points provided for that purpose.

6.6 Lashings should be attached to the securing points on the vehicle in such a way that the angle between the lashing and the horizontal and vertical planes lies preferably between 30° and 60°.

6.7 Bearing in mind the characteristics of the ship and the weather conditions expected on the intended voyage, the master should decide on the number of securing points and lashings to be used for each voyage.

6.8 Where there is doubt that a road vehicle complies with the provisions of table 5.3, the master may, at his discretion, load the vehicle on board, taking into account the apparent condition of the vehicle, the weather and sea conditions expected on the intended voyage and all other circumstances.

7 STOWAGE

7.1 Depending on the area of operation, the predominant weather conditions and the characteristics of the ship, road vehicles should be stowed so that the chassis are kept as static as possible by not allowing free play in the suspension of the vehicles. This can be done, for example, by compressing the springs by tightly securing the vehicle to the deck, by jacking up the chassis prior to securing the vehicle or by releasing the air pressure on compressed air suspension systems.

7.2 Taking into account the conditions referred to in 7.1 and the fact that compressed air suspension systems may loose air, the air pressure should be released on every vehicle fitted with such a system if the voyage is of more than 24 hours duration. If practicable, the air pressure should be released also on voyages of a shorter duration. If the air pressure is not released, the vehicle should be jacked up to prevent any slackening of the lashings resulting from any air leakage from the system during the voyage.

7.3 Where jacks are used on a vehicle, the chassis should be strengthened in way of the jacking-up points and the position of the jacking-up points should be clearly marked.

7.4 Special consideration should be given to the securing of road vehicles stowed in positions where they may be exposed to additional forces. Where vehicles are stowed athwartship, special consideration should be given to the forces which may arise from such stowage.

7.5 Wheels should be chocked to provide additional security in adverse conditions.

Appendix 7.5 IMO Resolution A.581(14).

7.6 Vehicles with diesel engines should not be left in gear during the voyage.

7.7 Vehicles designed to transport loads likely to have an adverse effect on their stability, such as hanging meat, should have integrated in their design a means of neutralizing the suspension system.

7.8 Stowage should be arranged in accordance with the following:

.1 The parking brakes of each vehicle or of each element of a combination of vehicles should be applied and locked.

.2 Semi-trailers, by the nature of their design, should not be supported on their landing legs during sea transport unless the landing legs are specially designed for that purpose and so marked. An uncoupled semi-trailer should be supported by a trestle or similar device placed in the immediate area of the drawplate so that the connection of the fifth-wheel to the kingpin is not restricted. Semi-trailer designers should consider the space and the reinforcements required and the selected areas should be clearly marked.

Appendix 7.6 Guidelines for the Preparation of Cargo Securing Manual, MSC.1/Circ.1353. Rev. 1.

INTERNATIONAL MARITIME ORGANIZATION

E

4 ALBERT EMBANKMENT
LONDON SE1 7SR
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

MSC.1/Circ.1353/Rev.1
15 December 2014

REVISED GUIDELINES FOR THE PREPARATION OF THE CARGO SECURING MANUAL

1 In accordance with regulations VI/5 and VII/5 of the 1974 SOLAS Convention, as amended, cargo units and cargo transport units shall be loaded, stowed and secured throughout the voyage in accordance with the Cargo Securing Manual approved by the Administration, which shall be drawn up to a standard at least equivalent to the guidelines developed by the Organization.

2 The Maritime Safety Committee, at its eighty-seventh session (12 to 21 May 2010), considered the proposal by the Sub-Committee on Dangerous Goods, Solid Cargoes and Containers, at its fourteenth session (21 to 25 September 2009), and approved the *Revised guidelines for the preparation of the Cargo Securing Manual*, as set out in the annex.

3 These revised guidelines are based on the provisions contained in the annex to MSC/Circ.745 but have been expanded to include the safe access for lashing of containers, taking into account the provisions of the Code of Safe Practice for Cargo Stowage and Securing (CSS Code), as amended. They are of a general nature and intended to provide guidance on the preparation of such Cargo Securing Manuals, which are required on all types of ships engaged in the carriage of cargoes other than solid and liquid bulk cargoes.

4 Member Governments are invited to bring these guidelines to the attention of all parties concerned, with the aim of having Cargo Securing Manuals carried on board ships prepared appropriately and in a consistent manner, and to:

.1 apply the revised guidelines in its entirety for containerships*, the keels of which were laid or which are at a similar stage of construction on or after 1 January 2015; and

.2 apply chapters 1 to 4 of the revised guidelines to existing containerships*, the keels of which were laid or which were at a similar stage of construction before 1 January 2015.

5 This circular supersedes MSC.1/Circ.1353.

***

* As approved by the Maritime Safety Committee at its ninety-fourth session (17 to 21 November 2014), reference to containerships means dedicated container ships and those parts of other ships for which arrangements are specifically designed and fitted for the purpose of carrying containers on deck.

IMO CONVENTIONS EFFECTIVE IMPLEMENTATION

Appendix 7.6 Guidelines for the Preparation of Cargo Securing Manual, MSC.1/Circ.1353. Rev. 1.

ANNEX

REVISED GUIDELINES FOR THE PREPARATION OF THE CARGO SECURING MANUAL

PREAMBLE

1 In accordance with the International Convention for the Safety of Life at Sea, 1974 (SOLAS) chapters VI, VII and the Code of Safe Practice for Cargo Stowage and Securing (CSS Code), cargo units, including containers shall be stowed and secured throughout the voyage in accordance with a Cargo Securing Manual, approved by the Administration.

2 The Cargo Securing Manual is required on all types of ships engaged in the carriage of all cargoes other than solid and liquid bulk cargoes.

3 The purpose of these guidelines is to ensure that Cargo Securing Manuals cover all relevant aspects of cargo stowage and securing and to provide a uniform approach to the preparation of Cargo Securing Manuals, their layout and content. Administrations may continue accepting Cargo Securing Manuals drafted in accordance with Containers and cargoes (BC) – Cargo Securing Manual (MSC/Circ.385) provided that they satisfy the requirements of these guidelines.

4 If necessary, those manuals should be revised explicitly when the ship is intended to carry containers in a standardized system.

5 It is important that securing devices meet acceptable functional and strength criteria applicable to the ship and its cargo. It is also important that the officers on board are aware of the magnitude and direction of the forces involved and the correct application and limitations of the cargo securing devices. The crew and other persons employed for the securing of cargoes should be instructed in the correct application and use of the cargo securing devices on board the ship.

CHAPTER 1 – GENERAL

1.1 Definitions

1.1.1 *Cargo securing devices* are all fixed and portable devices used to secure and support cargo units.

1.1.2 *Maximum securing load (MSL)* is a term used to define the allowable load capacity for a device used to secure cargo to a ship. *Safe working load (SWL)* may be substituted for MSL for securing purposes, provided this is equal to or exceeds the strength defined by MSL.

1.1.3 *Standardized cargo* means cargo for which the ship is provided with an approved securing system based upon cargo units of specific types.

1.1.4 *Semi-standardized cargo* means cargo for which the ship is provided with a securing system capable of accommodating a limited variety of cargo units, such as vehicles, trailers, etc.

1.1.5 *Non-standardized cargo* means cargo which requires individual stowage and securing arrangements.

Appendix 7.6 Guidelines for the Preparation of Cargo Securing Manual, MSC.1/Circ.1353. Rev. 1.

1.2 Preparation of the manual

The Cargo Securing Manual should be developed, taking into account the recommendations given in these Guidelines, and should be written in the working language or languages of the ship. If the language or languages used is not English, French or Spanish, a translation into one of these languages should be included.

1.3 General information

This chapter should contain the following general statements:

.1 "The guidance given herein should by no means rule out the principles of good seamanship, neither can it replace experience in stowage and securing practice."

.2 "The information and requirements set forth in this Manual are consistent with the requirements of the vessel's trim and stability booklet, International Load Line Certificate (1966), the hull strength loading manual (if provided) and with the requirements of the International Maritime Dangerous Goods (IMDG) Code (if applicable)."

.3 "This Cargo Securing Manual specifies arrangements and cargo securing devices provided on board the ship for the correct application to and the securing of cargo units, containers, vehicles and other entities, based on transverse, longitudinal and vertical forces which may arise during adverse weather and sea conditions."

.4 "It is imperative to the safety of the ship and the protection of the cargo and personnel that the securing of the cargo is carried out properly and that only appropriate securing points or fittings should be used for cargo securing."

.5 "The cargo securing devices mentioned in this manual should be applied so as to be suitable and adapted to the quantity, type of packaging, and physical properties of the cargo to be carried. When new or alternative types of cargo securing devices are introduced, the Cargo Securing Manual should be revised accordingly. Alternative cargo securing devices introduced should not have less strength than the devices being replaced."

.6 "There should be a sufficient quantity of reserve cargo securing devices on board the ship."

.7 "Information on the strength and instructions for the use and maintenance of each specific type of cargo securing device, where applicable, is provided in this manual. The cargo securing devices should be maintained in a satisfactory condition. Items worn or damaged to such an extent that their quality is impaired should be replaced."

.8 The Cargo Safe Access Plan (CSAP) is intended to provide detailed information for persons engaged in work connected with cargo stowage and securing. Safe access should be provided and maintained in accordance with this plan.

Appendix 7.6 Guidelines for the Preparation of Cargo Securing Manual, MSC.1/Circ.1353. Rev. 1.

CHAPTER 2 – SECURING DEVICES AND ARRANGEMENTS

2.1 Specification for fixed cargo securing devices

This sub-chapter should indicate and where necessary illustrate the number, locations, type and MSL of the fixed devices used to secure cargo and should as a minimum contain the following information:

2.1.1 a list and/or plan of the fixed cargo securing devices, which should be supplemented with appropriate documentation for each type of device as far as practicable. The appropriate documentation should include information as applicable regarding:

.1 name of manufacturer;

.2 type designation of item with simple sketch for ease of identification;

.3 material(s);

.4 identification marking;

.5 strength test result or ultimate tensile strength test result;

.6 result of non destructive testing; and

.7 Maximum Securing Load (MSL);

2.1.2 fixed securing devices on bulkheads, web frames, stanchions, etc. and their types (e.g. pad eyes, eyebolts, etc.), where provided, including their MSL;

2.1.3 fixed securing devices on decks and their types (e.g. elephant feet fittings, container fittings, apertures, etc.) where provided, including their MSL;

2.1.4 fixed securing devices on deckheads, where provided, listing their types and MSL; and

2.1.5 for existing ships with non-standardized fixed securing devices, the information on MSL and location of securing points is deemed sufficient.

2.2 Specification for portable cargo securing devices

This sub-chapter should describe the number of and the functional and design characteristics of the portable cargo securing devices carried on board the ship, and should be supplemented by suitable drawings or sketches if deemed necessary. It should contain the following information as applicable:

2.2.1 a list for the portable securing devices, which should be supplemented with appropriate documentation for each type of device, as far as practicable. The appropriate documentation should include information as applicable regarding:

.1 name of manufacturer;

.2 type designation of item with simple sketch for ease of identification;

.3 material(s), including minimum safe operational temperature;

.4 identification marking;

.5 strength test result or ultimate tensile strength test result;

.6 result of non destructive testing; and

.7 Maximum Securing Load (MSL);

Appendix 7.6 Guidelines for the Preparation of Cargo Securing Manual, MSC.1/Circ.1353. Rev. 1.

2.2.2 container stacking fittings, container deck securing fittings, fittings for interlocking of containers, bridge-fittings, etc. their MSL and use;

2.2.3 chains, wire lashings, rods, etc. their MSL and use;

2.2.4 tensioners (e.g. turnbuckles, chain tensioners, etc.), their MSL and use;

2.2.5 securing gear for cars, if appropriate, and other vehicles, their MSL and use;

2.2.6 trestles and jacks, etc. for vehicles (trailers) where provided, including their MSL and use; and

2.2.7 anti-skid material (e.g. soft boards) for use with cargo units having low frictional characteristics.

2.3 Inspection and maintenance schemes

This sub-chapter should describe inspection and maintenance schemes of the cargo securing devices on board the ship.

2.3.1 Regular inspections and maintenance should be carried out under the responsibility of the master. Cargo securing devices inspections as a minimum should include:

.1 routine visual examinations of components being utilized; and

.2 periodic examinations/re-testing as required by the Administration. When required, the cargo securing devices concerned should be subjected to inspections by the Administration.

2.3.2 This sub-chapter should document actions to inspect and maintain the ship's cargo securing devices. Entries should be made in a record book, which should be kept with the Cargo Securing Manual. This record book should contain the following information:

.1 procedures for accepting, maintaining and repairing or rejecting cargo securing devices; and

.2 record of inspections.

2.3.3 This sub-chapter should contain information for the master regarding inspections and adjustment of securing arrangements during the voyage.

2.3.4 Computerized maintenance procedures may be referred to in this sub-chapter.

CHAPTER 3 – STOWAGE AND SECURING OF NON-STANDARDIZED AND SEMI-STANDARDIZED CARGO

3.1 Handling and safety instructions

This sub-chapter should contain:

.1 instructions on the proper handling of the securing devices; and

.2 safety instructions related to handling of securing devices and to securing and unsecuring of units by ship or shore personnel.

Appendix 7.6 Guidelines for the Preparation of Cargo Securing Manual, MSC.1/Circ.1353. Rev. 1.

3.2 Evaluation of forces acting on cargo units

This sub-chapter should contain the following information:

.1 tables or diagrams giving a broad outline of the accelerations which can be expected in various positions on board the ship in adverse sea conditions and with a range of applicable metacentric height (GM) values;

.2 examples of the forces acting on typical cargo units when subjected to the accelerations referred to in paragraph 3.2.1 and angles of roll and metacentric height (GM) values above which the forces acting on the cargo units exceed the permissible limit for the specified securing arrangements as far as practicable;

.3 examples of how to calculate number and strength of portable securing devices required to counteract the forces referred to in 3.2.2 as well as safety factors to be used for different types of portable cargo securing devices. Calculations may be carried out according to annex 13 to the CSS Code or methods accepted by the Administration;

.4 it is recommended that the designer of a Cargo Securing Manual converts the calculation method used into a form suiting the particular ship, its securing devices and the cargo carried. This form may consist of applicable diagrams, tables or calculated examples; and

.5 other operational arrangements such as electronic data processing (EDP) or use of a loading computer may be accepted as alternatives to the requirements of the above paragraphs 3.2.1 to 3.2.4, providing that this system contains the same information.

3.3 Application of portable securing devices on various cargo units, vehicles and stowage blocks

3.3.1 This sub-chapter should draw the master's attention to the correct application of portable securing devices, taking into account the following factors:

.1 duration of the voyage;

.2 geographical area of the voyage with particular regard to the minimum safe operational temperature of the portable securing devices;

.3 sea conditions which may be expected;

.4 dimensions, design and characteristics of the ship;

.5 expected static and dynamic forces during the voyage;

.6 type and packaging of cargo units including vehicles;

.7 intended stowage pattern of the cargo units including vehicles; and

.8 mass and dimensions of the cargo units and vehicles.

Appendix 7.6 Guidelines for the Preparation of Cargo Securing Manual, MSC.1/Circ.1353. Rev. 1.

3.3.2 This sub-chapter should describe the application of portable cargo securing devices as to number of lashings and allowable lashing angles. Where necessary, the text should be supplemented by suitable drawings or sketches to facilitate the correct understanding and proper application of the securing devices to various types of cargo and cargo units. It should be pointed out that for certain cargo units and other entities with low friction resistance, it is advisable to place soft boards or other anti-skid material under the cargo to increase friction between the deck and the cargo.

3.3.3 This sub-chapter should contain guidance as to the recommended location and method of stowing and securing of containers, trailers and other cargo carrying vehicles, palletized cargoes, unit loads and single cargo items (e.g. woodpulp, paper rolls, etc.), heavy weight cargoes, cars and other vehicles.

3.4 Supplementary requirements for ro-ro ships

3.4.1 The manual should contain sketches showing the layout of the fixed securing devices with identification of strength (MSL) as well as longitudinal and transverse distances between securing points. In preparing this sub-chapter further guidance should be utilized from IMO Assembly resolutions A.533(13) and A.581(14), as appropriate.

3.4.2 In designing securing arrangements for cargo units, including vehicles and containers, on ro-ro passenger ships and specifying minimum strength requirements for securing devices used, forces due to the motion of the ship, angle of heel after damage or flooding and other considerations relevant to the effectiveness of the cargo securing arrangement should be taken into account.

3.5 Bulk carriers

If bulk carriers carry cargo units falling within the scope of chapter VI/5 or chapter VII/5 of the SOLAS Convention, this cargo shall be stowed and secured in accordance with a Cargo Securing Manual, approved by the Administration.

CHAPTER 4 – STOWAGE AND SECURING OF CONTAINERS AND OTHER STANDARDIZED CARGO

4.1 Handling and safety instructions

This sub-chapter should contain:

.1 instructions on the proper handling of the securing devices; and

.2 safety instructions related to handling of securing devices and to securing and unsecuring of containers or other standardized cargo by ship or shore personnel.

4.2 Stowage and securing instructions

This sub-chapter is applicable to any stowage and securing system (i.e. stowage within or without cellguides) for containers and other standardized cargo. On existing ships the relevant documents regarding safe stowage and securing may be integrated into the material used for the preparation of this chapter.

Appendix 7.6 Guidelines for the Preparation of Cargo Securing Manual, MSC.1/Circ.1353. Rev. 1.

4.2.1 Stowage and securing plan

This sub-chapter should consist of a comprehensive and understandable plan or set of plans providing the necessary overview on:

.1 longitudinal and athwartship views of under deck and on deck stowage locations of containers as appropriate;

.2 alternative stowage patterns for containers of different dimensions;

.3 maximum stack masses;

.4 permissible vertical sequences of masses in stacks;

.5 maximum stack heights with respect to approved sight lines; and

.6 application of securing devices using suitable symbols with due regard to stowage position, stack mass, sequence of masses in stack and stack height. The symbols used should be consistent throughout the Cargo Securing Manual.

4.2.2 Stowage and securing principle on deck and under deck

This sub-chapter should support the interpretation of the stowage and securing plan with regard to container stowage, highlighting:

.1 the use of the specified devices; and

.2 any guiding or limiting parameters as dimension of containers, maximum stack masses, sequence of masses in stacks, stacks affected by wind load, height of stacks.

It should contain specific warnings of possible consequences from misuse of securing devices or misinterpretation of instructions given.

4.3 Other allowable stowage patterns

4.3.1 This sub-chapter should provide the necessary information for the master to deal with cargo stowage situations deviating from the general instructions addressed under sub-chapter 4.2, including appropriate warnings of possible consequences from misuse of securing devices or misinterpretation of instructions given.

4.3.2 Information should be provided with regard to, inter alia:

.1 alternative vertical sequences of masses in stacks;

.2 stacks affected by wind load in the absence of outer stacks;

.3 alternative stowage of containers with various dimensions; and

.4 permissible reduction of securing effort with regard to lower stacks masses, lesser stack heights or other reasons.

Appendix 7.6 Guidelines for the Preparation of Cargo Securing Manual, MSC.1/Circ.1353. Rev. 1.

4.4 Forces acting on cargo units

4.4.1 This sub-chapter should present the distribution of accelerations on which the stowage and securing system is based, and specify the underlying condition of stability. Information on forces induced by wind and sea on deck cargo should be provided.

4.4.2 It should further contain information on the nominal increase of forces or accelerations with an increase of initial stability. Recommendations should be given for reducing the risk of cargo losses from deck stowage by restrictions to stack masses or stack heights, where high initial stability cannot be avoided.

CHAPTER 5 – CARGO SAFE ACCESS PLAN (CSAP)

5.1 Ships which are specifically designed and fitted for the purpose of carrying containers should be provided with a Cargo Safe Access Plan (CSAP) in order to demonstrate that personnel will have safe access for container securing operations. This plan should detail arrangements necessary for the conducting of cargo stowage and securing in a safe manner. It should include the following for all areas to be worked by personnel:

.1 hand rails;

.2 platforms;

.3 walkways;

.4 ladders;

.5 access covers;

.6 location of equipment storage facilities;

.7 lighting fixtures;

.8 container alignment on hatch covers/pedestals;

.9 fittings for specialized containers, such as reefer plugs/receptacles;

.10 first aid stations and emergency access/egress;

.11 gangways; and

.12 any other arrangements necessary for the provision of safe access.

5.2 Guidelines for specific requirements are contained in annex 14 to the CSS Code.

NATURAL JUSTICE - CORRESPONDENCE RECEIVED

Section 36 of the Merchant Shipping (Investigation of Marine Casualties) Act, 2000 requires that:

'36 (1) Before publishing a report, the Board shall send a draft of the report or sections of the draft report to any person who, in its opinion, is likely to be adversely affected by the publishing of the report or sections or, if that person be deceased, then such person as appears to the Board best to represent that person's interest.

(2) A person to whom the Board sends a draft in accordance with subsection (1) may, within a period of 28 days commencing on the date on which the draft is sent to the person, or such further period not exceeding 28 days, as the Board in its absolute discretion thinks fit, submit to the Board in writing his or her observations on the draft.

(3) A person to whom a draft has been sent in accordance with subsection (1) may apply to the Board for an extension, in accordance with subsection (2), of the period in which to submit his or her observations on the draft.

(4) Observations submitted to the Board in accordance with subsection (2) shall be included in an appendix to the published report, unless the person submitting the observations requests in writing that the observations be not published.

(5) Where observations are submitted to the Board in accordance with subsection (2), the Board may, at its discretion -

(a) alter the draft before publication or decide not to do so, or

(b) include in the published report such comments on the observations as it thinks fit.'

The Board reviews and considers all observations received whether published or not published in the final report. When the Board considers an observation requires amendments to the report that is stated beside the relevant observation. When the Board is satisfied that the report has adequately addressed the issue in the observation, then the observation is 'Noted' without comment or amendment. The Board may make further amendments or observations in light of the responses from the Natural Justice process.

'Noted' does not mean that the Board either agrees or disagrees with the observation.

8. NATURAL JUSTICE - CORRESPONDENCE RECEIVED

Note: The names and contact details of the individual respondents have been obscured for privacy reasons.

Correspondence 8.1 Management Company and MCIB response.

[redacted]

Reference: MCIB/12/258

12 June 2018

[redacted]
Marine Casualty Investigation Board,
Leeson Lane,
Dublin 2,
Ireland.

Marine Casualty Investigation Board
15 JUN 2018
Bord Imscrúdú Taismi Muiri

[redacted]esponse to the Draft Report of the Incident onboard EPSILON, Barnstable Bay on 8th February 2016.

[redacted] The Irish MCIB draft report was reviewed by [redacted] and has resulted in the following comments on the report;

Definitions – There are differing terms for the 'Company' throughout the report. For clarity The Technical Managers and ISM 'Company' were Matrix Ship Management, The Charterers were Irish Ferries. Use of these terms should be consistent throughout the report.

Factual Information Section 2.1 – Vessel name is stated as "MV Epsilon throughout the report, this should read "Epsilon". Vessel's tonnage is stated as 26,000, this should read 26,375.

Factual Information Section 2.3 – Type of Casualty is stated as 'Serious Marine Casualty'. We would contend that the Circular MSC-MEPC.3/Circ.3 of the IMO Maritime Safety Committee and Marine Environment Protection Committee of 18 December 2008 defines the categorisation of marine incidents. Given the definitions within this document this incident shall be categorised as a 'Less serious casualty' or 'Marine Incident', indeed the REPORT NO. MCIB/258/INTERIM categorised this as a "Marine Casualty" but following the Circular it should properly be defined as a 'Less serious Casualty' or 'Marine Incident'.

Factual Information Section 2.3 – Vessel damage is stated as 'damage to bulkheads on decks 4 & 5', this should read 'minor damage to bulkheads...' as per section 3.28 of the report.

Factual Information Section 2.3 & Narrative 3.28 – The location of the passenger and crew accidents is not stated and the phraseology of Section 2.3 could be misconstrued as stating injuries were caused by shifting cargo. It should be made clear that all injuries occurred in the ships accommodation due to the vessel's motion in the seaway.

Narrative Section 3.6, Analysis 4.1, 4.6, 4.11, Conclusions 5.2 – The MCIB have misinterpreted the content of PER 14 to mean that the Senior Master remains in command at all times when onboard. This is factually incorrect as he is only in command during his period as Duty Master. PER 14 and the Command responsibilities were clear to all in [redacted] and both Masters at the time of the incident. By example, both Masters in their written statements confirm their understanding by stating they took command or handed over command of the vessel at various stages of the voyage – this is unambiguous. They also completed Form Deck 30 as evidence of command change over. It is clearly stated that the Duty Master retains the 'Overriding Authority' during duty periods in PER 14 with the full backing of [redacted]

MCIB RESPONSE: Noted and amendments have been made to ensure clarity.

MCIB RESPONSE: Noted and amendments have been made to tonnage.

MCIB RESPONSE: The MCIB has considered this and is satisfied with the categorisation as stated.

MCIB RESPONSE: Paragraph 3.28 has been amended.

MCIB RESPONSE: Noted.

MCIB RESPONSE: Noted and we draw your attention to paragraph 4.7 and Safety Recommendation 6.2.

Correspondence 8.1 Management Company and MCIB response.

[redacted]

Analysis 4.1 – As above. The decision to sail is taken by the duty Master although in this case that happened to be the Senior Master. Normally there would be discussion and agreement between the Masters as to whether the vessel would sail. This took place in this instance during the morning handover.

MCIB RESPONSE: Noted, please see response above.

Conclusions 5.13 – The change of command procedure was correct and there is no doubt that the Masters executed the correct change of command for a vessel with 2 Masters working a 12 hours on/off command routine onboard. It is the wording of form Deck 30 that needs to be changed and was in error at the time of the incident. The SMS form Deck 30 was created before Epsilon commenced the mixed mode schedule and as such refers to 2 voyages in 24 hours referencing the short sea schedules. PER 12 and PER 34 which should be read in conjunction with Form Deck 30 clearly define Change of Command so the error in wording on Deck 30 would not have caused confusion. MCIB is requested to reconsider its position and statements regarding the change of command onboard Epsilon.

MCIB RESPONSE: Noted.

MCIB Recommendations - [redacted] Actions since the Incident:

[redacted] have implemented corrective actions and completed all the recommendations now contained in the Irish MCIB report – namely;

1. [redacted] have updated the PER 14 procedure and Deck 30 form to ensure no possible ambiguity or confusion. All Masters fully understand that as duty Master they have the 'Overriding Authority'.
2. [redacted] have worked in conjunction with the Masters and Nowcasting to produce an onboard training document for the Nowcasting weather forecasting. All new deck officers complete this training as part of the familiarisation to the vessel and all deck officers refresh this training if transferring between vessels. A designated Nowcasting training officer is appointed on each vessel.
3. [redacted] have consulted extensively with RINA Classification Society who, on behalf of Italian Flag State, have approved the [redacted] Weather Dependent Lashing System as an official annex to the Cargo Securing Manual. This annex is largely unchanged from the system in place on the day of the incident.

MCIB RESPONSE: Noted.

Should you require further clarification or comment on the above points please do not hesitate to contact me.

[redacted]

Correspondence 8.2 Flag State and MCIB response.

[redacted]

Sent: Thu 21/06/2018 12:33

[redacted]

With reference to the letter n. MCIB/12/258 on 8 May 2018 and following communications exchanged, [redacted] has no comments to forward to your good Office concerning the safety recommendations contained within the captioned draft safety investigation report.
About the content of the report, the accident appears to be related also to HE that doesn't seem to be analyzed within the mentioned document.

on behalf of Director General.

with kind regards

[redacted]

MCIB RESPONSE: The MCIB notes this correspondence.

Leeson Lane, Dublin 2.
Telephone: 01-678 3485/86.
email: info@mcib.ie
www.mcib.ie