

# **Final Report**

## **FATALITY AND INJURY OF CREW ON BOARD CONTAINER VESSEL LUCIE SCHULTE IN ATLANTIC OCEAN ON 3 APRIL 2023**

TIB/MAI/CAS.141

Transport Safety Investigation Bureau  
Ministry of Transport  
Singapore

7 December 2023

## **The Transport Safety Investigation Bureau of Singapore**

*The Transport Safety Investigation Bureau (TSIB) is the air, marine and rail accidents and incidents investigation authority in Singapore. Its mission is to promote transport safety through the conduct of independent investigations into air, marine and rail accidents and incidents.*

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## **SYNOPSIS**

On 3 April 2023, the Singapore registered container vessel, Lucie Schulte was in the Atlantic Ocean, enroute from the Port of Bremerhaven, Germany to the Port of Veracruz, Mexico. The vessel was experiencing heavy weather and its starboard bow was occasionally being slammed by waves which were generating sea spray onto the forecastle deck.

While collecting some tools from the Bosun store at the forecastle deck, the Bosun noticed some water inside the Bosun store. The Bosun assessed that the water had likely entered the store through the mushroom ventilator on the forecastle deck. He asked the Ordinary Seaman to accompany him to inspect the ventilator. While they were doing so, both were likely hit by a sea spray resulting in the Bosun suffered head injury and the Ordinary Seaman suffered injuries which proved fatal.

The Transport Safety Investigation Bureau classified the occurrence as a very serious marine casualty.

The investigation noted that the Master had issued standing order to prohibit activities on deck in heavy weather condition. When passing the English Channel where the weather condition was bad, the Master passed a verbal instruction of no activities on deck. After passing the English Channel and entering the Atlantic Ocean, the Chief Officer (CO) assessed that the weather had improved and started to assign work activities on deck at the aft section of the vessel. However, the CO did not inform the Master of assigning work activities on deck.

The mushroom ventilator on the forecastle deck had been unable to close for a period and was registered as a pending task to be rectified by 9 May 2023. The checking of mushroom ventilator was unplanned on the day of occurrence and the Bosun did not inform the duty officer on the bridge or the CO prior to going to the forecastle deck.

The investigation noted that the Master had a discussion on the risk assessment for heavy weather with deck officers and crew but did not include the Bosun and the Ordinary Seaman.

## DETAILS OF VESSELS

Name	Lucie Schulte
IMO number	9301926
Flag registry	Singapore
Classification society	Korean Register of Shipping (KR) <sup>1</sup>
Ship type	Container ship
Hull	Steel
Delivery	2006
Owner/ ISM Manager <sup>2</sup>	Carlton Park shipping Co. Pte / Bernhard Schulte Shipmanagement (Hellas) SPLLC
Gross tonnage	26671
Length overall	210.0m
Moulded breadth	30.1m
Moulded depth	16.7m
Summer draft	11.518m
Main engine	STX MAN B&W Licensee 8S70MC-C (24,880 kW) MCR, at 91 RPM



Lucie Schulte  
(Source: MarineTraffic.com)

<sup>1</sup> As per the International Management Code for the Safe Operation of Ships and for Pollution Prevention – ISM Code, KR was the Recognised Organisation (RO) for carrying out ISM audit and issuance of ISM related certificates, as well as for survey and issuance of other statutory certificates.

<sup>2</sup> The “ISM Manager” is referred to as the Company in this investigation report.

# 1 **FACTUAL INFORMATION**

All times used in this report are ship's mean time of Lucie Schulte, which was same time as the UTC, unless otherwise stated.

## 1.1 **Sequence of events**

- 1.1.1 On 29 March 2023, the Singapore registered container vessel, Lucie Schulte (LS) departed the Port of Bremerhaven, Germany bound for the Port of Veracruz, Mexico. On the next day, 30 March 2023, in anticipation of heavy weather in the Atlantic Ocean, the vessel's crew secured all loose items on deck and closed all natural and mechanical ventilations for all the cargo holds and forecastle store.
- 1.1.2 On 2 April 2023, at about 1130H, the Master took over command of LS at Bremerhaven and held an introductory meeting with all the crew on the bridge, and a briefing about expecting heavy weather along the passage.
- 1.1.3 On the morning of 3 April 2023, prior to starting work, the Bosun customarily met the Chief Officer (CO)<sup>3</sup>, who was keeping the navigational watch on the bridge, for daily job orders<sup>4</sup> and to discuss the work plan. Thereafter, the Bosun and three deck crew (comprising two Ordinary Seamen and a Deck Trainee) proceeded to carrying out the assigned tasks on deck.
- 1.1.4 At about 1145H, the Bosun met the CO again and updated the status of the work that had been done and intention to carry out the remaining in the afternoon. The CO then went to rest as scheduled, prior to his next navigational watch at 1600H.
- 1.1.5 At about 1300H, after the lunch break, the Bosun and other deck crew went on deck to continue their tasks. An Ordinary Seaman and a Deck Trainee who were working at the aft station recalled seeing the Bosun and another Ordinary Seaman (OS1) walked towards the bow from the port side of the vessel. A while later, the Bosun and OS1 returned and passed by the duo, collected raincoats<sup>5</sup>, and then proceeded again towards the bow.

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<sup>3</sup> Kept navigational watches for the periods of 0400H-0800H and 1600H-2000H at sea.

<sup>4</sup> The jobs given were to clean the accommodation, monitor the reefer containers' temperatures, de-rust the aft station, assist with repair of starboard side winch platform at aft station and wash the deck areas at the aft part of the vessel.

<sup>5</sup> The vessel was experiencing heavy weather since passing the English Channel and there were sea sprays coming from the ship's bow.

1.1.6 At about 1400H, some crew discovered the Bosun sitting in front of the cargo office at the starboard side of upper deck (near the accommodation) with a head injury and showing signs of confusion and his clothes were wet. The Bosun could not recall what had happened and how he got there. The Third Officer who was working inside the accommodation then assisted the Bosun to sit inside the cargo office. The Third Officer notified the officer of the watch (OOW, which was the Second Officer, 2O) who in turn informed the Master. An announcement on the public address system was made for all the deck crew to muster at the cargo office.

1.1.7 After a headcount, at about 1412H, the OS1 was unaccounted for<sup>6</sup>. At about 1416H, the crew discovered the OS1 lying unconscious on the forecastle deck, near the port side anchor hawse pipe (see **figure 1**) bleeding from his nose, mouth, and ears. The OS1 was not breathing and did not have a pulse. He was brought back to the infirmary on stretcher where the OS1 was rechecked and found not having any vital signs. The ship's crew administered CPR on the OS1 and treated the Bosun's head injury.

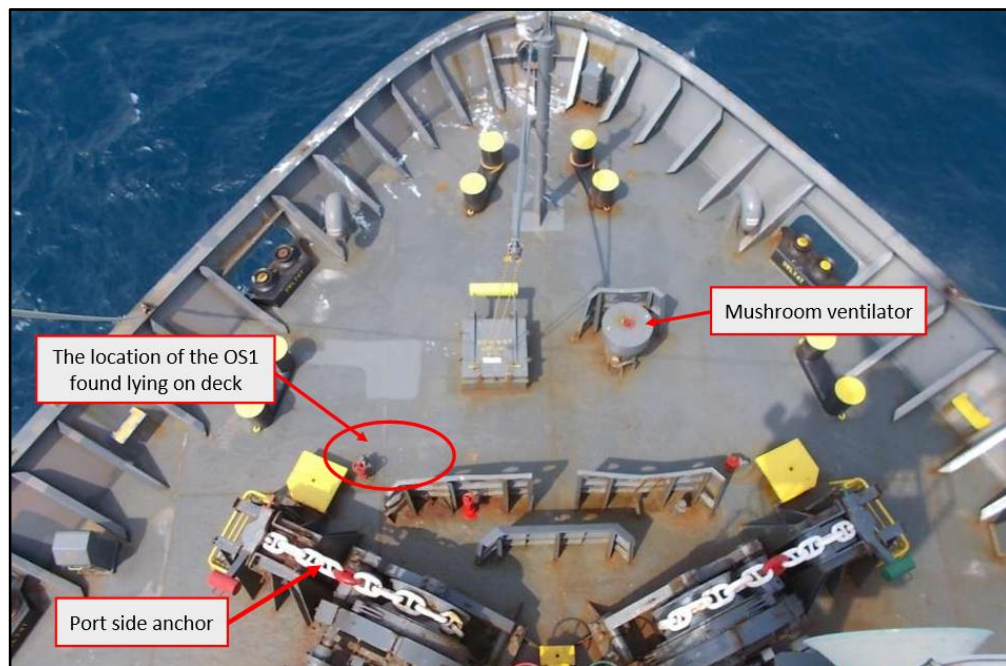


Figure 1 – Location where the OS1 was found  
(Source: the Company) – Annotation by the Company and TSIB

<sup>6</sup> Another announcement was made instructing the OS1 to muster at the cargo office. When the OS1 did not turn up, the Master instructed the ship's general alarm to be raised and a search for the OS1 was initiated.

- 1.1.8 At about 1433H, the Master contacted CIRM<sup>7</sup> for medical advice, and was asked to continue performing CPR on the OS1 and administer medicine(s) to the Bosun to relieve his pain and trauma. Subsequently the Master reported the occurrence to the Company and updated the condition of the Bosun and OS1.
- 1.1.9 At about 1538H, the Master reported to the nearest Maritime Rescue Coordination Centre (MRCC)<sup>8</sup> about the injury of the Bosun and OS1 and requested for shore medical assistance. The MRCC informed that a rescue helicopter would be dispatched to the vessel and requested for LS be at a rendezvous point.
- 1.1.10 At about 1600H, the Master, in consultation with the Company, deviated LS from its original course and proceeded to the rendezvous point and made a report to the ship's charterers. Enroute, the OS1 was declared dead onboard by the Master at about 1630H in consultation with CIRM.
- 1.1.11 On 4 April 2023, at about 0845H, the Master established communication with the rescue helicopter. At about 0906H, the helicopter arrived in the vicinity of LS and by about 0930H the Bosun was medivac away from LS for shore medical treatment in Lisbon, Portugal. LS then proceeded to meet a boat arranged by the Company to offload the body of OS1. At about 1705H, the body of the OS1 was transferred to shore by the boat.
- 1.1.12 At about 1712H, LS resumed her passage to the destination and arrived the Port of Veracruz on 15 April 2023.

## 1.2 **The ship**

- 1.2.1 LS is a container ship with a carrying capacity of 2572 TEU (twenty-foot equivalent unit). LS had been managed by the same ISM Manager (the Company) since her delivery in 2006. LS was on time charter<sup>9</sup> in a liner trade between ports in Northwest Europe and Latin America since 1 January 2022.

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<sup>7</sup> The International Radio Medical Centre, a non-profit organisation headquartered in Rome, providing a 24-hour free telemedical advice by doctors on duty, to ships flying of any flag navigating on all seas of the world. The contact details of CIRM are listed in a marine publication, the Admiralty List of Radio Signals.

<sup>8</sup> A maritime rescue co-ordination centre, an operational facility responsible for promoting efficient organisation of search and rescue (SAR) services and for co-ordinating the conduct of SAR operations within a search and rescue region (SRR). At the time of the occurrence, LS was within the region of MRCC Ponta Delgada, Portugal as per IMO Global SAR Plan.

<sup>9</sup> September 2021 till 2025.



Prior to the date of the occurrence, she had crossed the Atlantic Ocean 16 times.

- 1.2.2 At the time of the occurrence, LS was in laden condition drawing a forward draft of 9.63m and an aft draft of 10.18m, i.e. half metre trim by its stern. Its freeboard at the bow was about 7m.
- 1.2.3 According to ship's loading condition calculated by an approved loading software onboard LS, the longitudinal strength and stability of the vessel were within the required criteria for the intended voyage (crossing the Atlantic Ocean). There was no structural damage reported on LS following the heavy weather encountered during the incident voyage.
- 1.2.4 The forecastle deck is located at most forward part which is typically blocked by containers on deck and a breakwater<sup>10</sup>. The OOW would not have a direct line of sight of the forecastle deck from the bridge (see **figure 2**).

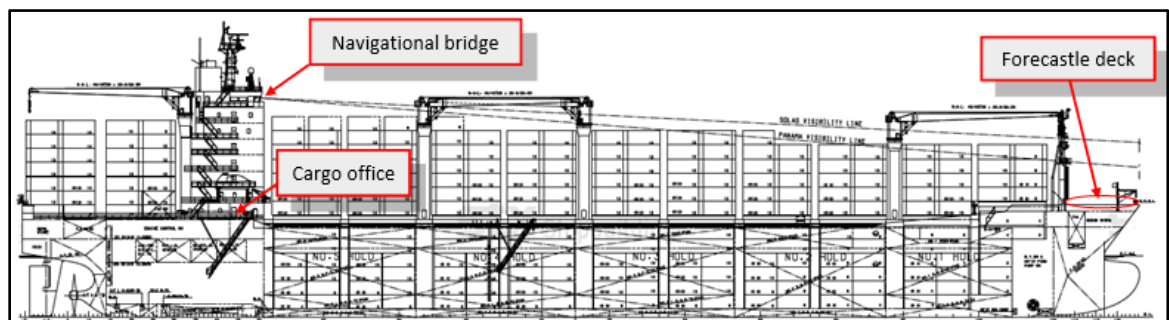


Figure 2 – Starboard side view of LS from the General Arrangement plan  
(Source: the Company)

### 1.3 The crew

- 1.3.1 There were 24 crew of seven nationalities onboard LS. All the crew held valid STCW<sup>11</sup> competency certificates required for their respective positions onboard. The working language was English.
- 1.3.2 The qualification and experience of the Master, relevant officers and crew are tabulated in the table 1 below.

<sup>10</sup> A vertical solid structure across the forecastle deck intended to deflect and disperse head seas shipped over the bow in order to protect deck cargo from damage.

<sup>11</sup> The International Convention on Standards of Training, Certification and Watch keeping for Seafarers (or STCW), 1978 sets qualification standards for masters, officers and watch personnel on seagoing merchant ships.

Designation onboard	Age	Qualification	Duration onboard (month)	In rank service (Year)	Service in Company (Year)	Working schedule onboard
Master	50	COC – Master / STCW II/2, IV/2	6 days	5.5	11	0700 – 1200 1300 - 1800 <sup>12</sup>
Chief Officer	42	COC – Master / STCW II/2, IV/2	2.5	3.6	2	0400 - 1000 1600 - 2000
Second Officer	30	COC – Officer of the watch (deck) / STCW II/1, IV/2	0.8	1	8.5	0000 - 0430 1200 - 1800
Third Officer	33	COC – Officer of the watch (deck) / STCW II/1, IV/2	5.6	1.6	8.5	0800 - 1200 1300 - 1500 2000 - 2400
Bosun	40	Deck Rating as per STCW II/4, 5	2.5	1.7	1.4	0600 - 1200 1300 - 1700
<b>Ordinary Seaman (OS1)</b>	<b>25</b>	<b>Deck Rating as per STCW II/4, 5</b>	<b>6</b>	<b>1.3</b>	<b>0.6</b>	<b>0000 - 0400</b> <b>1030 - 1200</b> <b>1300 - 1700</b>

Table 1

- 1.3.3 The Master started his sailing career as a deck cadet with the Company in 1993 and was promoted to the rank of master in 2013, his sailing experience had mostly been on container ships. Prior to signing on LS, the Master had attended pre-joining ship briefings by the Company and the ship's owner on 27 March 2023 and 28 March 2023 respectively.
- 1.3.4 The CO had been sailing onboard LS since 2021, and this was his third contract on the same ship. According to the Company's defined responsibilities and accountability, the CO was responsible to assign daily tasks to deck personnel with regular follow-up and supervision and to issue and enforce appropriate permits to work for compliance with safe working practices. As a designated Safety Officer, he was to regularly inspect and monitor all ship areas and monitor crew for safe working practices. As a designated Training Officer, he was to identify training needs of officers and crew in the deck department.
- 1.3.5 The 2O started his sailing career as deck cadet with the Company in 2014 and had been sailing on container ships throughout. He had sailed on LS in 2017 as a Junior Third Officer. He was promoted to the rank of second officer in

<sup>12</sup> Indicating as a routine working schedule onboard, the Master is overall in-charge and is required to be on-call 24/7.

August 2020.

- 1.3.6 The Bosun joined the Company in December 2021. The past appraisals done by his superiors (three masters and two chief officers) had noted him to be an experienced and hardworking person with good initiatives and other positive remarks. The medical certificate issued to the Bosun by a medical service provider approved by the Department of Health and the Maritime Industry Authority of the Philippines on 16 January 2023 indicated he was fit for duty at sea without any limitation or restrictions.
- 1.3.7 The Bosun was responsible to ensure a safe working environment and condition for all deck ratings under his supervision, to maintain good condition of deck storerooms and workshops, to speak up if or when unsafe conditions were identified, and to assist with any operational and maintenance planning as assigned by the CO.
- 1.3.8 The OS1 was employed as an Ordinary Seaman by the Company in August 2021 and LS was his second ship with the Company. He performed his duties well and was deemed to be a hardworking crew who had been recommended to be promoted to an Able Seafarer Deck. The medical certificate issued to the OS1 by the same medical service provider as the Bosun's, on 26 August 2022, indicated that he was fit for duty at sea without any limitation or restrictions. One of the OS1's duties was to assist with any shipboard activity as directed by the Bosun.
- 1.3.9 According to LS' work/rest hour records, the Bosun and OS1's hours of work and rest were compliant with the STCW and MLC Convention's requirements.

#### 1.4 **The passage**

- 1.4.1 As LS' trading route involved crossing the Atlantic Ocean regularly, a weather routing service<sup>13</sup> was contracted by the Company for providing optimal route recommendations to the Master. The Company allowed the Master to deviate from the recommended route if the Master had safety concerns but was required to inform the Company's marine superintendent and charterers when adjusting routes.
- 1.4.2 The initial rhumb line route at an average speed of 14.7 knots for the Atlantic

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<sup>13</sup> The use of real-time weather data to find the optimal route for a ship's voyage.

- Ocean crossing after leaving SECA<sup>14</sup> was recommended on 29 March 2023. After the Master was satisfied with the recommended route, the 2O planned the passage for approval by the Master. The other deck officers (CO and 3O) also reviewed and acknowledged the passage plan by signing it for subsequent execution. This plan included relevant vessel's details, voyage information, passage planning checklist in checkbox, sector waypoints<sup>15</sup>, the total distance between the two ports, squat and under-keel clearance<sup>16</sup> for the Master and all the OOWs to take note of during the entire passage.
- 1.4.3 Within the plan, the Master's comments were provided which covered areas of Navigation, Environmental, Security, Commercial, Cargo, Inspections and Compliance. The comments in the Navigation section reminded the OOWs to observe the weather forecast from INMARSAT-C<sup>17</sup> and to inform the Master of any sudden changes in the weather or when bad weather is to be expected.
- 1.4.4 The service provider also provided advice on 30 March 2023 that, based on the latest weather forecast, the initial recommended route remained valid. Accordingly, till the time of occurrence, there was no amendment (based on the records) made by the Master to the recommended route.
- 1.5 **Navigation parameters prior to the incident**
- 1.5.1 The ship's log record on 3 April 2023 (at noon) indicated that the distance to the pilot station of the destination was 4212 nautical miles (nm), and to meet an estimated time of arrival<sup>18</sup>, the speed required would be about 14.3 knots.
- 1.5.2 The vessel's main engine was set on manoeuvring full ahead at 63 RPM<sup>19</sup> since 1000H on 2 April 2023 till the time of occurrence, with an average speed of about 13.5 knots. Setting on manoeuvring full ahead was to allow for immediate

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<sup>14</sup> Sulphur emission control areas are designated maritime areas where vessels' emissions are strictly limited and controlled. One of areas is North Sea where LS was passing through after leaving Europe.

<sup>15</sup> Waypoints identified by latitudes and longitudes which included three sectors - berth to pilot station when departing the Port of Bremerhaven, sea passage and pilot station to berth when arrival the Port of Veracruz. Courses and distance to go were also calculated between waypoints.

<sup>16</sup> The under-keel clearance is the water depth between the bottom (keel) of a vessel and the seabed. The squat is the decrease in under-keel clearance which occurs when a vessel enters and navigates through shallow water, water pressure below the ship's hull decreases resulting in increasing vessel's draft and reducing under-keel clearance.

<sup>17</sup> A two-way store and forward communication system transmits messages from ship-to-shore, shore-to-ship and ship-to-ship. It is able to send and receive data from across the oceans including email, SMS, telex, chart and weather updates.

<sup>18</sup> At 1000H on 15 April 2023 local time.

<sup>19</sup> Except a period of 17-minute increase to navigational full speed (about 87 RPM) for a routine engine turbocharger cleaning on the morning of 3 April 2023.

actions when a large reduction in speed would be required for the safety<sup>20</sup> of the vessel.

- 1.5.3 Since 1 April 2023 LS was on a planned course of 247° (T) and there was no major manual course alteration in the two hours preceding the occurrence. The gyro courses steered on autopilot were continuously recorded against a time scale on the ship's course recorder<sup>21</sup> as shown in **figure 3**. The wagging line<sup>22</sup> marked on the paper was due to the counteractions made against the sea swell by the ship's autopilot steering system, to maintain the course set by the OOW.

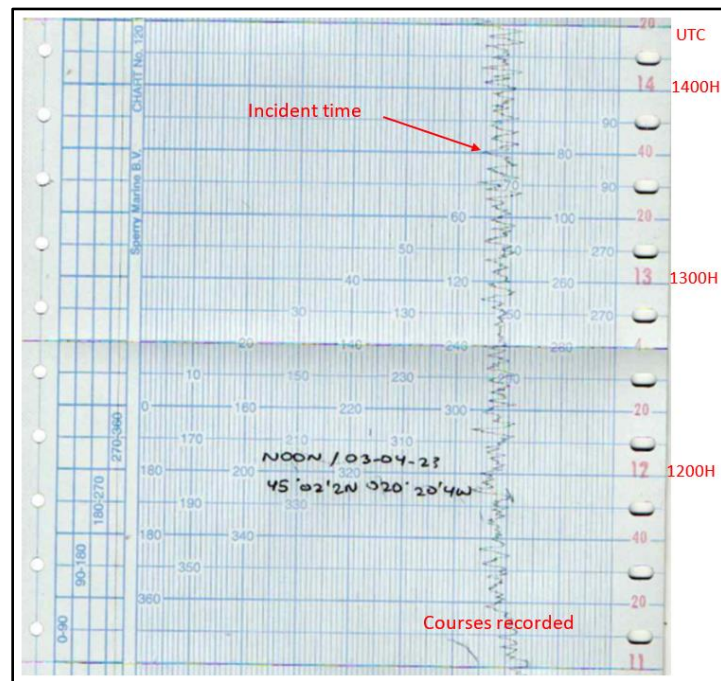


Figure 3 – Ship's gyro courses recorded on course recorder  
(Source: the Company)

- 1.5.4 After the occurrence, at about 1421H on 3 April 2023, the gyro course was changed to about 241° to reduce the pounding effect caused by the sea swell.

## 1.6 The safety management system

- 1.6.1 The Company managed a wide range of vessels including container vessels,

<sup>20</sup> Due to the pounding effect, it would result in vessel's hull stress and engine load increasing occasionally.

<sup>21</sup> The equipment receives a feed from the ship's master gyro compass, the gyro course steered is recorded on a specially designed and formatted thermal paper, an inkless stylus is used to mark the course as a continuous dark line against a time scale marked in twenty minutes interval.

<sup>22</sup> Typically, with smooth sea condition, without changing course, it would be marked as a straight line.

chemical and oil tankers, ethylene carriers, LNG, LPG, and bulk carriers. The Document of Compliance was issued to the Company by DNV based on the completion date of audit on 25 February 2022. The last annual verification audit was conducted on 18 May 2023.

- 1.6.2 The full-term Safety Management Certificate was issued to LS by Korean Register of Shipping on the completion date of the renewal audit on 27 November 2021, it is valid until 15 January 2027. There was one minor non-conformity<sup>23</sup> raised by the auditor which was subsequently closed by providing training to the relevant personnel onboard LS.
- 1.6.3 According to the ship's record, the last Port State Control inspection was conducted at the Port of Altamira in Mexico, on 27 February 2023 with no deficiency raised. There was no Flag State Control inspection carried out in the past five years.
- 1.6.4 The Company's Safety Management System (SMS) procedures written in English covered many areas. A section of "risk assessment management" listed the steps for a job to be carried out as following:
- (a) Plan jobs during the weekly work meeting;
  - (b) Identify jobs requiring risk assessment (RA);
  - (c) Carry out RA for the identified jobs by asking questions like "what if" and "what can go wrong?" to identify hazards with control measures;
  - (d) Submit RA for (10 pre-identified types of) jobs to the fleet team (on shore) for review, and heavy weather was considered one of them as non-routine jobs;
  - (e) Obtain approval of RA from the Master / Chief Engineer;
  - (f) Discuss RA with all persons involved in the jobs during the toolbox meeting<sup>24</sup>; and
  - (g) Carry out the jobs.

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<sup>23</sup> Gyro repeaters on the bridge wings and steering gear room were not synchronised at the time of audit.

<sup>24</sup> The Company defined this as an informal safety meeting which would be conducted at the job site before starting the work, focusing on safety topics related to a specific job. It included workplace hazards, safe working practices and required personal protective equipment.

- 1.6.5 Apart from weekly work meeting, the Company required a joint work meeting of all department heads at the end of the workday, to discuss work planned for the next day if there would be interaction between deck and engine departments, any RA to be conducted and the necessary permits to work (PTW) to be issued. The ship's record indicated that the tasks prepared by the CO, to be performed on 3 April 2023 as follow:
- (a) accommodation cleaning and washing – RA and PTW were not required;
  - (b) de-rusting at aft station – RA and PTW not required;
  - (c) reefer cargo monitoring on deck – RA was required; and
  - (d) winch platform repair at aft station – RA and PTW were required.
- 1.6.6 The Company's SMS procedures also included a chapter on heavy weather preparation and an associated checklist. In preparation for heavy weather, weather information was to be analysed, alteration of course and speed was to be considered to avoid heavy weather, and all the crew were to be informed about the expected weather condition and to secure all loose equipment, deck areas, storerooms, and ventilation, etc., and to suspend unnecessary work<sup>25</sup> on deck, amongst others.
- 1.6.7 The Company had developed a RA library with a template for its fleet of vessels to use. As per LS' records, "navigating in English Channel and out of Channel in heavy weather" was chosen by the Master as an item to perform RA for this voyage, which had been discussed with other deck officers and crew except the Bosun and OS1<sup>26</sup> on 30 March 2023.
- 1.6.8 This RA identified several likely hazards, one of which was "incorrect speed and course" and its consequence was vessel's structural damage, personnel injury due to rolling/pitching. The control measures were to adjust course and speed until heavy weather had passed, to brief to the crew members that going on deck was not allowed during heavy weather and to consider heaving to<sup>27</sup> if required. According to this RA, as documented, the heavy weather checklist

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<sup>25</sup> Any task on deck during heavy weather is considered unnecessary unless the task is for preventing an imminent danger to crew and ship which requiring a PTW "Working on deck in heavy weather" to be issued.

<sup>26</sup> There was no evidence to confirm this RA was briefed or discussed with the Bosun and OS1 after it had been discussed with the CO, 2O and the 3O.

<sup>27</sup> A ship temporarily discontinues her voyage but manoeuvres in a most comfortable position so as to ride out of the heavy weather situation, normally is positioned with the sea on her bow steaming at a reduced speed sufficiently only for steering.

was completed before commencement of the passage.

## 1.7 Post information after the occurrence

- 1.7.1 The investigation team was able to speak with the Bosun on 12 May 2023 after a psychiatrist confirmed his mental fitness<sup>28</sup> for the interview. According to the Bosun, he entered the Bosun store alone to collect some tools<sup>29</sup> for preparation of the de-rusting task at aft station as assigned by the CO. At this time, he noticed the water flowing on the floor from one side to the other (due to the ship's movements). On tracing the source of the water, the Bosun determined that the water had entered the store through the mushroom ventilator on the forecastle deck.
- 1.7.2 The Bosun requested the OS1 who was at main deck port side<sup>30</sup> to accompany him to the forecastle deck to take a look. The Bosun recalled that as they were on the forecastle deck, he was squatting below the mushroom ventilator and looking at the wire mesh while the OS1 was standing nearby. Shortly after, the Bosun heard a loud banging sound from the vessel's bow and a shout from the OS1. The Bosun could not recall what had happened thereafter and found himself disoriented near the accommodation where he was discovered by other crew.
- 1.7.3 On the day of the occurrence, the Bosun did not carry a walkie-talkie when he went on deck. Neither the Bosun nor the OS1 informed the OOW (the 2O) on the bridge or the CO prior to going towards the bow. The CO was also not aware that the Bosun and OS went to the Bosun store to collect tools.
- 1.7.4 The mushroom ventilator on forecastle deck reportedly had some issues as it could not be closed<sup>31</sup> (see **figure 4**) and had not been closed at the time of securing all deck items for the preparation of heavy weather. There was no repair work planned or discussed for the mushroom ventilator on the day of the occurrence and there was no PTW issued, or RA conducted or recorded.

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<sup>28</sup> The Bosun reportedly suffered a trauma after the occurrence.

<sup>29</sup> Grinding disc, electrical cable extension and other de-rusting tools.

<sup>30</sup> The OS1 was transferring the freshwater hose from main deck port side to the aft station for deck washing.

<sup>31</sup> This ventilator was reportedly not able to be closed properly due to its poor condition. This deficiency was registered in the work plan onboard with a due date of 9 May 2023 and the rectification had been delayed as the vessel had been engaged voyages across the Atlantic Ocean which considerably impaired the planning during the winter season.



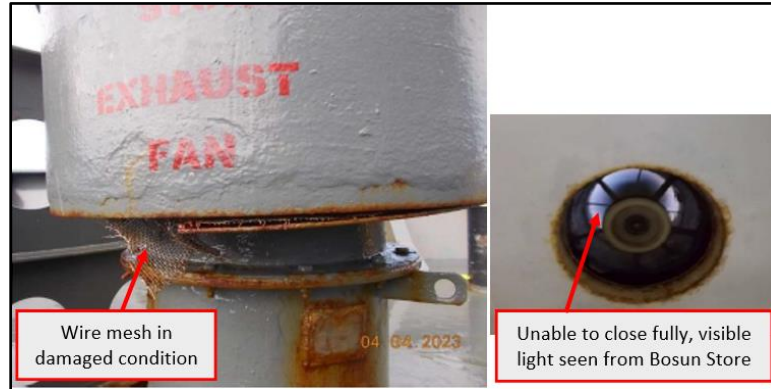


Figure 4 – view of the mushroom ventilator  
(Source: the Company)

1.7.5 The Master had a written standing order which were read by all deck watchkeeping officers<sup>32</sup> and acknowledged by signing, including the CO. One of the instructions was not allowed to go on deck in heavy weather condition. If there was a need to go on deck, the OOW and the Master should be informed. On the occurrence day, the weather condition had been improved from the previous day, though high waves were still present, the CO then assigned tasks for deck crew to work at the aft station. However, the CO did not inform the Master of assigning work activities at the aft section on deck. There was no evidence that the CO had informed the OOW.

1.7.6 The investigation team noted that the instructions of “working on deck was not permitted at all” from the Master, after the briefing on the bridge was passed down to the deck crew via the CO when the weather was poor in the English Channel, after departing Bremerhaven. The investigation team also noted from the Company that some of the crew mentioned that they were unclear if the Master’s prohibition for working on deck also applied when LS entered the Atlantic Ocean after passing the English Channel. However, the crew did not seek clarification from the Master or the CO at the time and did not provide any reason for not doing so.

## 1.8 The death and injury to the crew

1.8.1 The cause of the death to the OS1 was abdominal thoracic trauma indicated on the death certificate which was issued from the Health Centre of Praia Da Vitória on 6 April 2023.

<sup>32</sup> The Bosun and OS1, who are not watchkeeping officers, were not required to read and sign the standing orders.

1.8.2 According to the Company, the Bosun had a cut injury on the left part of the head and a loss of consciousness on the spot, and had no memory for the event, but displayed a spontaneous recovery of conscience<sup>33</sup> and managed to walk himself back to the accommodation and sit in front of the cargo office. After receiving medical attention at a hospital in Lisbon, Portugal from 4 April till 17 April 2023, the Bosun flew back to his home country with a nurse escort on the flight on 29 April 2023 after being certified fit to fly by a doctor. The Bosun made follow-up medical visits at a hospital in the Philippines and his health condition subsequently improved.

## 1.9 Environmental condition

1.9.1 The meteorologic weather forecast received as maritime safety information (MSI)<sup>34</sup> on 1 April 2023, 2000UTC indicated that within 24 hours of LS' route passing area (see **figure 5**) of Sole, LS would likely experience rain showers, moderate to rough sea condition, north-westerly wind with force 5 to 7. At the Atlantic Ocean East Central area, cyclonic force 6 to gale force 8, occasionally severe gale force 9 later, sea would be rough to very rough, rain to thundery showers later.

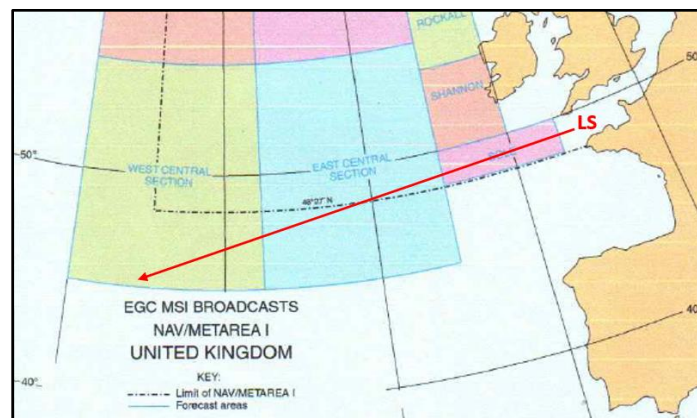


Figure 5 – EGC MSI broadcasts covering areas of the LS' planned passage (inserted the approximate route in red by TSIB for illustration purpose)

<sup>33</sup> Extracted from the summary of event description from the hospital in Lisbon, Portugal.

<sup>34</sup> SOLAS, Chapter IV, Regulation 12.2 requires every ship, while at sea, shall maintain a radio watch for broadcasts of maritime safety information on the appropriate frequency or frequencies on which such information is broadcast for the area in which the ship is navigating. The MSI broadcasts including navigational warnings and meteorological forecasts are scheduled for a given area and are automatically received by ship's Inmarsat Enhanced Group Calling (EGC). The METAREA I was selected where LS would be sailing into the area covering areas such as Sole, East and West Central Sections.



(low) had moved away along the planned passage and replaced with a high pressure (1032hPa). The residue effect of high waves was still lasting in the area of the intended route at an average height about 5m, with a maximum height of about 8m. Based on LS' vessel profile and within its safety parameters, the outcome of the routing advice to the Master given was "As conditions and safe navigation permit, our suggested route remains valid<sup>36</sup>".

1.9.4 The wind directions and forces, swell directions and heights from LS' log record is indicated in table 2. Due to the residual effect after passing the depression (low), the westerly swell was directly against starboard bow while LS was sailing at west-south-westerly course (248° on gyro heading). Prior to the occurrence, LS was riding on the waves and occasionally experiencing the pounding effect when the vessel's movement at the trough of the wave and hitting the next rising wave, this impact resulting in large amount of sea spray onto the forecastle deck (see typical example in **figure 7**).

Date / Time	Wind direction	Wind force	Swell direction	Swell height
1 April 2023 / 1200 Z	290°	22 knots (force 6)	290°	3.0m
2 April 2023 / 1200 Z	160°	32 knots (force 7)	270°	2.0m
3 April 2023 / 1200 Z	270°	14 knots (force 4)	270°	3.5m

Table 2

<sup>36</sup> A disclaimer printed at the bottom of the advice – This material is an advisory provided so as to assist the Master in making the final route decision.



Figure 7 – Illustration of a container vessel<sup>37</sup> in rough seas in the Atlantic Ocean (*Source*: screenshot from a YouTube video, Life at Sea)

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<sup>37</sup> Larger in size than LS.



- the need to collect tools from the Bosun store as he had assessed that it was safe to go to the Bosun store. When the Bosun discovered the flooding in the Bosun store, he did not notify the CO nor the OOW and attempted to solve the problem on his own accord, likely motivated by the good initiative towards his work.
- 2.2.3 Had the OOW or the CO been informed about the flooding of the Bosun store which required inspecting and covering of the mushroom ventilator, a RA would likely be conducted to assess if it was an urgent work to be dealt with. If so, mitigating measures such as reducing speed to minimise the wave impact on ship's bow to avoid the sea sprays on the forecastle deck would have been taken.
- 2.2.4 This is an unfortunate occurrence which highlight that seafarers should take all the safety precautions while the sea condition is rough and keep each other informed when activity to be performed is out of the norm.
- 2.3 **RA for heavy weather**
- 2.3.1 According to the Company, in the preparation for heavy weather, all crew would be informed about the expected weather condition and for unnecessary work on deck to be suspended. The reason being that ship's movement in heavy weather has potential risks to cause personnel working on deck to be injured.
- 2.3.2 In anticipating heavy weather along the passage, the Master performed a RA and discussed with deck officers and crew after departing the Port of Bremerhaven on 30 March 2023. The Master also instructed ship's crew not to work on deck when the vessel was encountering heavy weather in the English Channel which was in line with the Company's requirements. The Bosun and OS1 had missed the discussion on the RA conducted by the Master. While it is unclear if the Bosun and OS1 would have reacted differently if they had attended the RA discussion, it is important for such RA discussion to include all the crew onboard.
- 2.3.3 The incident occurred after LS had passed the English Channel and entered the Atlantic Ocean. Though the low pressure had moved away, the residue effect of high waves was still present on the occurrence day. The tasks assigned to the crew by the CO were mainly at the aft station (a relatively sheltered open deck in comparison to the forecastle deck), as the sea waves

were impacting the ship's bow and it was relatively safe at the aft area.

- 2.3.4 The occurrence also demonstrated that the seafarers should take care of their own safety before responding to a situation, particularly when the sea condition is rough.

## 2.4 **Incidental observation**

- 2.4.1 The mushroom ventilator on the forecastle deck had been unable to close for a period and was registered as a pending task to be rectified by 9 May 2023. The investigation team recognised the challenge of repairing it during the winter season when the vessel was crossing the Atlantic Ocean.
- 2.4.2 The checklist for heavy weather preparation listed ventilators as one of the items to be secured. Given that an unsecured ventilator poses the potential risk of water ingress when sea sprays come on deck during heavy weather period, temporary control measures could have been taken before the vessel departed Bremerhaven, such as covering it with canvas to prevent water from entering the Bosun store.



### 3 CONCLUSIONS

*From the information gathered, the following findings are made. These findings should not be read as apportioning blame or liability to any particular organisation or individual.*

- 3.1 During its voyage through the Atlantic Ocean, although the depression had moved away, the LS encountered high waves of heavy weather and experienced slamming effect caused by the waves which resulted in strong sea sprays on deck.
- 3.2 The Master had issued standing order which included an instruction of not to go on deck during heavy weather. Although the CO assessed that weather condition had improved and assigned work activities on deck at the aft section, he did not inform the Master.
- 3.3 When the Bosun was tasked by the CO to carry out some de-rusting work at the aft station, the Bosun went to the Bosun store to get the relevant tools. Inside the Bosun store, water was noticed flowing on the floor which was suspected to have entered from the mushroom ventilator on the forecastle deck.
- 3.4 While inspecting the mushroom ventilator, both the Bosun and OS1 were likely hit by sea spray that came on deck resulting in the OS1 to be fatally injured and the Bosun to suffer head injuries.
- 3.5 Going to the forecastle deck to inspect the mushroom ventilator was an unplanned work and was not made known to any other crew, including the OOW and the CO.
- 3.6 The Bosun and OS1 had missed the discussion on the RA for navigating in English Channel and out of the Channel in heavy weather. While it is unclear if the Bosun and OS1 would have reacted differently if they had attended the RA, such RA discussion should include all the crew onboard.
- 3.7 The mushroom ventilator had been defective and resulted in sea water entering and flooding the Bosun store. The ventilator was not identified as an item to be secured (covered with a canvas) during the heavy weather preparation prior to departing the previous port, Bremerhaven.

## 4 SAFETY ACTIONS

*During the course of the investigation and through discussions with the investigation team, the following safety actions were initiated by the relevant stakeholders.*

### 4.1 By the Company

- 4.1.1 Immediately after the occurrence, the Company sent out a notification to its fleet of vessels informing them of the loss of life and serious injury accident, and a General Safety Alert reminding all vessels to take safety precautions when sailing in heavy weather.
- 4.1.2 The Company reviewed its SMS on heavy weather procedures and relevant checklists after the occurrence. A warning note in the heavy weather procedures is included for not sending any crew to go on deck in heavy weather unless it is to prevent an imminent danger to crew and ship. The revised procedures also caution that shipping seas can cause flooding through defective ventilation heads, hatches, which were not able to close. A verification is required on the securing status of all openings (including ventilators) on deck when preparing the vessel for heavy weather.
- 4.1.3 The Company also revised its generic risk assessment library in which the control measures for “Navigation in heavy weather” are more detailed. A new form for “Permit to work on deck in heavy weather” was created listing all checks to be done such as communication, reporting, use of walkie talkies and posting warning signs prior to going on deck. A heavy weather poster was also created to remind ship’s crew in its fleet not to go on exposed weather deck areas.

## 5 SAFETY RECOMMENDATIONS

*A safety recommendation is for the purpose of preventive action and shall in no case create a presumption of blame or liability.*

5.1 For the Company (the ISM Managers of Lucie Schulte):

5.1.1 To establish an effective monitoring system to track and support the vessels to deal with shipboard defects in timely manner. [TSIB Recommendation RM-2023-10]

5.1.2 To ensure all crew onboard are involved in risk assessment discussions for heavy weather. [TSIB Recommendation RM-2023-11]