

The Bahamas
Maritime Authority

Marine Safety Investigation Report

into a man overboard from Castillo De
Valverde on 28 May 2020



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Contents

1.	Summary	1
2.	Factual Information	2
3.	Analysis	8
4.	Conclusions	13
5.	Lessons to be learned	14
6.	Actions taken	15
7.	Recommendations	16
8.	Glossary and Definitions	17
	Appendices	18

1. Summary

Due to restrictions imposed as a result of the coronavirus pandemic, the BMA investigation team could not travel to the vessel to gather evidence. Therefore, this investigation was conducted following the hierarchy of controls recognised by [IMO Circular Letter No.4204/Add.16](#) establishing effective safety control measures and reducing the risk to personnel. The evidence, including images used for the purpose of this investigation, was provided by Empresa Naviera Elcano S.A.

What happened

On 28 May 2020, Castillo de Valverde's bosun and second officer were repairing a leak on the deck's fire main. Having completed the task at 1500, both crew members went for a coffee break. Shortly thereafter, work on deck was suspended due to deteriorating weather conditions. On completion of the coffee break, the bosun and second officer went back on deck to collect tools when, a heavy wave struck the deck and washed the bosun overboard. A search and rescue operation was initiated but the bosun was not recovered.

Why it happened

The bosun was washed overboard whilst retrieving tools, having completed the repair work on the fire line. The weather continued to deteriorate throughout the afternoon and as a consequence, a decision was made to terminate all work on deck. The bosun and second officer proceeded on deck after their coffee break to collect the tools, which was in line with the company's heavy weather procedure requiring them to secure the loose objects on the deck. However, the heavy weather at this point was significant enough that it posed a severe risk to personnel exposed on deck.

What can we learn

While experiencing heavy weather, a timely termination of all operations on deck is vital to ensure the safety of the crew. All work on deck should cease if the weather exceeds the operating limits for a safe working environment and only when deemed absolutely necessary for the safety of the ship and crew should personnel be exposed to such environmental conditions. If the crew is required to go on deck during deteriorating weather conditions, a thorough risk assessment should be performed and proper PPE such as a harness, safety line and a floatation device should be worn to mitigate against the risk to personnel of exposure to heavy weather or waves and the resulting consequence.

2. Factual Information

Castillo De Valverde

Vessel Type	Bulk carrier	Flag	Bahamas	
Owner	Lauria Shipping S.A.	Manager	Empresa Naviera Elcano S.A.	
Classification Society	Lloyd's Register	Gross/Net Tonnage	89659/55787	
Built	Bohai Shipbuilding Heavy Indus, Huludao, China / 2005	Propulsion	Direct Drive	
IMO No.	Callsign	Length overall	Breadth	Depth
9300374	C6VI7	289m	45m	24.65m
Last BMA Inspection		Last PSC Inspection		
Singapore on 02 July 2019 with no deficiencies or observations identified.		Port Headland, Australia, on 18 July 2018 with no deficiencies identified.		



Crew details

Rank/Role on board	Master	Chief Officer	Second Officer	Bosun
Qualification	Master II/2	Chief Mate II/2	OOW II/2	Bosun II/5
Certification Authority	Peru	Peru	Peru	Honduras
Nationality	Peruvian	Peruvian	Peruvian	Honduran
Age	50	34	31	45
Time in rank	6 years	5 years	4 years	10 years
Time onboard	4 months	6 months	4 months	8 months
Total time served at sea	29 years	13 years	7 years	15 years

Environmental Conditions

Wind Direction	Wind Force	Wave Height	Precipitation / Sky	Visibility Range	Air Temperature	Sea Temperature
West-Southwest	Beaufort 6 (21-26 knots)	1.5-2.4m	Partly cloudy	Good visibility (objects not visible at 10 miles)	13°C	23°C

Voyage Details

Departure Port	Port Kamsar, Guinea	Arrival Port	Singapore
Time of departure	09 May 2020, 22:00	Estimated time of arrival	7 July 2020
Location of Incident	30NM south of Port Elizabeth (South Africa)	Discharge port	Quindao, China
Cargo	Bauxite 170180 MT	Mean draft	18.2m

The vessel had a mean freeboard of 6.4m. At the time of the incident, the vessel was in position 34°37.6'S 025°42.5'E, approximately 13.3NM inside the summer zone.



Figure 1: Location of the vessel at the time of the incident

Narrative

All times used in this report are UTC +3 unless otherwise stated.

On 28 May 2020, Castillo de Valverde was underway to Singapore and at 07:00, the chief officer held the daily morning meeting to discuss the scheduled jobs for the day.

The bosun was tasked to work on the hydraulic line on deck. He commenced this task at 08:00 until 12:00.

At 13:00, the fire pump was started to use the eductor to pump bilge water from the cargo hold, as part of one of the scheduled tasks for the day.

At 13:30, the bosun observed a leak on the fire line flange near the cargo hold no. 5 and informed the chief officer.



Figure 2: Location of the leaking flange on the fire line

The chief officer asked the bosun and the second officer to fix the leak. The fire pump was stopped and at 13:40, the bosun and second officer started working on replacing the flange's gasket.

Around 14:40, the officer of the watch (OOW) observed the wind speed and the height of waves increasing. He then informed the master about the deteriorating weather conditions. Five minutes later, the master contacted the chief officer and asked him to stop the work on deck and secure the loose equipment.

By 15:00, the gasket was replaced and the leak was rectified. At approximately 15:05, the chief officer asked the second officer on VHF radio to stop the work and asked the bosun to call him over the phone. A minute later, the bosun called the chief officer and updated him about the work carried out on the fire line. After that, the crew members, including the bosun and second officer, went to the crew mess for a coffee break.

At 15:35, the second officer went back on deck to collect the tools, the bosun was already on deck waiting for him.

At 15:40, while the bosun and second officer were collecting the tools, a heavy wave entered the deck from the starboard side, between the cargo hold no. 5 and 6. The second officer held on to the railing, but the bosun was swept overboard with the wave.

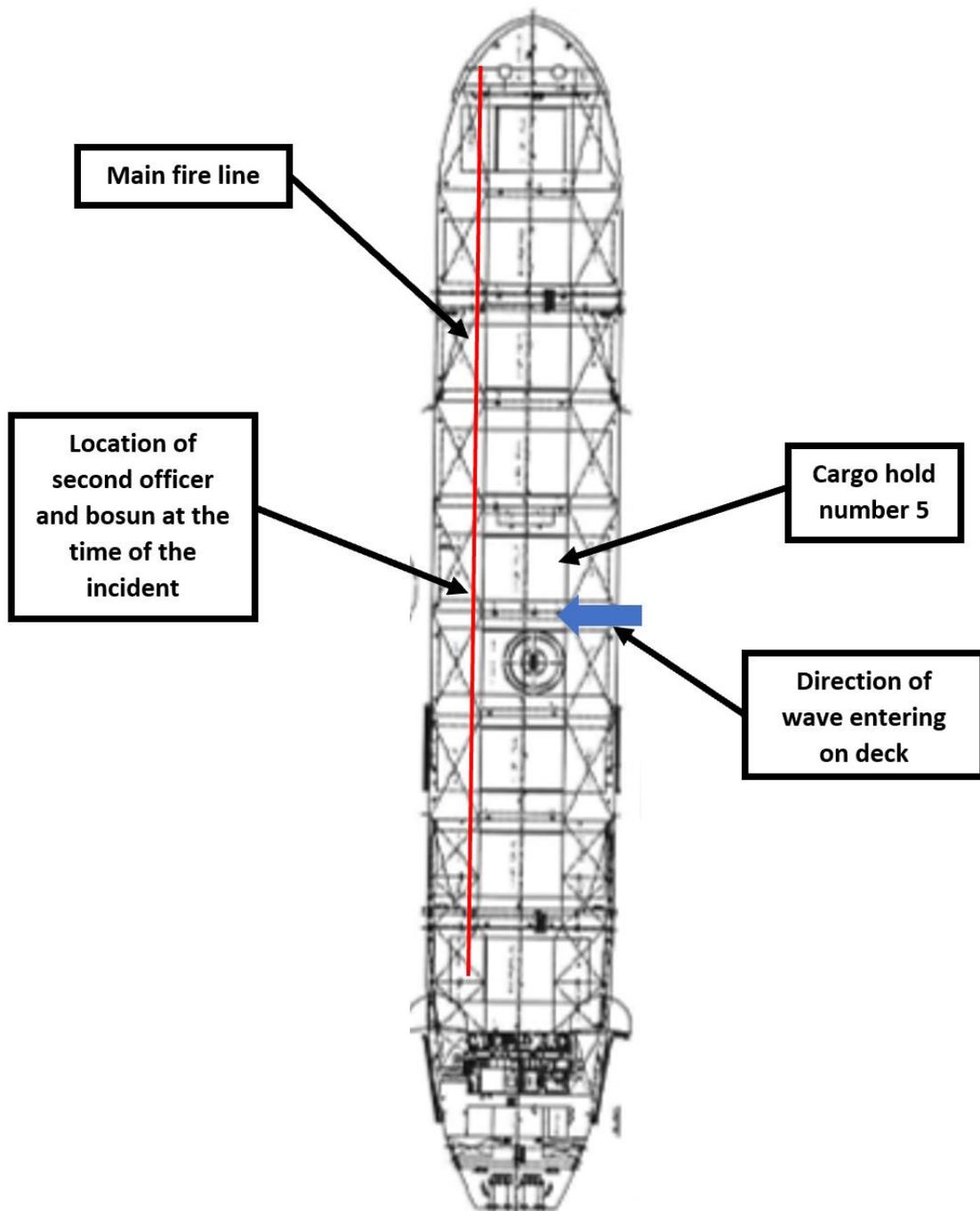


Figure 3: Location of the incident on deck

A few moments later, the second officer stood up and tried to search for the bosun, but he could not locate him on deck. He called the bosun's name and tried to contact him on the portable VHF radio. Unable to find the bosun on deck, he concluded that the bosun was washed overboard due to the heavy wave. He subsequently notified the master on the bridge.

The vessel's general alarm was sounded and the vessel initiated a search and rescue operation. The master notified MRCC Port Elizabeth and JRCC Australia.

Castillo De Valverde – Marine Safety Investigation Report

At 19:20, the vessel terminated the search and rescue operation taking into account the deteriorating weather and lack of daylight. The MRCC Port Elizabeth was informed and the vessel continued its route to Singapore.

The bosun was not recovered.

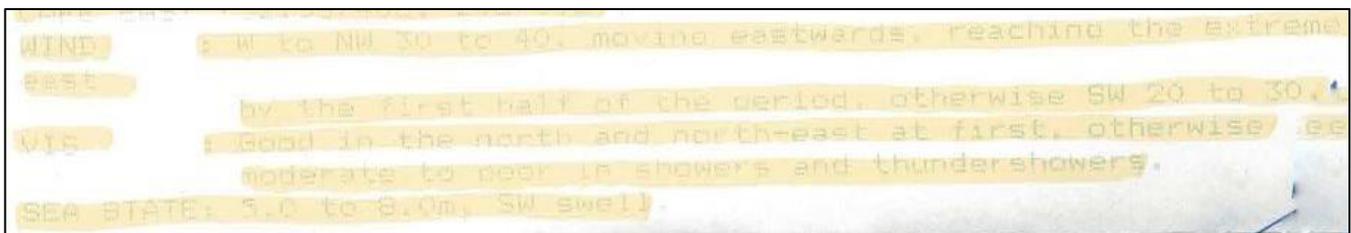
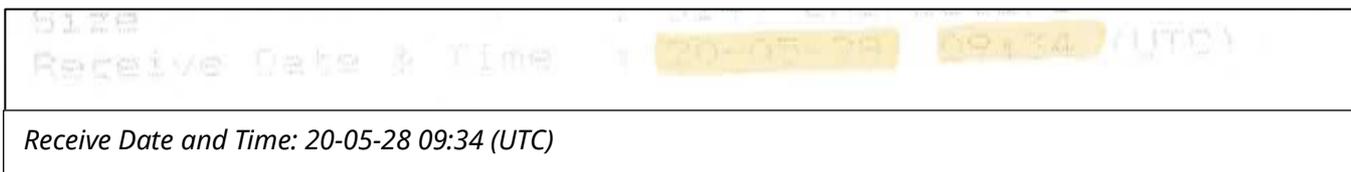


3. Analysis

The purpose of the analysis is to determine the contributory causes and circumstances of the casualty as a basis for making recommendations to prevent similar casualties occurring in the future.

Heavy weather

The weather was considered good in the morning and the chief officer planned the scheduled jobs on deck for the day. The vessel received a weather bulletin from the South African weather service at 12:34 (09:34 UTC) on 28 May 2020. The bulletin included a weather warning with an expected wind speed of 30-40 knots and a 5-8m wave height. However, the tasks for the day were continued on deck.



Wind: W to NW 30 to 40, moving eastwards, reaching the extreme east by the first half of the period, otherwise SW 20 to 30.
VIS: Good in the north and north-east at first, otherwise moderate to poor LP showers and thunder showers.
SEA STATE: 5.0 to 8.0m, SW swell

Figure 4: Screenshots¹ of weather bulletin from the South African weather service

At 16:00, the wind speed was logged in the vessel's logbook as Beaufort wind scale 6². The seawater temperature was 23 °C and the sea state was 5, described as 'rather rough' with the wave height (crest to trough) of 5-8ft (1.5-2.4m).

In the afternoon, around 14:40, the OOW observed the weather deteriorating and informed the master. The master then contacted the chief officer to stop the work on deck. The orders to stop the work on deck were given in the afternoon at 15:05. The bosun and the second officer had completed the task to rectify the leak on the fire line by that time and were going for a coffee break. No heavy wave or spray was observed on the deck while the crew was working on fixing the leak.

¹ Signature of the OOW blurred out on right corner
² Strong breeze with wind speed in the range of 21-26 knots.



Figure 5: Red arrow indicating the approximate location of the bosun and second officer while collecting the tools on deck, see figure 3 for schematic



Figure 6: Height of the railing and approximate distance of railing and fire line

After the coffee break, the two crew members went back on the deck to collect the tools when the wave hit, striking the starboard side midships, washing the bosun overboard on the port side. While on deck, the crew members were not wearing any harness, safety line or personal flotation device.

Company's heavy weather procedure

The Company's heavy weather procedure did not provide any guidance on when to stop the work nor included any maximum weather limits/conditions to be considered by the master to take the decision to stop work for the safety of the crew and ship. Nevertheless, having been informed of the deteriorating conditions by the OOW, the master terminated work on deck at 15:05.

The heavy weather procedure included the requirements for the master to follow and required the OOW to complete the checklist for navigation under heavy weather ([Appendix 1](#)). However, the checklist was not completed on the day of the incident.

The checklist had six points, including:

4.	The crew has been warned to avoid areas of exposed deck that could be dangerous due to bad weather?		
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Figure 7: Extract from the navigation under heavy weather checklist from the Company's SMS

The heavy weather procedure required the chief officer to ensure that loose objects are secured on the deck. The chief officer's direction to secure objects on deck was in line with this, but the weather conditions had changed over the course of the 30-minute coffee break and subsequently the risks had increased.

The first Chief officer will check:

1. Secure all loose objects on deck.
2. Closure of Cargo hold's ventilation.
3. Closure of storerooms/lockers.
4. Closure and lashing of hatches, sounding plugs and tank hatches.
5. Lashing of crane and inspection of lashing of anchors, chains and accomodation ladders.
6. Closing of watertight doors on freeboard deck.
7. Inform to the all crew.

Figure 8: Extract from the navigation under heavy weather procedure from the Company's SMS

The Company heavy weather procedures did not stipulate any requirement for a risk assessment to be conducted related to access on deck or the requirement for PPE to be worn based on the environmental conditions.

The International Management Code for the safe operation of ships and for pollution prevention (International Safety Management (ISM) Code) section 1.2.2.2 requires '*Safety-management objectives of the Company should, inter alia; assess all identified risks to its ships, personnel and the environment and establish appropriate safeguards.*' The risk assessment is a tool to identify the potential hazards to establish appropriate safeguards to eliminate the risks. The outcome of an adequate risk assessment can also be used to update the Company's procedures to ensure that the appropriate safeguards are put in place to ensure the crew's safety.

Search and rescue operation

The vessel was initially on course 081°, heading 082°. After receiving the man overboard notification, the course was altered to starboard. The bridge team marked the position on the paper chart, electronic chart display and information system and radar. Two lifebuoys and a man overboard marker (port side bridge

wing) were jettisoned into the sea to serve as a visual reference and flotation device. All crew was stationed at both bridge wings and compass deck keeping a lookout.

There was a significant delay in the vessel regaining the MOB location which may be a result of the significant weather impacting the manoeuvring characteristics coupled with the set and drift experienced during the turn, but a safety helmet, assumed to be the bosun's, was sighted nearby.

The International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual³ includes the guidance on the Williamson turn to be on the side of the casualty. The bosun was washed overboard to port and the vessel had executed the turn to starboard. Further, the IAMSAR manual also provides guidance on planning the search areas and search patterns such as expanding square searches, sector search, track line search and parallel track search. None of the search patterns provided in IAMSAR were used. However, the manoeuvring characteristics of the vessel at the time are not known and therefore the precise reason for the master executing a turn to starboard, into the weather should be taken into consideration.

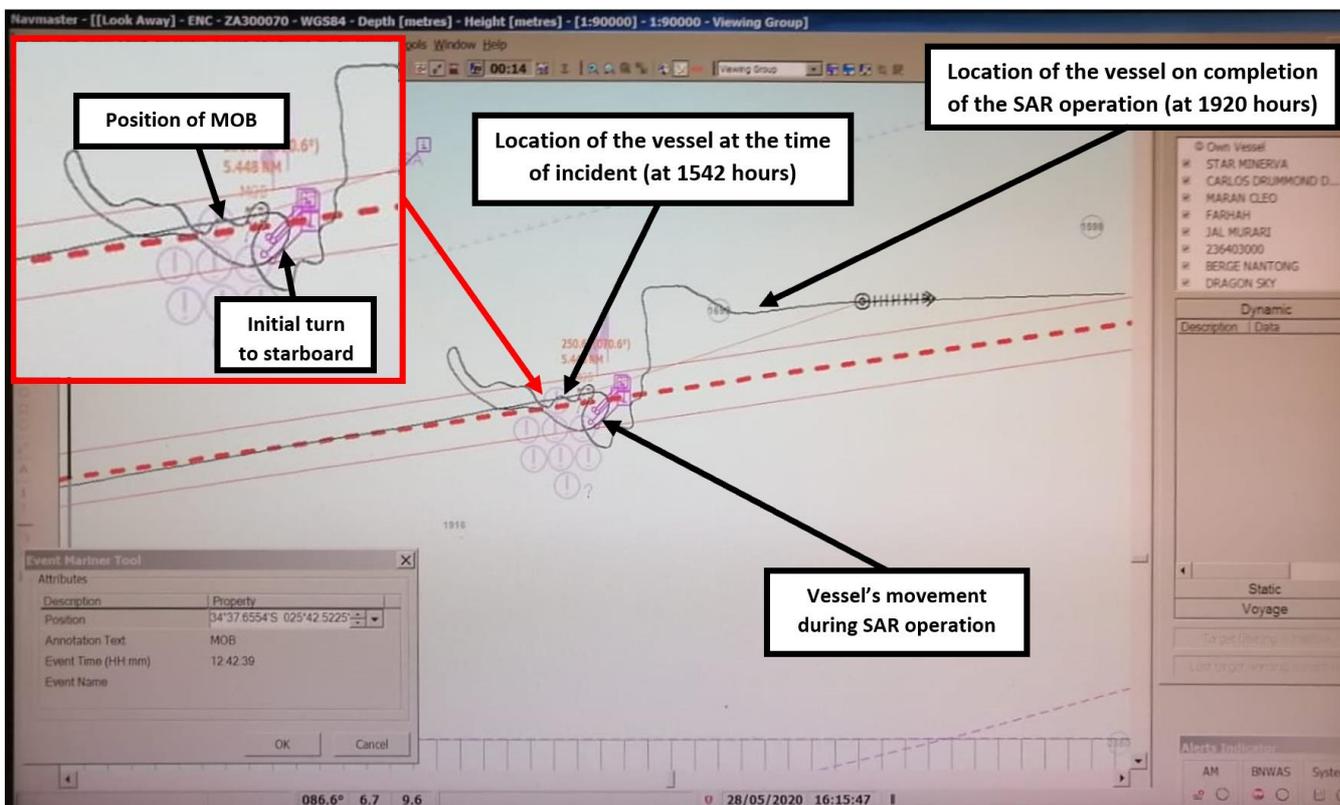


Figure 9: Vessel's movement during the conduct of the SAR operation

MRCC Port Elizabeth was notified about the incident and acknowledgment was received by the vessel. The vessel received the mayday replay messages from two ships in vicinity. However, no vessel or any rescue assets from the MRCC were sighted while the vessel was in the region during the SAR operation.

³ Jointly published by IMO and the International Civil Aviation Organization (ICAO), the three-volume International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual provides guidelines for a common aviation and maritime approach to organizing and providing search and rescue (SAR) services. The volume III of the manual is for the vessels to help with performance of SAR operation.

Castillo De Valverde – Marine Safety Investigation Report

GMDSS – F/V Radio Log				
Vessels name: CASTILLO DE VALVERDE		Callsign: CGVI7		MMSI: 309608000
Date & Time (UTC):	Station to:	Station from:	Operators actions/remarks, Log in/out	Frequency, Channel or Satellite
1242	ALL STATIONS	CGVI7	MAN OVER BOARD AT PSN - $9^{\circ}34'37.6''S$ $\lambda=025^{\circ}42.5''E$ BOSON-JOEL PEREZ RIVAS CAPTAIN SOUNDS GENERAL ALARM. COMMENCE SEARCH MANOEUVRING. MAY DAY CALL TO ALL STATIONS	VHF-CH. 16/23
1252	ALL STATIONS	CGVI7	DISTRESS MESSAGE TRANSMITTED BY HF/MF - MANOVERBOARD (2,4,6,8,12,16 MHz)	HF / MF
1300	ALL STATIONS	CGVI7	DISTRESS MESSAGE TRANSMITTED BY VHF - MANOVERBOARD OFF WATCH 2/0. <i>a</i> ON WATCH 2/0. <i>P</i>	VHF-CH 16 2182 kHz
1300	CGVI7	M/V "LONE STAR"	MAYDAY REPLY, PROCEEDING TO ASSIST INFORMED BY M/V "LONE STAR."	VHF-CH. 16
1302	ALL STATIONS	CGVI7	DISTRESS MESSAGE TRANSMITTED BY INM-C	INM-C
1310	CGVI7	PORT ELIZABETH RADIO	MAYDAY REPLY, PROCEEDING TO ASSIST.	VHF. CH. 16/23
1413	MRCC CAPE TOWN	JRCC AUSTRALIA	MAYDAY REPLY, COORDINATION BETWEEN MRCC CAPE TOWN & JRCC AUSTRALIA.	INM-C
1450	CGVI7	M/T "CARLOS DEBAMOND"	MAYDAY REPLY, PROCEEDING TO ASSIST INFORMED BY M/T "CARLOS DEBAMOND"	VHF-CH. 16
1620	Port Elizabeth Radio	CGVI7	CAPTAIN CALL TO PORT ELIZABETH RADIO, DUE TO BAD VISIBILITY & BAD WEATHER, FINISHES SEARCHING AND RESUME VOYAGE.	VHF-CH 16/23

Figure 10: Extract from the vessel's radio log

The master decided to terminate the operation at 19:20 due to reduced visibility and increasing strong winds. Port Elizabeth MRCC was informed and the vessel resumed its voyage.



4. Conclusions

- Thirty minutes after work on the deck was terminated due to deteriorating weather conditions, the bosun and second officer went back on the deck to collect their tools when a heavy wave hit the deck and the bosun was washed overboard.
 - The vessel had received a heavy weather warning. However, the daily tasks on deck continued concurrently as conditions deteriorated.
 - The investigation found that the Company's heavy weather procedure did not incorporate appropriate risk factors. The procedure did not stipulate guidance on allowable safe limits dependent on weather conditions and the appropriate use of weather warnings and bulletins to aid the master to make timely decisions for terminating the tasks onboard to ensure the safety of crew and ship.
 - Further, the Company's heavy weather procedure did not have any requirements for carrying out a risk assessment or mandate using appropriate PPE such as a harness, safety line and a personal flotation device while going on deck in certain conditions.
 - The OOW did not complete the Company's '*Navigation under the heavy weather checklist*' in accordance with the Company's heavy weather procedure.
 - The search and rescue operation was curtailed due to environmental conditions experienced at the time, in consultation with MRCC Port Elizabeth. No assets were allocated to assist in the SAR operation by MRCC Port Elizabeth or vessels in close proximity.
-

5. Lessons to be learned

- Heavy weather warnings and bulletins provide vital information and should be applied in the safe planning of onboard operations and navigation. Warnings and bulletins need to be effectively communicated to non-watchkeepers to ensure a well-informed crew and to enable work to be planned based on known conditions.
 - Accessing the deck during heavy weather can be very dangerous. Heavy winds or waves can result in a catastrophic outcome. No personnel should be allowed to access the deck in heavy weather unless it is necessary for the safety of the crew or ship. If the crew is required to go on deck during deteriorating weather conditions:
 - A thorough risk assessment should be performed and appropriate safeguards implemented to mitigate the risk of heavy weather and waves breaking on to the deck.
 - Proper PPE such as a harness, safety line and a floatation device should be worn.
 - The Company's procedures should provide clear weather limits and clear guidance for the master and crew to follow to make a timely decision to terminate any ongoing work, which can put the safety of the crew or ship in danger.
-

6. Actions taken

Actions taken by the Company:

- Company's SMS procedures were updated:
 - To include the requirement for when the work on the ship's deck should be terminated in event of adverse weather conditions.
 - To include the requirement to carry out a risk assessment for work to be carried out on the ship's deck in adverse weather conditions, including the use of PPE in the case it is required to access the deck in adverse weather conditions when deemed necessary for the safety of crew and/or ship.
 - To ensure that all crew members are familiar with these procedures, a campaign⁴ will be run on the precautions and hazards of working on deck in adverse weather conditions and ensuring compliance with ISM procedures.
 - Company's investigation report along with the lessons learned from the incident were shared with all ships within Empresa Naviera Elcano S.A. fleet.
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⁴ At the time of publication of this report, this action item has not been completed, campaign is scheduled for May 2021.

7. Recommendations

Recommendations for the Company:

- Ensure the heavy weather warnings and bulletins are closely monitored and timely actions are taken to terminate any ongoing task during heavy weather.
 - Review the Company's heavy weather procedure to include:
 - Allowable safe weather limits and guidance for the master to terminate tasks which unnecessarily expose the crew to heavy weather.
 - A requirement for carrying out a thorough risk assessment and using appropriate PPE in case it is required to access the deck in heavy weather when deemed necessary for the safety of crew and ship.
 - Ensure the crew is trained and familiar with the requirements of the Company's heavy weather procedures once established and how to implement it.
-

8. Glossary and Definitions

°C	Degrees Celsius
Company	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 the duties and responsibilities imposed by the International Safety Management Code.
Ft	Feet
ISM Code	International Safety Management Code means the International Management Code for the Safe Operation of Ships and for Pollution Prevention adopted by the Organization by resolution A.741(18), as may be amended by the Organization, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of Article VIII of the present Convention concerning the amendment procedures applicable to the annex other than chapter I.
JRCC	Joint Rescue Coordination Centre
m	meters
MRCC	Maritime Rescue Coordination Centre
MT	Metric tonne
NM	Nautical mile
No.	number
NW	North westerly
OOW	Officer of the Watch
SAR	Search and rescue
SMS	Safety Management System
SW	South westerly
VHF	Very high frequency
VIS	Visibility
W	Westerly

Appendices

Appendix 1: Company's navigation under heavy weather checklist⁵

	PRO.07.02 Navigation procedure under adverse conditions	Page 1 of 1	
		Version Rev.	1
		Valid from	01/01/2019

ANNEX 3. Navigation under heavy weather checklist

Vessel _____
 Date: _____ Time : _____

1.	Have been informed: · The Master · The engine room · The crew	
2.	Loose and movable objects have been secured in the following places: · All weather doors and hatches · Anchors and mooring equipments · Loose objects inside the accommodation, engine room and galley	
3.	Has the course and speed been adjusted as necessary?	
4.	The crew has been warned to avoid areas of exposed deck that could be dangerous due to bad weather?	
5.	Have safety strips been placed in those steps that are considered necessary?	
6.	Instructions have been given on the following issues: · Receiving weather forecasts · Transmission of meteorological forecasts to the appropriate authorities or in the event of a tropical storm, the hazard notices in conformity with SOLAS 1974 Chap. V Rule 31 and 32	

The Officer on watch _____

⁵ As per Company's heavy weather procedure, the OOW on whose duty the weather warning report was received had to complete this checklist.