REPUBLIC OF THE MARSHALL ISLANDS

Maritime Administrator

SYNERGY BUSAN MARINE SAFETY INVESTIGATION REPORT

Ordinary Seafarer Fall Overboard

East China Sea | 19 December 2023

Official Number: 8755

IMO Number: 9450571

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AUTHORITY

An investigation, under the authority of the Republic of the Marshall Islands laws and regulations, including all international instruments to which the Republic of the Marshall Islands is a Party, was conducted to determine the cause of the casualty.

Maritime Administrator

TABLE OF CONTENTS

LIST OF ABBREVIATIONS AND ACRONYMS

°	Degrees
2/O	Second Officer
3/O	Third Officer
ASD	Able Seafarer Deck
C	Celsius
C/E	Chief Engineer
C/O	Chief Officer
ECDIS	Electronic Chart Display Information System
HSEQ	Health, Safety, Environment, and Quality
ILO	International Labour Organization
IMO	International Maritime Organization
ISM Code	International Management Code for the Safe Operation of Ships and for Pollution Prevention
m	Meters
MOB	Man Overboard
NM	Nautical Miles
OOW	Officer of the Watch
OS	Ordinary Seafarer
PPE	Personal Protective Equipment
SMS	Safety Management System
UK MCA	United Kingdom Maritime and Coastguard Agency
UTC	Coordinated Universal Time

DOCUMENTS CITED

COSWP	Code of Safe Working Practices for Merchant Seafarers
HSE Series	Company Health Safety Executive Safety Management System
Accident Prevention on Board Ship	Code of Practice on Accident Prevention on Board Ship at Sea and in Port
MLC, 2006	Maritime Labour Convention, 2006
SOLAS	International Convention for the Safety of Life at Sea, 1974
STCW Code	Seafarers' Training, Certification and Watchkeeping Code

PART 1: EXECUTIVE SUMMARY

On the evening of 19 December 2023, the Republic of the Marshall Islands-registered container ship SYNERGY BUSAN, managed by Eurobulk Ltd. (the "Company"), had departed the Zhoushan COSCO Berth, People's Republic of China (hereinafter "China") proceeding to Zhoushan anchorage awaiting orders. It was planned that the shipyard Pilot, who boarded the ship at the berth, would disembark via the starboard combination pilot ladder on completion of the anchoring evolution.

At 2000,[1] the Master ordered the deck crew[2] to commence rigging the combination pilot ladder on the ship's starboard side in preparation for disembarking the Pilot. The 3/O, ASD1, and ASD3 were located on the Poop Deck. The Bosun, OS1, and Deck Cadet were located on the Forecastle when they received the order from the Master, via hand-held radio, to rig the combination pilot ladder. All six crewmembers met in vicinity of the accommodation block on the starboard side where they collected the pilot ladder and carried it to the starboard side pilot embarkation area in vicinity of Bay 38. The crewmembers divided into two teams of three and commenced rigging the accommodation ladder and pilot ladder. The OS1 and ASD1, wearing lifejackets, proceeded down the accommodation ladder, which was located outboard of the ship's structure, and commenced securing the temporary rope between the stanchions which were fixed to the accommodation ladder and adjusting the gangway platform to ensure it was horizontal to the Main Deck. The 3/O requested additional assistance with rigging the pilot ladder and called for the ASD1, who was located approximately half-way down the accommodation ladder. The ASD1 proceeded to the gangway position on the Main Deck when he witnessed the OS1 fall from the gangway platform of the accommodation ladder and into the water below.

The Master, who was on the Bridge, was alerted to the MOB and immediately initiated MOB procedures. The Pilot informed all vessels within the vicinity of the situation and commenced directing the adjacent mooring boat to proceed

1 Unless otherwise stated, all times are ship's local time (UTC +8).

2 Deck crew consisted of the following crewmembers: the 3/O, Bosun, OS1, ASD1, ASD3, and Deck Cadet.

to the starboard side of SYNERGY BUSAN in the approximate location of the OS1.

At 2106, SYNERGY BUSAN was anchored within the designated anchorage area. The search for the OS1, led by the China Maritime Safety Administration, continued into the night however the OS1 could not be located.

The marine safety investigation conducted by the Republic of the Marshall Islands Maritime Administrator (the "Administrator") identified that the OS1 was working in a location, which in accordance with Company's SMS,[3] required a safety harness with lifeline to be worn and connected to a strong point or fall arrest equipment while working over the side. It was determined that the OS1, at the time of the fall, was not wearing a safety harness with lifeline or connected to fall arrest equipment. The Administrator's investigation also determined that the application of the Company's general safe work procedures on board did not meet the expected measures required to be implemented while working over the side.

The below lessons learned were identified.

- The importance of wearing a harness with lifeline attached to a strong point when working over the side.
- The importance of adequate supervision to ensure appropriate PPE is properly worn prior to conducting a task.
- The importance of ensuring that all required procedures are adopted and implemented on board.
- The Stop Work Authority can be exercised by any crewmember, at any time, when deemed necessary to ensure tasks are executed safely.

PART 2: FACTUAL INFORMATION

The following Factual Information is based on the information obtained during the Administrator's marine safety investigation.

Ship particulars at the time of the incident: *see* chart to right.

SHIP PARTICULARS

Vessel Name
SYNERGY BUSAN

Registered Owner
Busan Shipping Ltd

ISM Ship Management
Eurobulk Ltd.

Flag State
Republic of the Marshall Islands

IMO No.	Official No.	Call Sign
9450571	8755	V7A2725

Year of Build	Gross Tonnage
2009	39,984

Net Tonnage	Deadweight Tonnage
50,727	50,727

Length x Breadth x Depth
245.6 x 32.3 x 16.4 m

Ship Type
Container

Document of Compliance Recognized Organization
Bureau Veritas

Safety Management Certificate Recognized Organization
Bureau Veritas

Classification Society
DNV

Persons on Board
27

3 Referred to as the Company's general safe work procedures.

Narrative

On 12 December 2023, the OS1 joined SYNERGY BUSAN to commence a nine month contract. Upon arrival on board, the C/O conducted Initial Safety Familiarization[4] training with the OS1 which was successfully completed that same day.

On the early evening of 19 December 2023, SYNERGY BUSAN was preparing for departure from a scheduled dry-dock period[5] at COSCO Shipyard, Zhoushan. The ship was scheduled to depart the berth at 2000 and proceed under pilotage to a COSCO Shipyard designated anchorage.

At some time between 0800 and 1700, the Master briefed the C/O on the departure plan, which included the requirement to disembark the Pilot at the anchorage using the combination pilot ladder *(see Figure 1)*.

Figure 1: General Arrangement plan of SYNERGY BUSAN with the location of the gangway position outlined in red.

The weather was reported as moderate with winds of Beaufort Force 5 from the northeast, seas of 0.5-1 m, visibility greater than 5 NM, and a clear sky. Sunset was at 1703 and civil twilight started at 1729. The air temperature was 10°C and the sea water temperature was 15°C.

At approximately 1700, dinner was served in the Crew Mess and attended by the OS1. In preparation for rigging the combination pilot ladder, the C/O prepared a Permit to Work Aloft / Overside / on Ladders[6] shortly after dinner. As reported by the Bosun and 3/O, a brief discussion regarding the task of rigging the combination pilot ladder was undertaken by the C/O before the ship departed the berth.

At 1830, the Pilot embarked via the shoreside gangway and was escorted to the Bridge by the ASD2 to meet the Master.

Following the Master and Pilot exchange, SYNERGY BUSAN cast off all lines and safely departed the berth at 1942. On departure from the berth, the Bridge was manned by the Master, C/O, ASD2, and a Pilot. At 2000, the Master ordered that the starboard side combination pilot ladder be rigged in position of Bay 38 *(see Figure 1)*. The deck crew assigned to the task consisted of two teams of three crewmembers. The aft team was made up of the 3/O, ASD1, and ASD3; while the forward team consisted of the Bosun, OS1, and Deck Cadet.

4 HSE D26.

5 SYNERGY BUSAN arrived at COSCO Shipyard, Zhoushan for a scheduled 5-yearly dry-dock periodical survey on 2 December 2023.

6 HSE D24A.

The pilot ladder was located at the starboard side accommodation area and was carried forward by the aft team to Bay 38 for rigging. At the same time, the forward team commenced lowering the accommodation ladder into position.

The Bosun was instructed by the Master to proceed to the Forecastle to prepare the anchor ready for letting go. The OS1 and ASD3 were required to step onto the combination ladder, which was now located outboard and inclined, to rig the temporary guard rail and check the angle of the gangway platform. At approximately 2010, the 3/O requested the ASD3 to return to the Main Deck to assist the 3/O, ASD1, and Deck Cadet in lowering the pilot ladder into position.

At 2013, the ASD3 looked down onto the accommodation ladder from the Main Deck and witnessed the OS1 fall from the accommodation gangway platform and into the water below. It was estimated that the OS1 fell approximately 7 m.

Figure 2: The accommodation gangway platform where the OS1 fell.

The 3/O immediately reported the MOB to the Bridge on his handheld radio which was acknowledged by the Master.

On the Bridge, the Master stopped the main engine, ordered the rudder hard to starboard, and the C/O threw a lifebuoy in the suspected direction of the OS1. The Master and OOW began implementing the ship's MOB response procedure immediately after receiving the 3/O's report that the OS1 had fallen overboard. The estimated survival time in 15°C temperature water for an uninjured person in working clothes[7] is between 1–2 hours.[8]

Other actions taken included activating the ECDIS' MOB marker, announcing the MOB on the ship's public address system, and informing the Pilot. The Pilot instructed a mooring boat, which was in the vicinity of SYNERGY BUSAN, to proceed to search the area for the OS1. The Pilot also informed Zhoushan Port Authority and instructed additional tugboats in the area to assist in the search for OS1.

The Master ordered the ship's rescue boat to be launched but due to the sea state, it was decided that it was not safe to launch the rescue boat.

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7 Working clothes include coveralls, vest, socks, shoes, and gloves.

8 Derived from Wissler Model, modified by Hayes, 1987 and Transport Canada, Survival in Cold Waters: Staying Alive (Publication TB13822E), page 14.

A search conducted by Zhoushan Port Authority continued into the night. The exact time when the search for the OS1 was suspended could not be determined.

At 2106 SYNERGY BUSAN dropped anchor at COSCO Shipyard designated anchorage with seven shackles in the water.

SYNERGY BUSAN Crew

SYNERGY BUSAN had 27 crewmembers, 11 more than required by the Minimum Safe Manning Certificate issued by the Administrator.

All involved crewmembers held the appropriate Republic of the Marshall Islands-issued seafarer documentation for their positions.

The Administrator did not find any indication that any crewmembers involved with this incident failed to receive the amount of rest mandated by the STCW Code, Section A-VIII/1, paragraphs 2 and 3, and the MLC, 2006, regulation 2.3.

The crewmembers involved had the following experience:

RANK	TIME ON BOARD SYNERGY BUSAN	TIME IN RANK	TIME WITH COMPANY	TOTAL TIME AT SEA
MASTER	5 months	3 years	9 years	18 years
C/O	4 months	10 months	3 years	27 years
3/O	1 week	4 months	7 years	15 years
BOSUN	1 week	10 months	13 years	7 years, 6 months
OS1	1 week	10 days	2 years, 4 months	2 years, 4 months

Of the 27 crewmembers on board at the time of the incident, 11[9] crewmembers joined the ship on 12 December 2023 in the COSCO Shipyard, seven days prior to the incident. Six crewmembers[10] were assigned to rig the combination pilot ladder on 19 December, four[11] of which joined the ship on 12 December 2023.

The OS1 sailed on Company managed ships on four previous occasions. He commenced his fifth contract on 12 December 2023.

The Initial Safety Familiarization Checklist[12] was completed by the OS1 on 12 December 2023.

The OS1's most recent medical examination was conducted on 14 September 2023. He was found fit for full deck duty without restrictions.

9 Seven of these crewmembers were from the deck department.

10 The 3/O, Bosun, ASD1, ASD3, OS1, and Deck Cadet.

11 The 3/O, Bosun, ASD3, and OS1.

12 HSEQ D26 Initial Safety Familiarization Checklist is required to be completed upon sign on to the ship in accordance with SOLAS III, Regulation 19.4.1.

PPE

At the time the OS1 fell from the accommodation ladder, he was wearing coveralls, gloves, safety shoes, an inflatable lifejacket, and safety helmet. The PPE worn by the OS1 was reported to be in good condition.

The OS1 was not wearing a safety harness or fall prevention equipment as required *(see Figure 3)*. It was reported as common practice for a safety harness with lifeline or fall prevention equipment not to be worn by crewmembers when rigging the combination pilot ladder. It was also reported by several crewmembers that it was uncomfortable and restricted movement when working on Deck.

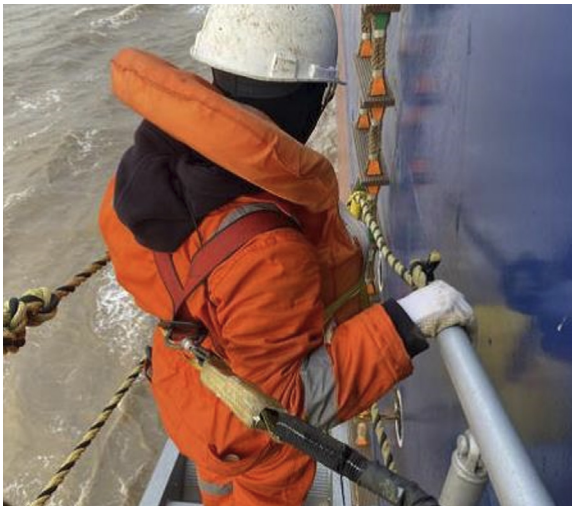

Figure 3: Photograph of crewmember wearing PPE while working over the side on the accommodation ladder after the incident.

Combination Pilot Ladder

The pilot egress location used at the time of the incident consisted of two parts. An accommodation ladder inclined at an approximate angle of 30 from the main deck, leading aft, and a pilot ladder in vicinity of Bay 38, positioned vertically over the ship side at a height of approximately 9 m *(see Figure 4)*.

Figure 4: Starboard side combination pilot ladder.

The accommodation ladder consisted of a horizontal platform at the top of the inclined steps, and a horizontal gangway platform at the bottom of the inclined steps in which to step to and from the vertically positioned pilot ladder.

Before the accommodation ladder is ready for use, rope between the stanchions must be rigged and attached to a secure point at the top and bottom of the accommodation ladder. Additionally, the gangway platform must be adjusted to ensure it is parallel with the water. The outboard and inboard side of the combination ladder had a fixed, horizontal handrail supported by equally spaced vertical stanchions which provide support while ascending and descending the inclined ladder *(see Figure 5)*. The combination of handrail, rope, and stanchions reduce the risk of a fall from the side of the accommodation ladder.

Figure 5: Starboard side accommodation ladder.

On 12 December 2023, the accommodation ladder was inspected and load tested by COSCO Shipping Heavy Industry (Zhoushan) Co., Ltd. without remark. Following the incident, both the accommodation ladder and the pilot ladder were found to be clean, free from debris, and structurally intact.

SMS

As required by the ISM Code, the Company's general safe work procedures provide information on procedures and required PPE for shipboard operations and maintenance. These include general procedures for safe work and specific procedures for pilot embarkation and disembarkation.

The ILO's Accident Prevention on Board Ship and the UK MCA COSWP include recommended safe work practices. These internationally recognized recommended practices include guidance for seafarers to wear a safety harness connected to a lifeline or other fall arresting device when working over the side.[13] The UK MCA COSWP additionally provides examples of permits to work for various activities, including a permit to work over the side.[14]

13 *See* the ILO's Accident Prevention on Board Ship, sections 5.4.7, 15.1.6, and 20.10.3, and COSWOP, section 17.2.6. It is noted that the ILO's Accident Prevention on Board Ships was most recently updated in 1996. The COSWOP was most recently amended in 2022.

14 The COSWOP Annex 14.1.2.

The Company's general safe work procedures specify the selection and condition of use of PPE. The Company requires crewmembers to wear and use appropriate PPE in accordance with the PPE matrix for a specific work activity. The Master is responsible for ensuring crewmembers comply with the PPE matrix and that all crewmembers have received sufficient training during the familiarization process and prior to any work being undertaken.

On 19 December 2023, the ship's Master and C/O completed a risk assessment, valid only for that day, for rigging of the pilot ladder only. The risk assessment did not include rigging the accommodation ladder. The hazards and associated existing controls that were identified by this risk assessment included:[15]

DESCRIPTION OF HAZARD	CONTROL MEASURE
Falling down.	Safety harness worn, person supervised continuously, check equipment before work, work aloft / overside / on ladders checklist complete.
Attention distracted.	Work aloft / overside / on ladders checklist complete.
Not wearing a safety harness, secured by rope independently, safety net rigged.	All equipment checked and tested.
PPE not used.	Planning of drill carried out before commencement of work. Work aloft / overside / on ladders checklist complete.
Persons working aloft not supervised.	Work aloft / overside / on ladders checklist complete. Meeting has taken place prior to starting work.
Bad weather conditions, vessel pitching and rolling.	No work to be carried out unless weather conditions permit.
Lifebuoy not present during working overside.	A lifebuoy and sufficient lines shall be available on deck for immediate use.

The risk assessment conducted was signed by all crewmembers assigned to the work activity of rigging the combination pilot ladder.

The Company's specific procedures for working aloft require that a Work Aloft / Overside / on Ladders Permit be issued before starting any work in these locations. These procedures also include the following precautions when rigging the pilot ladder:

(a) completing a risk assessment;

(b) all necessary equipment for the work activity are in good order;

(c) a safety harness and rope are properly prepared and in good condition;

(d) sufficient illumination exists in the surrounding area;

15 Additional identified hazards recorded on the risk assessment included securing of tools, emergency drills, and warning notices that power is shut off. These additional hazards were not determined to be contributory factors and therefore not included within the extract table.

(e) crewmember is familiar and capable to perform the work activity;

(f) an experienced person is placed nearby to attend and assist in an emergency (identified as the 3/O); and

(g) crewmembers wear suitable PPE (clothing, shoes, helmet, gloves, fall arrester, etc.).

Additional requirements contained within the Work Aloft / Overside / on Ladders Permit include the following precautions when rigging the pilot ladder while working overside:

(a) the ship is dead in the water;

(b) the worker wears a lifejacket with whistle/light;

(c) a lifebuoy is ready for immediate use; and

(d) rescue boat is ready for immediate use.

The Work Aloft / Overside / on Ladders Permit was signed by the Master, C/E, and C/O. The designated supervisor of the work activity for rigging the pilot ladder was documented on the Work Aloft / Overside / on Ladders Permit as the C/O.

The Company's general safe work procedures included a requirement for all crewmembers to exercise their Stop Work Authority when anyone is practicing or about to start an unsafe act. In accordance with these procedures, if an unsafe act is identified, if conditions change to the extent that hazards and risks are significantly affected, then the unsafe condition or act should be brought to the attention of the on-scene supervisor and the Work Aloft / Overside / on Ladders Permit should be suspended until the procedure is deemed to be safe by the issuing supervisor.

Based on the available information, there is no indication that a Safety Briefing[16] occurred before the six crewmembers started rigging the combination pilot ladder.

PART 3: ANALYSIS

The following Analysis is based on the above Factual Information.

OS1's Fall Overboard

The ASD3 stated that the OS1 fell from the accommodation gangway platform into the water below. Following the incident, the accommodation ladder was inspected and reported to be compliant with no defects. The steps of the accommodation ladder were reported to be wet due to the weather conditions at the time. It could not be determined if the wet steps contributed to the fall.

The OS1 was wearing an inflatable lifejacket while working over the side and on the accommodation ladder. It was not determined if the inflatable lifejacket activated when the OS1 entered the water. The SOLAS approved inflatable lifejacket was inspected on 11 December 2023 and the release unit, reflective tape, belt, light, and whistle were confirmed

16 Safety Briefing is commonly referred to as a Toolbox Talk.

present, and an inflation test was conducted without deficiency. The inflatable lifejacket worn by the OS1 was designed to inflate upon entry to the water. On inflation, the reflective tape should have been visible to anyone observing from above. The C/O, who was positioned on the Bridge, threw a lifebuoy in the suspected direction of the OS1 but could not recall seeing the OS1 in the water or if he came into contact with the lifebuoy.

The OS1 was not wearing a safety harness with a safety line attached to the ship when he fell. If he had, it could either have prevented him from falling off the accommodation ladder or have made it possible for the ship's crewmembers to recover the OS1 and bring him back on board.

The predicted survival time of a crewmember wearing working clothes is estimated between 1–2 hours in 15°C water. The Zhoushan Port Authority's search was unable to find the OS1 following entry into the water. An immersion suit would have extended the predicted survival time but there was no requirement to wear an immersion suit for this work activity.

Company Procedures

The Company's general safe work procedures contained within the SMS manual[17] describe the requirement for a risk assessment, Work Aloft / Overside / on Ladders Permit, and a Safety Briefing to be performed prior to the work activity being conducted. The specific risk assessment conducted on 19 December 2023, detailed the risks associated with rigging the pilot ladder only, and not the rigging of the accommodation ladder. The identified hazards associated with rigging of the pilot ladder, as contained within the risk assessment, included the risk of falling down, not wearing a safety harness, PPE not used, and persons working unsupervised.

The Work Aloft / Overside / on Ladders Permit signed by the Master, C/O, and C/E included the relevant control measures identified by the risk assessment for rigging the pilot ladder. The checklist contained within the Work Aloft / Overside / on Ladders Permit was signed, indicating that the control measures were adopted and that the identified hazards had sufficient control measures in place to ensure the risk had been reduced to the lowest, reasonably practicable level.

The crewmembers assigned to the work activity of rigging the combination pilot ladder were not wearing a safety harness, a Safety Briefing had not been conducted prior to commencing the work activity, the C/O, who was the designated supervisor was not present at Bay 38, the equipment had not been tested and verified prior to commencing the rigging of the combination pilot ladder, and the rescue boat was unable to be launched due to the weather conditions.

Normalization of deviance was common practice with regard to crewmembers on board not wearing a harness with lifeline or fall arrest equipment when rigging the combination pilot ladder. It was commonly accepted that the harness restricts movement and, as a consequence, was not worn. Therefore, it could be considered likely that the crewmembers conducting the work activity failed to recognize that a harness was not being worn by the OS1, or any crewmember working over the side.

A Safety Briefing provides the opportunity to ensure crewmembers thoroughly understand the work activity, the risks associated with the activity, and the required PPE to be worn prior to undertaking the work activity. The opportunity to discuss contents of the Work Aloft / Overside / on Ladders Permit and the consequences of a fall from height in

17 HSEQ 07.20.

accordance with the Company's general safe work procedures did not occur. A Safety Briefing was not conducted prior to commencing the activity of rigging the combination pilot ladder and therefore the ability to reinforce the requirement to wear a harness with lifeline or fall prevention equipment was not available.

Crewmembers likely did not recognize that the ASD1 and OS1 being outboard of the guardrails while rigging the accommodation without wearing a safety harness with a lifeline was an unsafe act and therefore did not exercise their Stop Work Authority. The Company's general safe work procedures authorize all crewmembers to stop the job if they observe an unsafe condition or behavior. The Stop Work Authority was not exercised at any point during the work activity. The Stop Work Authority could have been exercised if it was identified that the contents of the Work Aloft / Overside / on Ladders Permit checklist had not been implemented.

The Company's general safe work procedures must be consistently implemented in order to be effective. Deviations from the Company's general safe work procedures were reported to be a common practice on board SYNERGY BUSAN and, if such reports are accurate, would have increased the likelihood of a marine casualty.

Rigging of the Combination Pilot Ladder

The departure from the Zhoushan COSCO Berth, rigging of the combination pilot ladder, and proceeding to an anchorage was the first seamanship evolution conducted for 11 crewmembers who recently joined SYNERGY BUSAN under current contract.

Of the working party assigned to rig the combination pilot ladder, the Deck Cadet and ASD1 had recent experience with rigging the combination pilot ladder on board SYNERGY BUSAN, both having previously participated in the task prior to the ship entering the dry-dock period. The remaining four crewmembers joined SYNERGY BUSAN on 12 December 2023 in dry-dock. Between 12 and 19 December 2023, rigging of the combination pilot ladder was not undertaken, and as a consequence, the four recently joined crewmembers had to rely on their prior experience of rigging a combination pilot ladder.

The Initial Safety Familiarization Checklist completed by all crewmembers did not cover the use, rigging, or stowing of the combination pilot ladder. The Initial Safety Familiarization Checklist did require that crewmembers be familiar with how to activate, under supervision, equipment to be used in routine duties. It is not known if rigging the combination pilot ladder was considered a routine duty.

Falling overboard is a hazard commonly associated with tasks requiring seafarers to work near or over the side, including rigging a combination pilot ladder. The Company's general safe work procedures included several requirements intended to reduce not only the potential of a seafarer falling overboard, but also the potential severity of the consequences of such an incident. Both the Bosun and 3/O collectively had over 20 years of experience. Based on this, they should have reasonably been expected to be aware of the potential for falling overboard and the PPE needed (lifejacket, safety harness, and safety line) to manage this hazard while rigging the combination pilot ladder.

Supervision

The work activity at the time was unsupervised and as a result, it was not identified that the OS1 was not wearing a harness with a lifeline or fall arrest equipment while working over the side, and that the Company's general safe work procedures were not implemented in full.

The Company's general safe work procedures assign the C/O with the responsibility to ensure that all necessary safety precautions prior to the commencement of work are fulfilled. Throughout the evolution of rigging the combination pilot ladder, the C/O, who was the assigned Supervisor for rigging the combination pilot ladder, was located on the Bridge and without visual sight of the crewmembers who were performing this task.

The Company's general safe work procedures[18] required that the C/O, C/E, or delegated responsible supervising person, as it relates to Working Aloft / Overside / on Ladders, ensures that a safety harness with a lifeline or fall arrest equipment of suitable length shall be worn. In addition, before proceeding aloft or overside all supporting equipment shall be checked.

MOB Response

Upon receipt by the Master on the hand-held radio that the OS1 had fallen overboard, the MOB Emergency Procedures checklist[19] was initiated by the Master. The checklist items were followed and coordinated by the OOW.

SYNERGY BUSAN is equipped with one rescue boat and is required to be in a continuous state of readiness. The Company's general safe work procedures[20] stipulate that no work shall take place overside while the ship is underway. If such work has to be undertaken the rescue boat should be ready for immediate use.

The weather conditions experienced on the evening of 19 December 2023, precluded the use of the rescue boat. Between 1830, when the Pilot boarded SYNERGY BUSAN at Zhoushan COSCO Berth, and the commencement of rigging the combination pilot ladder at 2000, the weather was reported to be moderate. The risk assessment was conducted on the afternoon of 19 December 2023, and at that time, the risk factor was assessed as significant due to the weather conditions. The control measure implemented in accordance with the Company's general safe work procedures[21] reduced the risk factor for rigging the combination pilot ladder from significant to negligible provided that the rescue boat was ready for immediate use.

At the time the OS1 entered the water at 2013, the Master determined it was not safe to launch the rescue boat due to the moderate weather conditions experienced. At no time between the risk assessment being conducted and the decision to proceed underway was the risk assessment re-examined based on the weather. Taking into consideration the weather experienced on 19 December 2023, and in the knowledge that the rescue boat could not be launched, the work activity of rigging the combination pilot ladder should not have been conducted while SYNERGY BUSAN was underway.

18 HSEQ 07.13 Work Aloft / Overside / on Ladders.

19 HSEQ 08.02.

20 HSEQ 07.13.

21 HSEQ 07.13, no work shall take place overside while ship is underway. If such work has to be undertaken, lifeboats or rescue boats should be ready for immediate use.

PART 4: CONCLUSIONS

The following Conclusions are based on the above Factual Information and Analysis and shall in no way create a presumption of blame or apportion liability.

1. Causal factors that contributed to this very serious marine casualty include:
   (a) not using the PPE required by the Company's general safe work procedures while working over the side;
   (b) absence of supervision by the C/O of the working party while they rigged the combination pilot ladder;
   (c) ineffective delegation by the C/O to the 3/O to supervise the rigging of the combination pilot ladder;
   (d) neither the Master nor the C/O conducted a Safety Briefing with the working party before commencement of the work activity; and
   (e) crewmembers not identifying an unsafe condition and then subsequently not exercising their Stop Work Authority to correct an unsafe condition.
2. Additional causal factors that may have contributed to this very serious marine casualty include:
   (a) risk assessment control measures were not properly implemented and failed to adequately assess the weather conditions experienced at the time;
   (b) inadequate assessment of the weather conditions prevented the launch of the rescue boat to facilitate recovery of the OS1 from the water; and
   (c) the Company's general safe work procedures[22] did not include rigging of the combination pilot ladder.

PART 5: PREVENTIVE ACTIONS

In response to this very serious marine casualty, the Company has taken the following Preventive Actions:

1. The Company circulated the incident to the managed fleet, asking all ships to confirm usage of all the required PPE (including Fall Arrestors).

PART 6: RECOMMENDATIONS

The following Recommendations are based on the above Conclusions and in consideration of the Preventive Actions taken.

1. It is recommended that the Company review and, if necessary, revise:
   (a) onboard training, taking into consideration the lessons learned from this incident for:
      (i) conducting a Safety Briefing prior to undertaking the work activity;

22 Specifically Permit to Work Aloft / Overside / on Ladders and Risk Assessment Form CR-009.

(ii) the assignment of a responsible supervising person to supervise the work activity;

(iii) the identification of unsafe conditions; and

(iv) exercising Stop Work Authority;

(b) its procedures for monitoring and assessing the performance of the ships' crewmembers with respect to their compliance with the Company's general safe work practices; and

(c) its general safe work procedures to include rigging of the combination pilot ladder within the Permit to Work Aloft / Overside / on Ladders and associated risk assessment.

The Administrator's marine safety investigation is closed. It will be reopened if additional information is received that warrants further review.