REPUBLIC OF THE MARSHALL ISLANDS

Maritime Administrator

SUPER RUBY CASUALTY INVESTIGATION REPORT

Fatal Fall from Height

Mumbai Outer Anchorage | 12 October 2021

Official Number: 9505

IMO Number: 9308120

Published by: Republic of the Marshall Islands Maritime Administrator 19 July 2023

DISCLAIMER

In accordance with national and international requirements, the Republic of the Marshall Islands Maritime Administrator (the "Administrator") conducts marine safety investigations of marine casualties and incidents to promote the safety of life and property at sea and to promote the prevention of pollution. Marine safety investigations conducted by the Administrator do not seek to apportion blame or determine liability. While every effort has been made to ensure the accuracy of the information contained in this Report, the Administrator and its representatives, agents, employees, or affiliates accept no liability for any findings or determinations contained herein, or for any error or omission, alleged to be contained herein.

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

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LIST OF ABBREVIATIONS AND ACRONYMS

ASD. . . . . Able Seafarer Deck

C/E . . . . . Chief Engineer

C/O . . . . . .Chief Officer

COVID-19. . . . . Coronavirus Disease 2019

GT . . . . . Gross Tons

IMO . . . . . International Maritime Organization

ISM . . . . . International Safety Management

m . . . . . .Meters

MLC, 2006 . . . . . .Maritime Labour Convention, 2006

MRCC . . . . . .Maritime Rescue Coordination Center

NM . . . . . Nautical Miles

OOW . . . . . Officer of the Watch

OS . . . . . .Ordinary Seafarer

PMS . . . . . Preventive Maintenance System

PPE . . . . . Personal Protective Equipment

SMS . . . . . .Safety Management System

SOLAS . . . . . International Convention for the Safety of Life at Sea, 1974

STCW Code . . . . . Seafarers' Training, Certification and Watchkeeping Code

SWL . . . . . .Safe Working Load

PART 1: EXECUTIVE SUMMARY

On the night of 11 October 2021, the Republic of the Marshall Islands-registered oil tanker SUPER RUBY, managed by Nav Sea Maritime Private Limited (the "Company"), was anchored in the outer anchorage offshore Mumbai, Republic of India (hereinafter "India") awaiting orders. It was planned that two of the Company's Superintendents and three service technicians would embark SUPER RUBY while it was at anchor to repair one of the ship's anchor windlasses.

Just after midnight[1] on 12 October 2021, the India-registered tug DHANSHREE arrived alongside and was made fast to SUPER RUBY's port side in way of the pilot boarding station. Both vessels were on a northerly heading. DHANSHREE was reported to be rolling moderately after being made up alongside the ship. The weather was reported as good with calm seas and a swell of 0.5-1 m from the northwest.

The first of the two Superintendents successfully embarked SUPER RUBY using the ship's accommodation ladder. Because the tug was rolling, the second Superintendent asked the ship's C/O, who was on deck supervising the transfer operation, to rig a combination pilot ladder. After the combination pilot ladder was rigged, the second Superintendent, who was wearing a backpack, successfully transferred from the tug to the pilot ladder and started climbing up. He stopped climbing and appeared to rest for a couple of seconds before falling 3.5-5 m onto the gunwale of DHANSHREE so that half of his body was inboard of the gunwale and the other half was over the side. Within minutes of the fall, the Superintendent had been brought on board DHANSHREE which then cast off from SUPER RUBY en route to Mumbai to seek medical assistance.

1 Unless otherwise stated, all times are ship's local time (UTC +5.5).

An ambulance with a doctor was waiting to meet DHANSHREE when the tug arrived in Mumbai at 0700. The Superintendent was determined to be deceased on arrival at the hospital. The marine safety investigation conducted by the Republic of the Marshall Islands Maritime Administrator (the "Administrator") identified the following:

1. Causal factors that contributed to this very serious marine casualty include:
   (a) the Superintendent falling about 3.5-5 m on to the gunwale of DHANSHREE while climbing the pilot ladder to embark SUPER RUBY.
2. Additional causal factors that may have contributed to this very serious marine casualty include the:
   (a) lack of Company policies regarding fatigue and medical requirements for the Company's shore staff who may need to embark a ship in the Company-managed fleet as part of their assigned duties; and
   (b) procedures in the Company's SMS for embarking and disembarking personnel from launches does not address carrying backpacks while climbing ladders.
3. Additional issues that did not contribute to this very serious marine casualty include:
   (a) DHANSHREE was made up on SUPER RUBY's windward side and was rolling due to the swell;
   (b) the Company's pre-completed risk assessment for embarking and disembarking personnel did not include hazards (e.g., falls overboard, adverse weather, etc.) that are commonly associated with this operation;
   (c) the procedures in the Company's SMS for embarking and disembarking personnel from ships were not clear regarding the Company's expectations:
      (i) whether another officer is required to be on deck to supervise the rigging of the ladder and the transfer operation or whether they expect the OOW to perform these functions in addition to the watchstanding duties assigned to the OOW; and
      (ii) as to who was supposed to participate in the Toolbox Talk, required by the Company's SMS, to be

SUPER RUBY SHIP PARTICULARS

Vessel Name
SUPER RUBY

Registered Owner
Super Ruby Shipping Inc

ISM Ship Management
Nav Sea Maritime Private Limited

Flag State
Republic of the Marshall Islands

IMO No.	Official No.	Call Sign
9308120	9505	V7A4824

Year of Build	Gross Tonnage
2006	30,965

Net Tonnage	Deadweight Tonnage
14,816	50,400

Length x Breadth x Depth
181.5 x 32.2 x 20.2 m

Ship Type
Oil Tanker

Document of Compliance Recognized Organization
DNV

Safety Management Certificate Recognized Organization
American Bureau of Shipping

Classification Society
American Bureau of Shipping

Persons on Board
24

conducted before starting to embark or disembark persons by launch;

(d) the procedures in the Company's SMS did not address:

(i) the use of lifejackets either by personnel embarking or disembarking ships in the Company-managed fleet by launch; and

(ii) making up launches alongside while transfer operations are being conducted; and

(e) SUPER RUBY's crewmembers did not hold Republic of the Marshall Islands seafarer documentation.

DHANSHREE SHIP PARTICULARS

Vessel Name
DHANSHREE

Registered Owner
Mr. Cyrus Fardoon Irani

Flag State
Republic of India

Official No.
THN 17397

Gross Tonnage	Net Tonnage
38.25	11.5

Length x Breadth x Depth
15 x 5 x 2.5 m

Year of Build
2002

Ship Type
Tug

Persons on Board
Crewmembers: 2; Passengers: 2

PART 2: FINDINGS OF FACT

The following Findings of Fact are based on the information obtained during the Administrator's marine safety investigation. Due to restrictions in place on travel that had been imposed in response to the COVID-19 pandemic, the Administrator was not able to arrange for onboard attendance as part of its marine safety investigation of this very serious marine casualty. All related information available to the Administrator was obtained remotely.

1. SUPER RUBY Ship particulars: *see* chart on page 9.

2. DHANSHREE Ship particulars: *see* chart to right.

Background Information

3. On the night of 11 October 2021, the oil tanker SUPER RUBY *(see Figure 1)* was anchored in the outer anchorage offshore Mumbai, India awaiting orders. The ship was in ballast with drafts of 6.5 m forward and 8 m aft. The freeboard midships was approximately 13 m.

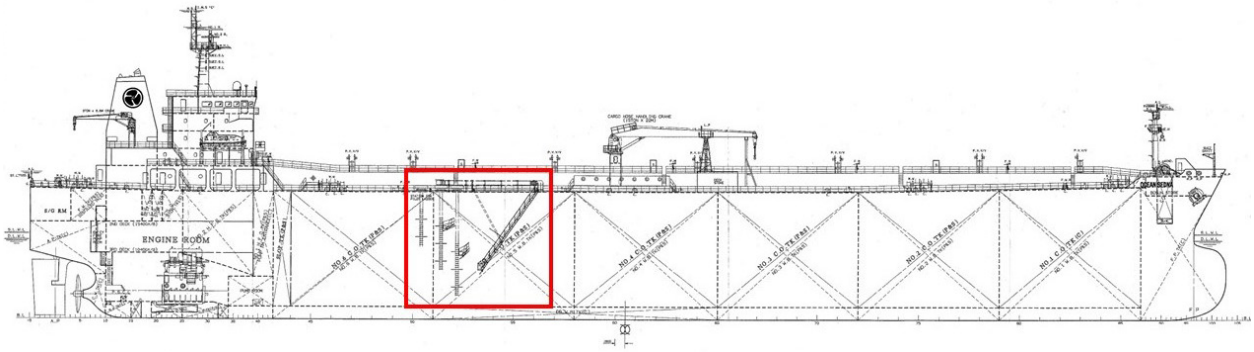

Figure 1: SUPER RUBY General Arrangement. The location of the pilot boarding area is shown in the red square.

4. At 1800 on 11 October 2021, the India-registered, 38.25 GT tug DHANSHREE got underway from Mumbai with three service technicians and two ship's Superintendents on board. It was planned that the service technicians and ship's Superintendents would embark SUPER RUBY while it was at anchor to repair one of the ship's anchor windlasses.

Embarkation Arrangements

5. In preparation for embarking the service technicians and Superintendents, the C/O reviewed the Company's risk assessment for embarkation and disembarkation.[2] No additional hazards or control measures were identified by the C/O when he reviewed the Company's risk assessment or by the Master when he approved it.

6. Prior to the arrival of DHANSHREE alongside SUPER RUBY, the C/O met with the ASD1 and OS to conduct a Toolbox Talk. What was discussed was not reported. They then rigged the port side accommodation ladder and partially lowered it. It was not reported if a safety net was rigged under the accommodation ladder.

Incident Description

7. At 0001 on 12 October 2021, DHANSHREE arrived alongside SUPER RUBY and was made fast to port in way of the pilot boarding area *(see Figure 1)*. The ship's heading was to the north. It was reported that SUPER RUBY was not rolling but that DHANSHREE was rolling moderately after being alongside the ship.

8. The weather was reported to be good with clear sky and visibility greater than 5 NM. The winds were Beaufort Force 2 and the sea was calm with a swell of approximately 0.5-1 m. Both the wind and swell were from the northwest.

9. The accommodation ladder was lowered and the ship's port side pilot boarding light[3] was turned on so that the ladder was illuminated. Additional lighting was provided by SUPER RUBY's deck lights and DHANSHREE's spotlight, which was directed at the ladder. The C/O was supervising the embarkation with assistance from the ASD1 and an OS.

10. By 0004, the first of the two Superintendents had embarked SUPER RUBY without incident. It was not reported if this Superintendent was wearing a backpack or lifejacket when he embarked the ship.

11. The second Superintendent asked the C/O to rig a combination pilot ladder. He was reported to have said that he thought a combination pilot ladder would be safer than using the accommodation ladder alone since the tug was rolling.

12. The C/O, with assistance from the ASD1 and OS, rigged the portside pilot ladder and then raised the platform of the accommodation ladder so that it was approximately 5-6 m above the deck of the tug.[4] It was reported that the pilot ladder was resting against the SUPER RUBY's hull.

13. It was reported that the second Superintendent, who was wearing a backpack, started to climb the pilot ladder immediately after ship's crewmembers had finished rigging it. The weight and contents of the backpack were not reported.

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2 The risk assessment is discussed later in the report.

3 This light is mounted on the port bridge wing.

4 As previously stated, the freeboard midships was approximately 13 m.

14. SUPER RUBY's crewmembers and service technicians, who were still on the tug waiting to embark the ship, stated that the Superintendent stopped climbing when he was approximately 1-1.5 m below the accommodation ladder platform, placed his left knee on one of rungs of the pilot ladder and appeared to rest.

15. At 0006, crewmembers on SUPER RUBY and the service technicians who were still on DHANSHREE stated they saw the Superintendent's hands appear to let go of the pilot ladder several seconds after he stopped climbing. The Superintendent was reported to have landed on the gunwale of the tug so that half of his body was inboard of the gunwale and the other half was over the side. The service technicians pulled him on board the tug. SUPER RUBY's crewmembers cast off DHANSHREE's mooring lines and by 0012 the tug was underway back to Mumbai to seek medical assistance for the injured Superintendent.

16. It was reported that the Superintendent did not yell or make any other noise when he fell from the pilot ladder.

17. By portable radio the C/O informed the Master, who was inside the Bridge, that the Superintendent had fallen from the pilot ladder. The Master went out on the port side bridge wing and saw that the Superintendent was being pulled onto the deck of the tug by the service technicians.

18. The Master then informed MRCC Mumbai that the Superintendent had fallen from the pilot ladder, landed on the tug, and was unconscious. He also reported that the tug, with the Superintendent on board, was proceeding to Mumbai.

19. At 0700, DHANSHREE arrived at the ferry wharf jetty in Mumbai where an ambulance with a doctor was waiting to transport the Superintendent to the hospital. Upon arrival at the hospital, it was determined that he was deceased. The death certificate issued by the public health authorities in Mumbai stated that the cause of death was multiple injuries. The death certificate did not indicate what those injuries were.

Pilot Ladder

20. The Certificate of Compliance for SUPER RUBY's port side pilot ladder was dated 14 September 2021 in accordance with the requirements of IMO Assembly Resolution A.1045(27), *Pilot Transfer Arrangements* as required by SOLAS regulation, V/23.1.1.2. The ladder had been placed in service on board the ship less than a month before the Superintendent fell while using it.

21. The pilot ladder was found in good condition when it was inspected after the Superintendent fell *(see Figure 2)*.

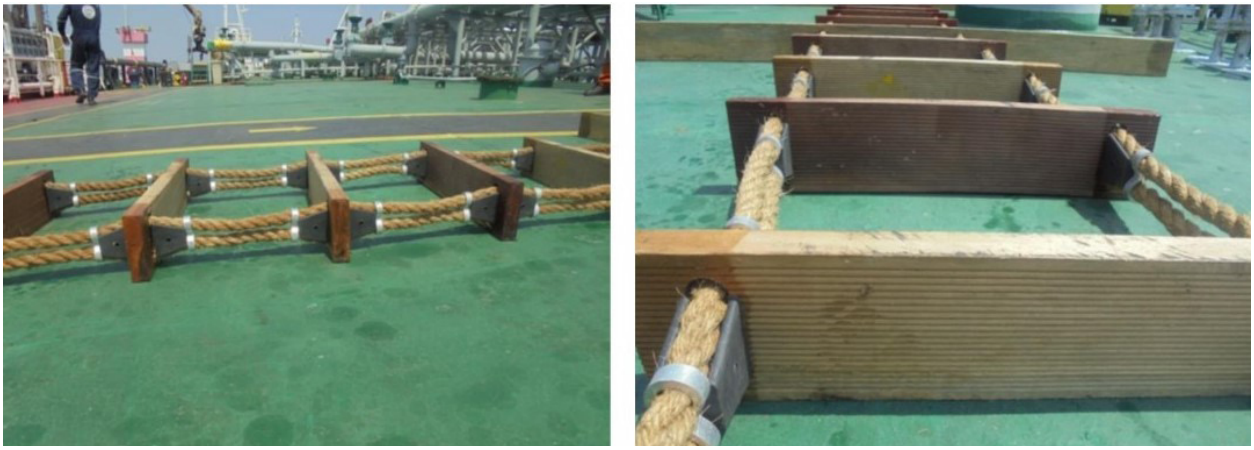

Figure 2: SUPER RUBY's port side pilot ladder.

SUPER RUBY's and DHANSHREE's Crew

22. On 11–12 October 2021, SUPER RUBY had a complement of 24 crewmembers, eight more than what was required by the Minimum Safe Manning Certificate issued by the Administrator. Although all the crewmembers held valid national seafarer documents that were appropriate for their position on board, none of the seafarers who were on board held valid Republic of the Marshall Islands seafarer documentation.

23. On 4 January 2022, the Administrator received applications for Republic of the Marshall Islands seafarer documentation for each of the seafarers who were on board SUPER RUBY on 11–12 October 2021. These applications were dated 30 September 2021. The filing agent who submitted the applications on behalf of the Company was not able to verify when or if the applications were delivered to a courier service for shipping to the Administrator.[5]

24. The experience of the officers with primary responsibility for preparing for and supervising the embarkation of the service technicians and ship's Superintendents is in the table below.

RANK	TIME ON BOARD SUPER RUBY	TIME IN RANK	TIME WITH COMPANY	TOTAL TIME AT SEA
Master	2.3 months	7 years, 4.8 months	3.6 months	11 years
C/O	2.3 months	3.6 months	3.6 months	6 years, 1 month

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

26. DHANSHREE had a crew of two on board on 11–12 October 2022. The Administrator does not have information regarding their experience or hours of work and rest.

Ship's Superintendent

27. The ship's Superintendent had joined the Company less than two weeks before he fell while embarking SUPER RUBY. Prior to starting with the Company, he had over 13 years of experience working as a ship's Superintendent and Fleet Manager for other ship management companies. He previously had more than 15 years of experience at sea, of which nine years were as a C/E.

28. His experience as a ship's Superintendent included, among other things, conducting ISM audits and accident investigations. He had also completed risk management training.

29. The Superintendent was reported to have left his home at approximately 1400 on 11 October 2021. He then drove to the Port of Mumbai to board DHANSHREE sometime prior to its departure at 1800. The Superintendent who had boarded SUPER RUBY and the three service technicians reported that he did not appear to be tired or uncomfortable (e.g., seasick) during the time he was on board the tug for the transit to SUPER RUBY. Except for the 10-hour period between the time he left home and when the tug arrived alongside SUPER RUBY, the

5 Each of these applications were reviewed and approved after being received by the Administrator.

Superintendent's hours of work and rest during the 7-day period, before he fell from the pilot ladder while embarking the ship, are not known.

30. The Superintendent was not required to maintain a record of his hours of work and rest since the requirements of the STCW Code, Section A-VIII/1, paragraphs 2 and 3 and MLC, 2006, Regulation 2.3 were not applicable as he was not working as a seafarer. For this same reason the medical standards of the STCW Code, Section A-I/9 and MLC, 2006, Regulation 1.2 were also not applicable to him. Based on the information available to the Administrator, the Company has not established policies addressing work and rest hours and medical requirements for their shore staff who, as part of their assigned duties, are required to go on board ships in their managed fleet.

31. The information available to the Administrator does not provide any indication whether the Superintendent had any pre-existing medical issues.

SMS

32. As required by the ISM Code, the Company's SMS included instructions and procedures to ensure the safe operation of the ships in the Company-managed fleet. These included procedures for personnel embarking and disembarking ships by launch and for rigging pilot ladders.

33. The Company's SMS procedures for embarking and disembarking ships in its fleet by launch address the duties of the Master, OOW, and crewmembers who are on deck to assist with the transfer.

34. The Master was responsible for canceling the launch, and for ordering embarkation or disembarkation operations to be canceled, if the conditions were unsafe.

35. The OOW was required to inform the Master if the conditions were deteriorating or unsafe. The OOW was also responsible for ensuring that the ladder was properly rigged and that a lifebuoy equipped with a self-igniting light and another lifebuoy equipped with a buoyant line were available and ready for immediate use in the immediate vicinity of the boarding location.

36. Crewmembers who are on deck to assist with the transfer are responsible for monitoring the weather conditions when a launch is alongside and to call off the transfer operations if the conditions are unsafe. They are also responsible for assisting personnel embarking or disembarking the ship. Not addressed is whether the OOW or another officer is required to be on deck to supervise the rigging of the pilot ladder and the transfer operation.

37. The procedures for embarking and disembarking ships in the Company-managed fleet included a requirement that a risk assessment and Toolbox Talk be conducted prior to conducting a personnel transfer.

38. The Company maintained a library of risk assessments that included one for embarkation and disembarkation of personnel. The identified hazards and control measures on this risk assessment included:[6]

6 Other identified hazards included unsafe, inconvenient, or obstructed access to the ladder, and lack of security measures during embarkation.

HAZARD DESCRIPTION	CONTROL MEASURES
Inadequate supervision	Officer in charge, communication with Bridge watch, personal safety awareness
Incompetent personnel to perform	Proper training, crewmember evaluation reports, crew certification checks, interview process, prior employment
Gangway / accommodation ladder placed at the wrong angle	Safety meeting, familiarization, training, officer in charge of the operation
Safety net not placed under accommodation ladder	Safety meeting, training, officer in charge of the operation
Poor maintenance of accommodation ladder	Safety meeting, familiarization, training, boarding equipment inspections, and PMS
Overload	Maker's instructions, stencil the maximum number of persons and SWL on the ladder
Wire falls failure	Inspections before use, PMS regular inspections, renewal of falls according to PMS, ensure proper size and type based on manufacturer's instructions
Inadequate lighting	Ensure adequate lighting during darkness

39. The risk assessment also included preconditions for ship's crewmembers completing the planned work. These preconditions were that:

    (a) crewmembers were responsible for supervising and assisting with the embarkation;

    (b) crewmembers were adequately rested;

    (c) the required PPE was used; and

    (d) the assigned crewmembers had experience performing the task.

40. The risk assessment did not address falls overboard during the transfer operation or rigging the ladder for embarking or disembarking on the ship's lee side.

41. Issues identified by the Company's SMS procedures for embarking and disembarking personnel that were to be discussed during the Toolbox Talk included a review of:

    (a) shipboard contingency plans and crewmember responsibilities if a person fell overboard during the transfer;

    (b) the hazards and control measures included on the risk assessment and a review of how experience levels and existing weather conditions might affect the assessment; and

    (c) communications between the ship's crewmembers who were on deck to assist with the transfer and the launch before and during the transfer operation.

42. Not addressed by the Company's SMS procedures was which crewmembers should participate in the required Toolbox Talk.

43. The Company's SMS procedures contained guidance addressing the use of ladders on board Company-managed ships when embarking and disembarking personnel. This guidance included that:
    (a) combination pilot ladders (pilot ladder and accommodation ladder) were the preferred means of access;
    (b) a maximum of one person should be on a pilot ladder and no more than five persons should be on an accommodation ladder at one time;
    (c) personnel being transferred were to have both hands free of luggage;
    (d) personnel using pilot ladders were supposed to maintain three points of contact and follow the launch crew's directions; and
    (e) the pilot ladder must never be inboard of the bulwark of the launch.

44. The Company's SMS procedures addressing the embarkation or disembarkation of personnel by launch or pilot ladders did not include any guidance addressing making up a launch alongside while such an operation was being conducted. They also do not address what PPE should be worn by a person while embarking or disembarking ships in the Company-managed fleet by launch.[7]

45. The portion of the Company's SMS addressing pilot ladders included general requirements for the rigging and maintenance of pilot ladders, equipment that should be available at the pilot boarding station, and the use of combination pilot ladders when the point of access is more than 9 m above the water.[8]

PART 3: ANALYSIS

The following Analysis is based on the above Findings of Fact.

Embarkation

The embarkation of two Superintendents and three service technicians from DHANSHREE was planned to take place on SUPER RUBY's port side. Although the ship's freeboard was 13 m and the Company's SMS states that a combination pilot ladder (i.e., pilot ladder with an accommodation ladder) is the preferred means of access when embarking or disembarking personnel by launch, it was planned to use the accommodation ladder only. The ladder was illuminated by the port side pilot boarding light.

At the time of the transfer, the heading of the ship, which was at anchor, and the tug, which was made up alongside to port, was to the north. The weather was good, with winds of Beaufort Force 2 and calm seas with a swell of approximately 0.5-1 m. Although the swell was not large and did not cause SUPER RUBY to roll, it was sufficient to cause DHANSHREE, whose draft was approximately 1.5-2 m, to roll moderately after being made up alongside SUPER RUBY.

After the first Superintendent had embarked SUPER RUBY, the second Superintendent asked the ship's C/O for a combination pilot ladder to be rigged. It was reported that the second Superintendent had said he thought using a

7 The PPE required to be worn by crewmembers when working over the side includes a lifejacket.

8 This is consistent with the requirement of SOLAS regulation V/27.3.2, which requires that a combination pilot ladder be rigged whenever the distance from the surface of the water to the point of access to the ship is more than 9 m.

combination pilot ladder would be safer since the tug was rolling. After the pilot ladder had been rigged and the height of the accommodation ladder adjusted to create a combination pilot ladder, the Superintendent successfully transferred from DHANSHREE to the pilot ladder and began climbing.

It was observed that DHANSHREE was rolling after it was made up alongside the ship. The information available to the Administrator does not indicate that consideration was given to having the tug shift to SUPER RUBY's starboard side. Conducting the transfer operation on the ship's starboard side could have reduced the impact of the swell on the tug and may have reduced how much it was rolling.

Superintendent's Fall

The Superintendent fell from the combination pilot ladder while embarking SUPER RUBY and landed on his back lying on the gunwale of DHANSHREE, so that half of his body was inboard of the gunwale and the other half was over the side. The Superintendent fell not long after crewmembers on board SUPER RUBY reported seeing him place his left knee on one of rungs of the pilot ladder when he was between 1-1.5 m below the accommodation ladder platform to apparently rest. The height of the fall was approximately 3.5-5 m. The Superintendent died due to multiple injuries while he was being transported to a hospital on shore for medical treatment.

Based on the information available to the Administrator it cannot be determined why the Superintendent stopped climbing or why he fell from the pilot ladder. Although DHANSHREE was reported to have been rolling, there is no indication that the tug contacted the pilot ladder either when the Superintendent transferred from the tug to the pilot ladder or while he was on it. This suggests that the rolling of the tug did not contribute to the Superintendent falling. Additionally, the weather was reported to be good with clear skies when the incident occurred. This, along with the fact that the pilot ladder was found in good condition and without any defects when it was inspected after the Superintendent fell, indicates that his fall was likely not due the material condition of the pilot ladder.

Considering that crewmembers on board SUPER RUBY stated that the Superintendent stopped climbing and appeared to rest, it is possible that he was physically fatigued due to some combination of the physical effort required to climb the ladder, having traveled 10 hours prior to embarking the ship, or from a lack of rest during the previous 7 days. The weight of the backpack may have caused him to tire. Other possible explanations include that he may have had a pre-existing medical condition or that he experienced the onset of a medical condition.

Pre-task Hazards Assessment

The pre-task planning for the transfer operation included the C/O reviewing the Company's risk assessment for the embarkation and disembarkation of personnel. The risk assessment and completion of the Toolbox Talk were both required by the procedures in the Company's SMS for embarking and disembarking persons by launch.

The Company's risk assessment included several hazards commonly associated with this operation and controls for reducing the risk of each identified hazard. Examples of the hazards that were identified include the gangway / accommodation ladder being rigged at the wrong angle, poor maintenance of the accommodation ladder, overloading the ladder, failure of the wire falls, not rigging a safety net under the accommodation ladder, and inadequate lighting.

Other hazards identified by the Company's risk assessment included inadequate supervision of both the rigging of the ladder and the transfer operation and incompetent personnel rigging the ladder and assisting with the transfer operation.

No additional hazards or controls were identified when the Company's risk assessment was reviewed by the C/O and approved by the Master. However, there are additional hazards associated with embarking and disembarking a ship by launch. Most notably these include crewmembers falling overboard while rigging and recovering the pilot ladder, personnel falling overboard while embarking or disembarking the ship, and adverse weather and/or sea conditions.

Previously completed risk assessments are commonly used on ships managed by many different ISM managers since they can reduce the time required to conduct a pre-task hazards assessment. They can also potentially improve the effectiveness of a pre-task hazards assessment if less common hazards that might not be recognized by crewmembers are identified. However, they can also potentially reduce the effectiveness of these assessments if they do not cover all aspects of the planned operation or task or if they do not consider the conditions that exist when the planned operation or task is to be conducted.

Company Procedures

The Company's SMS includes procedures for different shipboard operations, including the embarkation and disembarkation of personnel by launch. For SMS procedures to be effective they must be unambiguous while providing sufficient flexibility so they can be consistently implemented in different circumstances.

Among other things, the procedures for the embarkation and disembarkation of personnel by launch address the responsibilities of the Master, the OOW, and the crewmembers on deck who assist with the transfer operation. The assignment of responsibilities is not clear regarding the Company's expectation of whether another officer is required to be on deck to supervise the rigging of the ladder and the transfer operation, or whether the Company expects the OOW to perform these functions in addition to his/her assigned watchstanding duties.

The Company's SMS procedures required that a Toolbox Talk be conducted before starting to embark or disembark persons by launch. Although the Company's procedures clearly identified the topics required to be discussed, they were not clear with respect to who was required to participate in the Toolbox Talk. For a Toolbox Talk to be effective, it should include each crewmember with responsibilities for the planned operation. Given that the topics required to be discussed are directly related to the responsibilities assigned by the Company's SMS to the Master, OOW, and the crewmembers on deck, it is reasonable that the Toolbox Talk should involve the Master and OOW along with the crewmembers who will be on deck while the transfer operation is being conducted. It is noted that only the ASD1 and OS participated in the Toolbox Talk that the C/O conducted before DHANSHREE was made up alongside SUPER RUBY so that the Superintendents and service technicians could be embarked.

Although these procedures clearly state that personnel must have both hands free of luggage when embarking or disembarking the ship, they do not address carrying backpacks.

As previously noted, the Company requires that crewmembers wear lifejackets when working over the side. However, the Company's SMS procedures do not address the use of lifejackets by personnel embarking or disembarking ships in the Company-managed fleet by launch. Further, the portion of these procedures addressing pilot ladders does not

include guidance regarding rigging the ladder on the ship's lee side. Lastly, these procedures do not provide guidance regarding making up launches alongside when embarking or disembarking personnel.

SUPER RUBY Crew

On 11–12 October 2021, none of the crewmembers on board SUPER RUBY held the Republic of the Marshall Islands seafarer documentation required for their position on board. However, each seafarer did hold valid national seafarer documents that were appropriate for their position on board the ship. Although applications for each of the crewmembers' Republic of the Marshall Islands seafarer documentation had been completed on 30 September 2021, they were not received by the Administrator until 4 January 2022. Based on the information that is available to the Administrator, it was not possible to determine when the applications were sent to the Administrator.

Based on the information available to the Administrator, there is no indication that the Superintendent's fall from the pilot ladder was related to the SUPER RUBY's crewmembers not holding seafarer documentation issued by the Administrator.

PART 4: CONCLUSIONS

The following Conclusions are based on the above Findings of Fact 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) the Superintendent falling about 3.5-5 m on to the gunwale of DHANSHREE while climbing the pilot ladder to embark SUPER RUBY.
2. Additional causal factors that may have contributed to this very serious marine casualty includ the:
   (a) lack of Company policies regarding fatigue and medical requirements for the Company's shore staff who may need to embark a ship in the Company-managed fleet as part of their assigned duties; and
   (b) procedures in the Company's SMS for embarking and disembarking personnel from launches did not address carrying backpacks while climbing ladders.
3. Additional issues that were identified but that did not contribute to this very serious marine casualty include:
   (a) DHANSHREE was made up on SUPER RUBY's windward side and was rolling due to the swell;
   (b) the Company's pre-completed risk assessment for embarking and disembarking personnel did not include hazards (e.g., falls overboard, adverse weather, etc.) that are commonly associated with this operation;
   (c) the procedures in the Company's SMS for embarking and disembarking personnel from ships were not clear regarding the Company's expectations:
      (i) whether another officer is required to be on deck to supervise the rigging of the ladder and the transfer operation or whether they expect the OOW to perform these functions in addition to the watchstanding duties assigned to the OOW; and

(ii) regarding who was supposed to participate in the Toolbox Talk that is required by the Company's SMS to be conducted before starting to embark or disembark persons by launch;

(d) the procedures in the Company's SMS did not address:

(i) the use of lifejackets either by personnel embarking or disembarking ships in the Company-managed fleet by launch; and

(ii) making up launches alongside while transfer operations are being conducted; and

(e) SUPER RUBY's crewmembers did not hold Republic of the Marshall Islands seafarer documentation.

PART 5: PREVENTIVE ACTIONS

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

1. The following lessons learned were shared with all ships in the Company-managed fleet:

(a) personnel boarding a vessel using a pilot ladder should be rested and physically fit; and

(b) personnel should not carry any luggage while climbing a pilot ladder.

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:

(a) consider establishing policies regarding fatigue and medical fitness requirements for the Company's shore staff who may need to embark a ship in the Company-managed fleet as part of their assigned duties;

(b) revise the procedures in the Company's SMS for embarking and disembarking personnel by launch based on the above conclusions;

(c) revise the risk assessment in the Company library for embarking and disembarking ships to include all reasonably foreseeable hazards commonly associated with this operation (e.g., falls overboard, adverse weather, etc.) along with appropriate controls for reducing the risk associated with these hazards; and

(d) review and, as necessary, revise its procedures for ensuring that crewmembers on board Republic of the Marshall Islands-registered ships in the Company-managed fleet hold valid seafarer documentation issued by the Administrator.

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