REPUBLIC OF THE MARSHALL ISLANDS

Maritime Administrator

SUN MASTER CASUALTY INVESTIGATION REPORT

Fatal Fall from Height

South China Sea | 15 June 2020

Official Number: 4216

IMO Number: 9460681

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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

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PART 1: EXECUTIVE SUMMARY

On 15 June 2020, the Republic of the Marshall Islands-registered bulk carrier SUN MASTER, managed by Dalian Hongfeng International Ship Management Co., Ltd. (the "Company"), was on a loaded voyage in the South China Sea. Greasing of deck machinery and cranes was planned to be completed that day.

The Chief Officer (C/O) completed a risk assessment and Toolbox Talk, and assigned the Bosun and two Ordinary Seafarers (OS), OS1 and OS2, to complete this task. The crewmembers completed greasing of the aft mooring winches and started greasing Deck Crane No. 4. The OS1 climbed up the ladder and through an access hatch onto the crane platform and began greasing all accessible points.

The Bosun, who was preparing tools on the deck, heard an unusual noise, and turned to find the OS1 laying on the deck directly below the opening in the platform. First aid measures were started by the crewmembers and the OS1 was subsequently evacuated by helicopter that same day. The OS1 was later pronounced deceased at a hospital in Kaohsiung, People's Republic of China.

The marine safety investigation conducted by the Republic of the Marshall Islands Maritime Administrator (the "Administrator") identified the below factors.

1. Causal factors which likely contributed to this very serious marine casualty include:
   (a) not closing the cover of the access hatch while working on the platform;
   (b) lack of situational awareness while moving around the platform;
   (c) failure to attach the lifeline to a secure point on the platform; and
   (d) lack of warning or other safety barrier around the platform access hatch.

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 travel restrictions imposed in response to the Coronavirus disease (COVID-19) pandemic, the Administrator was not able to arrange for on board 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. Ship particulars: *see* chart to right.

2. On 15 June 2020, SUN MASTER was underway on the South China Sea on a loaded voyage from Nakhodka, Russian Federation to Paradip, Republic of India. The ship is a bulk carrier with five cargo holds and four deck cranes *(see Figure 1)*.

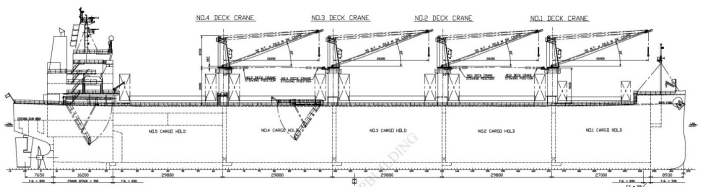

Figure 1: SUN MASTER's general arrangement.

3. The weather on 15 June 2020 was Beaufort Force 2 winds and calm seas. It was reported that SUN MASTER was not rolling or pitching.

4. The C/O planned work to grease the deck winches and cranes during daylight hours on 15 June 2020.

5. During the morning of 15 June 2020, the C/O completed a risk assessment for the greasing operation. This assessment identified the following hazards:

   (a) "slips/trips;"

   (b) "eye injuries due to flying debris;" and

   (c) "risk of injury due to lack of familiarity with the maintenance procedures."

6. The risk assessment also indicated that the use of proper personal protection equipment (PPE) and the provision of maintenance procedures to the crewmembers were adequate to reasonably control the identified risks. The Master reviewed the risk assessment without any further comments.

SHIP PARTICULARS

Ship Name
SUN MASTER

Registered Owner
Ocean Cross Lines Corp.

ISM Ship Management
Dalian Hongfeng International Ship Management Co., Ltd.

Flag State
Republic of the Marshall Islands

IMO No.	Official No.	Call Sign
9460681	4216	V7VU6

Year of Build	Gross Tonnage
2011	29,179

Net Tonnage	Deadweight Tonnage
15,527	50,714

Length x Breadth x Depth
179.3 x 32.2 x 17.1 meters

Ship Type
Bulk Carrier

Document of Compliance Recognized Organization
Bureau Veritas

Safety Management Certificate Recognized Organization
Bureau Veritas

Classification Society
Bureau Veritas

Persons on Board
22

7. Additionally, the C/O completed another risk assessment specific to working aloft. This assessment identified the following hazards:

   (a) "injury resulting from the failure to use PPE properly;"

   (b) "falling from an elevated position;" and

   (c) "slips/trips."

8. The risk assessment indicated that additional action was necessary to reduce these risks, including a Toolbox Talk, inspection of PPE by the C/O or Bosun, and ensuring that those involved in the work were utilizing the PPE properly. The Master also reviewed this risk assessment and reiterated the need to strictly follow the working aloft procedures.

9. Following the completion of the risk assessments, a Working Aloft Permit was issued for the greasing operation. The permit indicated that the Bosun, OS1, and OS2 would be conducting the work. The permit was signed by the C/O and the Master.

10. At about 0800[1] on 15 June 2020, the C/O conducted a Toolbox Talk with the Bosun, OS1, and OS2. The procedure for completing the task, as well as the completed risk assessments were reviewed. The PPE required for the planned work was also discussed. This included coveralls, safety shoes, safety helmets, and gloves. Safety harnesses with lifelines were also required for any crewmembers working aloft.

11. After the Toolbox Talk, the OS1 and OS2 began greasing the stern mooring winches and were finished by about 0915. The Bosun and OS1 then prepared to grease Deck Crane No. 4. The OS2 was released from the work assignment at this time.

Deck Crane No. 4 Platform

12. Deck Crane No. 4 is fitted with a working platform which extends around the pedestal, just below the turntable. This platform is 10 meters (m) above the deck and is fitted with a two-tier guardrail about 1 m high. Access to the platform is by a vertical ladder attached to the pedestal *(see Figure 2)* which passes through an access hatch.

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

Figure 2: Deck Crane No. 4. The yellow paint on the platform and guardrail was added following the incident.

13. The access hatch has a hinged cover that opens upwards towards the guardrail *(see Figure 3)*. No barriers or other safety warnings were provided around the hatch opening while the cover was open.

Figure 3: Platform access hatch in the open (left) and closed (right) positions.

14. The ladder and platform for Deck Crane No. 4 were reported to be in good condition and free of any loose debris or grease contamination.

Incident

15. At about 0930, the OS1 climbed up to Deck Crane No. 4's platform while the Bosun remained on deck between Cargo Hold Nos. 4 and 5. In order to reach the platform, the cover for the access hatch had to be pushed open by the OS1.

16. The Bosun attached a pneumatic grease gun to a rope and it was hoisted up to the platform by the OS1. The Bosun then told the OS1 to begin greasing the turntable.

17. The OS1 began applying grease around the crane's turntable perimeter. The Bosun remained below on deck preparing the tools and safety equipment needed for greasing locations on the top of the crane and along the jib.

18. At about 0945, the Bosun heard an unusual noise. He turned to see the OS1 lying on the main deck directly below the platform opening. The Bosun also saw that the cover for the platform access hatch was open.

19. The Bosun immediately notified the C/O. The C/O went to Deck Crane No. 4 and examined the OS1. He was unconscious with a weak pulse and first aid measures were immediately started.

20. At about 1004, the Master ordered the ship to alter course toward Kaohsiung, People's Republic of China. At the time of the incident, the ship was about 45 nautical miles from that location. The Master also contacted the port authorities requesting the OS1's urgent medical evacuation.

21. At 1235, a rescue helicopter landed on SUN MASTER. The OS1 was loaded into the helicopter which departed at 1237.

22. At 1313, the OS1 was pronounced deceased by medical personnel at the Kaohsiung Municipal Siaogang Hospital as a result of the injuries sustained from his fall.

PPE

23. At the time of the fall, the OS1 was wearing coveralls, safety shoes, a safety helmet, gloves, and a safety harness with lifeline. All of the PPE worn by the OS1 was in good condition with no observed defects. The lifeline was attached to the safety harness at both ends.

Safety Management System (SMS)

24. As required by the International Maritime Organization's (IMO's) International Management Code for the Safe Operation of Ships and for Pollution Prevention (International Safety Management (ISM) Code), the Company's SMS provides procedures for various shipboard tasks, including working aloft.

25. The Company's SMS states that the Master is responsible for ensuring that a risk assessment is properly completed, and control measures implemented before work starts. This responsibility may be delegated to a department head, such as the C/O for the Deck Department. Risk assessments are required by the SMS to be conducted:

    (a) when carrying out non-routine work;

    (b) in the event of equipment failure;

(c) when conducting maintenance on critical equipment or machinery;

(d) when instructed by the Company; and

(e) anytime that the Master or responsible person deems it necessary.

26. The SMS also requires that a Toolbox Talk be conducted by the responsible person or team leader before starting work. This Toolbox Talk must identify the scope of work and discuss the relevant risk assessment(s).

27. A Working Aloft Permit is required by the SMS to be completed for any work being conducted 2 m or more above the deck and in a place where there is a risk of falling. Issuing of a Working Aloft Permit requires:

(a) using protective helmets and safety belts;

(b) isolating any equipment or machinery near the crewmember working aloft;

(c) notifying the Duty Officer when work starts and ends;

(d) restricting access to the area below the work being conducted aloft; and

(e) using portable radios for communication between the Duty Officer and crewmembers working aloft.

28. The Company's SMS requires that coveralls, safety shoes, gloves, a safety helmet, and a safety harness with lifeline must be worn when working aloft. The OS1 wore the required PPE at the time of his fall.

29. On joining SUN MASTER, all crewmembers must complete initial shipboard familiarization training. This includes familiarizing themselves with the Company's SMS, their specific duties and responsibilities, the Company's drug and alcohol policy, PPE use, and emergency procedures. Records available on board indicate that the OS1 completed this initial familiarization training on 20 August 2019.

SUN MASTER Crew

30. SUN MASTER had a complement of 22 crewmembers, six more than required by the Minimum Safe Manning Certificate issued by the Administrator.

Crew Experience

31. Experience of relevant crewmembers:

RANK	TIME ON BOARD SUN MASTER	TIME IN RANK	TIME WITH COMPANY	TOTAL TIME AT SEA
Master	5 months, 11 days	14 years, 3 months	5 months, 11 days	22 years, 1 month
C/O	13 months, 18 days	1 year, 7 months	3 years, 9 months	6 years, 11 months
Bosun	9 months, 21 days	9 months, 21 days	1 year, 6 months	3 years, 5 months
OS1	9 months, 21 days	9 months, 21 days	1 year, 5 months	1 year, 5 months
OS2	5 months, 16 days	5 months, 16 days	5 months, 16 days	5 months, 16 days

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

33. The Administrator did not find any indication that any crewmembers involved with this incident had failed to receive the amount of rest mandated by the IMO's Seafarers Training, Certification and Watchkeeping (STCW) Code, Section A-VIII/1, paragraphs 2 and 3 and the International Labour Organization's Maritime Labour Convention, 2006 (MLC, 2006), Regulation 2.3.

34. Alcohol testing was conducted on all crewmembers, with the exception of the OS1. The presence of alcohol was not detected in any of the tested crewmembers.

PART 3: ANALYSIS

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

Deck Crane No. 4 Platform

The platform for Deck Crane No. 4 is accessed from the main deck by a vertical ladder which leads through an access hatch in the platform. This access hatch has a hinged cover that opens upward towards the guardrail and can be secured in the open position. The platform perimeter has an approximately 1 m high, two-tier guardrail.

Following the incident, the ladder and platform for Deck Crane No. 4 were inspected by the crewmembers. It was reported that both were in good condition and free of any loose debris or grease contamination. There were no other safety devices or warnings to prevent a fall through the access hatch opening while the cover was open at the time of the incident.

Cause of Fall

The OS1's fall from the platform of Deck Crane No. 4 was not witnessed. After climbing up, it was reported that the OS1 began working his way around the platform, applying grease along the perimeter of the turntable.

The access hatch cover was opened by the OS1 to climb through and was still open when he fell about 15 minutes later. He was found lying on the main deck directly below the opening, indicating that he likely fell through the opening and not over the railing.

It is possible that the OS1 was focused on greasing the turntable while moving around the platform and accidentally stepped into the uncovered opening, falling to the deck below.

PPE Use

Using a safety harness with lifeline is required by the SMS when working 2 m or more above the deck and when there is a risk of falling. The OS1 was wearing a safety harness with lifeline while working on the platform. However, the lifeline was not attached to a secure location at the time of his fall. Following the incident, the safety harness and lifeline were examined and found to be in good condition. Both ends of the safety line were connected to OS1's safety harness. The OS1 was wearing all the other PPE required by the SMS.

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 likely contributed to this very serious marine casualty include:
   (a) not closing the cover of the access hatch while working on the platform;
   (b) lack of situational awareness while moving around the platform;
   (c) failure to attach the lifeline to a secure point on the platform; and
   (d) lack of warning or other safety barrier around the platform access hatch.

PART 5: PREVENTIVE ACTIONS

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

1. A special safety meeting was held on board SUN MASTER to discuss the Company's requirements for working aloft.
2. The door in the floor of the platform and the guardrail were painted yellow. A sign was also posted in the vicinity to require the door be closed while working on the platform.
3. A safety campaign was conducted with all ships in the Company's managed fleet to discuss the lessons learned and to increase overall safety awareness.
4. All crews of Company-managed ships were required to complete an additional training course on personal safety.

PART 6: RECOMMENDATION

The following Recommendation is based on the above Conclusions and in consideration of the Preventive Actions taken.

It is recommended that the Company review all ships in their managed fleet to identify similar ladder and access arrangements so that appropriate preventive action may be implemented, such as guarding and/or warnings.

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