



SAFETY INVESTIGATION REPORT

201610/026

REPORT NO.: 21/2017

October 2017

The Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011 prescribe that the sole objective of marine safety investigations carried out in accordance with the regulations, including analysis, conclusions, and recommendations, which either result from them or are part of the process thereof, shall be the prevention of future marine accidents and incidents through the ascertainment of causes, contributing factors and circumstances.

Moreover, it is not the purpose of marine safety investigations carried out in accordance with these regulations to apportion blame or determine civil and criminal liabilities.

NOTE

This report is not written with litigation in mind and pursuant to Regulation 13(7) of the Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011, shall be inadmissible in any judicial proceedings whose purpose or one of whose purposes is to attribute or apportion liability or blame, unless, under prescribed conditions, a Court determines otherwise.

The report may therefore be misleading if used for purposes other than the promulgation of safety lessons.

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MV Samsun Fatality of a crew member in position 12° 12.44' N 064° 25.80' W 20 October 2016

SUMMARY

On 20 October 2016, the vessel was navigating the Caribbean Sea, *en route* to Coronel, Chile. The maintenance works on the crane grab, stowed on a platform above the main deck, had been completed late in the afternoon. The crew members descended down the fixed vertical ladder. The bosun, who at the time was standing on top of the grab, was the last one to descend, when he fell from a height of about six metres.

It was established that as he unclipped his fall arrester to step

down from the grab, he lost his footing and fell down on the platform and on the main deck. He suffered severe head injuries.

The crew members administered first aid on site and later in the ship's hospital. However, an hour later, he succumbed to his injuries.

The MSIU has issued one recommendation to the Company, designed to ensure safe access to and egress from work sites located at a height.



FACTUAL INFORMATION

Vessel

Samsun, a 35,812gt dry bulk cargo vessel was built in 2013 and is registered in Malta. She is owned by Samsun Maritime Ltd. and classed with the American Bureau of Shipping (ABS). The vessel has a length overall of 199.99 m. *Samsun* has five cargo compartments and is fitted with four 36 tonnes SWL cranes and cargo grabs (Figure 1). The deadweight carrying capacity is 63,200 tonnes.

Propulsive power is provided by a five-cylinder MAN-B&W 5S60ME-C8, two stroke, single acting, diesel engine, producing 8,300 kW at 91 rpm. This gives a service speed of about 14.5 knots.

Ship's crew

Samsun had a crew complement of 19 from the Philippines.

At the time of the accident, the bosun was 40 years old. He had been working for seven years at sea and as an AB for the previous three years. He had joined *Samsun* on 22 September 2016. This was his first contract with the Company as a ship's bosun. At sea and in port the bosun reportedly worked between 0800 and 1700.

The chief mate was 40 years old and had worked with the Company for over two years. He held a Class 1 Certificate of Competency.

Environmental conditions

The sea was moderate and 0.50 m swell was running from the North Northeast direction. The wind was East Southeast, 11 knots. The air temperature was 29 °C.

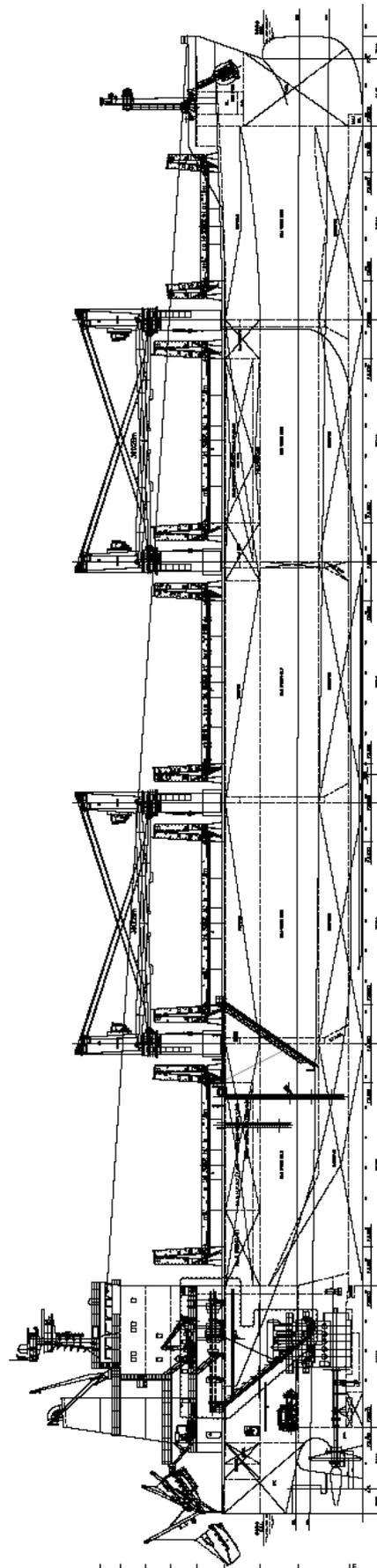


Figure 1: GA plan of MV *Samsun*

Narrative¹

Samsun left Puerto Nuevo, Columbia on 18 October 2016 for Coronel, Chile. She had on board 53,395 tonnes of coal.

On the morning of 20 October 2016, the chief mate planned to renew the grab wire rope of cargo crane no. 2. The grab was stowed on the starboard side, on a raised platform between cargo hatches no. 2 and no. 3. At the time, *Samsun* was in the Caribbean Sea, heading West towards the Panama Canal. The speed was about 13 knots and the weather was good.

Prior to and during the wire rope renewal process, the safe working practices prescribed in the Company's Fleet Instructions Manual were complied with. Risks related to working aloft, the prevailing weather, the vessel's rolling motion, trips and falls, were assessed and mitigating measures taken, where necessary. A Permit to Work Aloft Form had also been completed and the replacement of the grab wire rope had been approved.

Several crew members, *i.e.*, the bosun, three able seamen (ABs), and two ordinary seamen (OS) made their way to the deck to work on the wire rope renewal (Figure 2). All were appropriately attired – working gloves, safety shoes, safety helmets, and fall arresters. The chief mate was in charge of the task.



Figure 2: Crew members renewing the wire rope

¹ Unless otherwise stated, all times are ship's times (UTC -5).

The renewal of the wire rope was uneventful and by 1810, it had been renewed. The chief mate told the crew members to stand-down. One of the ABs and an OS were the first to descend the vertical ladder. The bosun, standing on top of the grab, was the last one to come down from the platform.

As he unclipped his fall arrester to step down from the grab, he either lost his footing or balance. He fell about five metres on the raised platform/railing and then a further one metre, before landing on the main deck (Figure 3). His colleagues immediately noticed that he was bleeding profusely from the head.



Figure 3: The accident site and safety gear which was worn by the bosun prior to the accident

The bridge was alerted and the master immediately went out on deck to assess the bosun's injuries. The head wound was cleaned and the bosun was carefully transferred to the ship's hospital and administered medical aid.

The master proceeded on the bridge to seek help from medical authorities ashore. He called Venezuela Coast Guard and International Radio Medical Centre (CIRN) for medical advice. However, before medical aid advised by CIRN could be administered, the master was informed that the bosun had no pulse. At 1905, the bosun

succumbed to his injuries and was pronounced dead.

Cause of death

On 24 October 2016, a medical practitioner certified ‘multiple blunt traumatic injuries’ as the direct cause of the bosun’s death.

ANALYSIS

Aim

The purpose of a marine safety investigation is to determine the circumstances and safety factors of the accident as a basis for making recommendations, and to prevent further marine casualties or incidents from occurring in the future.

Probable cause of the fall

Where maintenance or servicing of work is required at a height, the work should be properly planned and supervised, hazards identified and appropriate control measures put in place to protect the crew.

Working on the grab carried the risk of a fall from a height. This potential risk was addressed in the on-board risk assessment. The MSIU believes that the safeguards needed to reduce risks to an acceptable level had actually been implemented. Subsequently, a ‘Permit to Work Aloft or at Height’ Form (PER 007) was completed and approved by the master and chief mate. The Form described the assignment and listed the crew members designated for the task.

Although all crew members were wearing their fall arresters, the safety investigation could not verify from the documents submitted if they had received any specific training or whether the risk of going up or down the grab had been addressed or discussed with the crew.

After the completion of the work, disengaging this particular type of fall arrester (Figure 4) from its anchor point was essential for the individual crew member to climb down from the grab.



Figure 4: The fall arrester in use at the time of the accident

Design of the fall arrester

It may be submitted that the type of fall arrester used by the bosun was not of the ideal design for vertical movements. This accident has actually indicated that a different type of fall arrester, such as of the type fitted with a double legged energy absorbing lanyards, would have ensured that a person could move from one anchor point to another, and ensuring that there was always a permanent connection. A double legged energy absorbing lanyard was not available on board.

Fatigue, drugs, and alcohol

The fact that the bosun had only been engaged in day work, suggested that he had adequate rest periods. He did not work odd hours. Moreover, there was no evidence to suggest that he was under the influence of drugs or alcohol. His behaviour during the day did not indicate possible effects of fatigue.

Fatigue, drugs, and alcohol were not considered to be contributing factors to this accident.

Safe working practice and fall protection procedures

It was the Company's policy and objective to promote and provide safe working practices in ship operations and a healthy work environment on board.

The Company addressed working aloft in section 3 of the Fleet Instruction Manual. Safe working practices and the use of protective clothing and equipment were well addressed but the Manual made no reference to hazards relating to access or egress from a worksite located at a height.

Perception of risk and its acceptance

The awkward shape, size, and position of the grab provided poor hand and foothold, exposing the crew to a precarious situation. This risk was inherent in the work assigned to the crew members and it would appear that the crew members were aware of the risks involved, which had been accepted.

It does not mean, however, that the acceptance of risk was taken in a vacuum. There are a number of influential factors which would play a crucial role on whether risk is acceptable or not and which are applicable in this case. Risk perception is actually influenced by cultural, social, and psychological contexts. Scholars suggest that risk perception is also influenced by psychometric paradigm.

The fact that the fatally injured crew member selected to release his fall arrester from its anchor point is actually a risk which he has chosen; on the basis that in reality, it was the best alternative (if any) available to him. If there were alternatives, it is then legitimate to state that choosing the best alternative meant that the crew member possibly rejected other options which may have been seen as worse options. Research suggests that the rejection of less attractive options may be seen as actually an improvement and makes the acceptance of risk more plausible.

Similarly, risk tends to be more accepted if it is perceived to be under the control of the person. Therefore, if the bosun did perceive that the situation was under control (even because this was not a complex task to complete), then his perception of risk would have been influenced towards accepting the risk of releasing the fall arrester from its anchor point.

Perception of control, however, does not mean actual control and more often than not, it is more of an over-estimation of the capabilities of the person to control the situation.

CONCLUSIONS

1. The cause of death was due to multiple blunt traumatic injuries following a fall from a height;
2. The crew member lost his footing while disengaging the fall arrester from its anchor point;
3. The safeguards needed to reduce risks to an acceptable level had been implemented;
4. The safety investigation had doubts on whether the risk of going up or down the grab had been addressed or discussed with the crew;
5. After the completion of the work, disengaging this particular type of fall arrester was essential for the individual crew member to climb down from the grab;
6. The type of fall arrester available on board and used by the bosun was not of the ideal design for vertical movements;
7. A double legged energy absorbing lanyard was not available on board;
8. The crew member's behaviour during the day did not indicate possible effects of fatigue;

9. The Fleet Instruction Manual addressed safe working practices and the use of protective clothing and equipment were well addressed but the Manual made no reference to hazards relating to access or egress from a worksite located at a height;
10. The awkward shape, size, and position of the grab provided poor hand and foothold, exposing the crew to a precarious situation;
11. Choosing the best alternative to climb down the grab meant that the crew member possibly rejected other options which may have been seen as worse options, making the acceptance of risk as more plausible;
12. It is very probable that the crew member perceived that the risk involved was acceptable because it was under his control;
13. No sudden or unusual ship movements were reported at the time of the accident.

SAFETY ACTIONS TAKEN DURING THE COURSE OF THE SAFETY INVESTIGATION²

During the course of the safety investigation, two Company circulars have been issued. The scope of the circulars was to draw the attention of all crew members on the circumstances of this fatal accident and address identified safety issues.

All crew members were informed on the importance of using safety harnesses with a double lanyard, which will be introduced on all fleet vessels.

The Company's Technical Department has also consulted the manufacturers of the grab in order to manufacture additional support securing holes next to grab ladders for the

use of safety harness. It is also intended that the modifications are carried out on all sister fleet vessels.

All maintenance on the grabs has been suspended across the fleet, until such time modifications on the grab have been completed and double lanyard safety harnesses supplied on board.

A new sample risk assessment form has been introduced as part of the safety management system, specifically addressing the change of grab wire.

RECOMMENDATIONS

Ciner Gemi Agente Isletmeleri Sanayi Ve Anonm Sirkem is recommended to:

21/2017_R1 Review and consider amending the Company's Fleet Instruction Manual on safe access and egress to workplace assignments aloft and safety training on risks to crew members;

² **Safety actions and recommendations shall not create a presumption of blame and / or liability.**

SHIP PARTICULARS

Vessel Name:	<i>Samsun</i>
Flag:	Malta
Classification Society:	American Bureau of Shipping
IMO Number:	9657777
Type:	Bulk carrier
Registered Owner:	Samsun Maritime Ltd.
Managers:	Ciner Gemi Agente Isletmeleri Sanayi Ve Anonm Sirkem, Turkey
Construction:	Steel
Length Overall:	199.99 m
Registered Length:	194.55 m
Gross Tonnage:	35812
Minimum Safe Manning:	14
Authorised Cargo:	Dry bulk

VOYAGE PARTICULARS

Port of Departure:	Porto Nuevo, Columbia
Port of Arrival:	Coronel, Chile
Type of Voyage:	International
Cargo Information:	Coal
Manning:	19

MARINE OCCURRENCE INFORMATION

Date and Time:	20 October 2016 1810 LT
Classification of Occurrence:	Very Serious Marine Casualty
Location of Occurrence:	12° 12.44' N 064° 25.80' W
Place on Board	Freeboard deck
Injuries / Fatalities:	One fatality
Damage / Environmental Impact:	None reported
Ship Operation:	In passage
Voyage Segment:	Transit
External & Internal Environment:	The wind was East Southeasterly 11 knots, and the sea was moderate with a North Northeasterly 0.50 m swell. The air temperature was 29 °C.
Persons on board:	19