



## SAFETY INVESTIGATION REPORT

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REPORT NO.: 16/2018

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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 ALPHA CONFIDENCE** **Serious injury to crew member** **in the port of Hedland, Australia** **07 September 2017**

### SUMMARY

Upon arrival in port, *Alpha Confidence* picked a pilot to assist in the berthing operations. A tug was made fast abaft the forecandle, on the port side main deck. The tug's messenger and towline were passed through a set of open 'button' type roller fairleads and the towline eye was looped over the aft bollard of the 'twin bollard' bitts.

The crew at the mooring station consisted of the bosun and three deck ratings, assisting the chief mate. After the tug was instructed to let go, the messenger line was taken off the warping drum.

Before the messenger line could be belayed around the bollard for a controlled release of the towline, the ordinary seafarer lost his hold on the rope stopper. The unrestrained messenger and towline, running free over the ship's side snagged his legs, pulling him along the deck to the roller fairleads. The crew member suffered minor injuries to his leg.

The Company implemented a number of safety actions in order to enhance safety during mooring operations.



## FACTUAL INFORMATION

### The vessel

*Alpha Confidence* is a gearless, capsized, bulk carrier fitted with nine cargo holds. The vessel, which was built by Shanghai Waigaoqiao Shipbuilding Co Ltd., is owned by Transport Marine Co. and managed by Alpha Bulkcarriers Shipmanagement Inc. of Greece. *Alpha Confidence* is classed by Bureau Veritas (BV).

*Alpha Confidence* has a length overall of 292.0 m, a moulded breadth of 45.0 m and a moulded depth of 24.8 m. The vessel has a summer draught of 18.3 m, corresponding to a summer deadweight of 176,320 tonnes.

Propulsive power is provided by a 6-cylinder MAN-B&W 6S70MC, slow speed, direct drive, two-stroke diesel engine, producing 16,860 kW at 91 rpm. This drives a single, fixed pitch propeller, reaching a service speed of 14.0 knots.

### Crew members

At the time of the accident, the number of crew members on board was in excess of the number of crew members stipulated in the vessel's Minimum Safe Manning Certificate.

The 20 crew members on board were Hellenic, Ukrainian, Filipino and Romanian nationals. All held the necessary certificates and endorsements as stipulated in the STCW Convention.

The injured crew member was a Filipino national and was 26 years old at the time of the accident. He had been at sea for about two years and had served on three Company ships, including *Alpha Confidence*. At the time of the accident, he had been serving for about 18 months in the current rank.

### Environment

The weather was clear, with good visibility. There were slight seas and light wind. Air

temperature was recorded at 30 °C and the sea temperature was 26 °C.

### Narrative<sup>1</sup>

On 07 September 2017, *Alpha Confidence* arrived in Port Headland, Australia.

A local pilot was on board, manoeuvring *Alpha Confidence* to a berth at Funicane Island Terminal. A tug was made fast abaft the forecastle, on the port side main deck. The tug's messenger and towline were passed through a set of open 'button' type roller fairleads and the towline eye was looped over the aft bollard of the 'twin bollard' bitts. The chief mate was in charge of the mooring and towing operations and the crew consisted of the bosun and three deck ratings.

At around 2110, the chief mate was instructed to let go the tug. This involved heaving-in the messenger line in order to ease the eye before it was taken off the bitt. The messenger line was led back to the roller fairleads and then about 20 m across the deck to a winch located between hatches nos. 1 and 2.

The bosun was operating the winch and an able seafarer was guiding the free end of the messenger line, which was wound on the warping drum (Figure 1).

Once the eye was pulled free, a rope stopper<sup>2</sup> was secured to the towline and held by one of the ordinary seamen (Figure 2). The messenger line was taken off the warping drum and the eye was thrown off the bollard by the second ordinary seafarer and chief mate. Before the messenger line could be belayed around the bollard for a controlled release of the towline, the

<sup>1</sup> All times are ship time which is UTC +8.

<sup>2</sup> A stopper consists of a short length of rope secured to the bollard base. It is used to take the strain and allow the free end of the rope to be secured or taken off the bitts.

ordinary seafarer lost his hold on the rope stopper.

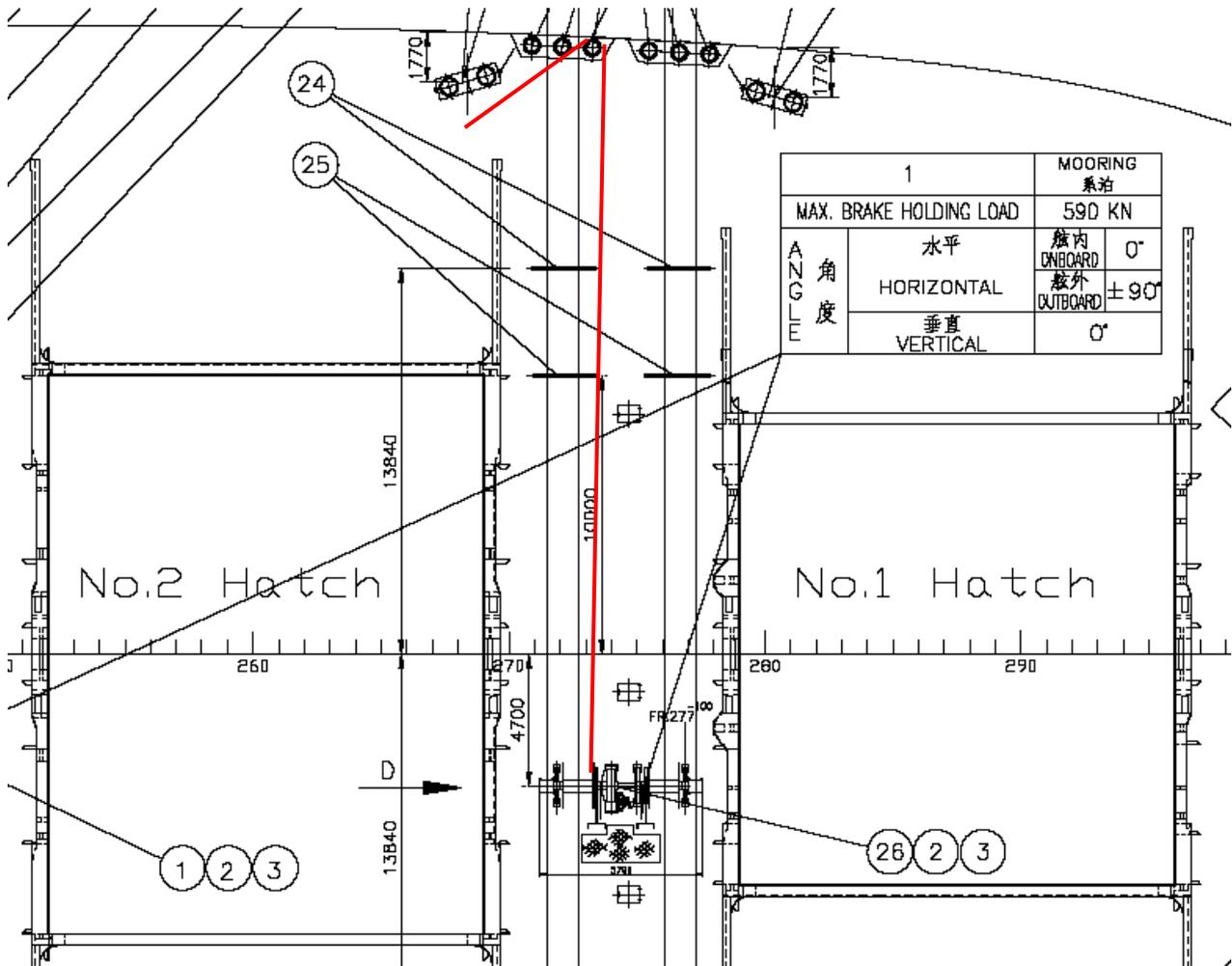


Figure 1: Layout of mooring equipment and messenger line (red)



Figure 2: Simulated photo showing seafarer standing in the open bight

The unrestrained messenger and towline, running free over the ship's side snagged his legs, pulling him along the deck to the roller fairleads (Figure 3). The second seafarer rushed to his aid, firmly gripped the messenger line and signalled the tug to stop heaving.

Meanwhile, the bosun hurried to the scene of the accident and swiftly cut the messenger line, freeing the injured seafarer.

### **Injuries**

The master requested immediate transfer of the injured seafarer to a local hospital for treatment. At the hospital, soft tissue injuries to the legs and left chest wall were diagnosed. No fractures and pathological abnormalities were observed. He was kept in the hospital for further treatment.

On 10 September 2017, the crew member was repatriated to the Philippines.



**Figure 3: Simulated photo showing messenger line wrapped around the seafarer's legs**

## Industry guidelines

The UK's Code of Safe Working Practices for Merchant Seafarers (COSWPMS) makes reference to *a number of accidents [which] have occurred during the operation of making fast and releasing a tow. It is not uncommon for the gear to become taut without warning, causing the messenger to part and strike anyone in the snap-back zone, resulting in serious injury. Poorly controlled towing operations are also a significant hazard to tug crews.*

Furthermore, the Code stresses that *careful thought should be given to the layout of moorings, so that the leads are those most suited without creating sharp angles, and ropes and wires are not fed through the same leads or bollards. Pre-planning of such operations is essential and a risk assessment of the operation must be completed, especially in cases where unusual or non-standard mooring arrangements are used.*

The Code states that the whole mooring area should be considered a potential snap-back zone and the crew should be made aware of this with clear visible signage. The Code recommends that before letting go, the vessel must ensure the following:

- establish positive communications with the tug and make sure that the tug has indicated its readiness to receive the towline back;
- crew is provided with personal protective equipment, understand their duties, briefed on the operation and the safety precautions;
- after connecting the towline, crew should keep clear. If required to attend to towing gear during the towing operation, they should take extreme care to keep clear of bights and the snapback zone;
- persons in charge should monitor the towline and give warning to the crew if the towline should become taut;

- no attempt should be made to heave in the messenger line to release the towline before making positive communications with the tug;
- the tug's messenger line should be used to heave in the towline and then stopper it off before taking the eye off the bollard;
- use turns of the messenger around the bollard to control the speed at which the towline goes out and is retrieved on board the tug; and
- no attempt must be made to handle towlines that have weight on them.

In addition to the COSWPMS, the Maritime and Coastguard Agency's Marine Guidance Note MGN 308 (M+F) also recommends good communication between the tug and vessel to ensure status of towlines is understood by both parties and avoid unexpected loads on the towline. The person in charge of the station should avoid getting involved with the physical operations, so that effective oversight of operations is maintained at all times.

## Previous accidents involving towing operations

Five accidents involving a tug and towing operations have been investigated by the MSIU in the past five years:

- *Purki*<sup>3</sup>: An ordinary seafarer stationed on the forecandle was tasked with releasing the tug secured to the mooring bitts. During this operation, tension was unexpectedly put on the line resulting in the seafarer sustaining serious injuries to one of his legs;
- *Mitrope*<sup>4</sup>: An able seafarer had to undergo traumatic amputation of his left lower leg after the tug's

<sup>3</sup> [MSIU Safety Investigation Report 12/2012.](#)

<sup>4</sup> [MSIU Safety Investigation Report 21/2014.](#)

messenger line tightened around his leg while releasing a towline in the port of Szczecin, Poland;

- *Manon*<sup>5</sup>: Shortly after releasing the tugs, the aft spring came under load and parted. The whiplash action of the parted rope seriously injured the second mate;
- *CT Dublin*<sup>6</sup>: An able seafarer lost his lower left leg as it became entangled in the tug's messenger line in the port of Vlaardingen, The Netherlands;
- *Vola I*<sup>7</sup>: The tug's towline was slack and the messenger line attached to it was warped around the winch drum. The second mate and able seafarer lifted the eye by hand. Before the eye was set free from the bitt, the towline became taut and the left hand of the seafarer was drawn with the towline and trapped against the bitt.

## 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.

### Immediate cause of the accident

Although the chief mate was positioned between the ship's rails and the twin bits and was able to oversee operations both on board *Alpha Confidence* and the tug, he had no visual communication with the tug crew. Leaving that position at the critical moment to release the towline eye prevented him from observing the activities on the tug.

<sup>5</sup> [MSIU Safety Investigation Report 25/2014.](#)

<sup>6</sup> [MSIU Safety Investigation Report 01/2016.](#)

<sup>7</sup> [MSIU Safety Investigation Report 03/2017.](#)

Once the towline was hanging free over the shipside and in the absence of any signal from the ship, it was reasonable to expect that the tug crew would have had no reason for not taking it in. While it was reported by the vessel that the towline had come under sudden tension by the action of the tug, the safety investigation found no evidence of the tug underway, heaving the towline or doing both.

Moreover, the safety investigation believes that with the seafarer's legs wedged on the roller fairlead and the towline being pulled by the tug or tug's windlass, the injuries inflicted by the messenger line would have been much more serious than just soft tissue injuries.

### Risk assessment

Risk assessments for making fast and letting go of tug(s) had been completed on 05 September 2017, two days before the vessel's arrival at Port Hedland. The risk assessment briefing was attended by the deck officers and ratings.

The following control measures to reduce the risk were taken:

- planned maintenance of mooring equipment, fixtures and fittings and visual examination prior to commencing of mooring operations;
- on-job training, certified personnel, familiarization check lists and Company's procedures and review of past experience;
- use of appropriate personal protective equipment and non-slip mooring areas;
- posters providing warnings and instructions; and
- personnel not impaired by fatigue.

The Risk Assessment Form RA-107 was completed by the chief mate and approved by the master. It appears that although

hazards identified in RA-107 had been mitigated by organisational measures, it was not followed up by on-site risk assessment of actual or intended towing operations.

From the analysis of evidence available to the MSIU, it was immediately apparent that on arrival at Port Headland, neither on-site risk assessment was done nor direct communication with the tug was set up by the chief mate. Thus, the possibility of a controlled release, suitable lead and better security to the crew was potentially compromised.

It is likely that earlier successful operations involving tug boats may have been influential in the decisions taken by the crew members; the lead chosen by the mooring crew and the risk of injury to the seafarer standing inside the open bight was either overlooked or not spotted by the chief mate.

Following the accident, an alternative and safer arrangement of messenger line submitted by the vessel is shown in Figure 4.

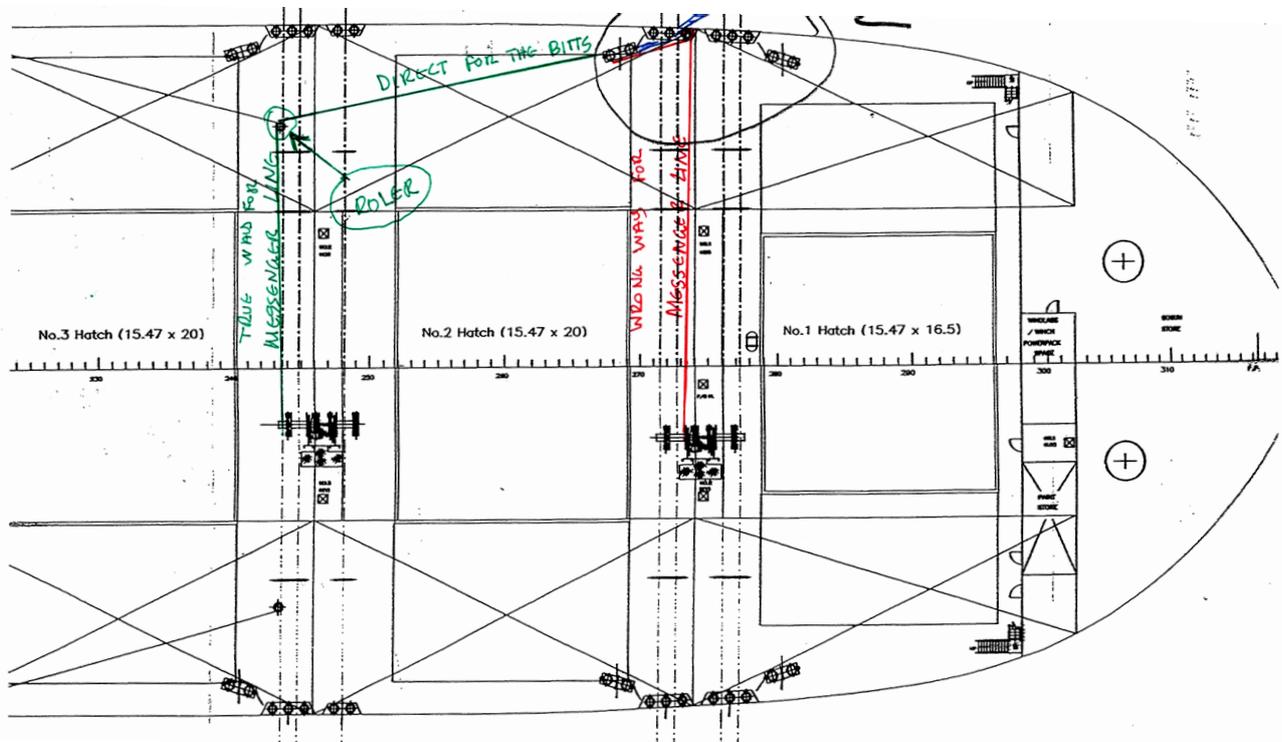


Figure 4: Alternative arrangement of messenger line lead (green line)

## CONCLUSIONS

1. Communication between the crew on *Alpha Confidence* and the tug boat was not adequate;
2. The possibility of a controlled release, suitable lead and better security to the crew was potentially compromised.
3. The freely hanging towline over the shipside and the absence of any signal from the ship, were suggestive for the tug crew to take in the rope;
4. Although hazards identified in form RA-107 had been mitigated by organisational measures, it was not followed up by on-site risk assessment of actual or intended towing operations;
5. It is likely that earlier successful operations involving tug boats may have been influential in the decisions taken by the crew members;
6. The lead chosen by the mooring crew and the risk of injury to the seafarer standing inside the open bight was either overlooked or not spotted by the chief mate.

## SAFETY ACTIONS TAKEN DURING THE COURSE OF THE SAFETY INVESTIGATION<sup>8</sup>

- The Company disseminated safety lessons from this accident and issued a circular to the master and crew of vessels under its fleet to enhance safety awareness;
- A additional ISM audit was carried out and deficiencies raised by AMSA's PSC have been addressed;
- SMS procedures on mooring and risk assessment were revised to include

COSWPMS section 26.3 and OCIMF's guidelines on Effective Mooring;

- An in-house training seminar on hazards and risks of towing and mooring operations has been organised;
- The master carried out practical demonstration and training on board on making fast and releasing of towlines, assessment of risk, control and communication, review of mooring plan and snap-back areas and safe working practice.

## RECOMMENDATIONS

In view of the actions already taken by the Company, no recommendations have been made by the MSIU.

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<sup>8</sup> Safety actions shall not create a presumption of blame and / or liability.

**SHIP PARTICULARS**

Vessel Name:	<i>Alpha Confidence</i>
Flag:	Malta
Classification Society:	Bureau Veritas (BV)
IMO Number:	9455040
Type:	Bulk Carrier
Registered Owner:	Transport Marine Co. Ltd.
Managers:	Alpha Bulkers Shipmanagement Inc., Greece
Construction:	Steel
Length Overall:	292.00 m
Registered Length:	283.04 m
Gross Tonnage:	89,991
Minimum Safe Manning:	15
Authorised Cargo:	Dry bulk

**VOYAGE PARTICULARS**

Port of Departure:	Dangjin, Republic of Korea
Port of Arrival:	Port Hedland, Australia
Type of Voyage:	International
Cargo Information:	<i>Not available</i>
Manning:	20

**MARINE OCCURRENCE INFORMATION**

Date and Time:	07 September 2017 at 21:10 (LT)
Classification of Occurrence:	Less Serious Marine Casualty
Location of Occurrence:	Funicane Island, Port Hedland
Place on Board	Main deck
Injuries / Fatalities:	One injury
Damage / Environmental Impact:	None
Ship Operation:	Berthing / Manoeuvring
Voyage Segment:	Arrival
External & Internal Environment:	Clear weather with good visibility. Slight seas and light wind. Air temperature was recorded at 30 °C and the sea temperature was 26 °C.
Persons on board:	20