



SAFETY INVESTIGATION REPORT

201507/016

REPORT NO.: 14/2016

July 2015

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 SALUZI

**Fall over board of a pilot boat deckhand
In position 20° 39.14' N 106° 53.52' E
21 July 2015**

SUMMARY

On 21 July 2015, *Saluzi*, a 1739 gt passenger ship (Figure 1) was embarking a pilot in moderate to rough seas. Before the pilot had stepped on the pilot ladder, the pilot boat dropped into the trough of the sea and beneath the ship's round hull.

As the boat came up, the pilot and the deckhand got caught between the pilot boat and the ship's hull. Seriously injured, both collapsed on the deck of the pilot boat. The pilot was able to hold on board but the deckhand fell into the rough sea.

By the time the search and rescue operations by *Saluzi* were called off at 1721, the deckhand remained missing.

The Marine Safety Investigation Unit established that on account of the hull design, the pilot boarding arrangement provided by *Saluzi* was not compliant with the relevant SOLAS requirements.

The MSIU has issued five recommendations to the Company and Haiphong Port Authority aimed to address man overboard situations and safe pilot transfer.



FACTUAL INFORMATION

Vessel

Saluzi (Figure 1) was designed and built by the Austal Shipyard, Henderson, Australia in 2003. The hull and superstructure are constructed of aluminium. The vessel is owned by Falkenberg Investments Ltd., Hong Kong and managed by V Ships Leisure SAM, Monaco. She is classed with Bureau Veritas. *Saluzi* has a length overall of 69.10 m, a moulded breadth of 13.80 m and a moulded depth of 4.80 m.

Propulsive power is provided by two 16-cylinder, 4 stroke single acting MTU Friedrichshafen high speed diesel Vee engines, each producing 800 kW at 1800 rpm. Each engine drives a fixed pitch propeller, reaching a service speed of 14.0 knots.

Saluzi is fitted with a bow thruster and stabiliser fins to minimise rolling motions at sea.

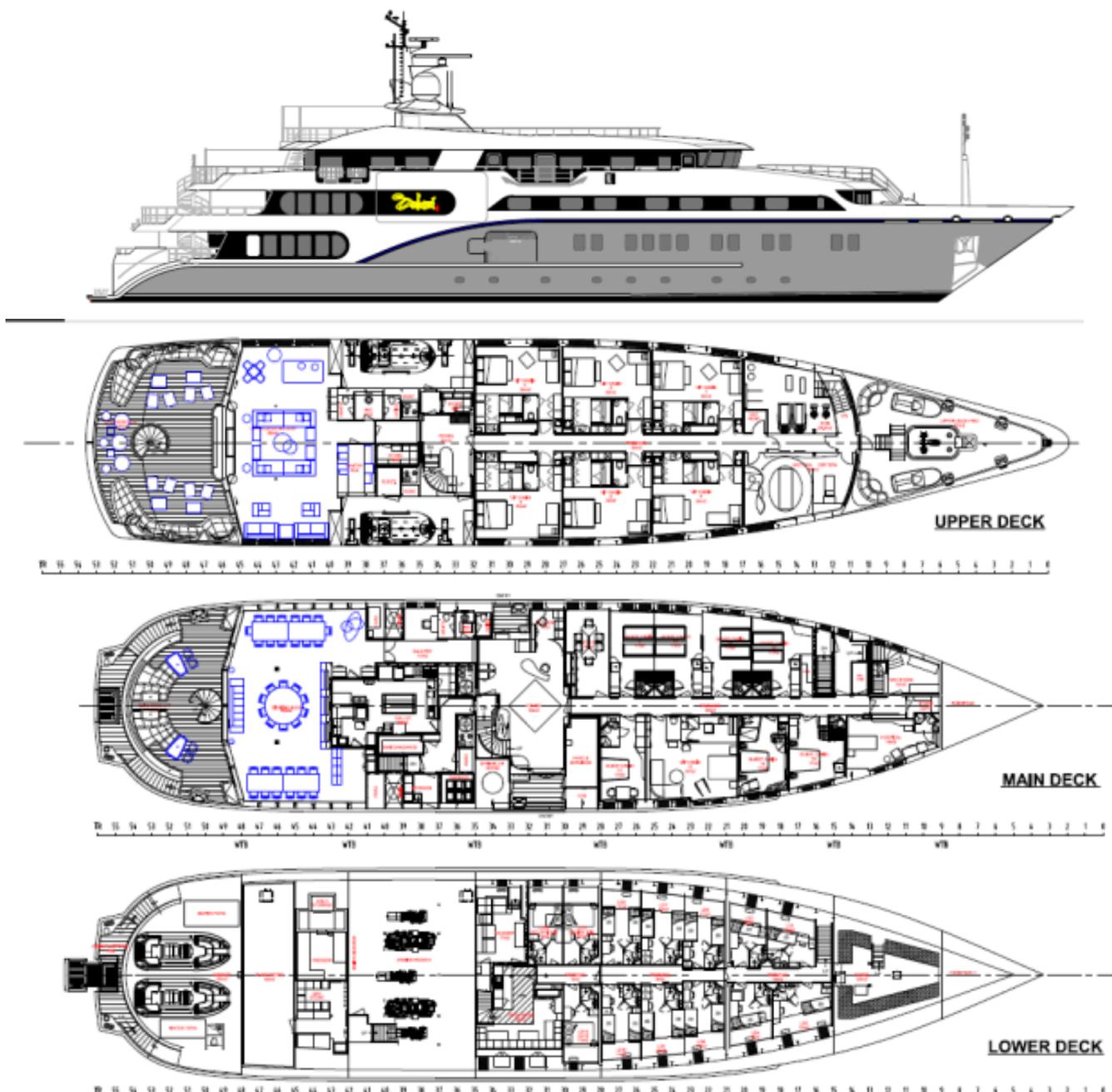


Figure 1: MV *Saluzi* GA Plan

Passenger Ship Safety Certificate

Bureau Veritas (BV) carried out the Change of Flag and Statutory surveys. On 16 May 2015, BV issued a Passenger Ship Safety Certificate on behalf of the flag State Administration, valid until 15 May 2016.

Crew

Saluzi, which can accommodate 32 passengers, had 32 crew members on board from East Europe, Germany, South Africa, Australia, Nepal and the Philippines. The master, who was 58 years old, was a British national. In total, there were 10 different nationalities serving on board. The working language was English.

Port of Haiphong

The Port of Haiphong in Vietnam (Figure 2) is a medium size river port in the Gulf of Tonkin. The channel leading to the commercial port is marked with navigational buoys. Pilotage is compulsory. The pilot normally embarks about 2.5 nautical miles east of Hon Dau Island in position 20° 40' N 106° 52' E.



Figure 2: Port of Haiphong

Environmental conditions

The weather at Haiphong on 21 July 2015 was clear with good visibility. The wind was South Southeast Beaufort Force 5 to 6. The sea was moderate to rough and a Southerly swell of 2 to 3 m was reported by the master. The outside air temperature was 27 °C.

Narrative¹

At about 1230 on 21 July 2015, *Saluzi* arrived at Haiphong, Vietnam. This was her first port of call in Vietnam. The draft on arrival was 2.40 m even keel. The harbour pilot requested a pilot ladder rigged on the port side. To this request, the master replied that the lack of parallel body would make the pilot ladder unsuitable for boarding. He advised using the starboard accommodation ladder (Figure 3) instead; a practice, which had been adopted by *Saluzi* for embarking pilots in other ports.

The starboard accommodation ladder was thus prepared and the master adjusted course to provide a good lee to the pilot boat.



Figure 3: Position of starboard accommodation ladder

The MSIU was informed that the pilot boat kept insisting on the pilot ladder and left to service other ships. Eventually, *Saluzi* rigged

¹ Unless otherwise stated, all times are ship's time (UTC +7).

the pilot ladder in the hull opening, aft of the starboard accommodation ladder as shown in Figure 4.



Figure 4: Pilot ladder on *Saluzi*

The first two attempts to embark the pilot were unsuccessful. With *Saluzi* now heading 240°, a third attempt was made at 1315. An image captured by the ship's CCTV, showed five persons standing on the deck of the pilot boat *Rang Dong 1* (Figure 5), as she made her approach to come alongside *Saluzi*.



Figure 5: Pilot boat *Rang Dong 1*

The pilot and the deckhand were standing on the port side of the pilot house. The pilot boat, under the influence of the swell, was highly unstable. Before the pilot could step

on the pilot ladder, *Rang Dong 1* dropped and moved under the flare of the ship's hull.

As the pilot boat came up on the crest of the next wave, the pilot and the deckhand were crushed between the pilot house and the ship's hull. Both were injured and collapsed on the deck of the pilot boat. The pilot, however, managed to pull himself up into the safety of the boat's bow but the deckhand, who was bleeding profusely from the head, fell into the rough sea. The chief mate on board *Saluzi*, observing the accident from the ship's embarkation point, immediately informed the master and rushed to the bridge.

Search and rescue

The pilot boat moved out and stopped a short distance away from *Saluzi*. Shortly afterwards, and without communicating or raising any emergency alert, the pilot boat departed for the port. *Saluzi*, which was by then rolling heavily, set course for the outer anchorage area.

Whilst underway, Haiphong Port Control called *Saluzi* at 1410 and requested search and rescue operations for the missing deck hand. At 1436, *Saluzi* was instructed by the pilot station to stop the search and rescue operations and follow *Asiatic Eclipse* into the channel entrance.

These orders were soon revoked by the port control, although at 1500, the port control called to stop the search and stand by the anchorage area for instructions. At 1530, a man overboard emergency radio broadcast was made by Haiphong Radio, which called upon all vessels to keep a look-out and render assistance in position 20° 39.14' N 106° 53.52' E.

At 1623, *Saluzi* was requested to start again the search. However, the search was soon called off and at 1721 she received

instructions to embark the pilot. After another attempt, the master was allowed to enter the channel without the pilot on board. Figure 6 shows *Saluzi's* intermittent search track at and around the pilot station.



Figure 6: Intermittent search track by *Saluzi*

At 1910, the pilot boarded *Saluzi* at Buoy no. 16.

Pilot transfer arrangements and industry practices

The IMO Convention for Safety of Life at Sea (SOLAS), chapter V, regulation 23² sets out the requirements of pilot ladders. It applies to ships on voyages during which pilots are engaged or likely to be engaged.

According to the regulations, pilot transfer arrangements should be such as to:

- enable the pilot to embark and disembark safely on either side of the ship;
- be provided with hand-holds rigidly secured to the ship's structure. The ladder should be positioned clear of shipboard discharges, and within the midship half-length and parallel body of the ship. Each step should rest firmly against the ship's side. Both rigging and embarkation are to be supervised by a

² Regulation V/23 has been amended by Resolution MSC.308 (88).

responsible officer who has means of communication with the bridge; and

- a lifebuoy with a self-igniting light and a heaving line should be kept at hand ready for immediate use.

Literature in the field also addresses pilot transfer arrangements.

The UK Code of Safe Working Practices for Merchant Seamen (Chapter 18) states that the arrangements for boarding should preferably be sited as near to amidships as possible, although in no circumstances should they be in a position which could lead to the pilot boat running the risk of passing underneath overhanging parts of the ship's hull structure.

Similarly, the International Maritime Pilots' Association (IMPA) provides guidance to naval architects and shipyards, supporting the importance of the SOLAS requirements on the rigging position of the pilot ladder.

The Embarkation and Disembarkation of Pilots – Code of Safe Practice³ recommends in Para 7.3 that, “[w]hilst on deck, the deckhand is secured to the pilot boat by an approved method which does not restrict his freedom of movement.”

Moreover, reference is also made to the position of crew members on the pilot boat approaching a vessel. It is stated in Para 7.4 and 7.5 that the safer side of the pilot boat to walk is the outboard side. It also recommends that if the inside route is taken, the dangers of the boat rolling against the side of the ship should be carefully analysed.

³ The Embarkation and Disembarkation of Pilots – Code of Safe Practice; revised June 2013.

Injuries

Both the pilot and the deck hand suffered serious injuries to their heads. Since the deck hand was lost overboard, the extent of his head injuries remained unknown, although it is believed that they were severe enough to make him lose consciousness. The deckhand was never recovered from the sea and remains missing.

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.

Background to the safety investigation

During the course of the safety investigation, the MSIU was unable to gain access to various sources of evidence, including:

- copies of VTS video/audio;
- statements of the injured pilot and pilot boat coxswain; and
- pilot ladder requirements and alternative pilot boarding arrangements.

Therefore, the MSIU had to base its analysis on documentary evidence collected from *Saluzi* and her managers.

Voyage data recorder

Voyage data recorders capture factual information and record conversations amongst the bridge team members and between other ships, assisting in the understanding of events and actions taken on board. In this instance, the VDR data was irretrievably lost as it was not saved in time by the crew.

Identified issues with the design of the pilot transfer arrangement

During the course of the safety investigation, the following aspects of the structural design which prevented the application of pilot boarding provisions were noted:

- Pilot embarkation point was not within the midship half-length and parallel body of the ship hull;
- Rubbing band was in way of the pilot ladder;
- Curved hull prevented the steps resting firmly against the ship side; and
- There are no provisions for hand rails, stanchions or strong points at deck-level to fasten the pilot ladder.

It was thus deemed that the pilot transfer arrangements were neither in accordance with the requirements laid down in SOLAS, nor in accordance with the industry's recommendations.

The CCTV image (Figure 5) showed that the pilot and the deckhand were already waiting on the inboard (port) side, *i.e.* the side closer to the ship. Based on available evidence, the safety investigation was unable to establish whether the risks had been analysed beforehand or whether it was a practice to wait on the inboard side of the pilot boat in preparation to board the vessel⁴.

It was also noticed that the fall overboard of the injured deck hand was indicative that he was not secured to a strong point on the pilot boat. It was considered to be very probable that this would have been seen as a restriction to operate with the necessary flexibility on board, given the prevailing sea

conditions and the movement of the pilot boat in relation to the larger vessel.

Passenger ship safety surveys

Within the scope of the Statutory surveys, is an inspection of the pilot transfer arrangements for compliance with the SOLAS Convention. A surveyor from BV, on behalf of the flag State administration, carried out a Change of Flag survey in 2012 and thereafter annual surveys.

The structural limitations that prevented the implementation of SOLAS Regulation V/23 were not raised at the Change of Flag survey. The MSIU, therefore, requested the BV to clarify as to whether *Saluzi* actually met the requirements of the SOLAS Convention at the last Statutory survey on board.

The classification society explained that the owners had declared some structural modifications to the system. It was also stated that the master had confirmed that these modifications had not affected the pilot transfer arrangements. The classification society also confirmed that according to its records, it had received no request to review any of the pilot embarkation arrangements. To this effect, the pilot transfer arrangement was deemed by BV to comply with the relevant requirements of the Convention.

On board organisation and procedures

As part of the Company's safety management system *Saluzi* was provided with a 'Yacht Operations Manual'⁵ for safe operations during key shipboard activities. However, there was no evidence of any specific pilot boarding procedures, other than a Pre-arrival Checklist Form YOT41A by which the officers would have ensured and confirmed that the vessel was well prepared

⁴ This is the second pilot boat-related accident which the MSIU has investigated. *Vide* [MSIU Safety Investigation Report No. 14/2014](#).

⁵ *Saluzi* is described as a passenger ship in the Malta Certificate of Registry.

for her arrival in port including: “[p]ilot ladder rigged and ready if required.”

It was thus indicative that in drawing up the Operations Manual for *Saluzi*, the risks involved with the design of the pilot ladder arrangements were neither identified nor addressed by the Company. This is further discussed in the next sub-section.

Risk assessment

Saluzi's Operations Manual required that risk assessments are performed and procedures developed for activities, which either had the potential to cause damage to the ship's structure or which could impact on the safety of passengers or crew including contractors. On-board risk assessments were required where either SMS procedures did not exist or which deviated from the prescribed SMS procedures.

Evidence submitted to the MSIU indicated that no formal risk assessment had been carried out with respect to pilot boarding arrangements. This was indicative that a number of hazards were not understood, *inter alia*:

- embarking pilots under the round hull near the ship's quarter;
- rigging of the pilot ladder in the cut-out access doors with limited space and view of embarkation operations;
- the effect of the swell on both the ship and the pilot boat; and
- the pilot boat getting caught on the rubbing band running along the side of the vessel.

On the other hand, the choice of using the starboard accommodation ladder was possible based on previous successful pilot boarding practices using the accommodation ladder. To this effect, it did not transpire that other alternatives were considered, such as,

postponing boarding until waves/swell would have receded or boarding pilot further inland in calmer waters.

It also has to be stated that although the master was not under any commercial pressure to enter the port and come alongside⁶, it is the norm in the industry for the pilot to select the method of embarking a vessel. It was not excluded that the reported insistences from the pilot boat to use the designated pilot transfer arrangement had created pressures on the master to refrain from considering other alternative boarding arrangements.

Accident dynamics and man overboard response

The pilot boat alongside the vessel was highly unstable and before the pilot could grab the pilot ladder, she dropped into the trough and under the round hull of *Saluzi*. The subsequent events happened very rapidly. As the boat came up with the mounting swell against the ship's hull, the pilot and the deckhand were injured.

It was observed that no lifebuoy was made available on the ship's boarding point and following the fall of the injured deck hand, none were released by the pilot boat. The chief mate, who witnessed the events, informed the master; however, no attempt was made to mark the man overboard position.

Meanwhile, the pilot boat moved away and shortly afterwards, without communicating with *Saluzi*, it left the area. Seeing the pilot boat's abrupt departure and that no man overboard alert was raised by the boat's coxswain, the master concluded that the deckhand was recovered from the sea and he set course for the anchorage area. To this effect, the master relied on a negative communication loop.

⁶ *Saluzi* was scheduled to go on charter from 23 July 2015.

This led to a situation whereby rather than seeking clarification/confirmation on the events, the lack of feedback from the shore authorities was deemed to mean that the situation was under control⁷.

CONCLUSIONS

1. The pilot embarkation areas and the pilot ladder on board *Saluzi* were not in accordance with the requirements of SOLAS.
2. The SMS provided no procedures with respect to pilot embarkation.
3. Risk assessments for pilot embarkation were neither carried out by the managers nor the master.
4. The deck hand and the pilot were standing on the inboard side of the pilot boat, exposing themselves to the hazards of the approaching vessel.
5. The deck hand had no safety harness to prevent him from falling overboard.
6. No lifebuoy was released by *Saluzi* and/or the pilot boat.
7. The pilot boat neither informed *Saluzi* of the man overboard nor communicated the accident over the VHF radio.
8. There was a significant delay before the port authorities called *Saluzi* to conduct search and rescue operations and broadcast the man overboard alert to all ships in the area.

⁷ In fact, it was significantly later that the port authorities informed *Saluzi* and requested search and rescue operations for the missing deckhand.

SAFETY ACTIONS TAKEN DURING THE COURSE OF THE SAFETY INVESTIGATION⁸

During the course of the safety investigation, the Company has taken the following safety actions:

- A specific risk assessment was carried out for pilot transfer arrangement;
- In view of the inherent hazards in the use of the pilot ladder because of the specific shape of the hull, a permanent standing order has been issued by the master requiring that pilots only embark by the accommodation ladder. New arrival and departure checklists have been prepared;
- New instructions on the saving of voyage data have been issued and posted in close proximity of the VDR.

RECOMMENDATIONS

V Ships Leisure SAM is recommended to:

14/2016_R1 ensure that crew members are thoroughly familiar with man overboard drills.

Haiphong Port Authority is recommended to:

14/2016_R2 fit DSC distress alert on board its pilot boats;

14/2016_R3 provide appropriate safety harnesses for use by deck hands;

14/2016_R4 ensure that pilot boat crew appreciates the importance of using the outboard route to access the pilot ladder;

14/2016_R5 promulgate procedures and action to initiate prompt search and rescue operations.

⁸ **Safety actions and recommendations should not create a presumption of blame and / or liability.**

SHIP PARTICULARS

Vessel Name:	<i>Saluzi</i>
Flag:	Malta
Classification Society:	Bureau Veritas
IMO Number:	9267522
Type:	Passenger
Registered Owner:	Falkenberg Investments Ltd, Hong Kong
Managers:	V Ships Leisure SAM, Monaco
Construction:	Aluminium
Length Overall:	69.09 m
Registered Length:	54.45 m
Gross Tonnage:	1739
Minimum Safe Manning:	11
Authorised Cargo:	Not Applicable

VOYAGE PARTICULARS

Port of Departure:	Hong Kong
Port of Arrival:	Haiphong, Vietnam
Type of Voyage:	International
Cargo Information:	Not Applicable
Manning:	32

MARINE OCCURRENCE INFORMATION

Date and Time:	21 July 2015 at 1315 (LT)
Classification of Occurrence:	Very Serious Marine Casualty
Location of Occurrence:	Haiphong pilot boarding ground
Place on Board	Ship – Over side
Injuries / Fatalities:	One fatality / one serious injury
Damage / Environmental Impact:	None
Ship Operation:	Normal Service – under pilotage
Voyage Segment:	Arrival
External & Internal Environment:	Clear weather with up to 10 nautical mile visibility. South Southwest Force 5 to Force 6 wind and Southerly moderate swell. Air temperature recorded at 27 °C.
Persons on board:	32