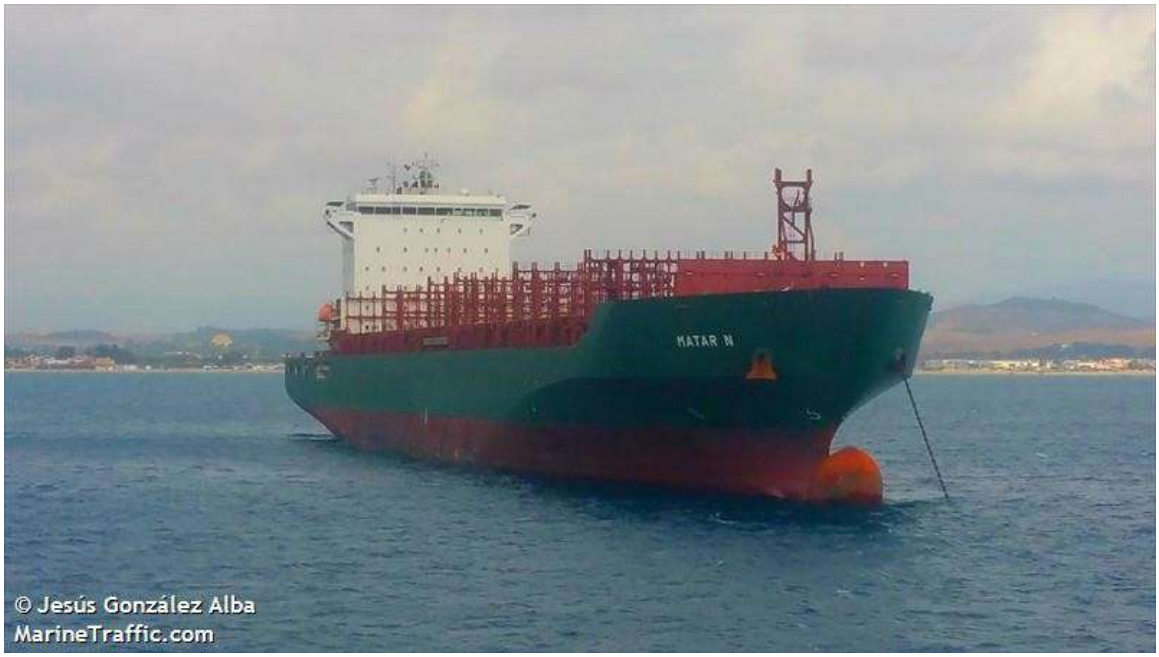
REPUBLIC OF CYPRUS
MARINE ACCIDENT AND INCIDENT
INVESTIGATION COMMITTEE

[Investigation Report No: 100E / 2018]

Very Serious Marine Casualty

Fatality due to fall into the sea while working over the ship's side from the Container Ship "MATAR N" on the 20th of July 2018



Forward

The sole objective of the safety investigation under the Marine Accidents and Incidents Investigation Law N. 94 (I)/2012, in investigating an accident, is to determine its causes and circumstances, with the aim of improving the safety of life at sea and the avoidance of accidents in the future.

It is not the purpose to apportion blame or liability.

Under Section 17-(2) of the Law N. 94 (I)/2012 a person is required to provide witness to investigators truthfully. If the contents of this statement were subsequently submitted as evidence in court proceedings, then this would contradict the principle that a person cannot be required to give evidence against themselves.

Therefore, the Marine Accidents and Incidents Investigation Committee, makes this report available to interested parties, on the strict understanding that, it will not be used in any court proceedings anywhere in the world.

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

Master - Captain
C/O - Chief Officer
2/O - Second Officer
3/O - Third Officer
AB - Able Bodied Seaman
OS - Ordinary Seaman
C/E - Chief Engineer
2/E - Second Engineer
3/E - Third Engineer
4/E - Fourth Engineer
OOW - Officer of the Watch
CoC - Certificate of Competency
DPA - Designated Person Ashore
CYCOSWP - Cyprus Code of Safe Working Practices for Merchant Seamen
FWE – Finish With Engine
Knots – Speed in nautical miles per hour
MSMD - Minimum Safe Manning Document
IMO - International Maritime Organization
ILO - International Labour Organization
LT - Local Time
MC - Management Company
m – metre
MT - Metric Ton
MOB - Man-Over-Board
PTW - Permit to Work
RA - Risk Assessment
ISM Code – IMO's International Management Code for the Safe Operation of Ships
SMC - ISM Code Safety Management Certificate
SMS - Safety Management System
SOLAS - The International Convention for the Safety of Life at Sea 1974 (as amended)
STCW - The International Convention on the Standards of Training, Certification and Watchkeeping for Seafarers 1978 (as amended
VHF - Very High Frequency Hand Held Radio (Walkie Talky)
UTC - Universal Time Co-ordinated
ZT - Zone Time

Contents

1. Summary

An accident was investigated in which a seaman fell into the sea from a painting stage from where he was painting the ship's hull and never was found.
In conducting its investigation, the Marine Accident Investigation Committee (MAIC) reviewed events surrounding the accident, interviewed on board crew witnesses, reviewed documents provided by the Master and the vessel's Management Company and performed analyses to determine the causal factors that contributed to the accident, including management system deficiencies.

Accident Description

On the 20th of July 2018, the "MATAR N" was anchored off Gunsan (South Korea) in the out of port limits anchorage (OPL) in position Lat.35-34.57 N - Long. 125-08.80 E. Sea depth 64 meters. Anchor shackles in the water 10. The vessel was awaiting orders for its next employment.

After the noon's lunch break, hull painting work was in progress at the ship's starboard side near midships. Three crew members, the Bosun, AB1 and OS1 were tasked to perform spot painting on the side hull. The AB1 was alone on the painting stage doing the actual work. The Bosun was supervising and the OS1 was in attendance and assisting the AB1 from the main deck above the painting stage. Short time before the afternoon coffee break of 15:00 hours, the Bosun informed the AB1 to stop painting and prepare himself for climbing up. Before climbing up, AB1 had to wait for the rigging of a rope ladder by OS1.

When the Bosun pulled up the paint bucket, saw AB1's safety harness still secured-hooked to the safety line. The AB1was resting on the painting stage waiting for the rigging of the rope ladder. At approximately 14:45 hours, while OS1 was rigging the ladder, heard AB1 shouting and when he looked over the ship's starboard side, saw the AB1 into the sea.

Man-Over-Board procedure was immediately implemented. A Life-Ring with line was thrown towards the AB1. The Bosun jumped into the sea to rescue him. When he approached, saw him beneath the sea surface, sinking quickly.

The General Alarm was sounded, and "Man-Over-Board" was announced through the public address system. A digital selective call distress alert on VHF Ch. 70 was sent and by voice broadcast urgency message on VHF Ch. 16 PAN PAN "Man-Over-Board" X 3 times. MOB flag was raised by the Deck Cadet.

The vessel's starboard life-boat was launched. The life-boat picked-up only the Bosun.

Search and rescue operation was conducted in cooperation with Korean Coast Guard. Search and rescue operation started on 20/07/2018 at 15:05 hours and ceased on 23/07/2018 at 05:45 hours. Results of the Search and rescue operation negative. The body of the missing AB1was not found.

Conclusions

The Immediate Cause of the accident:

- Missing guard (life-line) was the immediate cause of the accident.

The Root Cause of the accident:
Safety (Risky) attitude of the victim has been the root cause of the accident.

The Contributing Causes of the accident were:

- Attention Failure: Distraction and inattention possibly caused by boredom have been a contributory factor to the accident.

- Ability to swim, shock of falling into the sea and impact with water, weight of sodden overalls and ingestion of sea water, have been contributing factors in the loss of the seaman, after he fell into the sea from the painting stage.

- Although a permit to work over the side had been issued, a basic precaution in using a Life-Jacket, was not in place and the safety harness with lifeline was not continuously worn during the work. Therefore, inadequate safety precautions were a contributory factor to the accident.

- Inadequate assertiveness of the supervisor has been contributory factor to the accident.

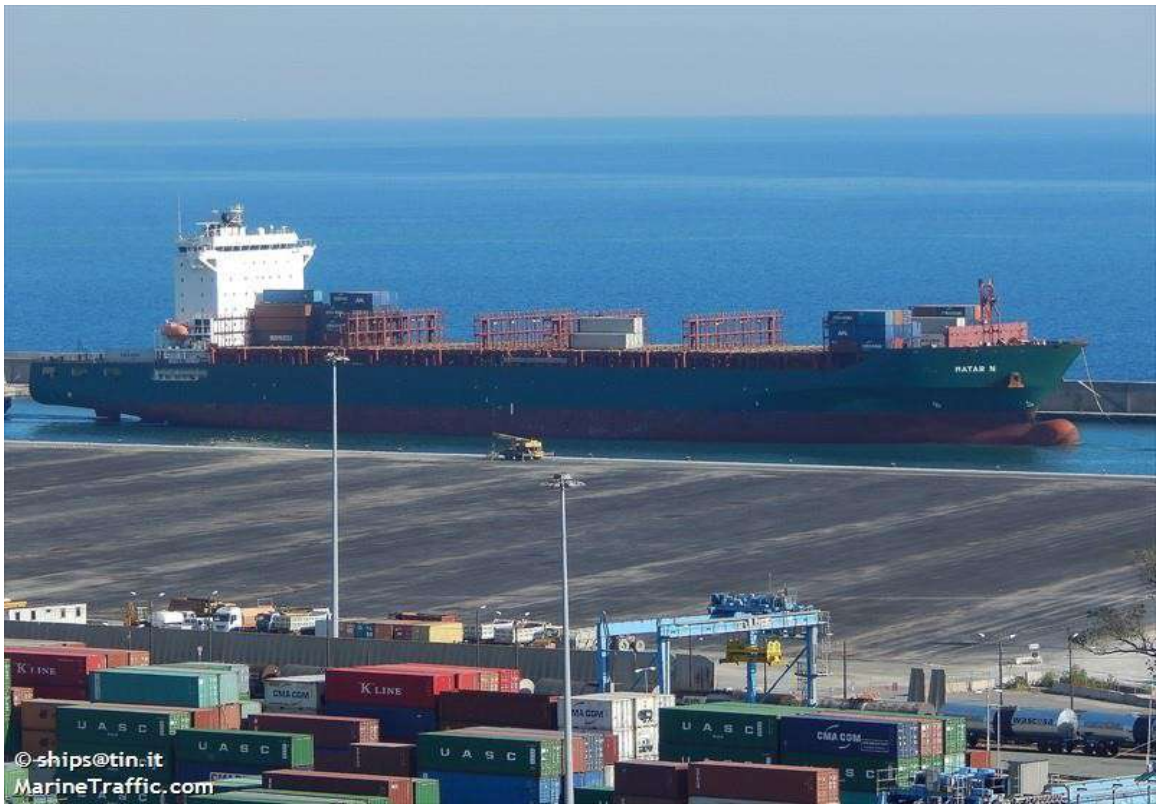
- Inadequate implementation of the Risk Assessment's additional control measure requirement for a Tool-Box-Meeting to be held prior to work, may have been contributory factor to the accident.

- Improper ascending /descending arrangement for overside work, was a contributory factor in the loss of the seaman, after he fell into the sea.

Recommendations

The Management Company by way of a circular or other means, to educate its crews, on Risk Assessment and Work Permit System, with particular emphasis on crew responsibility for carrying out the work and taking safety measures as described on the Work Permit.

2. Factual Information



2.1. Ship particulars

IMO: **9509176**
Name of ship: **MATAR N**
Call sign: **5BBM4**
MMSI number: **212334000**
Flag State: **CYPRUS**
Type of ship: **Container**
Gross tonnage: **39824**
Length overall: **228.20 m**
Classification society: **DNV-GL**
Registered ship owner: **Cerulian Shipping Corporation, Marshal Islands**
Ship's Company: **Navios Shipmanagement Ltd - Greece**
Year of build: **2014**
Deadweight: **45952 MT**
Hull material: **Steel**
Hull construction: **Single Hull**
Propulsion type: **Internal Combustion Engine**
Type of bunkers: **HFO & MDO**
Number of crew on ship's certificate: **14**

2.2. Voyage particulars
Port of departure: **BUSAN – SOUTH KOREA**
Port of Destination: **GUNSAN OPL ANCHORAGE -SOUTH KOREA**
Type of voyage: **DOMESTIC**
Cargo information: **N/A – BALLAST CONDITION**
Manning: **19**
Draft: Fwd= **6.00m** Aft= **7.60m**

2.3. Marine casualty or incident information
Type of marine casualty/incident: **Very Serious Marine Casualty**
Date and time: **20/07/2018 @ 14:45 LT**
Position: **Lat.: 35-34.57 N - Long.: 125-08.80 E**
Location: **Sea (GUNSAN OPL ANCHORAGE -SOUTH KOREA)**
External and internal environment: Wind Force & Direction: **NNE 7 KNOTS**, Sea state**: Gentle Breeze** , Current **N 0,2 knots**, Weather: **Clear, Day, Vis. good**
Ship operation and voyage segment: **Anchored in Ballast condition**

Place on board: **Overside**

Human factors: **Yes / Inattention**

Consequences **Death: 1**

2.4. Shore authority involvement and emergency response

Measures and actions taken and duration of the search/rescue (S&R) of the crew member having fallen overboard:

- Thrown Life-Ring
- Sounded general alarm MOB starboard side
- Sent distress alert on VHF and urgency message PAN PAN 3X
- Launched Life Boat / Rescue Boat
- Conduct SAR operation in cooperation with Korean Coast Guard. SAR operation started 20/07/2018 at 15:05 LT and ended 22/07/2018 at 05:45 LT
- Results of the measures and actions taken of the S&R: Body of missing crew not found

3. Narrative

Sequence of Events:

1. On 17/06/2018 vessel departed from Yunshan, China loaded with general cargo in containers. Destination Busan South Korea.

2. On 19/06/2018 completed discharging at Busan South Korea.

3. After discharging at Busan, vessel proceeded to Yeosu Out of Port Limits (OPL) anchorage, which is 24 NM from South Korea's South Coast. Dropped anchor on 20/6/2018. Awaiting voyage orders.

4. The Master and the C/O decided to carry out deck maintenance during vessel's stay at anchor and awaiting voyage orders. On the 25/06/2018, after finished cleaning cargo hold (CH) No. 6, deck crew painted the forward draft-marks (overside). The next day 26/06/2018 deck crew painted the ship's name port & stbd side (overside). The same day painted the midship's port side draft-marks. On 27/06/2018 deck crew repaired the safety line on the lashing bridge of bay No.4 and repainted the stbd side midships draft-marks (overside). On the 28/06/2018 deck crew cleaned the ship's funnel and removed stain cargo from the funnel. On 29/06/2018 deck crew repainted the ship's name (overside) and draft marks aft.

   (For painting work over side were working only the Bosun, two ABs one OS and the Deck Cadet).

5. On 02/07/2018 because of a passing typhoon, vessel heaved-up anchor and departed from Yeosu OPL anchorage.

6. On 03/07/2018 at 00:30 hours ship's time (ST), vessel dropped anchor at Gunsan OPL anchorage which is about 70 NM from the west coast of South Korea, in position Lat.35-34.57 N - Long. 125-08.80 E. Sea depth 64 meters. Anchor shackles in the water 10.

7. Deck Maintenance works continued: On the 3rd of July 2018, painted the aft draft marks port & stbd. On the 18th of July 2018, painted the aft stbd quarter. On the 19th of July 2018, continued painting stbd side external hull, from aft to forward.

8. On the 20th of July 2018 the weather was sunny with light winds and good visibility. At 08:00 hours, hull painting work at stbd side hull (near frame 130 / near pilot ladder) commenced. The working gang consisted of three crew members, the Bosun, AB1 and OS1. AB1 stepped down from the main deck to the painting stage to carry out hull spot painting.

9. Some time before the coffee break time of 15:00-15:20 hrs, the Bosun ordered the AB1 to stop painting and prepare himself for climbing up on the main deck, in order to go in the accommodation's smoking room for coffee brake.

10. The Bosun ordered the OS1 to bring and rig the Jacobs ladder (rope ladder), near the painting stage.

11. Before climbing up, AB1 had to wait for the Jacob's ladder to be rigged and secured by the OS1.

12. The Bosun pulled up the paint bucket, from the painting stage to the main deck. According to his statement, when he pulled up the paint bucket, saw AB1's safety harness still secured-hooked to the safety line. The AB1was resting on the painting stage waiting for the rigging of the Jacob's ladder.

13. At approximately 14:45 hours, while OS1 was rigging the Jacobs ladder, heard AB1 shouting and then looked over the starboard side and saw the AB1 into the sea.

14. OS1 shouted Man-Over-Board (MOB) and thrown a Life-Ring with line towards the AB1. He continued shouting "Man-Over-Board at stbd side".

15. The Bosun heard Man-Over-Board and saw the AB1 into the sea. He realised that the AB1 had difficulty in reaching the Life Ring.

16. The Bosun took off his clothes and shoes and wearing only his boxer, jumped into the sea to rescue AB1. When he approached, saw him about three feet beneath the sea surface, sinking quickly. He grabbed the Life-Ring and expected that AB1 will re-float over the sea surface but he (the AB1) didn't.

17. The Deck Cadet who was working (greasing turnbuckles) close by, relayed the Man-Over-Board to the Navigation Bridge. As he stated, "At 14:30 I think, I heard Bosun and OS1 shouting. I proceeded to see what was happening with them to their location at stbd side near pilot ladder. When I arrived, I saw Bosun wearing only his boxer, ready to jump. After that I asked what is happening and the OS1 told me that AB1 fell overboard. I saw the OS1 throwing a Life-Ring. I run to aft in order to call the Bridge by the telephone in the Cargo Office. While I run, I heard the Bosun splash onto the sea. I entered in the accommodation, went in the ship's office on "A-Deck" and called the Bridge. The Second Officer (2/O), who was the Officer of The Watch (OOW) at the time, answered immediately. I told him that there was a Man-Over-Board /AB1 at stbd side, near pilot ladder".

18. The AB2 was working at stbd side main deck, chipping and scraping the deck in the gangway area. He stated: "At about 14:45 hrs I heard someone asking for help, like a ghost "He-e-e-lp". It was very slow. I continued chipping. The OS1 came to me and told me that there was Man-Over-Board. I went together with another crew at the place where he fell. I saw the Bosun into the sea".

19. The C/O at 14:45 hrs, was taking rest. He stated that he heard the alarm while was sleeping. He woke up, put his clothes on and proceeded to the deck stbd side. He saw the Bosun in the water. He saw only the Bosun. He did not see the AB1. He thought that only the Bosun fell in the sea. He asked him "why are you in the water"? The Bosun answered that he was trying to save AB1. He was keeping two Life-Rings with his two hands.

20. At 14:50 hours the OOW on the Navigation Bridge, sounded the General Alarm and made public announcement through the public address system. (Announcement: Man-Over-Board (MOB) - please proceed to the stbd side pilot ladder)

21. At 14:55 hours the OOW sent digital selective call (DSC) distress alert on VHF Ch. 70 and urgency message on VHF Ch 16 by voice broadcast PAN PAN MOB X 3 times. MOB flag was raised by the Deck Cadet.

22. At 14:57 hours Korean Coast Guard acknowledged receipt of urgency message on VHF Ch.16.

23. The Captain ordered to prepare the stbd side Life-Boat. The C/O with the 2nd Mate, 3rd Mate, AB2, OS1 and Deck Cadet, Engine and Galley crew, prepared the stbd side Life-Boat. At 15:05 hours ST, vessel's stbd Life-Boat was launched at stbd side and commenced search and rescue (SAR) operation.

24. The Bosun had been transferred towards the ship's stern by the current. He was shouting. The Life-Boat picked-up the Bosun. The Life-Boat picked-up only the Bosun, the AB1 was not located. (When the Bosun was taken on the Life-Boat, was wearing only his boxer. The Second Officer (2/O) asked him if he had any broken parts and the Bosun said no and that he was O.K.).

25. After picking-up the Bosun, the Life-Boat continued searching around the vessel.

26. At 15:40 hours Korean Coast Guard's three Rescue-Boats and one Helicopter arrived on scene and commenced search and rescue (SAR) operation.

27. At 15:43 hours three members of the Korean Coast Guard boarded the vessel for investigation.

28. At 17:43 hours the three members of the Korean Coast Guard who boarded the vessel for investigation disembarked.

29. At 17:45 hours Korean Coast Guard advised to secure the ship's Life-Boat and prepare the Main Engine (ME) for SAR operation.

30. At 18:45 hours resumed SAR operation under Korean Coast Guard supervision.

31. At 20:50 hours SAR operation was suspended due to darkness.

32. At 21:08 hours vessel anchored at position Lat.: 35 39 44 N - Long.:125 11 73 E.

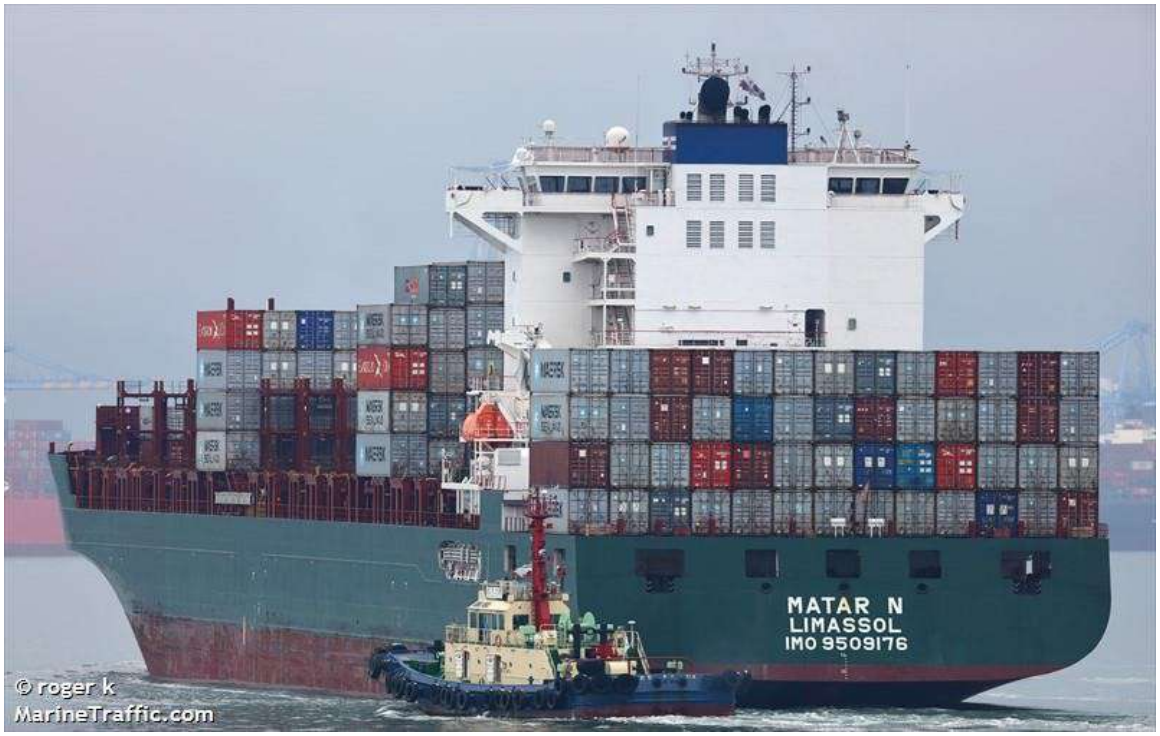
33. At 21:18 hours Finish-With-Engine (FWE). PAN PAN X 3 / Man-Over-Board was broadcasted on VHF Ch.16.

34. On the 21st of July 2018 at 05:30 hours anchor up. Vessel proceeded to MOB position. Resumed SAR operation under Korean Coast Guard supervision.

    Search 8 NM from MOB position, until 18:27 hours. Vessel anchored in position Lat.: 35 39 28 N - Long.:125 12 03 E. FWE at 19:30 hrs.

35. On the 22nd of July at 05:15 hours anchor up. Vessel contacted Korean Coast Guard.
Korean Coast Guard declared the SAR operation ceased. Vessel anchored in position Lat.: 35 39 24 N - Long.:125 11 61 E. FWE at 06:42 hrs.

Vessel's Management Company (MC) advised vessel not to resume SAR because since the disappearance, 3 days had passed.



4. Analysis

(The purpose of the analysis is to determine the contributory causes and circumstances of the accident as a basis for making recommendations to prevent similar accidents occurring in the future).

The following analysis draws on documents provided by the Master and the ship's MC, and written statements taken on board the ship from the Chief Officer, AB2, Deck Cadet and the Bosun.

4.1 People Factors

Crew Certification

Containership "MATAR N" was manned with crew licensed, qualified and medically fit in accordance with the requirements of the International Convention on Standards of Training Certification and Watchkeeping (STCW) Convention as amended.

A lack of certification was not a contributory factor to the accident.

Manning level

At the time of the incident, the vessel was manned well in excess of the vessel's Minimum Safe Manning Document (MSMD). She had a crew of 19, although her MSMD provides for 14. All Filipinos, except one Ethiopian Electrotechnical Officer (ETO).

A lack of manpower was not a contributory factor to the accident.

Alcohol & Drugs Impairment

No alcohol test was conducted to anyone by the South Korean Coast Guard. According to the Bosun, the AB1 (the victim) was not taking medicines or drugs. He was not smoking.

There was no evidence to suggest that alcohol or drugs were taken by any of the crew members involved in the accident.

Fatigue

Prior and on the day of the accident, the recorded hours of rest of all crew members (including the victim) of the "MATAR N", within the last 24 hours, were more than 10 hours and more than 77 hours in any seven-day period. They were in accordance with the requirements of MLC, 2006 and STCW 78 as amended.

Fatigue was not considered a contributory factor to the accident.

Organization on board

Shipboard Working Arrangements:

While at sea, Deck Officers and Able Seamen (ABs) maintain a watchkeeping routine of four hours on, eight hours off i.e. three watch system, which is in conformance with IMO Resolution A. 890 (21).

The Master is always on call and performs his non-watchkeeping duties from 08:00-12:00 and 13:00-17:00.

The Chief Officer (C/O) performs watchkeeping duties (4-8) - (16-20), the Second Officer (2/O) (00-04) - (12-16) and the Third Officer (3/O), (08-12) - (20-24). They also perform duties not related to watchkeeping during overtime hours, the C/O from 09:00-11:00, the 2/O from 10 -11:00 and 3/O from 13:00 -15:00.

Three ABs (AB1, AB2, AB3) perform watchkeeping duties AB1(08-12) - (20-24), AB2 (00-04) - (12-16), and AB3 (4-8) - (16-20). They also perform duties not related to watchkeeping during overtime hours, the AB1 from 13:00-15:00, the AB2 from 10:00-11:00 and AB3 from 10:00-12:00.

Deck Cadet and O.S. perform duties not related to watchkeeping from 08:00-12:00 and 13:00-17:00.

The Chief Engineer (C/E) the Second Engineer (2/E), the Third Engineer (3/E), the Electrician the Motorman and the Fitter, (4/E) are on daily duty from 06:00-12:00 and 13:00-17:00.

The Chief Cook performs daily duties from 06:00-12:00 and from 15:00 until 19:00.

The Mess boy performs daily duties from 06:00-13:00 and from 15:00 until 19:00.

During stay at anchor at daytime, there was OOW on the Navigation Bridge and the AB on watch was working on deck.

The crew duties corresponded to their qualifications and experience. There was no evidence to suggest that, the organizational conditions on board were a contributory factor to the accident.

Working and Living Conditions

At the time of the incident, the ship had valid Maritime Labour Compliance Certificate (MLC) along with a Declaration of Maritime Labour Compliance (DMLC) issued by her flag state.

There was no evidence to suggest, that, the working and living conditions was a contributory factor to the accident.

Physiological, Psychological, Psychosocial Condition

All crew members were holders of medical certificate for service at sea issued in compliance with the STCW and MLC, 2006 Conventions as amended. They were certificated as fit for sea duty without restrictions and not suffering from any medical condition likely to be aggravated by service at sea or to render the seafarer unfit for such service or to endanger the health of other persons on board.

The AB1 (Victim)

According to the Chief Officer: "AB1 was quiet guy. He was going in his cabin after food. He was introverted. He was not socializing with the other crew members. He was hard working. He had a license of Third Officer (3/O), he was about to be promoted as 3/O. He was married, he joined the vessel last November. He was onboard 9 months. He was about to be promoted and remain on board. The Captain had told him that he will be promoted as 3/O".

According to the Deck Cadet: "I met AB1 when I joint the vessel. We were friends with AB1. He was teaching me about ship's works. We made company sometimes after work hours but not every day. He was good seaman. He was about to become officer. He was silent, not talkative. He was married. He was good to everybody. He was friend with the OS1".

According to the AB2: "We are neighbors in Manila. I don't know how the accident happened because I was not there. We make company ashore, sometimes we eat together. On board we don't make company. He is very silent. When I finish dinner, I go in my cabin. The same he does. Therefore, we don't meet on board to make company. I am on "C" deck and he is "B" deck. He had good relation with the other crew. This was his attitude. He was silent. But psychologically he was in good condition".

According to the Bosun: "The AB1 was silent. That night he passed from my cabin and smiled but he didn't say anything. He passed also from other cabins, and spoke to another crew. I signed on the same date with AB1. After dinner he was going to his cabin because he was a silent guy. He was short (5feet 3inches) and strong.
He was not drinking, not smoking. I do not know if he was taking drugs or medicines".

The Bosun

The Bosun was holder of a Certificate STCW II/4 (Rating forming part of a navigational watch) and STCW II/5 (Able Seafarer / Deck (AS-D), i.e. Rating at Support Level in the deck department, issued by the Philippines.
He had 15 years' experience at sea, of which 4 years as Bosun. He was on board since 11/11/2017, i.e. time on the vessel about 9 months. He is considered as experienced bosun and having about 9 months on board he knew the ship.
He was with the company about 2 years. The "MATAR N" was his second ship with the Company.

The Chief Officer

The Chief Officer (C/O) was holder of a Master's Certificate of Competency STCW II/2, issued by the Philippines.
He had 20 years experience at sea, of which 5 years as C/O. He was on board since 23/01/2018, i.e. time on the vessel about 6 months. He joined the company for first time in 2018. He is considered as experienced chief officer. Being about 6 months on board he knew the ship.

There was no evidence to suggest that the victim's as well as the other crew members involved in the accident, physical, physiological, psychological, or psychosocial condition was such that could have contributed to the accident. They were physically and mentally fit to perform their job.

The fact that the victim was about to be promoted and remain on board, indicates that he had reason to be happy and satisfied and empowered to remain on board although was (onboard) already 9 months.

The preparation for coffee brake and the fall into the sea

Some time before the coffee break time of 15:00-15:30 hrs, the Bosun ordered the AB1 to stop painting and prepare himself for climbing up on the main deck, in order to go in the accommodation's smoking room for coffee brake. The Bosun ordered the OS1 to bring and rig the Jacobs ladder, near the painting stage.
Before climbing up, AB1 had to wait for the Jacob's ladder to be rigged and secured by the OS1.
The Bosun pulled up the paint bucket, from the painting stage to the main deck. According the Bosun's statement, when he pulled up the paint bucket, saw AB1's safety harness still secured-hooked to the safety line. The AB1was resting on the painting stage waiting for the rigging of the Jacob's ladder. To fall into the sea, he should have disconnected the life-line from the safety harness. (The connecting link is located on the back of the person wearing the safety harness). Being for two hours from 13:00 to 15:00 on the painting stage, is boring. Boredom causes distraction and inattention. Then he had to wait to bring and rig the Jacobs ladder to climb up. Awaiting may have caused him eagerness that led him to disconnect the life-line from the safety harness. He would have to do it afterwards when he would have climbed on the deck and may have decided to save time.
At approximately 14:45 hours, while OS1 was rigging the Jacobs ladder, heard AB1 shouting and then looked over the starboard side and saw the AB1 into the sea. The safety harness went with the AB1. The safety line remained attached on the ship's railing.

Either the AB1 disconnected his safety harness from the life-line prior ascending to the main deck, or the hook opened because was not hooked properly (or for some other reason). Missing guard /life-line, while awaiting the rigging of the Jacobs ladder (rope ladder) in order to climb up onto the main deck, has been the immediate cause of the fall into the sea.

Distraction and inattention caused by boredom may have been a contributory factor to the accident.

Missing guard (life-line) was the immediate cause of the accident.

4.2 The Ship

M/V "MATAR N" is a Cellular Containership, Year of built 2014 in China, with DWT (Summer) 45952, GT 39824, LOA 228.20m, LBP 212.5m, Breadth 32.20m, Depth 16.80m, Summer Draft 12.50m, Freeboard 4.312m, Keel to the highest point 52.225m.

Certification

At the time of the accident, the "MATAR N" was registered in Cyprus and owned and managed by NAVIOS Shipmanagement Inc. It was classed with the DNV - GL and had valid certificates including an ISM and an ISPS certificate. The maintenance records indicated that she was maintained in accordance with existing regulations and approved procedures.

4.3 The Environnent

On the 20/07/2018 at 14:45 LT the "MATAR N" was anchored in Ballast condition in South Korea / Gunsan OPL anchorage in Position Lat.: 35-34.57 N - Long.: 125-08.80 E.

Draft: At the time of the accident the Draft Forward= 6.00m, Draft Aft= 7.60m, Mean Draft= 6.80m.

Survivability:

Ship's Depth 16.80m – Mean Draft 6.80m = Freeboard10m.
In between 5m -10m was the height of the painting stage from the sea surface.

- According to the ship's log, the prevailing weather conditions were: Wind Force & Direction: NNE 7 Knots (3B), Sea state: Gentle Breeze (2), Current N 0,2 knots, Weather: Clear, Daylight, Visibility Good. The sea temperature was 28°C.

- The air temperature was at noon 30°C and at night 27°C. Therefore, the prevailing weather and sea conditions are considered good.

- AB1 was on the painting stage (he was doing the actual job /i.e., spot painting of the hull stbd side near midships. Above him on the Main Deck, attended the Bosun as Supervisor and the OS1 was watching him out and assisting, i.e., providing him whatever he needed. The AB1 when fell into the sea was wearing overall, helmet, safety harness and safety shoes. A life-line was connected to the safety harness, and secured on a fixed point on the main deck. He did not wear a Life-Jacket.

- The AB1 was furnished with a valid medical examination certificate. According to the crew, he was fit and healthy. Nevertheless, according to the Bosun, he was coming from the Philippines mainland and probably was not able to swim. Therefore, he could not swim towards the Life-Ring thrown by the OS1. He disappeared from view after very short time, therefore the Bosun was not able to reach him.

Therefore, the factors that affected the AB1's ability to keep afloat and survive in the sea environment include:

- his ability to swim
- the shock of falling into the sea and impact with water
- the weight of his sodden overalls
- ingestion of sea water

Ability to swim, shock of falling into the sea and impact with water, weight of sodden overalls and ingestion of sea water, have been contributing factors in the loss of the seaman, after he fell into the sea from the painting stage.

4.4 Safety Management

Risk Assessment
The MC Safety Manual Section 10: Risk Assessment Item 18, provides control measures for work outboard:
Safety Manual Sect. 2 (Safety duties of employees and safe working practices), Section 3 (Protective clothing and equip.) / SMS Form F16_01(Permit to work) sect. D / SMS Form F15_02 (condition of ladder)

The Risk Assessment (RA) provides for hazard analysis, assessment of risk factor and additional measures to be taken to mitigate the danger.
A specific RA was performed on 20/07/2018 and relevant Form RAS_01 was completed. The Hazards which were identified in the Form RAS_01 were Injury and Environmental pollution. The existing controls for these hazards were:

For the Injury Hazard:

- Implementation of Permit-To-Work (PTW). Existing control: SMM Form F16_01-B (Permit to work) Section D

- SMM Form F15_02 (condition of ladder) [to be used for ascending and descending on the painting stage]

For the Environmental pollution Hazard:

- Form F16_01 (Permit to work) Section D

Additional risk control measures decided to be taken: A Tool-Box-Meeting prior to work.

According to the C/O: There is a Risk Assessment and a Procedure in the SMM for work over side. A Permit -To-Work (PTW) and Risk Assessment (RA) was issued by the C/O and approved by the Master.

Permit-To-Work (PTW)
The task to spot painting the ship side stbd, had been undertaken after the Master had issued a PTW over the side (Form: SMM No. F16_01B). The C/O stated that he informed

the Bosun about the PTW, at 7:00hrs when he went on the Bridge and gave him the daily work order. The Bosun read the PTW. The Bosun did not ask anything about the PTW, because, according to the C/O, everything was written on it. The AB1was the only person working over the side/on the painting stage, (doing the actual work) while the OS1 was attending / assisting from the ship's main deck and the Bosun was acting as supervisor.

Below is an extract of the PTW issued on 20/07/2018:
Description of work: Painting of ship side stbd
Location: Anchorage at Gunsan OPL
Authorized person in charge: C/O
Date/Time: 20 Jul 2018 /08:00 H (Not to exceed 24 hours)
Completion of work: 20 Jul 2018 / 14:45 H

C. When work aloft and outboard is carried out

1. Is the Master and responsible officer informed?	**YES** / NO
2. Is the stage or ladder that is going to be used in good condition covering the CSWPMS, Par. 15.2?	**YES** / NO
3. Are the seamen who will carry out the job aware of the safety precautions and Personal Protective Equipment to be used such as: -Safety Helmet -Safety Harness and line attached to a strong point -Lifejacket and capable for this job?	**YES** / NO
4. Is the safety harness with lifeline or other arresting device continuously worn during the work?	**YES** / NO
5. If the work is commenced near the ship's whistle:	YES / NO
a) Is the power shut off and warning notices posted?	YES / NO
6. If the work is commenced on the funnel:	
a) Is the duty Engineer informed?	YES / NO
7. If the work is carried out near the radar scanner:	
a) Is the Officer on duty informed?	YES / NO
b) Is the scanner isolated?	YES / NO
c) Are warning notices posted on the bridge?	YES / NO
d) Is the scanner secured against free turn? (Make sure to free scanner after work's completion)	YES / NO
8. Are warning notices below the work area in order to avoid any risk of anyone working or moving below?	YES / NO
9. Has a Risk Assessment of the proposed work being carried out?	**YES** / NO

Although a permit to work over the side had been issued, a basic precaution in using a life-jacket, was not in place and the safety harness with lifeline was not continuously worn during the work. Therefore, inadequate safety precautions were a contributory factor to the accident.

Tool-Box-Meeting

The Bosun like every day, went on the Navigation Bridge at 07:00 hours, to get instructions for the works to be done in the day. The C/O shown him the PTW for the painting of the ship's stbd side. The PTW refers to the RA.

Then, (according to the Bosun), he told the AB1 to work on the painting stage. He told him "complete battle gear". By saying "Complete Battle Gear" the Bosun meant, to wear all required safety equipment i.e. safety shoes, helmet, life-jacket and safety harness connected to safety line (the safety line which was connected with the harness at the back of the AB1, should be tethered on a fixed point of the ship). The AB1 refused to wear life-jacket and smiled only to the Bosun. The Bosun told him again to wear life-jacket.

He smiled again. Then, the Bosun said ok, because he didn't want to make argument and wasting time. Therefore, it is argued, that the Bosun demonstrated inadequate assertiveness.
After the morning coffee break between 10:00 - 10:30 hours, the stbd side hull painting from the painting stage re-started. The AB1 refused again to wear life-jacket. The Bosun with another AB went to work at some other point of the vessel. When the Bosun returned before 12:00 hrs to call for lunch, AB1 climbed up without a safety line secured on his safety harness. After lunch at 13:00 hrs the Bosun told the AB1 again, "complete battle gear" before going down. AB1 refused again to wear a life-jacket. He didn't answer, he didn't smile. He kept silent. He went down and continued to work. Therefore, it is argued that the AB1 regarding safety, demonstrated risky attitude.

Inadequate assertiveness of the supervisor has been contributory factor to the accident.

Safety (Risky) attitude of the victim has been the root cause of the accident.

According to the RA, additional risk control measures to be taken, were a Tool-Box-Meeting to be held, prior to work. The gang was assigned to perform spot painting over the stbd side was small, i.e. one AB and one OS, under the Bosun's supervision. The Bosun would not be attending all the time, he had to supervise other deck personnel who were working at other points of the ship. The mustering for a Tool-Box-Meeting of a so small team may seem too much.

The Bosun gave instructions to the AB1 individually. The AB1 ignored the Bosun's instructions. The Bosun did not exert the necessary assertiveness in order to oblige him to wear a life-jacket. It cannot be argued that had a Tool-Box-Meeting held the AB1 would have different attitude regarding safety, consider the Bosun's instruction "complete battle gear" and wear his life-jacket which eventually would have saved his life.

Inadequate implementation of the Risk Assessment's additional control measure requirement for a Tool-Box-Meeting to be held prior to work, may have been contributory factor to the accident.

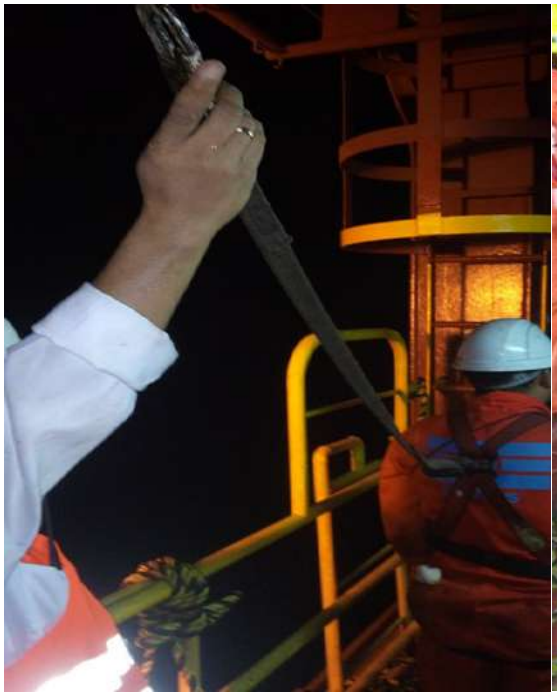
<u>The Jacobs ladder (Rope ladder)</u>
According to the C/O: "The Jacobs ladder was taken up in order to paint the hull, it was obstructing. That's why it was taken up. I think that he fell in the water, because he took off the safety line. The draft amidships was 7m. The freeboard was 13.3m".

The Jacobs ladder was not laying against the side of the ship and below sea surface and was not rigged all the time. The AB1 while awaiting to be rigged, may became bored and inattentive. If the Jacobs ladder was placed all the time and extended below sea surface, the AB1, after the fall could have catch it even if he didn't know swimming.
Therefore, improper Jacobs ladder (ascending /descending arrangement) to the painting stage has been a contributing factor in the loss of the seaman, after he fell into the sea from the painting stage.

Improper ascending /descending arrangement for overside work, was a contributory factor in the loss of the seaman, after he fell into the sea.

The Painting Stage

The Painting Stage's dimensions were measured by the Investigator. Painting Stage's Length was 2.00m, Breadth was 27cm and Thickness was 5cm. The transverse bearers of the painting stage, were 90cm. The breadth of the cradles (but not of the stages), according to the "ILO Code For Safe Working Practices", should be 40 cm. No reference for the stages dimensions is being made neither by the ILO Code nor by the "Cyprus Code of Safe Working Practices for Merchant Seamen". Also, the seaman who works is seated on the painting stage the most of the time. Therefore, it cannot be supported that the painting stage was not fit for purpose being only 27cm breadth.



Safety Line & Safety Harness

Jacobs Ladder and Painting Stage

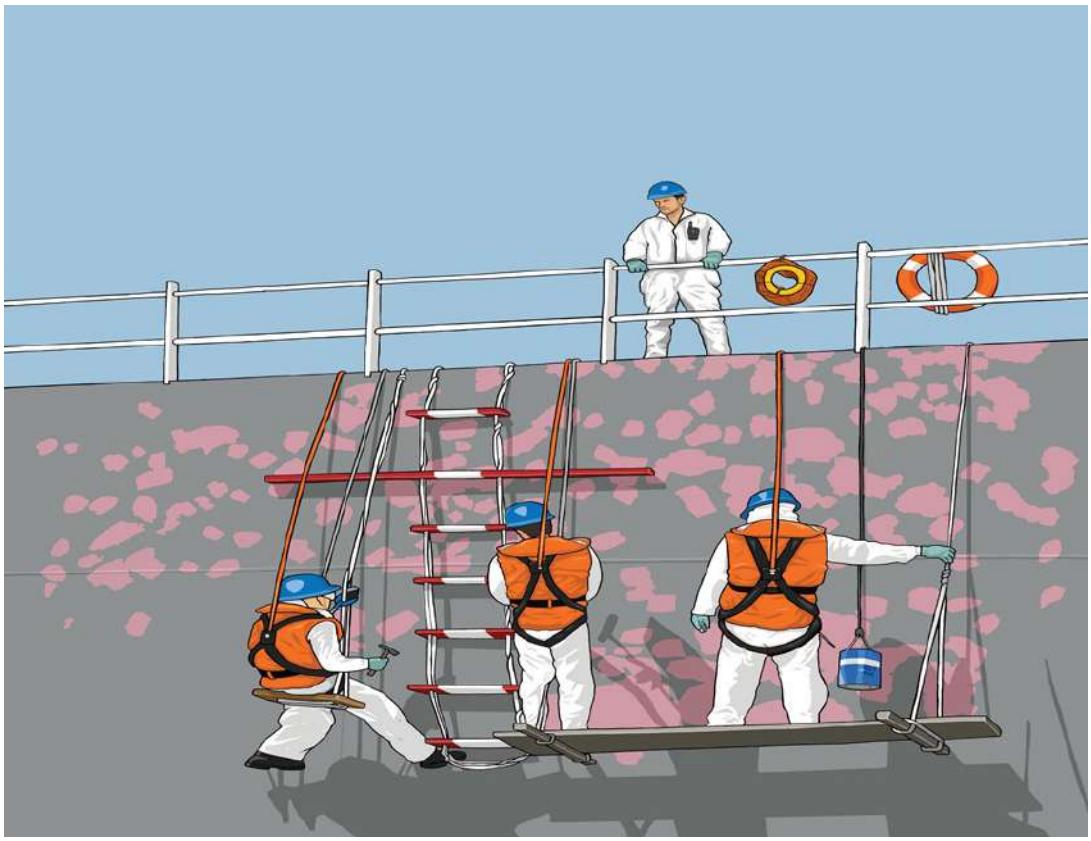
The length of the Life-Line was 1.45m. At the two ends of the Life-Line there are locking devises (snap hooks). The one end's hook was attached on a fixed point of the ship (railings). The other end's hook was attached on the safety harness, at the back of the seaman.

The safety harness went with the AB1when he fell into the sea. The safety line remained attached on the ship's railing.

Demonstration of the equipment used, i.e. painting stage, Jacob's ladder, and the PPE (safety line and safety harness, helmet, Life-Jacket) as shown in the above photographs has been made by the C/O, the Bosun and other crew to the Investigator.

No any certificates existed for the Safety Line, Safety Harness, Jacobs Ladder and Painting Stage. During the demonstration, the snap hooks of the safety line were operating properly. The Jacobs ladder and the painting staged seemed to be in good condition.

Overside Work



Stage: Plank, or planks, fitted with transverse bearers, slung by ropes and put over ship's side, or in holds, for men to work on.
Stage Lashing: New, soft-laid, hemp rope used for lashing stages and other purposes. Is pliable and grips well.
Staging rigged should be inspected for any potentially dangerous defects. Only equipment and ropes in good order should be used. Ladders must be safely secured against slippage. Securing points should be of adequate strength. According to ILO Code for the Prevention of Accidents at Sea and in Port: Cradles should be at least 40 cm, but no reference is being made about the breadth of stages.

Overside work should only be carried out:

- Based on a permit-to-work procedure
- Subject to a special procedure contained in the Company's SMS
- Whilst the vessel is in port or at anchor
- Supervised by a competent person on board.

The persons working overside should

- Always wear a safety harness
- Be firmly connected to fixed vessel appliances on deck
- Have access to a lifebuoy with a line ready for use.
- Communication with a responsible officer must be maintained to enable the Man-Over-Board procedure to be implemented, should the person working outboard fall into the water

Emergency Preparedness

SMS Drills:

The ship's Drill Schedule (SMS Form No: F14_01) for the year 2018 includes a three months drill "Man overboard and recovery of person from water". Relevant drills were performed on the 01/02/2018 and on 13/05/2018. In the remarks column of the SMS Form No: F14_01 is stated that: Meeting to be carried out for recovery operations [as per relevant Manual Appendices 3, 4] and records of meeting to be kept in SMS Form F07_03. Also, in the bottom of the SMS Form No: F14_01, Note 5. states: For recovery of persons from water, please refer to relevant manual "Plans and procedures for the recovery of persons from water".

SMS Documentation:

The Management Company's (MC) Safety Manual Section 10: Risk Assessment Item 26 provides control measures for recovery of persons from the water:

Plans and Procedures for Recover of Persons from the water Manual, BWM par.1.11-Navigational watch keeping/Guidance to Deck Officers, BWM par.1.11.10 – Look out, BWM par.1.20.3 – Under keel clearance policy, BWM par.1.26-Charts & nautical publications, EWM-par. 1.16.2 – Bunkers Safety Margin, Ship board contingency plan par. 14.15-Search & Rescue.
SMS Circular 27 – Supply of navigational charts-Notice to Mariners & Nav/IMO publication, SMS Circular 26 – Instruction for the International Medical guide for ships SMS Form BRF_04-Passage Plan, SMS Form BRF_10 - Navigation in Narrow waters check list, SMS Form BRF_14 – Navigation in restricted visibility checklist, F15_02-Inspection & maintenance of critical equipment, LSA, FFE and pollution control equipment, BRF_09-GMDSS & Navigation equipment check list, F15_01-Master condition & maintenance report, F15_09-Cranes, winches & capstans

SMS Implementation:

At 14:50 hours the OOW on the Navigation Bridge:

- Sounded the General Alarm and
- Made public announcement through the public address system (Announcement: Man-Over-Board. Please proceed to the stbd side pilot ladder).

At 14:55 hours the OOW on the Navigation Bridge:

- Transmitted by VHF Ch. 70 Digital Selective Call (DSC) urgency alert and
- Made on VHF Ch. 16 by voice urgency message broadcast PAN PAN MOB X 3 times.
- MOB flag was raised by the Deck Cadet.

At 14:57 hours the Korean Coast Guard acknowledged receipt of urgency message on VHF Ch.16.

- The Captain ordered to prepare the stbd side Life-Boat.
- The C/O with the Second Officer (2/O), Third Officer (3/O), AB2, OS1, Deck Cadet, Engine and Galley crew, prepared the stbd side Life-Boat.
- At 15:05 hours ST, vessel's stbd Life-Boat was launched at stbd side and commenced search and rescue (SAR) operation.

From the above it is concluded, that the Vessel's Emergency Contingency Plan had been executed (relevant check-list was completed). Emergency preparedness was properly implemented.

5. Conclusions

The Immediate Cause of the accident:

- Missing guard (life-line) was the immediate cause of the accident.

The Root Cause of the accident:

Safety (Risky) attitude of the victim has been the root cause of the accident.

The Contributing Causes of the accident were:

- Attention Failure: Distraction and inattention possibly caused by boredom have been a contributory factor to the accident.

- Ability to swim, shock of falling into the sea and impact with water, weight of sodden overalls and ingestion of sea water, have been contributing factors in the loss of the seaman, after he fell into the sea from the painting stage.

- Although a permit to work over the side had been issued, a basic precaution in using a Life-Jacket, was not in place and the safety harness with lifeline was not continuously worn during the work. Therefore, inadequate safety precautions were a contributory factor to the accident.

- Inadequate assertiveness of the supervisor has been contributory factor to the accident.

- Inadequate implementation of the Risk Assessment's additional control measure requirement for a Tool-Box-Meeting to be held prior to work, may have been contributory factor to the accident.

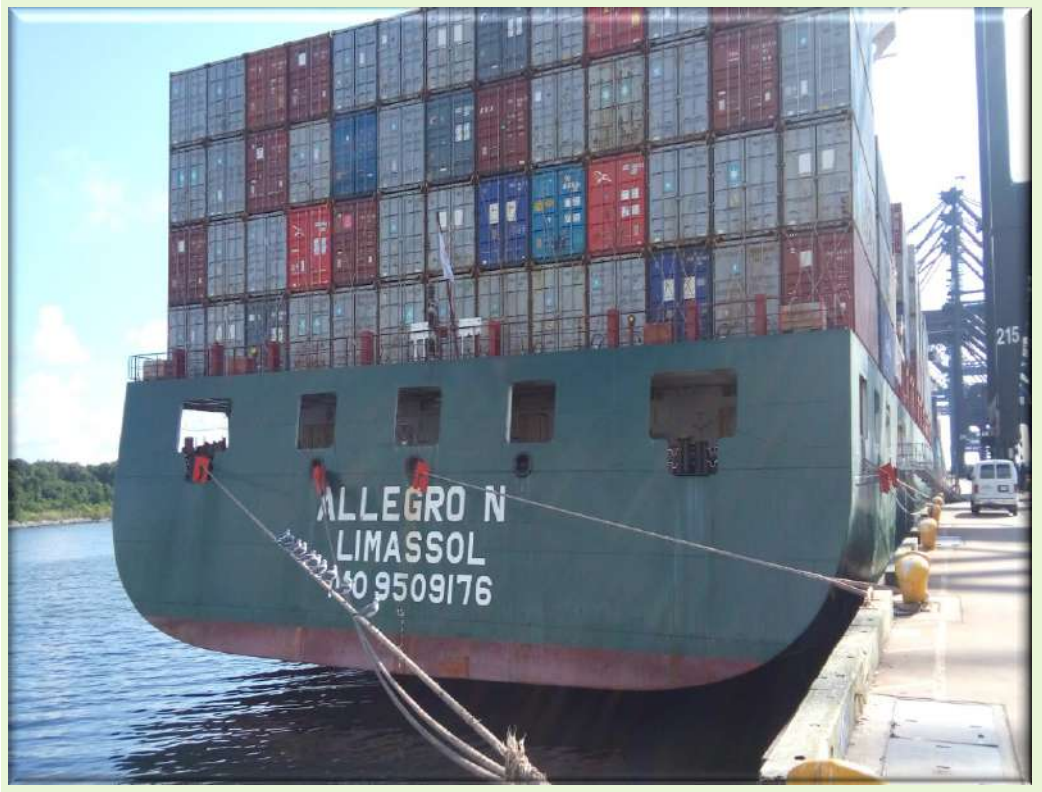
- Improper ascending /descending arrangement for overside work, was a contributory factor in the loss of the seaman, after he fell into the sea.

6. Recommendations

Preventing a person falling overboard should always be a primary objective. Wearing a flotation aid significantly improves the chances of a person's survival and recovery, and its design should be appropriate for the work being undertaken. It is also essential to have effective man-over-board recovery measures in place, including properly trained crew and maintained equipment such as rescue boats.

Safely working over the side of a ship relies on an effective Risk Assessment and Permit-To-Work, that ensures suitable precautions are in place, including appropriate stages, stages lashing and rope ladder, the wearing of an appropriate flotation aid and a proper use of fall prevention equipment. Work over the side must be properly supervised to ensure all measures identified in the permit to work are followed.

The Management Company by way of a circular or other means, to educate its crews, on Risk Assessment and Work Permit System, with particular emphasis on crew responsibility for carrying out the work and taking safety measures as described on the Work Permit.



After the accident, the name of the vessel “MATAR N”, was changed to “ALLEGRO N”