# FINAL MARINE SAFETY INVESTIGATION REPORT

| | |
|---|---|
| **VESSEL NAME** | **:** M/V SERVET ANA |
| **IMO NO** | **:** 9443774 |
| **FLAG OF THE VESSEL** | : Turkish |
| **LOCATION OF ACCIDENT** | : 11.6 miles southwest of the coast of Liberia |
| **DATE and TIME OF ACCIDENT** | : 3rd of October 2020 - 24:00 |
| **FATALITY/INJURY** | : 1/1 |
| **DAMAGE CONDITION:** | : A Rescue Boat has been missing |
| **ENVIRONMENT POLLUTION** | : None |

*Board Decision No: 13 / D-05 / 2022* *Date: 20 / 07 / 2022*

## LEGAL BASIS

This marine casualty has been investigated by the provisions of the “DIRECTIVE OF INVESTIGATION OF MARINE CASUALTIES AND INCIDENTS” published and enacted in the Official Gazette dated 11/27/2019 and numbered 30961.

International Standards for Safety Investigations into marine casualties or Incidents (MSC 255(84)) and Resolution A.1075 (28) and International Maritime Organization Decisions on Recommended Practices (Accident Investigation Code) and Directive 2009/18/EC of the European Union have also been taken into account for the procedures and principles of the investigation.

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## DEFINITIONS and ABBREVIATIONS

*GMT : Greenwich Mean Time*

*AIS : Automatic Identification System*

*VHF : Very High Frequency*

*ISM : International Safety Management*

*IMO : International Maritime Organization*

*MT : Metric Tons*

## SOURCE OF INFORMATION AND REFERENCE LIST

- *Logs of M/V SERVET ANA*
- *Records of The Ship Operator*
- *Records of the vessel M/V SERVET ANA Master and Crew*

## LIST OF IMAGES



## LIST OF ANNEXES

# SUMMARY

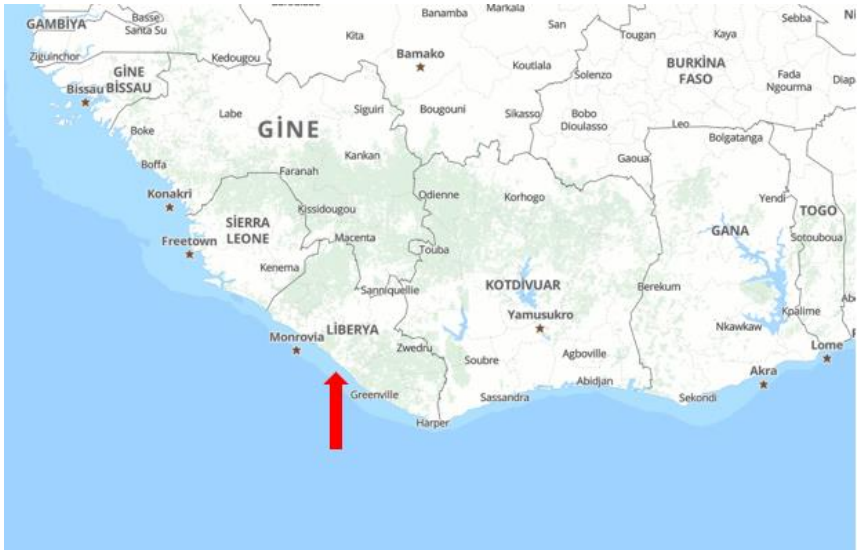



*Image 1 Location of the Accident*

*Note: All times used in the report are local time. (GMT +0)*

On October 02, 2020, the vessels, M/V Servet Ana and M/V Baku, operated by the same company, anchored off the coast of Liberia to exchange crews and supplies. On the 3rd of October 2020, around 24.00, the rescue boat[1] that was used to transfer crew and supplies from the vessel M/V Servet Ana to the M/V Baku vessel capsized with a reverse wave while it was being launched, and III. Officer, III. Engineer, IV. Engineer and V. Engineer on the rescue boat were over board.

While the III. Officer and III. Engineer, two of the four crew members who had been over-board, were able to climb the side ladder released for them from the vessel, the other two crew began to drift due to the current force. An enclosed lifeboat with a free fall mechanism was launched into the water to rescue the two crew. Oiler sustained injuries when he fell onto the aft deck, where the free fall lifeboat was located, when the free fall lifeboat was being launched. The two crew who had been over-board were taken from the sea with an enclosed lifeboat, but despite the efforts of the master to apply first aid to the IV. Engineer, he was unable to survive. On the 4th of October 2020, at around 11.00, the injured Oiler was handed over to the medical staff at the port of Monrovia for being hospitalized.

Following the findings of the investigation into the marine accident, recommendations were directed to the Chambers of Shipping, the Turkish Shipowners Association, and the Ship Operator.

[1] A boat designed to rescue people in danger and guide life-saving appliances.

# SECTION 1 - FACTUAL INFORMATION

## 1.1 Information on the Vessel

**M/V SERVET ANA**

| | |
|---|---|
| Flag | : Turkish |
| Call Sign | : TCMF7 |
| IMO Number | : 9443774 |
| Classification Society | : ABS (American Bureau of Shipping) |
| Type | : Bulk Carrier |
| Place and Year of Building | : China / 2011 |
| Gross Tonnage | : 19999 |
| Length Over All | : 178,70 meters |
| Beam | : 28 meters |
| Main Engine and Power | : Makita-Mitsui/MAN-B&W 6S42MC /6.232 kW |
| Hull Construction | : Steel |


*Image 2 The vessel SERVET ANA*

## 1.2 Information on Vessel Navigation

**M/V SERVET ANA**

| | |
|---|---|
| Port of Departure | : İskenderun / Türkiye |
| Port of Arrival | : Freetown / Sierra Leone |
| Cargo Information | : 29.000 MT Cement |
| Number of Crew | : 22 |
| Minimum Safe Manning | : 16 |
| Type of Navigation | : Ocean Going |

## 1.3 Information on Accident

**M/V SERVET ANA**

| | |
|---|---|
| Date/Time of Accident | : 3rd of October 2020- 24.00 (GMT+0) |
| Accident Type (IMO) | : Very Serious Marine Casualty |
| Type of Accident | : Man Over Board |
| Location of Accident (Latitude-Longitude) | : 05°28’18” N- 009°55’15” W |
| Dead/Injured | : 1/1 |
| Damage | : A Rescue Boat has been missing. |
| Pollution | : Not reported |

## 1.4 Information on Environment Conditions

| | |
|---|---|
| Wind | : 3/2 Beaufort force from South/Southeast. |
| Sea Condition | : Slightly Turbulent, Swell Wave at Moderate Force |
| Visibility | : Good |
| Weather Condition | : Overcast/Rain Crossing |

The accident location is in the Gulf of Guinea region, which is included in Nav/Metarea II. (Image 3) The swell was reported at medium force from the Southeast.

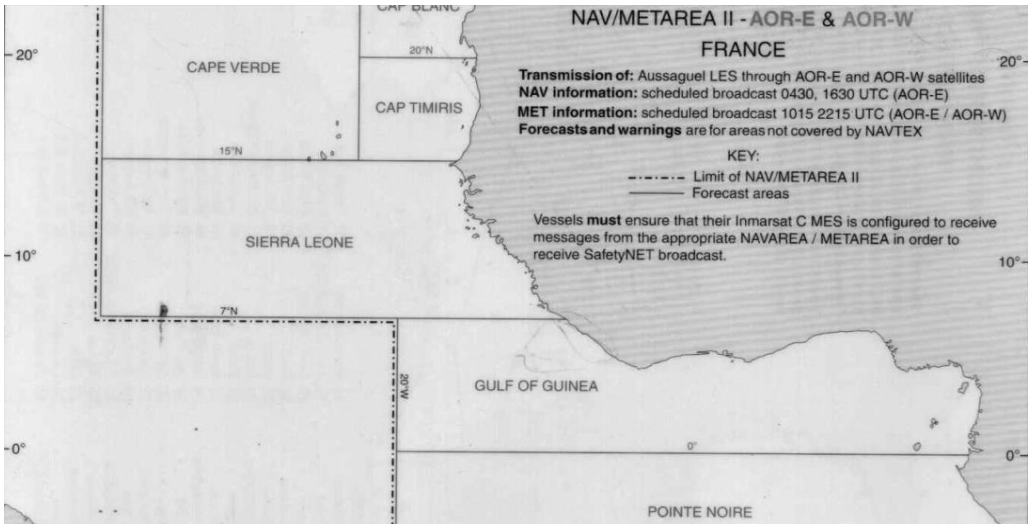



*Image 3 Nav. Area Gulf of Guinea*

Swells are the waves that are formed by the wind that may propagate beyond the region in which the wind impact that generated them. Long distances may be travelled by swells. They are referred to as dead waves since they are able to maintain their existence even when there is no wind in the regions that they reach.

## 1.5 The vessel SERVET ANA

The ship certifications and class documentation of the vessel, M/V Servet Ana, were valid on the date of the accident, and the survey period had not expired. The ABS Classification

society issued the Safety Management System (SMS) and the International Ship Security Certificates on behalf of the Republic of Türkiye, and they were verified annually. The ABS society has issued the International Ship Security Certificate on behalf of the Republic of Türkiye on 20th of September 2019 which is valid until 27th of October 2024.
The ABS society issued the Safety Management Certificate for the said vessel on 19th of September 2019, which is valid until 27th of October 2024.

## 1.6 Manning and Key Crew of the Vessel

The vessel, M/V SERVET ANA, must be manned with 16 crews according to the Minimum Safe Manning Certificate issued under the International Convention for the Safety of Life at Sea (SOLAS 74) Regulation V/14. There were 22 crew onboard, including the master, on the day of the accident and the vessel was **manned with a sufficient number of qualified seafarers** according to the Minimum Safe Manning Certificate. Also, there was neither deck cadet nor passenger on board. The entire crew was Turkish nationals and Turkish was their working language.

### 1.6.1 Master

The master, a Turkish national, was born in 1972 and 48 years old at the time of the accident. The master, who had been employed by the company since 2010, which he has been currently working for, was certified as an oceangoing master in 2017 and began to work on the vessels as a master. He joined the vessel on July 27, 2020, and at the time of the accident, he was standing on the platform from where the rescue boat was launched.

### 1.6.2 Chief Officer

The Chief Officer was born in 1980 and 40 years old at the time of the accident. He has certificate of competency as an Oceangoing Chief Officer. He joined the vessel 3 months ago. Although he had duties according to the muster list during both the launching of the rescue boat and the rescue of the crew members who had been over-board, he did not take part in either the launch of the enclosed lifeboat or the rescue boat.

### 1.6.3 Chief Engineer

The chief engineer was born in 1975 and 45 years old at the time of the accident. He has a certificate of competency as an Oceangoing Chief Engineer. He was commanding the davit during the launch of the rescue boat to the sea.

### 1.6.4 Casualty (IV. Engineer)

The IV. Engineer, who died as a result of the capsize of the rescue boat, was 55 years old on the date of the accident. The resting time in the past 24 hours was 16 hours, and in the last seven days, it was 47 hours. The casualty, whose shift length before the accident was four hours, was in the 4/8 shift schedule. The casualty had been aboard the vessel M/V Servet Ana for 29 days at the date of the accident, having boarded from İskenderun/Tosyalı Port on 4th of September 2020. According to the company that operates both vessels, the casualty would transfer from the vessel M/V Servet Ana to the Baku vessel during the voyage and would assume in charge of the Baku ship as Chief Engineer. He had around 30 years of seagoing experience at the date of the accident. Since 2015, he had served as Chief Engineer on several vessels for the company that operates the vessel. He held professional competence certificates as well as qualifications appropriate for the job he would undertake.

### 1.6.5 Casualty (Oiler)

The Casualty was born in 1992 and was 27 years old at the time of the accident. He has four years of seagoing experience. He had been aboard the vessel M/V Servet Ana for 68 days at the date of the accident, having boarded on 27th of July 2020. The professional competence certificate as well as qualifications that he holds were valid and appropriate for the job he would undertake.

Although he was not given an assignment during the launch of the enclosed lifeboat according to the muster list, he was critically injured after falling on the quarter deck from the deck where the lifeboat was located while removing the safety pin of the enclosed lifeboat. Following the accident, he was handed over to the medical staff at the port of Monrovia for being hospitalized. Following his first treatment in Liberia, he was

transported to Istanbul on 20th of October 2020, accompanied by an aircraft and a physician.

## SECTION 2 – NARRATIVE

***The sequence and time of the incident that leads to the marine accident under investigation and the location of people based on the eyewitness statements and interviews, as well as the video footage.***

The vessel, M/V Servet Ana, acquired a Port Clearance Certificate from the Iskenderun Tosyalı Port on 8th of September 2020 and departed for Freetown port of Sierra Leone with 22 crew members and 29,000 MT of cement in bags. The vessel had no problems throughout the voyage, and after completing a port unloading operation on 23rd of September 2020, it sailed away for Abidjan Port in the Ivory Coast. It is difficult to change a vessel's crew at global ports due to the national and international measures taken by all countries as well as the stringent precautions made due to the prolonged course of the Covid 19 pandemic; nonetheless, it is not possible in certain ports. Based on this, the company, by taking into account the commercial voyages of the vessels incorporated the IV. Engineer, who had passed away, and the V. Engineer, who asked to leave the vessel, into the vessel M/V Servet Ana, at the Port of Iskenderun Tosyalı, for the transfer of vessel's crew members to the M/V Baku, another vessel under its management.

The vessel, M/V Servet Ana anchored off the coast of Liberia on October 2, 2020, at around 21:00, to provide the vessel, M/V Baku with the crew and spare parts, as was previously agreed upon between the two vessels. Around 23:00, the vessel M/V Baku anchored six cables away from the vessel M/V Servet Ana. On October 3, 2020, the vessel M/V Baku heaved up the anchor at 09:10 and anchored 1.5 cable away from the vessel M/V Servet Ana at 09:30 to shorten the distance between the two vessels. When the vessel M/V Servet Ana changed her anchorage at 16:55, the distance between the two vessels was reduced to around 200 meters. At 17:30, the rescue boat of the vessel M/V Servet Ana was launched to draw the guide rope between the two vessels. At 22:10, the two vessels were safely secured with a mooring line (36 mm). Following that, engine spare parts and crew items (about 100 kg) that would be transferred from the vessel M/V Servet Ana to the vessel, M/V Baku, were loaded aboard the rescue boat. Afterwards, the III. Officer to drive the boat, III. Engineer for a possible technical failure in the boat, and the IV. Engineer and the V. Engineer, who had

previously decided to be transferred from the vessel M/V Servet Ana to the vessel, M/V Baku donned their life jackets and boarded the rescue boat.

On 3rd of October 2020, at around 24.00 hours, it was waited for the weather to lower, and the rescue boat located on the starboard quarter deck began to be launched using the davit of the rescue boat directed by the Chief Engineer. The seating and layout aboard the rescue boat appear in the image (Image 4).

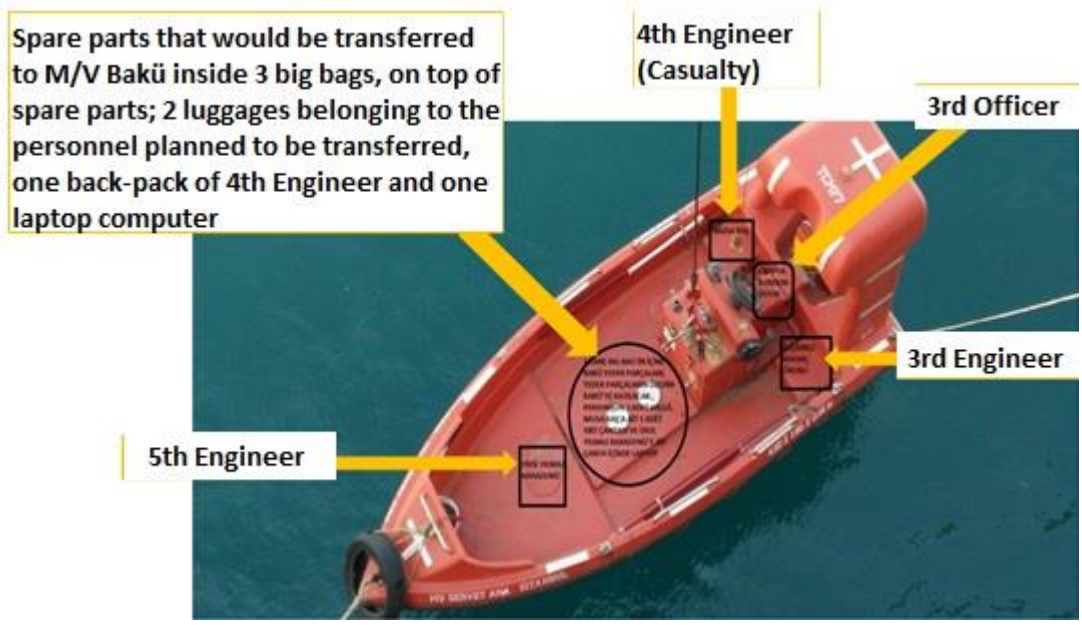



*Image 4 Layout of the Crew and Supplies Aboard the Rescue Boat*

The rescue boat capsized immediately after being launched into the water, and the four people were over board. When the master and other crew members saw the accident on the aft deck, they released the side ladder and throw the life buoys along with the heaving lines to catch the crew members who had been over-board. At first, the casualty, IV. Engineer and V. Engineer appeared to be holding on to the side ladder, but soon after, both of them started to move away from the side ladder. The other two crew members climbed up the side ladder with their own efforts. The master decided to release the enclosed lifeboat to rescue the two casualties who were unable to hold on to the side ladder and began to drift into open water.

On the one hand, the boat lashings attaching the enclosed life raft to the vessel were untied; and on the other hand, the master boarded the life raft, followed by the II. Engineer and the III. Officer, and the Chief Engineer assumed charge of the davit of the enclosed life raft. On 4th of October 2020, at 00:20, while the enclosed lifeboat was being lowered to the water, the oiler, standing on the platform that attached the enclosed lifeboat to the vessel was injured by falling from the platform that attached the enclosed life raft to the deck on which it was located, to the quarter deck.

The Image 5 represents the location where the Oiler stood before falling and getting injured afterwards, during the launch of the enclosed lifeboat from the vessel M/V Servet Ana.

*Image 5 Representative Location of the Casualty, the Oiler Before the Accident*

The vessel's crew were the first to respond to the oiler, and medical aid was requested. Meanwhile, the search for the two crew members who had been over-board with the enclosed lifeboat commanded by the master initiated. During the rescue operation, where there were occasional showers, the V. Engineer was taken from the sea alive at 01:20. After about 10 minutes, the deceased IV. Engineer was located in the water and pulled into the enclosed lifeboat. First aid procedures were carried out by the master personally, after checking the pulse and respiration of the IV. Engineer, and the casualty was tried to be revived. However,

the first aid procedure yielded no results, and he was presumed to be dead. Throughout the course of this operation, updates were communicated not just to the company but also to the coastal state and the flag state.

The heaving lines of the lifebuoy that was used to pick up the casualty IV. Engineer were entangled in the propeller of the enclosed lifeboat at around 01:30, which rendered the enclosed lifeboat inoperable. Thereupon, the master requested assistance from the vessel M/V Baku, which was close. The crane of vessel M/V Baku hoisted the enclosed lifeboat of vessel M/V Servet Ana and placed it onto her deck at 03:55.

The vessel's crew, who did not engage in the rescue operation of the vessel M/V Servet Ana, informed the master of the condition of the Oiler, who was injured during the launching of the enclosed lifeboat. The vessel M/V Servet Ana, which had raised the anchor, sailed away towards the port of Monrovia under the command of the Chief Officer with the master's authorization in order to bring the injured Oiler to the shore. On 4th of October 2020, at around 11.00, the injured Oiler was transferred to the medical staff at the port of Monrovia. The casualty, IV. Engineer, on the other hand, was transferred to the authorities at the anchorage of the port of Monrovia on 5th of October 2020 at 17.10 with the vessel, M/V Baku. On 4th of October 2020 at 14.40, the Master, II. Engineer, and III. Officer of the vessel M/V Servet Ana left the vessel, M/V Baku with the enclosed lifeboat. On the same day at 15.50, the enclosed lifeboat and the crew inside it were transferred to the vessel M/V Servet Ana before continuing sailing.

# SECTION 3– ANALYSIS

***While analyzing the marine casualty under investigation, it is aimed to identify and determine the factors that caused the accident by considering the sequence of events and data obtained during the investigation as well as to draw useful conclusions that lead to the safety recommendations on root causes.***

## 3.1 Crew Exchange Between Vessels

When the course of the subject accident is examined, it was unavoidable that this problem, which was frequently raised by the IMO throughout the embarkation and disembarkation of crew members aboard the vessels, particularly during the Covid-19 pandemic, would land the industry with significant trouble.

Given these circumstances, The United Nations General Assembly urged its member states to designate seafarers and other marine staff as key workers and to put in place appropriate procedures to enable stranded seafarers to be repatriated and join their vessels, as well as to provide access to medical treatment[2].

In consequence of the said resolutions by the United Nations General Assembly, the maritime administration of the flag state expeditiously carried out necessary works in this respect and communicated its decisions to the relevant sector stakeholders in the article, **"Key Workers in the Maritime Sector" dated 3rd of December 2020.**

Despite the above-mentioned challenges, the IV. Engineer and V. Engineer joined the vessel, M/V Servet Ana in order to be transferred to M/V Baku for crew exchange. Since the destination port of the ship was Freetown (Sierra Leone), it was anticipated that this exchange with the vessel M/V Baku would take place, provided proper conditions and circumstances existed, with a service boat or sea craft to be chartered, as necessary, in the anchorage of the port.

[2] https://www.imo.org/en/MediaCentre/PressBriefings/pages/44-seafarers-UNGA-resolution.aspx

Despite all efforts, no crew exchange could take place after the unloading operation of the vessel M/V Servet Ana in the port. On October 2, 2020, at around 21.00 local time, both vessels met off the coast of Liberia, and it was agreed to exchange the crew and, in the meantime, transfer the necessary spare parts using the rescue boat of the vessel M/V Servet Ana.

It was observed that, in order to make this exchange, night hours were preferred due to reasons arising from the vessel M/V Baku, it was known that there would be rain crossings, and IV. Engineer who would be transferred had limitations, and it was noted in the Risk Analysis undertaken the day before those measures had been taken to mitigate the risk as it posed a very high-risk level.

Despite the fact that it has become harder to exchange crew at international ports due to the pandemic (Covid-19) and maritime enterprises are suffering financial hardships in this respect, **this case has made it evident that** ports are the safest place to carry out such operations (embarking and disembarking the ship), and in circumstances where this is not feasible, it **would be preferable to utilize** professional facilities and organizations associated with the port or coast.

## 3.2 Rescue Boat

As is well known, the deployment of Rescue Boats aboard ships is a SOLAS requirement, and their main features are given below.

- In addition to the fundamental standards of lifeboat construction, rescue boats may be either of rigid and inflated construction and shall not be less than 3.8 m and not more than 8.5 m in length; and
- The rescue boats shall be capable of carrying at least five seated persons and a person lying;
- Unless the rescue boat has adequate rake, it shall be provided with a bow cover extending for not less than 15% of its length from the fore;
- The rescue boats shall be capable of proceeding at a speed of at least 6 knots and maintaining that speed, for a period of at least 4 hours, and additionally be at the construction and power of to tow the largest lifeboat carried on the ship when fully loaded at a speed of at least 2 knots;

- A rescue boat shall be fitted with an inboard engine or an outboard motor; but the fuel tanks shall be specially protected against fire and explosion;
- Arrangements for emergency towing shall be permanently fitted in rescue boats;
- The inflatable rescue boats shall be capable of carrying passengers and pieces of equipment while suspended.

Besides, the said rescue boat was launched before the accident and was used to secure the mooring line between the two vessels. On the next use of the rescue boat, engine spare parts for the vessel and personal items of the crew were loaded aboard the boat, along with the four crew members, and it capsized with a reverse wave soon after launching. The fact that such an accident took place right at the beginning of this operation and that its consequence was unfortunate demonstrates that the precautions that were taken as a direct result of the risk assessment were either inadequate or insufficient, and at the very least, **the conclusion that they arrived was not met**, which was "waiting for favorable weather and sea conditions."
However, such employment of the rescue boat may be attributed to the regular use of this method by the vessel's crew for ordinary sea operations and ship necessities.

To avoid the deployment of rescue boats aboard ships for such type of use, the intended purpose of the boat is clearly described in the IMO Convention (SOLAS Ch.III Part A General / Regulation 3 Definitions 19 Rescue boat) as "**a boat designed to rescue persons in distress and to marshal survival craft**".

Furthermore, in the event of a Man Overboard, it has been clearly established who would be assigned among the vessel's crew, as well as where they would work and be stationed. However, it was found out that the crew members (Master, Chief Engineer, Chief Officer, 3rd Officer and Oiler) that took part in the rescue of the casualties who had over-boarded were in entirely different locations from those that were indicated on the Muster List (Annex-4). This indicates that the drills on the ship were either merely on paper or were not sufficiently understood by the crew.

The side ladder, on the other hand, was released into the water when the rescue boat turned upside down, along with the heaving lines and life buoys. Given the circumstances and the crew involved, it is considered that the boat was not outfitted with a side ladder and/or

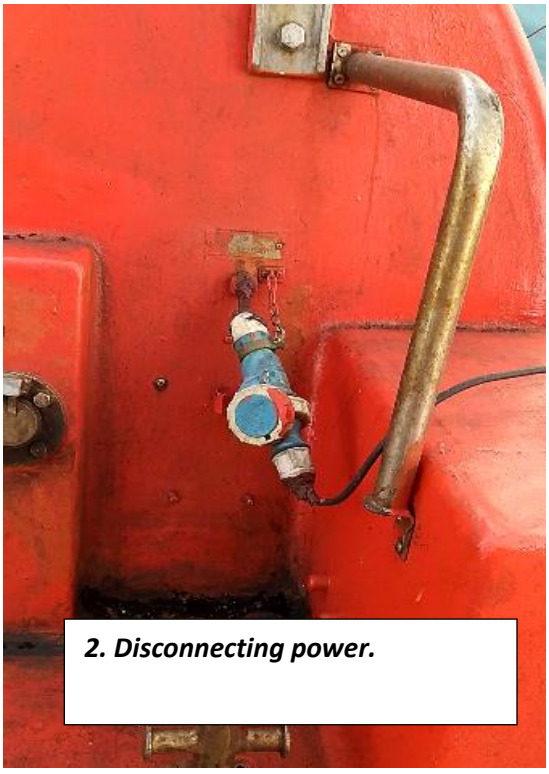
rescue net before being launched in the water and that proper preparation for emergencies that may arise during the operation was not made.

## 3.3 Launching Enclosed Lifeboat into the Water

The procedures to be followed for the operation of launching the enclosed lifeboat, the titles of the crew members who will carry out this operation, and the steps to be taken are all clearly stated in the company Safety Management System (SMS/ISM) manual. Image 6 provides the order of these steps.

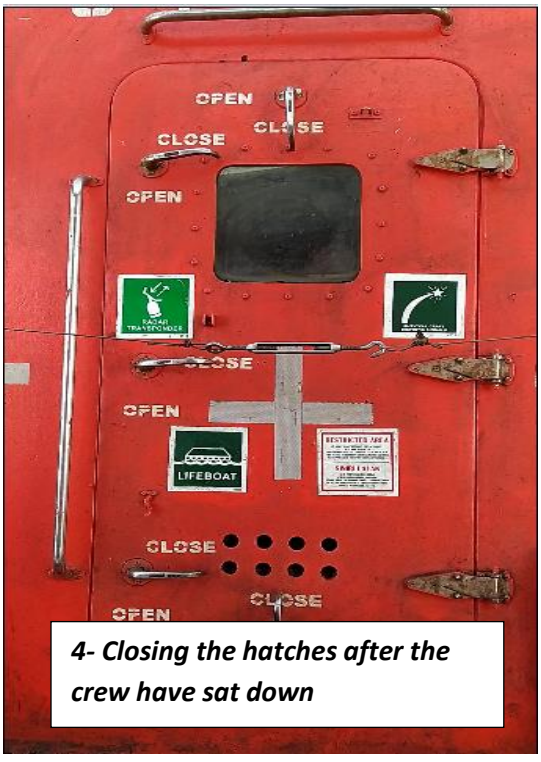
- Releasing the safety pins on the starboard-port side,
- Disconnecting power,
- Detaching hook safety pins,
- Closing the hatches after the crew have sat down and fastened their seat belts,
- Pumping hydraulic fluid into the system with the lever to raise the pressure and let go of the chain.

*1. Releasing the safety pins on the starboard-port side.*



*2. Disconnecting power.*

*3- Detaching hook safety pins.*




*4- Closing the hatches after the crew have sat down*

*Image 6 Launching Steps of the Enclosed Lifeboat*

The master decided to release the enclosed lifeboat in order to rescue the casualties at sea as quickly as possible. Concordantly, the master was the first to get in the lifeboat, followed by the II. Engineer and the III. Officer. The safety pin was stuck during the operations to release the enclosed lifeboat as quickly as possible since the safety pin of the release hook of the boat could not be unlashed in the order indicated above. The oiler, in an effort to be of assistance in freeing the stuck pin, tried to dislodge it by hammering. The oiler, meantime, had one foot on the vessel and the other foot on the moveable platform, which allows him to move between the life raft and the vessel (Image 7). During this process, the lifeboat rapidly fell into the water as a result of the sudden dislocation of the pin, while the oiler was severely injured by falling onto the aft deck, which was roughly 5 meters below the floor, as the platform folded.

*Image 7 Representative Visualization of the Location Where the Casualty, the Oiler, Stood on the Platform*

When the actions and procedures for launching the lifeboat are examined, the following conclusions have been drawn;

According to the muster list, the I. Officer, who should have been in command of the enclosed lifeboat, was not involved in the lifeboat at any point. Again, although the

Boatswain and Able Seaman were supposed to participate in the launching of the enclosed lifeboat, the Oiler and Chief Engineer, who did not have a duty in the muster list, participated in addition to the Boatswain. This indicates that the vessel's crew has not achieved the essential level of practicality in launching a lifeboat and the drills have not been thoroughly exercised.

While the master of the ship was supposed to generally coordinate the operation from the bridge according to the muster list, he assumed leadership of the enclosed lifeboat and actively participated in the operation. The launch of the lifeboat and the subsequent problems resulted in the absence of the Master, who would have been in command of the vessel and the rescue operation. This circumstance is obviously incompatible with the safe management system of the vessel.

## 3.4 Casualty's Cause of Death

According to the master's report, the casualty was wearing a life jacket and was lying face down at sea. However, in the report that was filed by the Liberia Health Authority, the cause of death of the individual was indicated as asphyxia (drowning in water), and there was no concrete evidence to support how the casualty drowned.

## SECTION 4 – CONCLUSIONS

1. The rescue boat of the vessel was utilized for crew transfer and cargo transportation from vessel to vessel instead of a professional transport craft. This particular kind of utilization does not comply with any of the international definitions or assessments. The rescue boat was utilized in a manner that was not consistent with the purpose for which it was intended.
2. Despite the vessel deemed the crew exchange at night to be highly risky, the operation was carried out at night in sea conditions with heavy showers, albeit intermittently, and swell.
3. Although it is considered that a reverse wave was the cause of the boat turning over immediately after it was launched into the water, the actual weight of the loads and materials that were brought into the boat is unknown. Furthermore, it was not secured to the boat so that it would not slide off.
4. The operation was not well prepared. During the process of the rescue boat being launched, there was neither a safety side ladder nor a rescue net installed on its side. A projector and an aldis lamp were not kept at the location where the boat was launched, either.
5. The sequence and procedures described in the ISM guideline were not followed during the lowering of the enclosed lifeboat of the vessel M/V Servet Ana. The oiler sustained injuries while lowering the enclosed lifeboat, and the crew members who participated in the operation did not conform to the muster list.
6. The people who participated in the operation to rescue the casualties who had been over-board did not conform to the duties that were assigned to them in the muster list.
7. The IV. Engineer, who was aboard the rescue boat, was over-board and drowned when the boat capsized.

## SECTION 5 – RECOMMENDATIONS

***The following recommendations are directed by considering the analysis and conclusions obtained from the accident investigation.***

**The Ship Operator is recommended to;**

**19/05-22** Circulate this marine safety investigation report to fleet ships and issue instructions to avoid utilizing a lifeboat in daily regular operations in light of the report's findings;

**20/05-22** Record video footage of vessel trainings, if required, so that vessel's crew are aware of their duties indicated in the drill list within the framework of the Safety Management System, and evaluate them at regular periods within the company;

**21/05-22** Avoid operations at night as much as possible, taking into consideration crew fatigue when undertaking risk assessments;

**22/05-22** Ensure that the muster drills are exercised more regularly on the fleet ships. Issue orders for the vessel's crew to respond in accordance with the muster list in the event of an emergency.

**The Chambers of Shipping are recommended to;**

**23/05-22** Circulate this marine safety investigation report to its' members providing Pilotage, Mooring and Tugboat services,

**The Turkish Shipowners Association is recommended to;**

**24/05-22** As a consequence of the investigation into this tragic accident, circulate considerations to its' members in order to avoid rushing to make crew exchanges, to carry out such operations under more professional conditions and organizations, and avoid utilizing rescue boats as service vehicles.

*ANNEX 1 Rescue Boat Certificate*

ClassNK NIPPON KAIJI KYOKAI

Certificate No. : SA10SC02106-03 Date : 03 December 2010

# CERTIFICATE
# for
# Rescue boat-open type

THIS IS TO CERTIFY that the undersigned Surveyor to Nippon Kaiji Kyokai did at the request of the applicant, did attend the testing and examination of the product(s) described below in accordance with the applicable rules/Standards and found it/them satisfactory.

| | | |
|---|---|---|
| **Manufacturer** | : | JIANGSU JIAOYAN MARINE EQUIPMENT CO., LTD. |
| **Place of Manufacturer** | : | No. 158, Nanhuan Road, Yue Cheng Town, Jiang Yin City, Jiang Su Province, 214404 P.R. China |
| **Applicant** | : | JIANGSU JIAOYAN MARINE EQUIPMENT CO., LTD. |
| **Place of Inspection** | : | JIANGYIN,CHINA |
| **Intended for** | : | Tsuji Heavy Industries(Jiangsu) Co., Ltd. Ship No.S1007 |
| **First Date of Inspection** | : | 01 December 2010 |
| **Final Date of Inspection** | : | 01 December 2010 |
| **Rules/Standards Applied** | : | The applicable requirements of the Chapter III of the 1996 Amendments to the International Convention for the Safety of Life at Sea, 1974, International Life-Saving Code(LSA Code) as amended by IMO Resolution MSC.272(85), the IMO Resolution MSC.81(70) as amended by MSC.274(85) "Recommendation on Testing of Life Saving Appliances" and the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use of the Society. |
| **Approved Drawings/Plans** | : | -- |
| **Order No.** | : | -- |
| **Total set(s) of Product** | : | 1 |

**Particulars**

| | | |
|---|---|---|
| Type | : | Rigid rescue boat |
| Manufacturer's Type | : | GJ4.5 |
| Type Approval No. | : | N-858 |
| Manufacturer's Serial Number | : | 1045175 |
| Details of Particulars | : | See Annex 1 |
| Lifeboat Equipment | : | See Annex 2 |

**Test and Inspection**

| | | |
|---|---|---|
| Construction Inspection | : | Good |
| Releasing Gear Operation Test | : | Good |
| 2 Hours Operation Test | : | Good |
| Over Load Test | : | Good |

**Identification Mark**
For identification, the product(s) was/were stamped:

NK 1329 1045175

*ANNEX 2 Davit Certificate*

ClassNK NIPPON KAIJI KYOKAI

Certificate No. : SA11SC00052 Date : 16 January 2011

# CERTIFICATE
# for
# Rescue boat & liferaft davit (Individual approval)

THIS IS TO CERTIFY that the undersigned Surveyor to Nippon Kaiji Kyokai did at the request of the applicant, did attend the testing and examination of the product(s) described below in accordance with the applicable rules/standards, and found it/them satisfactory.

| | | |
|---|---|---|
| **Manufacturer** | : | Jiangsu Jiaoyan Marine Equipment Co., Ltd. |
| **Place of Manufacturer** | : | No. 158, Nanhuan Road, Yue Cheng Town, Jiang Yin City, Jiang Su Province, 214404 P.R. China |
| **Applicant** | : | Jiangsu Jiaoyan Marine Equipment Co., Ltd. |
| **Place of Inspection** | : | Jiangyin, CHINA |
| **Intended for** | : | TSUJI HEAVY INDUSTRIES(JIANGSU) CO., LTD. Ship's No. S1007 |
| **First Date of Inspection** | : | 7 December 2011 |
| **Final Date of Inspection** | : | 11 January 2011 |
| **Rules/Standards Applied** | : | Chapter III of 1974 SOLAS as amended, International Life-Saving Appliance Code(LSA code) as amended IMO Resolution MSC.272(85), IMO Assembly Resolution MSC.81(70) as amended by MSC.274(85) and the Guidance for the Approval and Type Approval of Materials and Equipment for Marine Use of the Society. |
| **Approved Drawings/Plans** | : | 10 ED 8611 on date 19 November 2010 |
| **Order No.** | : | --- |
| **Total set(s) of Product** | : | 1 |

**Particulars**

| | | |
|---|---|---|
| Article | : | Rescue boat/life raft davit |
| Type | : | JYRC21-00E |
| Max. Working Load | : | 21kN |
| Winch Type | : | RZ21 |
| Max. Working Load | : | 21 kN |
| Manufacturer's Serial Number | | 1019126 |
| Details of Particulars | | See ANNEX 1 |

**Test and Inspection**

See ANNEX 1

**Identification Mark**

For identification, the product(s) was/were stamped:

1329 1019126

*ANNEX 3 Risk Management of Safety Management System*

| DEVAL NAKLIYAT A.Ş | | | | |
|---|---|---|---|---|
| EMNİYETLİ YÖNETİM SİSTEMİ / *SAFETY MANAGEMENT SYSTEM*<br>RİSK DEĞERLENDİRMESİ / RISK ASSESSMENT | | | | Form No.<br>DCK-01-08 |
| Yayınlayan / *Issued by*<br>Y.K. / D.P.A. | Onaylayan / *Approved by*<br>Genel Müdür / Gen.Mngr. | Son Rev Tarih / *Last Rev Date*<br>01/02/2018 | Yayın / *Issue*<br>1 | Sayfa / *Page*<br>2 of 2 |

RISK ASSESMENT / RİSK DEĞERLENDİRMESİ

| | |
|---|---|
| 1. PERSONELE EMNİYET TEÇHİZATI GİDİRMEK (EMNİYET KEMERİ, CAN YELEĞİ, BARET GİDİRMEK)<br>THE PERSONNEL WEAR SAFETY EQUIPMENT(SAFTY BELD, LIFE JAKET AND HALMET) | EVET/YES HAYIR/NOT<br>☒ / ☐ |
| 2. *HABERLEŞMEYİ SAĞLAMAK İÇİN EL VHF'LERİ VERMEK*<br>FOR COMMUNICATION PROVIDE TO GIVING HAND VHF'S | EVET/YES HAYIR/NOT<br>☒ / ☐ |
| 4. *YEDEK AYDINLATMA İÇİN KUVETLİ IŞIK VEREN EL FENERİ VERMEK*<br>FOR BACKUP LIGHTING GIVING A STRONG LIGHT. | EVET/YES HAYIR/NOT<br>☒ / ☐ |
| 3. *UYGUN HAVA VE DENİZ KOŞULLARIN BEKLEMEK*<br>WAITING FOR ACCEPTABLE WEATHER AND SEA CONDITIONS | EVET/YES HAYIR/NOT<br>☒ / ☐ |
| 4. *OLASI BOT MAKİNA ARIZASINA KARŞI HER İKİ GEMİ ARASINDA HALAT DONATMAK*<br>FOR THE RISK OF BOOT MACHINE FAILURE FITTING ROPES BETWEEN BOTH SHIPS AGAINST | EVET/YES HAYIR/NOT<br>☒ / ☐ |
| 5. *BOTUN ALABORA OLMA OLASILIĞINA KARŞI FREE FALL'I KURTARMA BOTU OLARAK KULLANMA.*<br>*FREE FALL USIGN THE RESCUE BOA, POSSIBILITY THAT BOAT AS UPSENT.* | EVET/YES HAYIR/NOT<br>☒ / ☐ |
| 6. *BOTUN İNDİRİLECEĞİ TARAFTA ÇAHMI VE CAN SİMİTLERİN HAZIR TUTMAK*<br>KEEPING READY LIFE BOUY AND LADER ON THE SIDE WHER THE BOAT LAUNCH. | EVET/YES HAYIR/NOT<br>☒ / ☐ |
| 7. *OLASI ARAMA KURTARMA YARDIMI İÇİN* EN YAKIN RCC İSTASIYON ADRESLERİNİ TESPİT ETMEK<br>FOR POTENTIAL SEARCH AND RESCUE ASSISTANCE DETECT THE NEAREST RCC STATION ADDRESSES | EVET/YES HAYIR/NOT<br>☒ / ☐ |
| 12. *Liaison with the relevant contacts* – Temas listesi<br>(a) *Agents* – Acenta<br>(b) *Authorities(RCC)* – Yetkililer (SAR)<br>(c) *Company* – Şirket | ***Done/ Not yet*** ☐ / ☐Tamam / Henüz değil<br>***Done / Not yet*** ☒ / ☐Tamam / Henüz değil<br>***Done / Not yet*** ☒ / ☐Tamam / Henüz değil |

M/V SERVET ANA KAPTANI

02.10.2020

*ANNEX 4 Muster List*

| ROLE NO<br>*MUSTER NO* | MEVKİİ<br>*RANK* | DENİZE ADAM DÜŞTÜ<br>*MAN-OVERBOARD* |
|---|---|---|
| 1 | Kaptan<br>*Master* | Köprüsütü. Genel kumanda.<br>*Bridge. General command.* |
| 2 | 1. Zabit<br>*Chief Officer* | Kurtarma botu. Kurtarma Ekip amiri.Kurtarma botu mataforasına kumanda eder.<br>*Rescue boat. Leader of Rescue Squad.Command to davit for launching Lifeboat* |
| 3 | 2. Zabit<br>*2nd Officer* | Kurtarma İstasyonu amiri. Kazazedeye ilk yardım uygular.Kurtarma botunun bosalarını çözer.<br>*Head of Rescue Station. Applies first aid to survivor(es).Release rescue boat* |
| 4 | 3. Zabit<br>*3rd Officer* | Köprüüstü. Kayıtları tutar ve Kaptan talimatıyla hareket eder.<br>*Bridge. Keep records and follows the order of Master.* |
| 5 | Baş Mühendis<br>*Chief Engineer* | Makine Dairesi. Genel kontrol.<br>*Engine Room. General control.* |
| 6 | 2. Mühendis<br>*1st Engineer* | Kurtarma botu. Kurtarma Ekibi.Kurtarma botu motorunu hazırlar.<br>*Rescue boat. Rescue squad.Prepares the lifeboat's engine* |
| 7 | 3. Mühendis<br>*2nd Engineer* | Makina Kontrol Odası. Baş Mühendis emrinde hareket eder.<br>*Engine Control Room. Follows the order of Chief Engineer.* |
| 8 | Elek.zbt<br>*Elc.officer* | Kurtarma botunun akü besleme fişini çeker. (Geceyse) Aydınlatmayı sağlar.<br>*Unplug rescue boat's battery charger. (If night) Illuminate rescue boat's location.* |
| 9 | Gv. Lostromosu<br>*Bosun* | Kurtarma botu. Kurtarma Ekibi.Kurtarma botunun suya indirilmesine yardım eder.<br>*Rescue boat. Rescue squad.Assists to Chief Off. for launching lifeboat* |
| 10 | 1. Usta Gemici<br>*1st Able Seaman* | Kurtarma İstasyonu. Kurtarma botunun bosalarını çözer ve çarmıhı hazırlar.<br>*Rescue Station. Release rescue boat and rigging disembarkation ladder.* |