

REPUBLIC OF LIBERIA
Liberia Maritime Authority



**Very Serious Marine Casualty Investigation Report
into the death of the Ordinary Seaman
on board M/V TOI CHALLENGER (IMO
9151515) on August 4, 2024**

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All times Local Time (LT) unless otherwise noted

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It is not the purpose of the investigation, nor the function of the Administration, to assign fault or determine civil or criminal liability with respect to enhancing the litigation posture of any party. The Administration must report, or cause to be reported, the circumstances and proximate cause or causes of a marine casualty and any contributory factors. However, where it is determined that there exists evidence of criminal conduct under the Laws of the Republic of Liberia on the part of any seafarer holding a Liberian Certificate of Competency or other official document, the matter would be referred to the Ministry of Justice of the Republic of Liberia for appropriate action.

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INTRODUCTION:

M/V TOI CHALLENGER was berthed at the Port of Arzew, Algeria, and was preparing the cargo holds for loading granular urea.

During these preparations, a portable light projector had been connected inside the pedestal of Crane No. 2 to illuminate Cargo Hold No. 2 for the survey and inspection activities. Later that evening, the Ordinary Seaman (OS) was tasked with tidying the deck area as part of the vessel's cargo-preparation routine. While performing this work, the OS entered the pedestal space of Crane No. 2, where the light projector remained energized.

Shortly after midnight, the OS was discovered lying unresponsive inside the pedestal of Crane No. 2, with the light projector still connected to the 220-volt socket. The crew initiated emergency actions immediately, and the area was de-energized to allow recovery efforts. Despite a prompt response, the OS was confirmed deceased by attending medical authorities

AUTHORITY:

The investigation was conducted, and this report was made, in accordance with the Liberian Maritime Regulation 9.258(1) and IMO Resolution MSC.255 (84) adopted on May 16, 2008. Adoption of the Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (Casualty Investigation Code) as amended.

The purpose of this investigation is to provide information about the casualty and to relate the sequence of events surrounding the casualty to determine its cause, if possible. Such investigations are conducted in order that the Liberian Maritime Authority may offer recommendations and take the necessary steps to reduce the danger of similar accidents/casualties in the future.

ABBREVIATIONS

Abbreviation	Meaning
AFT	After Part of the ship
FWD	Forward part of the ship
°C	Degree centigrade
FBB	Fleet Broadband: Satellite communication system
GRT / NRT	Gross / Net Registered Tonnage
LT	Local time
IMO	International Maritime Organization
ISM	International Safety Management
SMS	Safety Management System
LOA / LBP	Length overall / Length between perpendiculars
M	Meter
ME	Main Engine (ME): Primary propulsion system of the vessel.
MT	Metric Ton
220 V	220 Volt
P&I	Protection and Indemnity
JHA	Job Hazard Analysis
PPE	Personal Protective Equipment
LOTO	Lock Out/Tag Out
RA	Risk Assessment
RCD	Residual Current Device
GFCI	Ground-Fault Circuit Interrupter
Abbreviation	Rank
C/O	Chief Officer
2/O	Second Officer
ASD	Able Seafarer Deck
O/S	Ordinary Seaman
ETO	Electro-Technical Officer

VESSEL PARTICULARS

M/V TOI CHALLENGER



PORT OF REGISTRY	MONROVIA
FLAG	LIBERIA
IMO NUMBER	9151515
TYPE	DRY CARGO (NON CONTAINER/NON BULKER)
GROSS / NET TONS	18,568 MT/ 5,119 MT
DEADWEIGHT	21,146 MT
LENGTH	164.5 M
BREADTH	25.6 M
DEPTH	12.95 M
BUILT	1998
YARD	HANJIN HEAVY INDUSTRIES INC.
OPERATOR	LLC INTEGRATED MANAGEMENT GROUP UKRAINE
CLASS SOCIETY	BUREAU VERITAS
PROPULSION	MOTOR SCREW
ENGINE MANUFACTURER AND POWER	SSANG YONG B&W, KOREA - 4,891 KW
STATUTORY CERTIFICATES	ALL VALID
CREW	18 Ukrainian nationalities
SEAFARER'S CERTIFICATES	ALL VALID

INVESTIGATION NARRATIVE:

The Deputy Commissioner, Liberia Maritime Authority, Republic of Liberia, appointed an Investigating Officer, pursuant to Liberian Maritime Regulation, 9.258(4), to investigate the circumstances surrounding the death of the OS on board the M/V TOI CHALLENGER on August 3–4, 2024.

The investigator conducted an onboard investigation on M/V TOI CHALLENGER at the Port of Ravenna, Italy, on August 12, 2024. This report is based on the Liberian investigator's findings, evidence obtained during the inspection, and other information provided to the Administration by the vessel operator.

Unless otherwise mentioned, the dates and times mentioned in this report are all in local time.

FINDINGS OF FACT:

1. NARRATIVE:

On August 3, 2024, M/V TOI CHALLENGER arrived at the Port of Arzew, Algeria, and moored alongside at 1815 LT at the Marina Terminal. A cargo surveyor boarded shortly after berthing to inspect the cargo holds and commence the draft survey for the upcoming loading of granular urea.

To illuminate Cargo Hold No. 2 for the inspection, a portable light projector was connected to the 220-volt socket located inside the pedestal of Crane No. 2. This connection was made during the initial cargo-hold inspection phase.

At 2000 LT, the OS completed his scheduled work shift and proceeded to rest.

At 2200 LT, cargo loading was postponed due to high humidity.

At 2300 LT, the Chief Officer (C/O) instructed the Able Seafarer Deck (ASD) to wake the OS and have him tidy the deck following the inspection operations. Both crew members were equipped with portable radios for communication.

Just before 2400 LT, the ASD attempted to contact the OS via portable radio but received no response.

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0010 LT, the OS was found lying inside the pedestal of Crane No. 2, facing inward, with the same light projector still energized and connected to the 220 V socket. The projector cable showed a taped repair.

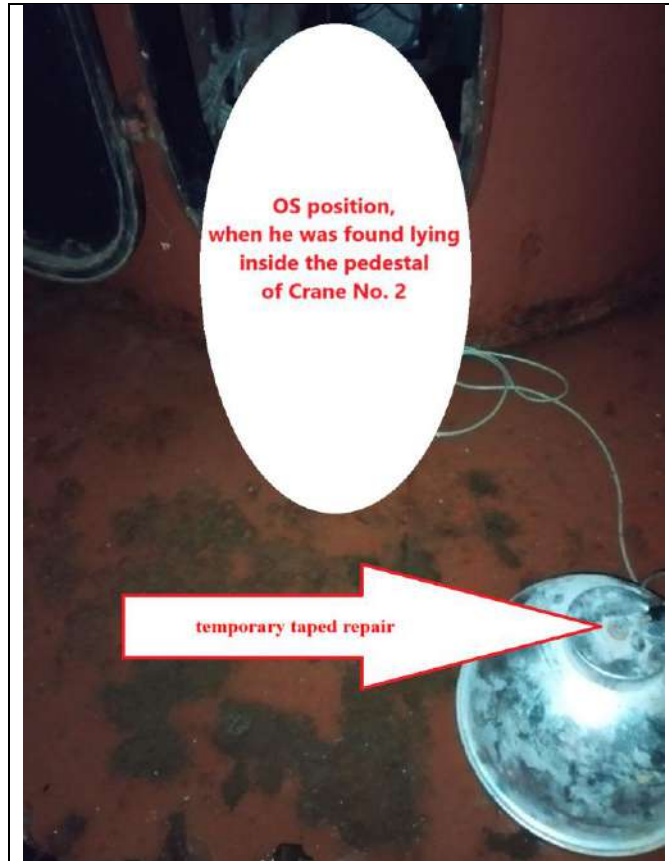


Figure 1: Location of the OS within the Crane No. 2 pedestal at the time of discovery, with the portable light projector still connected by its tape repaired electrical cable.

0019 LT, the C/O and Second Officer (2/O) arrived at the scene. Based on the likelihood of an electrical short, the 2/O ordered the vessel's electrician to de-energize the crane circuits at the main electrical panel. After the power was confirmed isolated, the crew began pulse checks and chest compressions. Despite these efforts, the OS remained unresponsive.

Port authorities, ambulance personnel, and security representatives boarded the vessel shortly thereafter. The OS was pronounced deceased, and his body was removed from the vessel at approximately 0411 LT. The attending Medical Examiner later confirmed the cause of death was accidental electrocution.

2. THE VICTIM:

The OS was a 37-year-old Ukrainian national who had joined the vessel in Constanta, Romania, on May 30, 2024. This was his first sea service contract, giving him just over two months of experience at the time of the incident.

3. WITNESSES:

- a. The Master was a 65-year-old Ukrainian national. He joined the vessel on February 21, 2024, in Constanta, Romania, and had 25 years of experience as a Master.

At 22:15, the ship was ready to load, with the holds accepted by the surveyor. Due to the high humidity, it was decided to postpone the loading until the humidity would no longer cause damage to the granular urea cargo destined for the discharge port of Ravenna, Italy. Shortly after midnight, at approximately 00:10, the Second Officer, who had just started his watch to relieve the C/O, reported via VHF radio that the AB had been found inside the pedestal of crane number two, with his back turned inward. The C/O immediately left my cabin to go to the scene of the incident, while I activated the emergency response by calling the agency with the ship's satellite phone. About 10 minutes later, they reported via radio that they had tried to resuscitate him without success.

- b. The C/O was a 44-year-old Ukrainian national who joined the vessel on 4 May 2024 in Istanbul Road and had 5 years of experience as a C/O.

After completing the inspections and starting the draft survey at 22:15, the Chief Officer went to the captain's cabin to inform him that loading would not commence due to the high humidity, which could damage the granular urea cargo. The Chief Officer stayed with the captain until the end of his watch at 24:00. A few minutes after midnight, the Second Officer reported the discovery of the Ordinary Seaman inside the pedestal of crane number two, lying with his back turned inward. The Chief Officer immediately went to the scene to investigate, while the captain called for assistance using the satellite phone.

- c. The 2/O was a 29-year-old Ukrainian national who joined the vessel on 4 May 2024 in Istanbul Road and had 5 years of experience as an officer on watch.

The Second Officer had just started his deck watch when, a few minutes after midnight, the ASD reported via VHF radio that he had found the Ordinary Seaman inside the pedestal of crane number 2, lying with his back turned inward. The Second Officer immediately went to the scene of the incident and notified the Captain and the Chief Officer via radio. The Chief Officer arrived at the scene a few minutes later. Considering the possibility that the incident was caused by an electric shock, the Second Officer called the electrician to cut off the power to the cranes from the main electrical panel located in the engine room. After the power was disconnected, the Second Officer performed the necessary checks to determine if the OS was still alive, checking the pulse, tongue, and pupils, and subsequently administering chest compressions. Unfortunately, these efforts were unsuccessful, and the OS was confirmed to be deceased.

- d. The ASD was a 38-year-old Ukrainian national who joined the vessel on April 29, 2024, and had 15 years of experience as an ASD on various types of ships.

The ASD was on watch at 20:00 at the ship's gangway and was primarily responsible for recording people's access for security purposes. During the hold inspection operations, when called by the Chief Officer, he assisted as needed. "As per the instructions received from the Chief Officer at 23:00, he went to wake up the Ordinary Seaman who remained alone on deck to tidy up the ship after the inspection, and both had portable radios to communicate in case of need. At 24:00, after completing his watch, ASD contacted the OS via radio but received no response. "He then decided to go look for him on deck because he needed to hand over the watch and take his position at the ship's gangway. Around 00:10, he found him lying backward inside the pedestal of crane No. 2, with the projector still on. At this point, he called the Second Officer on watch, who had just started his shift, via radio and informed him of what had happened.

- e. The Chief Engineer (C/E) was a 44-year-old Ukrainian national who joined the vessel on October 16, 2023, and had 5 years of experience as a Chief Engineer.

... After the incident, the C/E ordered the electrician to check all the 220V sockets inside the pedestals of cranes 1, 2, and 3, as well as the projectors in the holds, including the cables. There is no procedure for the periodic inspection of the projector and cables. As also stated by him, the only existing procedure is for the inspection of the socket." Safety regulations require that the cable be de-energized before removing the projector. "This task is normally performed by the deck crew without the involvement of the ship's electrician.

- f. Electro-Technical Officer (ETO) was a 45-year-old Ukrainian national who joined the vessel on April 29, 2024, and had 15 years of experience as an Electrician.

The floodlights and cables were not regularly inspected. It was only after the incident, on August 4th, that he conducted a thorough inspection of the projectors and cables, whereas normally only the 220V outlets inside the pedestals of cranes 1, 2, and 3 were checked. The repair using electrical tape on the projector used to illuminate hold No. 2 was carried out and checked earlier; it was found to be fully insulated. Positioning and removing the projectors from inside the holds is a task normally carried out by the ASDs and OSs.

4. WORK PLANNING PRIOR TO THE EVENT:

- a. The deck crew was assigned routine operational tasks related to cargo-hold preparations as the vessel was scheduled for loading operations. Earlier in the evening, a portable light projector had been connected inside Crane No. 2 to illuminate Cargo Hold No. 2 for the survey and draft-checking activities.
- b. No evidence was found of a toolbox meeting, task-specific briefing, or risk assessment being conducted prior to assigning the OS to night deck duties. There was no evidence that the company's Safety Management System (SMS) included a defined procedure for

working inside the crane pedestal or for verifying the condition of portable electrical equipment, such as the projector and its cable.

- c. Although no hazardous work, such as aloft or overside operations, was scheduled, the task assigned to the OS required entering a restricted space, the pedestal of Crane No. 2, where 220-V and 440-V electrical components were present. The work was undertaken at night in high-humidity conditions and involved handling energized equipment.



Figure 2: Entrance to the Crane No. 2 pedestal with posted signage reading “Restricted Area. Authorized Persons Only.”



Figure 3: 220-V and 440-V sockets and the emergency stop for the crane located inside the pedestal of Crane No. 2.

- d. Work/rest records on file indicated MLC compliance; fatigue was not identified as a contributory factor based on the available documentation.
- e. There was no indication that the crew received specific reminders or briefings on electrical safety, isolation procedures, or the hazards associated with handling portable lighting equipment in humid conditions. The OS, who had limited experience, was assigned the task without direct supervision or planned communication intervals at night period.

5. DAMAGE/OUTCOMES/POLLUTION/INJURIES:

- The OS sustained fatal injuries as a result of accidental electrocution inside the pedestal of Crane No. 2, where the portable light projector remained energized and plugged into the 220-V socket.
- No pollution resulted from the incident.
- The vessel's equipment, machinery, and structure sustained no damage.

6. SUBSEQUENT EVENTS / RESULT:

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The C/E ordered the electrician to check all the 220V sockets inside the pedestals of cranes 1, 2, and 3, as well as the projectors in the holds, including the cables.

BARRIER ANALYSIS:

Hazard	Existing Barrier	Missing or Weak Barriers	Potential Consequence
Entry into Crane No. 2 pedestal, restricted space with energized equipment.	Door posted with safety warnings; access restricted to authorized personnel.	No enforced permit/authorization; task performed by deck crew without electrician oversight.	Exposure to energized parts; electric shock/electrocution; fatality.
Condition of portable light projector & cable	Light available to illuminate Hold No. 2 for survey and draft operations.	Taped repair on cable/strain-relief noted; no pre-use or periodic inspection/testing regime for portable equipment documented.	Insulation breakdown; touch voltage; elevated shock risk.
Supervision of inexperienced OS	Portable radios were provided with the OS and ASD for communication.	OS's first contract, 2 months worked alone; no time-bound check-ins; no on-scene supervision despite restricted space.	Delayed detection/response; loss of opportunity for timely intervention.
Work planning/toolbox talk/risk assessment	Safety Management System (SMS) is available on board.	No evidence of task-specific RA, toolbox briefing, humidity hazards, or portable-equipment condition prior to assigning night duties to OS.	Unidentified hazards; inconsistent controls; greater casualty risk.
Residual Current Device (RCD) /Ground-Fault Circuit Interrupter (GFCI) protection/verification for 220-V circuits	Not evidenced in the records provided.	No documented verification that pedestal sockets were protected by RCD/GFCI or that in-line protected leads were used/tested	Fault not promptly cleared; sustained shock exposure; severe injury/fatality.

SUMMARY:

- M/V TOI CHALLENGER was berthed alongside at the terminal in Arzew, Algeria, on August 3, 2024, for cargo hold inspection and preparation prior to loading granular urea.
- A portable light projector was connected inside the pedestal of Crane No. 2 to illuminate Cargo Hold No. 2 during the inspection activities.
- At 2300 LT, the OS was woken and assigned to tidy the deck after inspection operations.
- Shortly after 0010 LT on August 4, 2024, the OS was found inside the pedestal of Crane No. 2, unresponsive, with the projector still energized and plugged into the 220-V socket.
- Emergency response actions were initiated immediately. The crane circuits were de-energized, and the crew made resuscitation attempts.
- At 0050 LT, ambulance personnel boarded the vessel, and a medical assessment was carried out; however, the OS was declared deceased.
- The cause of death, as issued by the Medical Examiner, was a high-voltage electric shock.
- No pollution or structural damage occurred as a result of the incident.

CONCLUSION:

The casualty likely resulted from the OS entering the pedestal of Crane No. 2 and contacting energized and shorted 220-V electrical equipment, most likely while attempting to disconnect the portable projector used to illuminate Hold No. 2. The projector remained energized and its cable had a temporary taped repair. The task occurred at night, in high humidity, with wet gloves, and the OS had limited experience. No task-specific risk assessment or toolbox talk was conducted prior to entry into this restricted space. Combined with insufficient supervision and communication, these conditions exposed the OS to live electrical hazards, resulting in fatal electrocution.

Contributory Factors:

- The portable light projector remained energized when the OS entered the crane pedestal.
- A taped repair existed on the cable projector, and no procedure required inspection or testing of portable electrical equipment.
- The OS worked alone without supervision or check-in procedures, despite being inexperienced.
- High humidity and wet gloves increased susceptibility to electric shock.
- No toolbox meeting, risk assessment, or safety briefing addressed electrical hazards, pedestal entry, or nighttime operations.
- The crane pedestal, although a restricted space, was accessed without a permit, authorization, or oversight from an electrician.
- Communication gaps resulted in the OS remaining unaccounted for until approximately 0010 LT, delaying detection of the incident.

Probable Cause:

The probable cause of the casualty was the OS coming into contact with energized and shorted 220-V electrical equipment inside the pedestal of Crane No. 2 while attempting to disconnect a portable light projector, under conditions of high humidity, inadequate equipment condition, lack of electrical isolation, and absence of proper supervision.

RECOMMENDATIONS:

a. Electrical Safety and Isolation Procedures

- Clearly designate crane pedestals as restricted electrical spaces requiring authorization and permit work.

b. Portable Electrical Equipment Control

- Introduce a formal inspection, testing, and maintenance program for portable lights, cables, and connectors.
- Prohibit the use of taped repairs; any damaged equipment must be removed from service and replaced.
- Provide ELV or RCD-protected lighting for hold illumination where feasible.

c. Supervision and Work Practices

- Prohibit inexperienced crew (OS/Trainees) from working in restricted or electrical spaces without supervision.
- Establish mandatory periodic check-ins and direct supervision requirements for night work.
- Reinforce communication protocols to ensure timely monitoring of isolated workers.

d. Risk Assessment and Planning

- Conduct task-specific risk assessments for any job involving electrical equipment, pedestal entry, or nighttime deck operations.
- Include humidity/moisture risks, proper PPE requirements, and electrical shock hazards in toolbox talks.

e. Training and SMS Compliance

- Provide training on electrical hazard awareness, isolation procedures, and safe use of portable lighting equipment.
- Emphasize recognition of restricted electrical spaces and proper authorization requirements.
- Issue a fleet-wide safety alert summarizing the lessons learned from this incident.

This report was prepared based on the report and findings from the investigation conducted by the Liberian Investigator, and review of additional documentary evidence, and reports compiled during their attendance on board the vessel M/V TOI CHALLENGER, and the additional guidance provided in this report from the Liberia Maritime Authority.

All the evidence collected for this flag state investigation was gathered on board the M/V TOI CHALLENGER, which includes but is not limited to documents, photographs, and witness interviews, which were all used as materials to develop the Commissioner's Decision and this report of investigation into this tragic incident. The content contained therein was reported without prejudice and with regard to all known facts provided.