



REPUBLIC OF THE MARSHALL ISLANDS

Maritime Administrator

ELANDRA BALTIC CASUALTY INVESTIGATION REPORT

Man Overboard

Port Approaches Fos-sur-Mer, French Republic | 13 April 2020

Official Number: 4371

IMO Number: 9482562



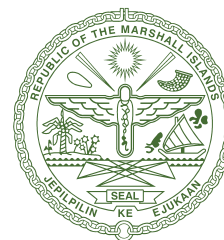
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AUTHORITY

An investigation, under the authority of the Republic of the Marshall Islands laws and regulations, including all international instruments to which the Republic of the Marshall Islands is a Party, was conducted to determine the cause of the casualty.



Maritime Administrator

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LIST OF ABBREVIATIONS

4/O	Fourth Officer
ASD	Able Seafarer Deck
C	Celsius
ECDIS	Electronic Chart Display and Information System
ILO	International Labour Organization
IMO	International Maritime Organization
ISM Code	International Management Code for the Safe Operation of Ships and for Pollution Prevention
m	Meters
MLC, 2006	Maritime Labour Convention, 2006
MOB	Man Overboard
MRCC	Maritime Rescue Coordination Center
NM	Nautical Miles
OOW	Officer of the Watch
PA	Public Address
PPE	Personal Protective Equipment
SAR	Search and Rescue
SOLAS	International Convention for the Safety of Life at Sea, 1974
STCW Code	Seafarers Training, Certification and Watchkeeping Code
T	True
UHF	Ultra High Frequency
VHF	Very High Frequency
VTS	Vessel Traffic Service



PART 1: EXECUTIVE SUMMARY

On 13 April 2020, the Republic of the Marshall Islands-registered chemical/oil products tanker ELANDRA BALTIC, managed by LSC SIA (the “Company”), was preparing for arrival at Fos-sur-Mer, French Republic (hereinafter, “France”) to discharge a cargo of diesel.

At 0515,¹ the Bosun and ASD2 commenced rigging the combination pilot ladder on the ship’s port side while preparing to embark a pilot. After they lowered the accommodation ladder over the side, they noticed that the lower platform was not parallel to the water and needed adjusting. The ASD2 went down the ladder without wearing the PPE required for working over the side (outboard). He fell overboard while securing the lower platform. The subsequent SAR operation did not find the ASD2.

The marine safety investigation conducted by the Republic of the Marshall Islands Maritime Administrator (the “Administrator”) identified the following:

1. Causal factors that contributed to this very serious marine casualty include:
 - (a) the lower platform for the port side accommodation ladder dropping as the ASD2 stood up after changing its position without properly securing it;
 - (b) a reduction in the effectiveness of the Toolbox Talk due to its short duration as the attention of the Master and 4/O was divided between navigating the ship and the review of the Company’s procedures for rigging accommodation ladders, the required PPE, and the relevant risk assessments;
 - (c) not using the PPE required by the Company’s SMS while working outboard;
 - (d) ineffective supervision by the 4/O of the Bosun and the ASD2 while they rigged the combination pilot ladder;
 - (e) lack of communications between:

¹ Unless otherwise stated, all times are ship’s local time (UTC +2).

- (i) the Responsible Officer (4/O) and the two crewmembers who were rigging the combination pilot ladder regarding the need to reposition the lower platform; and
 - (ii) the Bosun, Master, and 4/O to ensure they were aware that the ASD2 had gone down the accommodation ladder; and
 - (f) crewmembers not identifying an unsafe condition and subsequently not exercising their stop work authority to correct an unsafe condition as:
 - (i) neither the Master nor the 4/O directed the Bosun and the ASD2 to stop work when they saw them start to rig the pilot ladder without using required PPE; and
 - (ii) the Bosun did not direct the ASD2 to not go down the accommodation ladder when he saw him step onto it without wearing the required PPE.
2. Causal factors that may have contributed to this very serious marine casualty include:
- (a) inadequate preparedness for the MOB emergency as indicated by the failure to deploy an MOB buoy and turning to starboard when beginning a single turn maneuver (Anderson turn) to recover the ASD2, who had fallen overboard on the ship's port side; and
 - (b) ineffective communications between the Master and OOW (4/O) after the ASD2 was reported to have fallen overboard.

PART 2: FINDINGS OF FACT

The following Findings of Fact are based on the information obtained during the Administrator's marine safety investigation. Due to travel restrictions imposed in response to the COVID-19 pandemic, the Administrator was not able to attend on board as part of its marine safety investigation of this very serious marine casualty. All related information available to the Administrator was obtained remotely.

1. Ship particulars: *see* chart to right.
2. On the morning of 13 April 2020, ELANDRA BALTIC was preparing for arrival at Fos-sur-Mer, France to discharge a cargo of diesel. The freeboard was about 7 m. The Master had the conn. The other bridge team members were the OOW (4/O) and a helmsman.

SHIP PARTICULARS

Ship Name
ELANDRA BALTIC

Registered Owner
Elandra Baltic Shipping Ltd.

ISM Ship Management
LSC SIA

Flag State
Republic of the Marshall Islands

IMO No. 9482562	Official No. 4371	Call Sign V7WR2
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Year of Build 2011	Gross Tonnage 29,736
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Net Tonnage 14,113	Deadweight Tonnage 51,406
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Length x Breadth x Depth
175.7 x 32.2 x 19.1 m

Ship Type
Chemical/Oil Products Tanker

**Document of Compliance
Recognized Organization**
Lloyd's Register

**Safety Management Certificate
Recognized Organization**
Lloyd's Register

Classification Society
Lloyd's Register

Persons on Board
20

3. The weather was reported as good with winds of Beaufort Force 3 from the southeast, seas of 1 m, visibility greater than 5 NM, and a cloudy sky. Civil twilight² started at 0556 and sunrise was at 0701. The air temperature was 15°C and the sea water temperature was 16°C.

Rigging the Combination Pilot Ladder

4. At 0500, the ship received instruction from the Fos-sur-Mer Pilot Station to prepare the ship's port side combination pilot ladder. The OOW called the Bosun and ASD2 to rig the ladder.
5. The Master conducted an informal Toolbox Talk with the Responsible Officer (4/O), Bosun, and ASD2 on the Bridge to review the work that needed to be completed. It was reported that the Company's procedures and PPE requirements for rigging the accommodation ladder and the ship's risk assessments for rigging the ladder and for working outboard were also reviewed.³
6. Preparations for rigging the combination pilot ladder included ensuring there was adequate lighting on deck, putting a lifebuoy with a self-activating light at the pilot boarding station, and putting on lifejackets and safety harnesses with safety lines.
7. At 0515, the Bosun and ASD2 started rigging the combination pilot ladder. This included securing the lower platform of the port side accommodation ladder in position, raising and securing the railings, and then lowering the ladder over the side. The OOW monitored the Bosun and ASD2 from the Bridge while they completed this work.
8. The Master and OOW reported seeing the Bosun and ASD2 take off their lifejackets and safety harnesses with lines after lowering the accommodation ladder. The Bosun said they did this to make it easier to move as they lowered the pilot ladder over the side and secured it in position.
9. The pilot ladder can be rigged in one of three positions (*see Figure 1*). The pilot ladder is located at either of the two forward positions when a combination pilot ladder is rigged. On 13 April 2020, the pilot ladder was rigged in the middle position. Access to this location was through an opening in the ship's guardrail that could be closed using chains. The guardrail had to be open when rigging or recovering both the accommodation and pilot ladders.

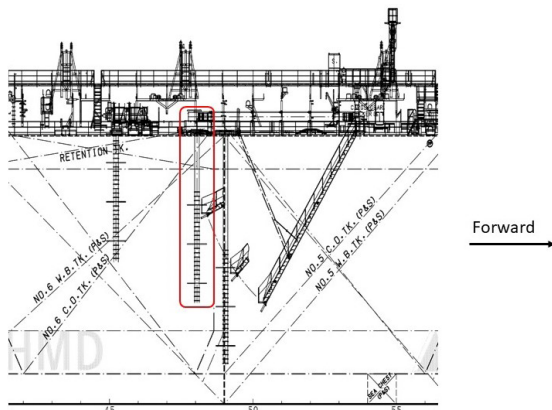


Figure 1: A portion of the ship's General Arrangement drawing showing the location of the pilot boarding area on the starboard side. The arrangements on the port side are identical. The position where the pilot ladder was rigged on 13 April 2021 is circled in red.

2 Civil twilight is a period of incomplete darkness that starts in the morning when the center of the sun is 6° below the horizon.
 3 Details of the Company's procedures and these risk assessments are discussed later in the report.

10. The Bosun reported that they decided, after rigging the pilot ladder, that the lower platform of the accommodation ladder needed adjusting to be parallel with the water. The ASD2 then went down the accommodation ladder without putting back on his lifejacket and safety harness.
11. The lower platform is held in position by a securing pin that passes through one of four sets of holes in the angle bracket, which is bolted to the accommodation ladder, and a hole in the rectangular bar welded to the lower platform (see Figure 2). The angle of the lower platform is determined by which set of holes on the angle bracket that the securing pin is passed through.

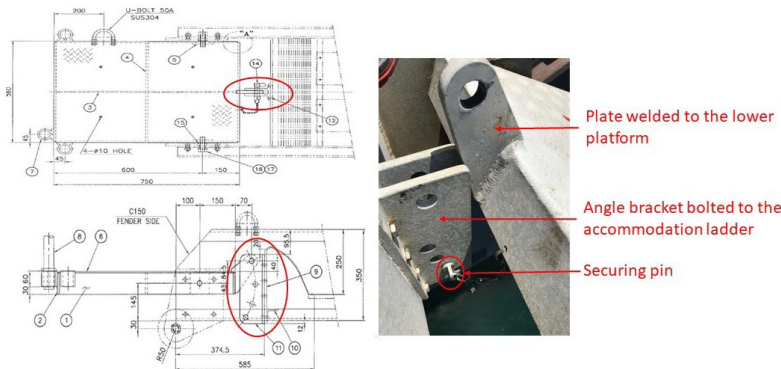


Figure 2: On the left is a drawing of the lower platform of the accommodation ladder showing the angle bracket and plate (circled in red). On the right is a picture of the angle bracket, plate, and securing pin. The lower platform was not secured in position when the picture was taken.

12. Changing the angle of the lower platform after the accommodation ladder was lowered required the ASD2 to crouch down to reach and remove the securing pin with one hand while using his other hand to hold onto a rope that was attached to the platform to keep it from dropping. He then used this rope to reposition and hold the platform at the intended angle while he put the securing pin in the proper set of holes. Maintaining three points of contact with the ladder while removing the securing pin and then putting it back in place required him to hold onto the ladder with the same hand that he used to hold onto the rope that was attached to the platform.

Incident Description

13. At 0529, the ASD2 fell overboard. The Bosun immediately reported the MOB to the Bridge and then started running aft. At the time, ELANDRA BALTIC was 3 NM south southwest of Cap Couronne. The ship's speed was 6.4 knots.
14. The Bosun stated the ASD2 fell overboard when the lower platform dropped as he was standing up.
15. The ASD2 was wearing orange coveralls without any reflective material when he fell overboard.
16. The Bosun threw a lifebuoy toward the ASD2 as soon as he reached the ship's stern. The Bosun stated he lost sight of the ASD2 when he was about 100 m astern of the ship. The Bosun provided continuous updates using his handheld radio to the Bridge regarding the ASD2's position until he lost sight of him.
17. The Master and OOW began implementing the ship's MOB response procedure immediately after receiving the Bosun's report that ASD2 had fallen overboard. About twenty seconds after the MOB was reported, the Master ordered the rudder hard to starboard.

18. Other actions taken included activating the ECDIS' MOB marker, sounding the General Alarm, announcing the MOB on the ship's public address system, broadcasting a MAYDAY, and reporting the MOB to Fos-sur-Mer port control and the pilots by VHF radio.
19. An MOB buoy⁴ was not released. The Master reported that he thought it had been released after hearing the Bosun's report that a lifebuoy had been thrown overboard and had not directed the OOW to release the MOB buoy.
20. At 0531, additional lookouts were posted, and the crewmembers started preparing the ship's rescue boat for launching. Within minutes the rescue boat was ready to be launched.

SAR Operation

21. Between 0538–0554, MRCC La Garde directed a SAR boat and two pilot boats to get underway along with a civil security helicopter to launch and search for the ASD2. The MRCC also suspended all vessel traffic in the approaches to Fos-sur-Mer.
22. By 0541, ELANDRA BALTIC completed a single turn maneuver and reached the position where the ASD2 fell overboard.
23. By 0610, the pilot boats had arrived on scene and began searching.
24. At about 0645, the Pilot assigned to ELANDRA BALTIC decided to embark the ship to assist the Master and coordinate with MRCC La Garde during the SAR operation. He reported that when the pilot boat approached the ship, he saw the lower platform of the accommodation ladder hanging down. He also saw a line connected to the platform leading up to the ship's deck. He informed the Master by radio. He then saw a crewmember wearing a harness and safety line go down the accommodation ladder and secure the platform.
25. When the lower platform was checked by a crewmember before being secured so the pilot could board, the securing pin was found through one of the four sets of holes in the angle bracket. It did not pass through the hole in the bar welded to the lower platform (*see Figure 3*).



Figure 3: The lower platform of the accommodation shown as found after the ASD2 fell overboard. These pictures were taken while the ship was at anchor after the SAR operation was suspended. The securing pin had not been passed through the hole on the bar welded to the platform when it was put through the holes on the angle bracket.

⁴ This is a lifebuoy with a self-activating light and smoke signal that can be released from the Bridge. *See* SOLAS chapter III, regulation 7.1.3.

26. By 0700, the Pilot had safely embarked the ship and was on the Bridge assisting the Master.
27. At 0730, the ship's lifebuoy was recovered by one of the pilot boats just over 1 NM to the north of ELANDRA BALTIC's position where the ASD2 fell overboard.
28. At 1005, MRCC La Garde suspended the SAR operation.
29. The estimated survival time in 16°C temperature water for an uninjured person in working clothes (coveralls) is about 1–3 hours.⁵

ELANDRA BALTIC Crew

30. ELANDRA BALTIC had 20 crewmembers on board, four more than required by the Minimum Safe Manning Certificate issued by the Administrator. All held the appropriate Republic of the Marshall Islands-issued seafarer documentation required for their position on board.
31. The experience of the involved crewmembers and those who were on the Bridge when the incident occurred:

RANK	TIME ON BOARD ELANDRA BALTIC	TIME IN RANK	TIME WITH COMPANY	TOTAL TIME AT SEA
Master	2 months	5 years, 7 months	7 years, 1 month	25 years
4/O	2 months	1 year	3 years, 1 month	11 years, 10 months
Bosun	5 months	15 years	20 years	32 years
ASD1	5 months	5 months	1 year, 5 months	1 year, 5 months
ASD2	8 months	20 years	5 years	35 years, 10 months

32. Both the Bosun and ASD2 were very experienced seafarers. They were familiar with the PPE required when working outboard and with rigging combination pilot ladders.
33. Both the Bosun and the ASD2 completed the required familiarization training after signing on ELANDRA BALTIC. They had also participated in onboard work safety training, which included procedures for working outboard, conducted on 1 April 2021.
34. The Administrator found no indications that any crewmembers involved with this incident had not received the amount of rest mandated by the STCW Code, Section A-VIII/1, paragraphs 2 and 3 and MLC, 2006, regulation 2.3.
35. Alcohol testing conducted later in the morning on 13 April 2021 found 0.0% blood alcohol in the Master, other members of the bridge team, and the Bosun.

Company SMS Procedures and Emergency Readiness

36. As required by the ISM Code, the Company's SMS provides procedures and required PPE for shipboard operations and maintenance. These include general procedures for safe work and specific procedures for rigging combination pilot ladders.

⁵ See Transport Canada, Survival in Cold Waters: Staying Alive (Publication TB13822E), p. 16.

37. The Company's general safe work procedures require that all shipboard work be performed under the general supervision of a ship's officer. The supervisor's duties include:
- (a) ensuring work is properly planned;
 - (b) ensuring that crewmembers who will perform the work understand their role and the tasks that need to be completed;
 - (c) examining the workplace; and
 - (d) verifying PPE requirements.
38. These general safe work procedures require the assigned supervisor or other experienced crewmember conduct a Toolbox Talk with the crewmembers assigned to perform the work. The Toolbox Talk must be documented and is supposed to:
- (a) review planned work, including the sequence of tasks to be performed;
 - (b) review the procedures to be followed, including required tools, PPE, and communications;
 - (c) review who is supervising the job, who is performing it, and the specific role and responsibilities of each person; and
 - (d) determine if the procedures are correct, the assigned crewmembers are appropriately qualified, if there is adequate supervision, and if the PPE is adequate.
39. Based on available information, there is no indication that the Toolbox Talk conducted by the Master was documented as required by the Company's procedures.
40. The Company's general safe work procedures emphasize the importance of every crewmember taking responsibility for their own safety, regardless of their position on board. To support this, the Company requires that all crewmembers conduct an informal or individual risk assessment before starting any shipboard task, even when there are time pressures to complete the work.
41. The informal risk assessment is similar to the hazard assessment conducted as part of a Toolbox Talk and is intended to be conducted without a checklist. The requirement for crewmembers to complete an informal risk assessment is included as part of the Company's familiarization training that is completed when a seafarer signs on board a Company managed ship.
42. The Company's general safe work procedures include a requirement for all crewmembers to routinely observe and note any at-risk behavior so that it can be corrected immediately; this includes self-monitoring. Crewmembers carry Stop Work Authority pocket cards and are authorized to stop any job if they feel it is not being conducted safely. In accordance with these procedures, the job is supposed to be resumed when the observed safety issues are resolved to the satisfaction of the crewmember who exercised the stop work authority.
43. The Company's specific procedures for working outboard or aloft require that a Work Outboard/Aloft Permit be issued before starting any work in these locations. These procedures also include the following special precautions when rigging or unrigging the accommodation ladder as part of a combination pilot ladder when the ship is underway:
- (a) completing a risk assessment and Toolbox Talk;
 - (b) providing an adequate lee;

- (c) that the work be conducted by at least two experienced and properly trained ship's crewmembers working under a deck officer's general supervision;
- (d) that all required PPE, including safety harness with safety line, lifejacket, and safety helmet secured with a chin strap be worn by any crewmember working outboard;
- (e) that adequate lighting be provided;
- (f) that a lifebuoy with lifeline be immediately available; and
- (g) that the crewmembers be actively monitored from the Bridge.

44. Based on the available information, there is no indication that a Work Outboard/Aloft Permit was issued before the Bosun and the ASD2 started rigging the combination pilot ladder.

45. On 16 February 2020, the ship's Master and deck officers completed a risk assessment for rigging an accommodation ladder. This assessment was valid through 16 May 2020. The hazards and associated existing controls that were identified by this risk assessment included:⁶

HAZARD	HAZARD DESCRIPTION	EXISTING CONTROLS
Crewmembers do not follow operational procedures	Unsafe operation due to insufficient qualifications/experience/training	<ul style="list-style-type: none"> • Work team instruction on safe work procedures
Falling overboard	Falling overboard during rigging of the accommodation ladder at sea, in port, or at anchor	<ul style="list-style-type: none"> • Work to be done under the control of the OOW • UHF radio communications with the Bridge • Persons working outboard must wear a lifejacket, safety harness with safety line attached to a strong structure, and a safety helmet • If a crewmember falls overboard a lifebuoy must be thrown and MOB announced
Slip, trip, and fall hazards	Unsafe movement on ship	<ul style="list-style-type: none"> • Working areas adequately lit and cleared of incidental objects • Use of appropriate PPE • Workplace assessment by responsible officer • Safety Officer's monthly inspections of access ladders/decks

⁶ The other identified hazards were movement of the ship due to weather and sea conditions and equipment failure.

46. Some of the hazards and associated existing controls identified by the risk assessment for working outboard that were reviewed by the Master, 4/O, Bosun, and ASD2 included:⁷

HAZARD	HAZARD DESCRIPTION	EXISTING CONTROLS
Improper work planning	Work not properly planned (without taking into account all reasonably foreseeable risks)	<ul style="list-style-type: none"> • All essential information gathered prior to commencement • Assignment of standard duties for the crewmembers • Risk assessment conducted and approved by the Master • Works directly supervised by Responsible Officer
Crewmember unsafe acts	Unsafe work outboard due to person's insufficient qualifications, experience, or training	<ul style="list-style-type: none"> • Crewmember familiarization with planned operation • Daily work planning meeting • Toolbox Talks • Informal risk management implemented
Slip, trip, and fall hazards	Unsafe movement on ship	<ul style="list-style-type: none"> • Working areas adequately lit and cleared of incidental objects • Use of appropriate PPE • Workplace assessment by responsible officer • Safety Officer's monthly inspections of access ladders/decks
Personnel safety hazards	Hazards associated with lack of proper PPE, defective equipment used when working outboard	<ul style="list-style-type: none"> • Workplace familiarization regarding safe work practices • PPE requirements • Nomination of Responsible Officer and assignment of crewmembers involved in the task • Inspection of equipment to be used
Failure of communications	Lack of means of communication between persons working outboard, standby crew, and OOW	<ul style="list-style-type: none"> • Check UHF radios to ensure batteries are charged and working properly

⁷ The other identified hazards were crewmember fatigue, adverse weather conditions, damaged equipment, inadequate pre-task inspection of equipment, fire/explosion, and inexperienced or new crewmembers.

47. No additional controls were identified when the Master reviewed the risk assessment for rigging the accommodation ladder nor for working outboard with the 4/O, Bosun, and ASD2.
48. The Company requires an MOB drill be conducted at least once a month. It also requires the drill be repeated if the Master determines that the crewmember's performance was assessed as unsatisfactory. The last two MOB drills before this incident were conducted on 19 February 2020 and 17 March 2020. The Master's evaluation of these drills did not include any remarks.

PART 3: ANALYSIS

The following Analysis is based on the above Findings of Fact.

ASD2's Fall Overboard

The Bosun stated that the ASD2 fell overboard when the lower platform of the accommodation ladder dropped as he stood up after changing its position. After the incident, the platform was checked and it was determined that it had not been properly secured (*see Figure 3*) when adjusted by the ASD2.

Changing the angle of the lower platform when the accommodation ladder was lowered over the ship's side required the ASD2 to crouch down to reach and remove the pin used to secure the platform in position. The position of the platform was adjusted using a rope connected to it. To do this the ASD2 would have used one hand to hold the rope to keep the platform in position while using his other hand to put the pin in the proper holes. This awkward position and the limited lighting would have made it difficult for him to determine if the hole in the bar on the platform was aligned with the intended set of holes in the angle bracket before putting the securing pin in position.

The platform would not have dropped if the securing pin had been passed through the set of holes in the angle bracket on the accommodation ladder and the hole in the bar welded to the platform (*see Figures 2 and 3*).

The ASD2 was not wearing a lifejacket when he fell overboard. The incident occurred about 30 minutes before the start of civil twilight and 90 minutes before sunrise. Darkness and the fact that he was wearing orange coveralls without any reflective material would have made him hard to see from the helicopters and vessels that were searching for him.

In addition to not wearing a lifejacket, the ASD2 was also not wearing a safety harness with a safety line attached to the ship when he fell. If he had, it could either have prevented him from falling off the accommodation ladder or have made it possible for the ship's crewmembers to bring him back on board.

Company Procedures

The Company has general safe work procedures in place to ensure that crewmembers could safely perform various shipboard tasks. These included a requirement that all shipboard work be performed under the general supervision of a Responsible Officer who is responsible for:

- ensuring that work is properly planned;
- ensuring crewmembers assigned to perform the work understand their role and the tasks that need to be completed;

- examining the workplace; and
- verifying PPE requirements.

They also require that a Toolbox Talk be conducted and documented before starting any planned work.

The Company's general safe work procedures stress the importance of all crewmembers taking responsibility for their own safety and include a requirement for crewmembers to complete an informal risk assessment before starting any shipboard task. The general safe work procedures also authorize all crewmembers to stop the job if they observe an unsafe condition or behavior.

The Company's specific procedures for working outboard or aloft require that a Work Outboard/Aloft Permit be issued before starting any work in those locations. They also include special precautions when rigging or unrigging the accommodation ladder as part of a combination pilot ladder when the ship is underway. These procedures and the ship's risk assessments for rigging the accommodation ladder and for working outboard addressed the primary hazards associated with rigging a combination pilot ladder.

Both the general safe work procedures and the task-specific procedures must be consistently implemented to be effective.

Toolbox Talk

As required by the Company's general safe work procedures, the Master conducted an informal Toolbox Talk on the Bridge with the 4/O, Bosun, and ASD2 to rig the combination pilot ladder. This included a review of the Company's procedures for rigging accommodation ladders, the required PPE, and the relevant risk assessments before the Bosun and ASD2 went out on deck to rig the combination pilot ladder. The Toolbox Talk was not documented as required by the Company's safe work procedures.

For a Toolbox Talk to be effective, the person conducting it and those who are participating should be focused on the information discussed. The Toolbox Talk conducted in preparation for rigging the combination pilot ladder was held on the Bridge as the ship approached the Fos-sur-Mer Pilot Station and involved the Master, who had the conn, and the 4/O, who was the OOW. This would have required the Master and the 4/O to divide their attention between navigating the ship and completing the Toolbox Talk.

A Toolbox Talk should also be of sufficient length to address the planned work, review the relevant procedures, PPE requirements, and risk assessments. Considering that the Bosun and ASD2 were called to the Bridge shortly after 0500 when the ship received instructions from the Fos-sur-Mer Pilot Station to prepare the port side combination ladder and that they started rigging the ladder at 0515, this meeting was unlikely long enough to address these issues.

Rigging the Combination Pilot Ladder

The Company's specific procedures for working outboard or aloft require that a Work Outboard/Aloft Permit be issued since rigging the pilot ladder would have required the Bosun and the ASD2 to work outboard of the guardrail. A work permit was not issued for this task.

The Bosun and ASD2 went on deck after the Toolbox Talk was completed, put on the required PPE, and rigged the port side accommodation ladder without incident. The angle of the lower platform was set before the accommodation ladder was lowered over the side.

Both the Bosun and the ASD2 removed their lifejackets and safety harnesses with safety lines before they started rigging the pilot ladder. The reason given for removing this PPE was to make it easier for them to move while lowering the pilot ladder over the side and securing it in position.

Falling overboard is a hazard commonly associated with tasks requiring seafarers to work near or over the side, including rigging a pilot ladder. The Company's SMS included several requirements intended to reduce not only the potential of a seafarer falling overboard, but of the potential severity of the consequences of such an incident. It was reported that these were reviewed during the Toolbox Talk conducted before the Bosun and ASD2 rigged the combination pilot ladder.

Both the Bosun and ASD2 each had over 30 years of experience. Based on this, they should have reasonably been aware of the potential for falling overboard and the PPE needed (lifejacket, safety harness, and safety line) to manage this hazard while rigging the pilot ladder.

Supervision

The Company's procedure for rigging the accommodation ladder and the ship's related risk assessments required that the Responsible Officer supervise the work while it was completed. The Company's procedures also required that the work be monitored from the Bridge by the OOW. The 4/O was the OOW and had also been appointed as the Responsible Officer for rigging the port side combination pilot ladder. Although the 4/O and the Master monitored the work from the Bridge, the 4/O was not able to leave the Bridge to directly supervise the Bosun and ASD2 as they rigged the combination pilot ladder.

The 4/O and the Master both indicated they were aware that the Bosun and the ASD2 had taken off their lifejackets and safety harnesses with safety lines after they completed rigging the accommodation ladder. Based on the available information, it is not clear if they became aware of this either before or after the Bosun and the ASD2 started rigging the pilot ladder.

There is also no indication that either the Master or the 4/O informed them that an unsafe condition existed and directed them to stop work until they had put the required PPE back on.

According to the Bosun, it was the ASD2 who determined the position of the lower platform needed to be changed after they finished rigging the pilot ladder. There is no suggestion the Bosun agreed with this assessment. There is also no indication that either the Bosun or the ASD2 informed the 4/O it was necessary to change the position of the platform before the ASD2 started down the accommodation ladder.

Although the Bosun said he monitored the ASD2 while he was on the ladder, there is no indication that he identified the ASD2's actions as unsafe or that he attempted to exercise his stop work authority and require the ASD2 to come back up on deck.

Communications

There is no indication that either the Bosun or ASD2 made either the 4/O or Master aware that the lower platform was not parallel to the water and needed adjusting. There is also no indication that the Bosun ensured that the Master and 4/O were aware that the ASD2 had gone down the accommodation ladder to adjust the platform.

MOB Response

MOB drills were conducted on board ELANDRA BALTIC once a month. The most recent drill conducted before this incident was held on 17 March 2020. The Master's evaluation of the drill did not include any remarks. The Master, 4/O, Bosun, and ASD2 all participated in this drill.

The Bosun responded immediately after seeing the ASD2 fall overboard by informing the OOW of the MOB emergency, keeping sight of the ASD2 for as long as possible, throwing him a lifebuoy, and providing continuous updates to the OOW. These are all standard actions when responding to an MOB.

After receiving the Bosun's initial report, the Master immediately ordered the rudder hard to starboard while the OOW activated the General Alarm, announced the MOB emergency over the ship's PA system, and marked the position on the ship's ECDIS. He also maintained communications with the Bosun. The MOB buoy was not released.

An MOB buoy should be deployed as soon as possible after a person is reported to have fallen overboard. The MOB buoy is equipped with a self-activating lighting and a smoke signal. Deploying this buoy as quickly as possible marks the MOB incident position and facilitates the search by indicating the direction and rate of drift. It also can provide flotation for the person in the water.

Deploying an MOB buoy is an action that a qualified OOW is expected to take without prompting from the ship's Master. As previously stated, it was reported that the Master misunderstood the OOW when he reported that a lifebuoy had been thrown to the ASD2. The fact that an MOB buoy was not deployed indicates the OOW was not adequately prepared to respond to an emergency. It also indicates ineffective communications between the Master and OOW.

Unless there is not sufficient sea room, a ship should be turned in the direction that corresponds with the side a person is reported to fall overboard when maneuvering to start an MOB recovery. This is so that the ship's stern turns away from the person who fell overboard, reducing the potential that he or she is struck by the ship's hull, propeller, or rudder.

The ASD2 had fallen overboard from the ship's port side. However, the Master immediately ordered the rudder hard to starboard when maneuvering to recover the ASD2. Based on the information that is available, there was sufficient sea room for ELANDRA BALTIC to have been safely turned to port while maneuvering to recover the ASD2.

PART 4: CONCLUSIONS

The following Conclusions are based on the above Findings of Fact and Analysis and shall in no way create a presumption of blame or apportion liability.

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1. Causal factors that contributed to this very serious marine casualty include:
 - (a) the lower platform for the port side accommodation ladder dropping as the ASD2 stood up after changing its position without properly securing it;
 - (b) a reduction in effectiveness of the Toolbox Talk due to its short duration as the attention of the Master and 4/O was divided between navigating the ship and the review of the Company's procedures for rigging accommodation ladders, the required PPE, and the relevant risk assessments;
 - (c) not using the PPE required by the Company's SMS while working outboard;
 - (d) ineffective supervision by the 4/O of the Bosun and the ASD2 while they rigged the combination pilot ladder;
 - (e) lack of communications between:
 - (i) the Responsible Officer (4/O) and the two crewmembers who were rigging the combination pilot ladder regarding the need to reposition the lower platform; and
 - (ii) the Bosun, Master, and 4/O to ensure they were aware that the ASD2 had gone down the accommodation ladder; and
 - (f) crewmembers not identifying an unsafe condition and then subsequently not exercising their stop work authority to correct an unsafe condition as:
 - (i) neither Master nor the 4/O directed the Bosun and the ASD2 to stop work when they saw them start to rig the pilot ladder without using required PPE; and
 - (ii) the Bosun did not direct the ASD2 to not go down the accommodation ladder when he saw him step onto it without wearing the required PPE.
2. Causal factors that may have contributed to this very serious marine casualty include:
 - (a) inadequate preparedness for the MOB emergency as indicated by the failure to deploy an MOB buoy and turning to starboard when beginning a single turn maneuver to recover the ASD2 who had fallen overboard on the ship's port side; and,
 - (b) ineffective communications between the Master and OOW (4/O) after the ASD2 was reported to have fallen overboard.

PART 5: PREVENTIVE ACTIONS

In response to this very serious marine casualty, the Company has taken the following Preventive Actions.

1. Immediately transmitted a safety alert making all ships in their fleet aware of the MOB incident and then distributed the Company's investigation report to all ships in their fleet.

2. Included the Company's investigation report in the pre-appointment briefing program for on-signing officers.
3. Arranged for additional training for the Master in ship handling, risk assessment, and shipboard safe work practices, and for both the 4/O and Bosun, training in risk assessment and shipboard work practices.
4. Conducted an internal navigational audit and safety cultural assessment on board ELANDRA BALTIC.
5. Conducted a review of the Company's procedures for working outboard or aloft and for MOB emergency response and training.
6. Conducted a Work Overboard or Aloft Safety Campaign in May 2020.

PART 6: RECOMMENDATIONS

The following Recommendations are based on the above Conclusions and in consideration of the Preventive Actions taken.

1. It is recommended that the Company review and, if necessary, revise:
 - (a) onboard training, taking into consideration the lessons learned from this incident for:
 - (i) conducting pre-task hazard assessments;
 - (ii) the identification of unsafe conditions; and
 - (iii) exercising stop work authority; and
 - (b) its procedures for monitoring and assessing the performance of ships' crewmembers with respect to their compliance with the Company's safe work practices.

The Administrator's marine safety investigation is closed. It will be reopened if additional information is received that would warrant further review.