

MA2014-8

**MARINE ACCIDENT  
INVESTIGATION REPORT**

**August 29, 2014**



The objective of the investigation conducted by the Japan Transport Safety Board in accordance with the Act for Establishment of the Japan Transport Safety Board is to determine the causes of an accident and damage incidental to such an accident, thereby preventing future accidents and reducing damage. It is not the purpose of the investigation to apportion blame or liability.

Norihiro Goto  
Chairman,  
Japan Transport Safety Board

Note:

This report is a translation of the Japanese original investigation report. The text in Japanese shall prevail in the interpretation of the report.

# MARINE ACCIDENT INVESTIGATION REPORT

July 31, 2014

Adopted by the Japan Transport Safety Board

Chairman	Norihiro Goto
Member	Tetsuo Yokoyama
Member	Kuniaki Shoji
Member	Toshiyuki Ishikawa
Member	Mina Nemoto

<b>Accident type</b>	Fatality of a stevedore
<b>Date and time</b>	Around 16:22, August 13, 2013 (local time, UTC+9 hours)
<b>Location</b>	Funabashi Chuo Wharf South B Berth in Katsunan District, Port of Chiba in Chiba Prefecture (approximately 35°40.4' N, 139°58.5' E)
<b>Summary of the Accident</b>	On the cargo ship WELLINGTON STAR, one of the stevedores on the upper deck deceased after being caught between a container and a sludge shore connector steel box while they were loading containers with a deck crane at Funabashi Chuo Wharf South B Berth in Katsunan District, Port of Chiba, at approximately 16:22 on August 13, 2013.
<b>Process and Progress of the Investigation</b>	<p>(1) Setup of the Investigation The Japan Transport Safety Board appointed an investigator-in-charge and two other investigators to investigate this accident on August 13, 2013.</p> <p>(2) Collection of Evidence On-site investigation and interviews on August 15, 2013 Interviews on August 20, 21, 23, 27, and 29, September 10, and October 7 of 2013 and February 3 of 2014</p> <p>(3) Comments from Parties Relevant to the Cause Comments on the draft report were invited from parties relevant to the cause of the accident.</p> <p>(4) Comments from the Flag State Comments on the draft report were invited from the flag State of WELLINGTON STAR.</p>
<b>Factual Information</b>	
Vessel type and name	Refrigerated cargo ship WELLINGTON STAR (refer to Photo 1)
IMO number:	8917584
Port of registry	Nassau, Commonwealth of the Bahamas
Gross tonnage	7,944 tons
Owner	STAR REEFERS UK LIMITED (U.K. (United Kingdom of Great Britain

Management company  
Classification society  
LxBxD, Hull material  
Engine, Output  
Date of launch, etc.

and Northern Ireland)  
STAR REEFERS UK LIMITED  
BUREAU VERITAS  
140.5m x 19.7m x 13.0m  
Steel  
Diesel Engine, 11,925kW  
December 10, 1992



Photo 1: Overview of WELLINGTON STAR

Information of the upper deck

(1) WELLINGTON STAR (hereinafter referred to as "the vessel") could load containers on the upper deck between the hatch side coaming and the side of the vessel, on the hatch cover, and inside of the cargo hold. Positioning cones (device installed to secure containers) were installed on the upper deck.

(2) On the stern side of the "stern-most area on the upper deck on the starboard side toward the front of the poop where containers were loaded" (hereinafter referred to as "the loading area"), there was a sludge shore connector steel box (hereinafter referred to as "the steel box"). On the side of the vessel, a protective stanchion for a vent pipe (hereinafter referred to as "the stanchion") was installed. The space between the back end of the container and the steel box was approximately 110cm when a container was loaded in the loading area.

(Refer to Photo 2, Photo 3, and Photo 4)

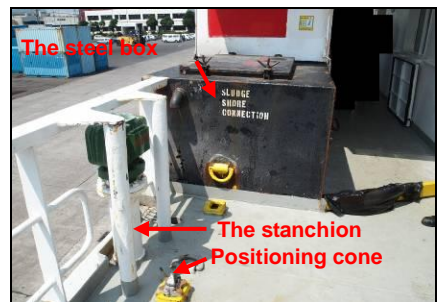


Photo 2, Photo 3: Situation around the loading area



Photo 4: Situation around the loading area

(3) There were 4 deck cranes (#1 through 4 from the bow side) installed on the vessel, and the safe working load was 36t for #4 deck crane. In addition, #4 deck crane had no trouble or failure at the time of this accident.

<p>Crew Information</p>	<p>Master (Nationality: Republic of Poland), male, 58 years old          Endorsement attesting the recognition of certificate under STCW regulation I/10 for master (issued by the Commonwealth of The Bahamas)          Date of Issue: April 10, 2013 (valid until June 30, 2017)</p> <p>Foreman Male, 42 years old.          After joining Nakamura Logistics Inc. (hereinafter referred to as "Company A") in 1992, he experienced onsite work, labor management, etc. It was the first time for him to be the foreman of stevedores at the time of this accident.</p> <p>Deckman Male, 57 years old.          He joined Company A in 1985 and was reemployed as a day stevedore after being engaged in cargo-handling work for approximately 17 years. He underwent the training to become an operations chief of stevedores in 2000, and he was the operations chief of stevedores at the time of this accident.</p> <p>Stevedore A Male, 48 years old.          He was employed by Company A as a day stevedore, and his cargo-handling work experience was approximately 22 years.</p>
<p>Injuries to Persons</p>	<p>1 fatality (stevedore A)</p>
<p>Damage to Vessel (or Other Facilities)</p>	<p>None</p>
<p>Events Leading to the Accident</p>	<p>(1) Movements of the vessel          The vessel left Busan, South Korea on August 8, 2013, with 1,000t of frozen salmon in the cargo hold and 20 containers on the upper deck with the master and 19 other crewmembers on board and berthed starboard side alongside at Funabashi Chuo Wharf South B Berth in Katsunan District, Port of Chiba, on August 12.</p>

(2) Situation before the completion of cargo-discharging

Company A was commissioned by an import agency to do the cargo-handling work on the vessel and was scheduled to discharge approximately 1,000t of frozen salmon that was loaded in the cargo hold.

The foreman held a pre-work meeting in the morning of the 12th and explained the work contents of cargo-discharging to 38 stevedores. During the meeting, he explained that they were going to discharge the cargo after unloading the containers, which were loaded on the starboard side of the upper deck, on the berth due to the fact that they would interfere with the cargo-handling work.

The stevedores attached spreaders (equipment used to lift containers) to 3 containers, which were loaded on the bow side of the loading area, started discharging the frozen salmon after moving the containers to the berth by using deck cranes, and discharged approximately 500t of cargo.

The foreman held a pre-work meeting in the morning of the 13th and explained the work contents of cargo-discharging to the stevedores. During the meeting, he explained that they were returning the containers to the upper deck after the completion of cargo-discharging.

The stevedores discharged approximately 500t of cargo and completed the cargo-discharging at approximately 15:35.

(Refer to Figure 1 and Photo 5)

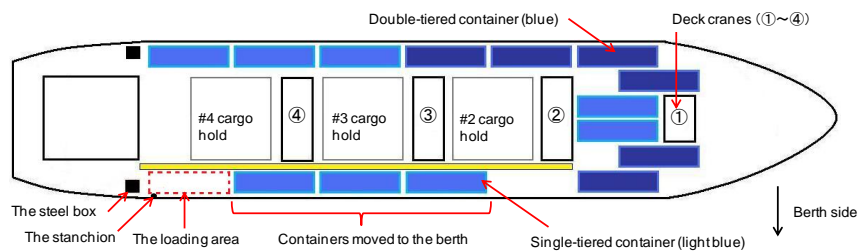


Figure 1: Situation of the vessel (before cargo-discharging)



Cargo wire

#4 deck crane

Sling

Spreader

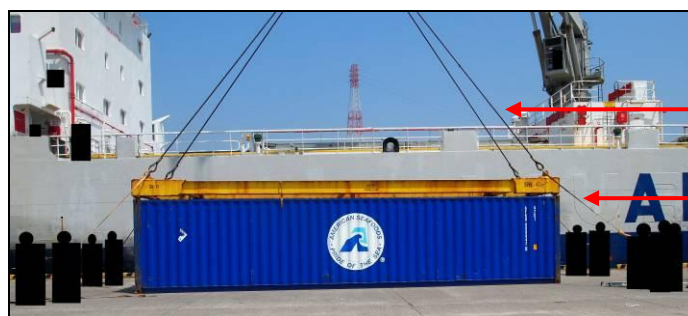
Photo 5: Situation of container lifting

### (3) Situation leading to the accident

In order to return the 3 containers, which were moved to the berth, back to the vessel, the foreman decided to conduct the work with 19 stevedores (foreman, deckman, winchman, stevedore A and 15 other stevedores). He received an instruction from the vessel to also place the container in the loading area.

The winchman operated #4 deck crane, and the deckman and other stevedores divided between the berth and the upper deck to control the swinging of the containers by holding the tag lines connected to spreaders; and the foreman supervised the loading work on the bow side of the loading area. They began lifting the containers to load them at approximately 16:10.

(Refer to Photo 6)



Sling

Tag line

Photo 6: Situation in which stevedores held the tag lines

The winchman operated the deck crane to lift the container from the berth to the upper deck and gradually moved the container from the bow side of the loading area toward the loading area. At this point, he could no longer see the stern side of the loading area due to the lifted container.

(Refer to Photo 7)



Stern side of the loading area

Photo 7: Situation of the view from around the operation seat of #4 deck crane

Although stevedore A was looking at the loading work on the berth, he boarded the vessel and went to the stern side of the loading area when the container was lifted above the upper deck. He joined the loading work by holding a tag line.

After conducting the work to control the swinging of the container on the berth, the deckman boarded the vessel and moved to the stern side of the loading area. He held a tag line and controlled the swinging of the container. He also conducted the work to fit the container's corner posts within the positioning cones.

When the deckman held the tag line, he saw stevedore A on his right and the steel box behind stevedore A and thought it was a narrow and dangerous place. Immediately after telling stevedore A that he should change his position because the area was dangerous, the container's right edge on the stern side was caught by the stanchion. The deckman saw the container swinging toward the stern side when it was released.

When the container swung toward the stern side at approximately 16:22, the deckman evacuated toward the back and saw that stevedore A was caught between the container and the steel box.

(Refer to Figure 2)



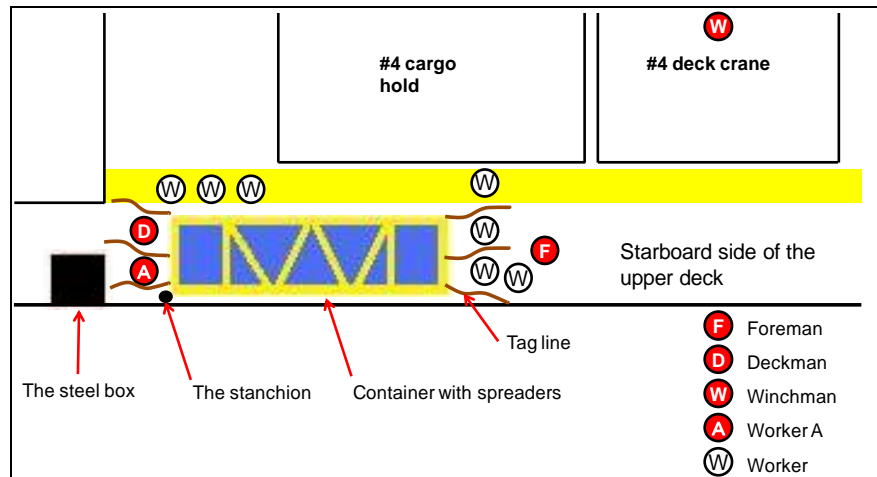


Figure 2: Situation at the time of this accident

After stevedore A was caught and the container swung toward the stern side, the deckman held stevedore A from behind and moved him toward the back.

The foreman learned about this accident and instructed the stevedores on the berth to call 119.

The master of the vessel was on the bridge, and the chief officer was on the berth respectively. Other crew members were replacing the cargo hook on #2 deck crane, etc. Therefore, no crew member saw this accident occur.

Although stevedore A was transported to a hospital in an ambulance, he was confirmed dead at the hospital. The cause of death was determined as intraabdominal hemorrhage due to the traumatic abdominal aorta injury.

Weather and Sea Conditions	Weather: Weather - Fine, Wind Direction - East-southeast, Wind force - 2 Sea conditions: Sea surface: Calm
Other Matters	<p>(1) Company A was conducting general port transport business as a seaborne cargo handling operator. Company A would be commissioned by shipping business operators, etc. and conduct stevedore work for vessel cargoes.</p> <p>(2) Although the winchman had handled containers, the foreman, deckman, and other stevedores had never handled containers.</p> <p>(3) Due to the facts that the cargo-handling work at the time of this accident was mainly to discharge cargo from the cargo hold and that stevedores had a lot of experience with stevedore work, the foreman thought that they could load/unload containers with no problem even though they had no experience in handling containers. Therefore, he did not give instructions to the</p>

stevedores regarding the work procedure, chain of command in work, no-go areas during work, etc.

- (4) Although Company A conducted hazard prediction activities for discharging cargo from the cargo hold at the time of this accident, but not for loading/unloading containers. They also had not developed a work plan regarding container loading/unloading, which is mentioned later under (8), to conduct safe work.
- (5) The total weight of the container, which had been lifted at the time of this accident, was approximately 24t.
- (6) The container was easily swung in this situation due to the facts that spreaders were attached to the top and that all 4 slings attached to the 4 corners of the spreaders were hung on a single crane hook, which was lifted by cargo wires.
- (7) Company A belonged to the Japan Port Transport Industry Safety & Health Association, which was organized by members of port transport operators, and had understood the "occupational accident prevention regulations for port transport operators" (hereinafter referred to as "accident prevention regulations"), which was stipulated by the association with the aim of contributing to the prevention of occupational accidents.
- (8) Chapter 2 in the accident prevention regulations stipulated as follows.

*Chapter 2. Prevention of accidents during stevedore work*

*Section 3. Stevedore work*

*(Work plan)*

*Article 29. Members shall develop a work plan to conduct safe work before starting stevedore work according to the structure, workplace, and equipment of the vessel in which the said work is conducted as well as the type, shape, and packing of the cargo to be handled; and conduct the work according to the said work plan.*

*(Operations chief of stevedores)*

*Article 30. Members shall appoint an operations chief of stevedores when conducting stevedore work and have the person implement the following items.*

- 2. Notify relevant stevedores the necessary items to conduct safe work, such as the work procedure, work signaling method, evacuation location and evacuation method in case of emergency, mutual communication method, etc. and directly lead the work.*

	<p>4. <i>Coordinate with other operations chiefs who are appointed to secure the safety of work, work director for vehicle-type cargo transport equipment, personnel in charge of operating each cargo handling gear, signal persons, etc., clearly establish the chain of command in work, and notify it to relevant stevedores.</i></p> <p><i>Section 4. Operation of cargo lifting appliance</i>  <i>(Inhibition of passing and entering)</i></p> <p><i>Article 57. Members shall inhibit stevedores from passing or entering, while operating a lifting appliance, on the travelling path of the lifted cargo or under the lifted cargo.</i></p> <p><i>(Signals for operation of lifting appliance)</i></p> <p><i>Article 61. Members shall stipulate signals for operation of lifting appliance, appoint signal person for each one of the lifting appliances, and have the person make signals for operation.</i></p> <p>2. <i>Members shall have the operations chief of stevedores to make the signals mentioned in the above clause (excluding signals for relaying operations). (omitted)</i></p> <p>3. <i>Members shall have the signal persons for operation of lifting appliance to make signals according to the following guidelines based on the signaling method stipulated in clause 1. Members shall also have relevant stevedores conduct work according to the signals.</i></p> <p><i>i. Clearly make signals from locations where the situations of the lifting appliance operator, slinging stevedores, and the lifted cargo are visible at all times.</i></p> <p><i>v. Confirm that no stevedore or anyone else is under the lifted cargo or on the travelling path of the lifted cargo and continue to monitor during the operation work.</i></p>
<p><b>Analysis</b></p> <p>Involvement of crew members</p> <p>Involvement of vessel, engine, etc.</p> <p>Involvement of weather and sea conditions</p> <p>Analysis of the finding</p>	<p>Yes</p> <p>Yes</p> <p>None</p> <p>(1) The cause of death was determined as intraabdominal hemorrhage due to the traumatic abdominal aorta injury.</p> <p>(2) It is probable that stevedore A went to the stern side of the loading area and was engaged in the work to control the swinging of the container by holding the tag line while the stevedores were loading a container with a deck crane on the vessel at Funabashi Chuo Wharf South B Berth in Katsunan District, Port of Chiba on August</p>

13.

- (3) It is probable that stevedore A, who was standing by the steel box, which was behind him, at the stern side of where the container was being moved, deceased because he was caught between the container and the steel box when the right edge of the stern side of the container was caught by the stanchion and the container swung toward the stern side after being released while the container was being lifted above the upper deck and was moving to the loading area.
- (4) It is highly probable that the winchman, who was operating #4 deck crane, could not see the stern side of the loading area because of the container that was being lifted.
- (5) Although the deckman was the operations chief of stevedores, it is probable that he was engaged in the work to control the swinging of the container and to fit the container within the positioning cones, that he did not signal the winchman according to the stipulation of the accident prevention regulations, and that he did not confirm that there was no stevedore on the travelling path of the lifted cargo due to the fact that he had told stevedore A to change his position immediately before this accident.
- (6) It is probable that the foreman thought that they could load/unload containers with no problem even though they had no experience in handling containers and that he did not give instructions to the stevedores regarding the work procedure, chain of command in work, and no-go areas during work, etc. due to the facts that the stevedores had a lot of experience with stevedore work.
- (7) It is probable that stevedore A was engaged in the work at the stern side of where the container was being moved due to the fact that he had not received instructions on no-go areas, etc. from the foreman.
- (8) Company A did not conduct hazard prediction activities when assigning stevedores, including the foreman, to the work of handling containers, with which they had no experience. Company A also had not developed a work plan to conduct safe work of container loading/unloading regarding the work procedure, chain of command in work, and no-go areas during work, etc. according to the accident prevention regulations. It is somewhat likely that this accident could have been avoided if a work plan had been developed, because that the plan would have made it clear that the area where stevedore A was caught was the direction to which the

	<p>container would be moved and that the area should keep stevedores out according to the accident prevention regulations, resulting in instructions by the foreman regarding no-go areas and other safety matters.</p> <p>Therefore, it is somewhat likely that the fact that Company A had not developed a work plan to ensure safe work of loading/unloading of containers contributed to the occurrence of this accident.</p>
<b>Probable Causes</b>	<p>It is probable that this accident occurred when stevedore A was caught between the container and the steel box when the container swung toward the stern side while he was involved with the work to control the swinging of the container by holding the swing-prevention rope due to the facts that there was the steel box behind him and that he was toward the stern side of where the container was being moved while they were loading containers with a deck crane on the vessel at Funabashi Chuo Wharf South B Quay in Katsunan District, Port of Chiba.</p> <p>It is probable that stevedore A had the steel box behind him and was toward the stern side of where the container was being moved because the foreman had not given instructions on areas to avoid, etc.</p> <p>It is somewhat likely that the fact that company A had not stipulated a work plan to conduct safe work involving loading/unloading of containers affected the occurrence of this accident.</p>
<b>Safety Actions</b>	<p>It is probable that this accident occurred because stevedore A, who was standing by the steel box, which was behind him, at the stern side of where the container was being moved, was caught between the container and the steel box when the container swung toward the stern side while he was engaged in the work to control the swinging of the container by holding the tag line while they were loading containers with a deck crane on the vessel at Funabashi Chuo Wharf South B Berth in Katsunan District, Port of Chiba.</p> <p>It is probable that stevedore A was standing by the steel box, which was behind him, at the stern side of where the container was being moved because the foreman did not give instructions regarding no-go areas and other safety matters.</p> <p>It is somewhat likely that the fact that company A had not developed a work plan to ensure safe work of loading/unloading of containers contributed to the occurrence of this accident.</p> <p>Therefore, it is necessary for port transport operators to develop a work plan to conduct safe work regarding the work procedure, chain of</p>

command in work, and no-go areas during work, etc. and to make sure the stevedores comply with the plan.

Based on the results of this accident investigation, the Japan Transport Safety Board requests cooperation from the relevant organization to disseminate information to port transport operators about the necessity to develop a work plan to conduct safe work regarding the work procedure, chain of command in work, and no-go areas during work, etc. and to make sure the stevedores comply with the plan in order to contribute to recurrence prevention of similar accidents.

After this accident, Company A considered measures to prevent similar accidents from recurring in the future and took the following measures:

- (1) Conduct comprehensive hazard prediction activities before work
- (2) ensure that safety check is carried out before work by the foreman
- (3) ensure that the stevedores comply with the work procedure
- (4) ensure that no stevedore enters hazardous areas (indicating hazardous areas with notices, ropes, safety cones, etc.)