

MI2021-12

**MARINE INCIDENT
INVESTIGATION REPORT**

December 16, 2021



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 prevent future accidents and incidents. It is not the purpose of the investigation to apportion blame or liability.

TAKEDA Nobuo
Chairperson
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.

《Reference》

The terms used to describe the results of the analysis in "3. ANALYSIS" of this report are as follows.

- i) In case of being able to determine, the term "certain" or "certainly" is used.
- ii) In case of being unable to determine but being almost certain, the term "highly probable" or "most likely" is used.
- iii) In case of higher possibility, the term "probable" or "more likely" is used.
- iv) In a case that there is a possibility, the term "likely" or "possible" is used.

MARINE INCIDENT INVESTIGATION REPORT

Vessel type and name: Container Ship WAN HAI 316

IMO number: 9342700

Gross tonnage: 27,800 tons

Incident type: Grounding

Date and time: Around 20:59 April 4, 2019

Location: 4B Anchorage, Nagoya Port, Aichi Prefecture

Around 306° true bearing, 400 meters from No.11 Light Beacon, Nagoya Port West Channel (approximately 35°00.9'N, 136°49.8'E)

November 10, 2021

Adopted by the Japan Transport Safety Board

Chairperson	TAKEDA Nobuo
Member	SATO Yuji
Member	TAMUARA Kenkichi
Member	KAKISHIMA Yoshiko
Member	OKAMOTO Makiko

SYNOPSIS

< Summary of the Incident >

At around 20:59, April 4, 2019, Container vessel WAN HAI 316 (hereinafter referred to as the "Vessel"), with her master (hereinafter referred to as "Master") and 20 other crew members, and was navigated under escort by two pilots on board, ran aground at the 4B Anchorage, Nagoya Port, Aichi Prefecture which was at a water depth of approximately 6 meters, while turning to the starboard with a draft of approximately 8.5 meters at the bow and 9.6 meters at the stern at approximately 770 meters to the eastward offing of Port Island, Nagoya Port.

< Probable Causes >

It is considered probable that this incident occurred, while the Vessel was proceeding the south in the East Channel of Nagoya Port for Yokkaichi Port in the nighttime, a pilot trainee (hereinafter referred to as "Pilot A") was conducting pilotage operation as part of practical training for new pilot under guidance and evaluation of a supervising pilot (hereinafter referred to as "Pilot B"), Pilot A passed and continued the Vessel to proceed the south without noticing the Nagoya Port West Channel No.15 Light Buoy (hereinafter referred to as "the Light Buoy"), which was the bearing target to turn to the starboard for the West Channel of Nagoya Port, and then Pilot A instructed the rudder angle of starboard 15° without confirming the Vessel position due to being urged to the starboard turn by Pilot B when the Vessel was at the east offing of the West Channel No. 14 Light Beacon, Nagoya Port (hereinafter referred to as the "West 14 Light Beacon"), and furthermore Pilot B instructed the rudder angle of hard to starboard because, the Vessel was turning to the starboard and proceeded 4B Anchorage, with the result that the Vessel ran aground at 4B Anchorage.

It is considered probable that Pilot A passed the Light Buoy and continued to proceed the south without noticing the Light Buoy, because it might be that the speed of Vessel was a little higher at approximately 8 knot when he passed the southeast end of Tobishima Wharf and turned to the starboard, and moreover he paid attention to the East 12 Light Beacon as the next bearing target in situation of increasing the ship speed, and then after noticing the Vessel passing the Light Buoy, and subsequently he did not determine immediately whether he would be able to make the starboard turn in time for the West Channel or not.

It is considered probable that Pilot A instructed the rudder angle of starboard turn 15° without confirming the Vessel position due to urging to take the starboard turn by Pilot B, because he thought that the evaluation operation had been suspended and Pilot B had maneuvering command of the Vessel.

It is considered likely that Pilot B urged Pilot A to turn to the starboard strongly and furthermore instructed the rudder angle of hard to starboard, because the Vessel passed the Light Buoy, and then Pilot B had suspicion about the situation of proceeding the south in a state of no instruction of the starboard turn by Pilot A, because even though Pilot B urged Pilot A to turn to the starboard, Pilot A did not instruct the starboard turn, and then Pilot B felt concerned that they would lose the opportunity to turn to the starboard, and subsequently, Pilot B decided to be able to turn to the starboard by eye-estimation of the distance to the West 14 Light Beacon

It is considered probable that the Master did not conduct to maneuver the Vessel himself even though he had suspicion about maneuvering the Vessel by Pilot A and pilot B, because Pilot B with a lot of experience of pilotage operation conducted to instruct Pilot A in Japanese and there was no problem to keep navigating to the south in the East Channel in this situation, and moreover, Pilot B knew that the distance to the West 14 Beacon was 0.4 miles when he began to take to turn to the starboard by the rudder angle of hard to starboard, and subsequently, he began to decelerate ship speed at the similar moment, and therefore, he thought that the Vessel would successfully turn to starboard for the West Channel.

It is considered likely that he was aware that he should maneuver the Vessel himself to secure safety navigation for her at adequate timing when he had suspicion about maneuvering the Vessel by Pilot A, Pilot B did not clearly inform Pilot A and the Master that the evaluation operation of Pilot A's was suspended at adequate timing, and subsequently, Pilot B did not conduct to take safety measures by maneuvering the Vessel himself at an early stage in accordance with Training Rules of Ise-Mikawa Wan Pilots' Association in Ise-Mikawa Wan Pilotage District.

It is considered probable that it was involved in the occurrence of an incident that Pilot A and Pilot B did not have communication with the crew members in the bridge sufficiently.

1 PROCESS AND PROGRESS OF THE INVESTIGATION

1.1 Summary of the Marine Incident

At around 20:59, April 4, 2019, Container vessel WAN HAI 316, with her master and 20 other crew members, and was navigated under escort by two pilots on board, ran aground at the 4B Anchorage, Nagoya Port, Aichi Prefecture which was at a water depth of approximately 6 meters, while turning to the starboard with a draft of approximately 8.5 meters at the bow and 9.6 meters at the stern at approximately 770 meters to the eastward offing of Port Island, Nagoya Port.

1.2 Outline of the Incident Investigation

1.2.1 Setup of the Investigation

The Japan Transport Safety Board appointed an investigator-in-charge and two other investigators to investigate this incident on April 10, 2019.

1.2.2 Collection of Evidence

April 23 and June 18, 19, 2019: Interviews and collection of questionnaires

May 23, 2019: On-site investigation and interviews

September 5, Dec. 12, 20, 22, 2020, Apr. 5, 9, 2021: Interviews

April 2, 2021: Collection of questionnaires

1.2.3 Opinions of Parties Relevant to the Cause

Comments on the draft report were invited from parties relevant to the cause of the incident.

1.2.4 Comments from Flag State

Comments on the draft report were invited from the flag State.

2 FACTUAL INFORMATION

2.1 Events Leading to the Incident

2.1.1 Navigation Progress Traced Course by Automatic Identification System data

According to the records of the Automatic Identification System*¹ (AIS) data (hereinafter referred to as "AIS record") received by a private data company in Japan, Table 1 shows the navigation tracks of WAN HAI 316 (hereinafter referred to as the "Vessel") between around 20:28:15 and 20:58:56, April 4, 2019.

The Vessel position was the position of the GPS antenna mounted on the bridge. The GPS antenna was installed at the position of approximately 190 meters from the bow, 23 meters from the stern, 12 meters from the port side, and 20 meters from the starboard side. The heading and the course over the ground are true bearings (hereinafter the same.).

*¹ "Automatic Identification System (AIS)" is a device that allows each ship to automatically send and receive information on the ship's identification number, type, name, position, course, speed, destination, and navigation status to exchange information among ships and with land-based navigation aid facilities, etc.

Table 1 AIS record (extracted)

Time (hour · minute · second)	Vessel Position		Heading (°)	Course over the ground (°)	Speed over the ground ^{*2} (knot)
	Latitude (N) (°-′-″)	Longitude (E) (°-′-″)			
20:28:15	35-02-24.2	136-50-06.1	342	182	0.0
20:28:36	35-02-24.2	136-50-06.1	342	081	0.1
20:28:57	35-02-24.3	136-50-06.4	340	075	0.4
20:30:07	35-02-24.4	136-50-07.1	340	078	0.4
20:31:07	35-02-24.6	136-50-07.9	337	079	0.6
20:32:07	35-02-24.8	136-50-08.7	338	079	0.7
20:33:15	35-02-24.4	136-50-10.1	335	115	1.2
20:34:15	35-02-23.7	136-50-12.1	324	109	1.7
20:35:03	35-02-23.5	136-50-13.8	307	097	1.8
20:36:03	35-02-23.8	136-50-15.9	283	073	1.6
20:37:02	35-02-24.6	136-50-17.8	260	059	1.8
20:38:03	35-02-26.3	136-50-19.0	233	025	1.8
20:39:03	35-02-27.2	136-50-18.4	207	315	0.8
20:40:00	35-02-26.7	136-50-17.3	183	232	1.3
20:40:59	35-02-24.5	136-50-16.5	164	186	1.9
20:42:06	35-02-21.9	136-50-18.1	160	159	3.2
20:43:06	35-02-17.5	136-50-19.7	160	161	4.8
20:44:15	35-02-11.0	136-50-22.6	160	161	6.3
20:45:06	35-02-05.2	136-50-25.0	160	161	7.1
20:46:06	35-01-57.5	136-50-27.8	160	161	7.9
20:47:06	35-01-49.9	136-50-31.1	164	159	8.4
20:47:43	35-01-44.9	136-50-33.1	174	164	8.5
20:48:00	35-01-42.6	136-50-33.5	178	170	8.6
20:48:47	35-01-35.3	136-50-33.5	189	181	9.2
20:49:06	35-01-32.5	136-50-32.9	191	187	9.4
20:49:36	35-01-27.5	136-50-31.6	191	190	9.9
20:50:06	35-01-22.4	136-50-30.4	198	192	10.3
20:51:05	35-01-12.8	136-50-25.6	210	205	10.6
20:51:36	35-01-07.7	136-50-22.0	210	210	10.9
20:52:05	35-01-03.1	136-50-18.8	219	208	10.8
20:53:03	35-00-56.8	136-50-11.2	250	230	8.9
20:54:03	35-00-54.4	136-50-02.5	276	255	7.2
20:55:06	35-00-55.2	136-49-55.3	292	282	5.1
20:56:06	35-00-56.6	136-49-51.2	293	290	3.3
20:57:07	35-00-57.3	136-49-48.5	294	288	2.1
20:58:06	35-00-57.7	136-49-47.1	294	290	0.9
20:58:56	35-00-57.7	136-49-47.0	293	289	0.0

2.1.2 Voice Data of Voyage Data Recorder of the Vessel

(1) Voice, etc. in Navigation Bridge

According to the audio recorded by the Voyage Data Recorder^{*3} (hereinafter referred to as

^{*2} "Speed over the Ground" refers to the speed of a ship measured from a single point on the Earth's surface, while "Log Speed" refers to the speed measured from the water on which the ship is floating.

^{*3} "Voyage Data Recorder (VDR)" can record data related to navigation data, such as ship's position, course, speed, and radar information, as well as VHF radio communications and voice in navigation bridge, etc.

"VDR") installed in the Vessel, Table 2 shows Voice Data recorded by VDR in the navigation bridge around between 20:44:17 and 20:58:53 of the master (hereinafter referred to as "Master"), a pilot trainee who was on board under new pilot training at the time of the incident (hereinafter referred to as "Pilot A"), a supervising pilot (hereinafter referred to as "Pilot B"), total two pilots, an officer (hereinafter referred to as "Officer A") and a helmsman (hereinafter referred to as "Helmsman A") and Nagoya-ko Vessel Traffic Service Center (Nagoya Harbor Radar) (hereinafter referred to as NHR), which was communicated via VHF (Very High Frequency) radio (hereinafter referred to as "VHF").

Communication with NHR is indicated as (VHF) in message description.

Table 2 Voice Data of VDR (extracted)

Time	Message Description
20:44:17	NHR: WAN HAI 316, WAN HAI 316. This is Nagoya Harbor Radar. (VHF)
20:44:24	Pilot A: Nagoya Harbor Radar. This is WAN HAI 316. (VHF)
20:44:27	NHR: Change the channel to CH 14, please. (VHF)
20:44:28	Pilot A: CH 14? (VHF)
20:44:34	Pilot A: Nagoya Harbor Radar. This is WAN HAI 316. (VHF)
20:44:36	NHR: This is Nagoya Harbor Radar. You probably received a message from Vessel A (note: tugboat). Vessel B (note: incoming vessel) would be unable to leave the Channel in time, so she will be coming in from the East channel. No ship will meet you for now. Please depart from the West channel. (VHF)
20:44:55	Pilot A: Roger. Thank you. Back to CH16.
20:44:59	NHR: Back to CH16. Over. (VHF)
20:45:22	Pilot A: Over. Vessel A, Vessel A (note: tugboat), your work is completed here. Thank you, over. (VHF)
20:46:11	Pilot A: Master, Slow ahead. Slow ahead at 10 knots.
20:46:27	Pilot A: Starboard 10°. Helmsman: Starboard 10°.
20:46:31	Helmsman A: Starboard 10°, sir.
20:46:33	Pilot A: Thank you.
20:46:34	Pilot A: Starboard 15°.
20:46:35	Helmsman A: Starboard 15°.
20:46:38	Helmsman A: Starboard 15°, sir.
20:46:40	Pilot A: All right.
20:47:25	Pilot A: Midship. Helmsman A: Midship.
20:47:30	Helmsman A: Midship, sir.
20:47:32	Pilot A: Thank you.
20:47:40	Pilot A: Captain, Half Ahead.
20:47:41	Officer A: Half Ahead.
20:48:05	Pilot A: Starboard 15°. Helmsman A: Starboard 15°.
20:48:12	Helmsman A: Starboard 15°, sir.

20:48:14	Pilot A: Thank you.
20:48:21	Pilot A: Midship. Helmsman A: Midship.
20:48:26	Helmsman A: Midship, sir.
20:48:28	Pilot A: Thank you.
20:48:45	Pilot A: Steady 190°. Helmsman A: 190°.
20:49:10	Helmsman A: 190°, sir.
20:49:12	Pilot A: Thank you.
20:49:19	Pilot A: Starboard 15°. Helmsman A: Starboard 15°.
20:49:24	Helmsman A: Starboard 15°, sir.
20:49:38	Pilot A: Midship.
20:49:39	Master: The West channel? Helmsman A: Midship.
20:49:40	Pilot B: Hmm?
20:49:41	Master: The West channel?
20:49:43	Helmsman A: Midship, sir.
20:49:45	Pilot A: Thank you.
20:49:51	Master: The West channel? Pilot B: Hmm?
20:49:52	Master: The West channel?
20:49:53	Master: The West? The East?
20:49:54	Pilot B: Hmm, Oh geez, No, the West channel.
20:49:57	Pilot B: No, West, West, the West channel.
20:49:59	Master: No, No!
20:50:00	Pilot B: Hey!
20:50:10	Pilot A: Starboard 15°.
20:50:12	Helmsman A: Starboard 15°.
20:50:19	Helmsman A: Starboard 15°, sir.
20:50:21	Pilot A: Thank you.
20:50:24	Pilot A: Midship.
20:50:25	Helmsman A: Midship.
20:50:30	Helmsman A: Midship, sir.
20:50:30	Pilot A: Port 15°.
20:50:31	Helmsman A: Port 15°.
20:50:34	Helmsman A: Port 15°, sir.
20:50:36	Pilot A: Thank you.
20:50:41	Master: East channel?
20:50:43	Pilot B: (inaudible) all it takes is Master: Which (inaudible) Pilot B: (inaudible) Master: (inaudible)
20:50:44	Pilot A: Steady 210°.

20:50:44	Helmsman A: 210°.
20:50:51	Master: Mistake?
20:50:55	Helmsman A: 210°, sir.
20:50:59	Master: (inaudible)
20:51:04	Helmsman A: 210°, sir.
20:51:05	Pilot A: Thank you.
20:51:07	Master: You go the East channel.
20:51:08	Pilot B: Hey, keep turning to the starboard (inaudible) (inaudible) You are!
20:51:12	Pilot A: Starboard 15°.
20:51:13	Master: No! No! No!
20:51:14	Pilot A: Steady. Pilot B: (inaudible)
20:51:15	Master: No! No! No! Steady, Steady.
20:51:16	Master: (inaudible)
20:51:17	Master: (inaudible)
20:51:19	Helmsman A: 210°.
20:51:20	(Several people spoke at the same time. Inaudible.)
20:51:29	Pilot A: Starboard 15°. Pilot B: Hey! Where are you going to?
20:51:31	Helmsman A: Starboard 15°, sir.
20:51:32	Pilot A: Starboard 15°. Pilot B: Hard Starboard. Pilot A: Hard Starboard.
20:51:33	Helmsman A: Hard Starboard.
20:51:33	Pilot B: That is not it. Slow Ahead.
20:51:36	Pilot A: Slow Ahead.
20:51:37	NHR: WAN HAI 316. This is Nagoya Harbor Radar. (VHF)
20:51:38	Master: No! No! Pilot A: Hard Starboard. Helmsman A: Hard Starboard, sir.
20:51:40	Pilot B: Slow Ahead.
20:51:40	Pilot B: Dead Slow Ahead.
20:51:41	Pilot A: Dead Slow Ahead. Pilot A: Hard Starboard.
20:51:42	Helmsman A: Hard Starboard.
20:51:47	Pilot B: Where are you going to!
20:51:47	NHR: WAN HAI 316. This is Nagoya Harbor Radar. (VHF)
20:51:55	Pilot A: This is WAN HAI 316. (VHF)
20:51:57	NHR: Are you departing from the East channel? (VHF)
20:52:00	Pilot A: No, I am underway to the West channel, the West. (VHF)
20:52:03	NHR: Is the Vessel possible to veer the channel from your current position? (VHF)
20:52:06	Pilot B: Yes, it is possible.

	Pilot A: Yes, it is possible. Yes. (VHF)
20:52:08	NHR: Roger, pay sufficient attention also to buoy directions. (VHF)
20:52:12	Pilot A: Roger. (VHF)
20:52:14	NHR: Back to CH16. (VHF)
20:52:17	(inaudible)
20:52:18	Pilot B: Make sure whether we are proceeding or anchoring. We might run aground. Pilot A: Yes, sir.
20:52:27	Pilot B: Hard Starboard.
20:52:28	(inaudible)
20:52:29	Helmsman A: Hard Starboard.
20:52:56	NHR: WAN HAI 316, 4B is only approximately 6 meters of a water depth. Pay attention. (VHF)
20:53:03	Pilot A: Roger.
20:53:06	Master: (inaudible)
20:53:15	Pilot B: You should do whistling blasts. Pilot A: Yes. (No blast)
20:53:23	Helmsman A: Ready?
20:53:38	Master: (inaudible)
20:53:44	Master: (inaudible)
20:53:52	Pilot B: Yes, sir. Midship.
20:53:53	Pilot A: Midship. Helmsman A: Midship.
20:54:01	Helmsman A : Midship 10°. Master: (inaudible)
20:54:07	Master: (inaudible) Very risky, because
20:54:08	Pilot B: Huh, Ahh?
20:54:11	Master: Near by six.
20:54:12	Pilot B: Huh?
20:54:13	Master: Very close.
20:54:17	Master: I can't?
20:54:19	Pilot A: Port 10°.
20:54:20	Helmsman A: Port 10°.
20:54:21	Pilot B: Yeah, well, fine. I 'm not (inaudible)
20:54:23	Helmsman A: Port 10, sir.
20:54:35	Pilot B: Turn to at approximately 270°.
20:54:36	Pilot A: Yes.
20:54:42	Master: (inaudible)
20:54:46	Pilot B: Hey, Turn to more port. More and more.
20:54:56	Helmsman A: (inaudible) Starboard?
20:55:02	(Several people spoke at the same time. Inaudible.)
20:55:03	Pilot B: Hard Port (inaudible)
20:55:06	Pilot A: No, if we turn to port, that is, there is a shallow water.
20:55:13	Pilot B: No, red.

20:55:15	Master: Starboard?
20:55:17	Helmsman A: Starboard 10°, sir.
20:55:19	Pilot B: (inaudible)
20:55:21	Master: (inaudible)
20:55:24	Pilot B: (inaudible)
20:55:29	Pilot B: We have to proceed between the red and the blue.
20:55:30	Pilot A: Yes.
20:55:32	Pilot B: You see
20:55:35	Pilot B: Port 10°, Port 20°.
20:55:36	Helmsman A: Port 20°.
20:55:38	Pilot A: Master, No. Over there is Pilot B: Huh?
20:55:40	Pilot B: Yeah, yeah.
20:55:42	Master: Starboard.
20:55:43	Helmsman A: Starboard.
20:55:44	Pilot A: Hard Starboard.
20:55:45	Helmsman A: Hard Starboard.
20:55:52	Pilot A: Hard Starboard.
20:55:54	Helmsman A: Hard Starboard, sir.
20:56:03	Pilot A: Slow Ahead.
20:56:04	Officer A: Slow Ahead.
20:56:24	Pilot B: A little higher.
20:56:25	Pilot A: Half Ahead.
20:56:25	Officer A: Half Ahead.
20:56:29	Officer A: Half Ahead, sir.
20:56:30	NHR: WAN HAI 316. This is Harbor Radar. (VHF)
20:56:35	Master: (inaudible)
20:57:03	Master: (inaudible) trouble (inaudible) system
20:57:07	Master: You might go hard starboard.
20:57:09	Helmsman A: Hard Starboard 10°.
20:57:13	Pilot B: Hey, Go, Full Ahead.
20:57:15	Pilot A: Full Ahead. Full Ahead.
20:57:16	Pilot B: Hmm?
20:57:17	Pilot A: Full Ahead.
20:57:19	Pilot A: Hard Starboard.
20:57:20	Helmsman A: Now Hard Starboard.
20:57:23	Pilot A: Captain, Full Ahead.
20:57:24	Master: Full Ahead! No. No. No. (inaudible)
20:57:30	Pilot A: Captain, Full Ahead.
20:57:32	Master: No. No. You (inaudible)
21:57:34	Master: You (inaudible)
22:57:40	Master: No, 30°. Hard Starboard.
20:57:45	Helmsman A: Hard Starboard.
20:57:49	(VHF ringtone)

20:57:51	NHR: WAN HAI 316. This is Nagoya Harbor Radar. Are you aground? Are you possible to navigate? (VHF)
20:58:00	Pilot A: I'm checking. (VHF)
20:58:28	Master: (inaudible). Stop eng.
20:58:43	Pilot B: (inaudible). We have run aground, a little.
20:58:51	Pilot B: Call a tugboat.
20:58:53	Pilot A: Yes, sir.

(2) Record of Main Engine Operation

According to the VDR recording data, Table 3 shows the Main Engine Remote Control System operation around between 20:37:53 and 20:58:36.

Table 3 Main Engine Remote Control System Operation (extracted)

Time	Operation of Main engine remote control system
20:37:53	Dead slow ahead
20:41:13	Slow ahead
20:47:48	Half ahead
20:51:43	Slow ahead
20:51:48	Dead slow ahead
20:56:11	Slow ahead
20:56:35	Half ahead
20:56:54	Slow ahead
20:58:36	Stop engine

2.1.3 Events Leading to the Incident According to the Information of Crew members and Others

According to the statements of Master, Pilot A, Pilot B and Officer A, and the questionnaire of Pilot B, the events leading to the incident was described as follows. (See Annex 1 Estimated Navigation Route and Annex 2 Water Depth of the 4B Anchorage and Surrounding Area)

At around 20:28, April 4, 2019, the Vessel, with the Master and 20 other crew members (eleven nationals of the People's Republic of China, five nationals of the Republic of Indonesia, two nationals of the Republic of China and two nationals of the Republic of the Union of Myanmar) departed from the R2 Berth, Tobishima Wharf, Nagoya Port, Aichi Prefecture for Yokkaichi Port, Yokkaichi City, Mie Prefecture. The Master commanded the Vessel, with Officer A in charge of telegraph operation, Helmsman A in charge of manual steering operations, Pilot A in charge of pilotage operation respectively, and so, Pilot B in charge of Pilot A's training and its evaluation operation.

After departure from the Berth, Pilot A turned the Vessel around with a tugboat and proceeded the south, when he received a VHF call from NHR: "A vessel which is scheduled for the port arrival, is underway to enter the port from the East Channel. The Vessel has no passing each other with other vessels. The Vessel goes departing from the West Channel."

When the Vessel reached the southeast end of Tobishima Wharf, Pilot A instructed the crew members to take the rudder angle of starboard 15°. After the Vessel entering the East Channel at a speed of approximately 8 knot (kn) and turned the starboard, Pilot A instructed the crew members to proceed on a course of 190° toward the Nagoya Port East Channel No.12 Light

Beacon (hereinafter referred to as the "East 12 Light Beacon"), which was the bearing target of the Vessel's course until turning to the starboard for the West Channel, and then the Vessel was veering.

Pilot B moved to the starboard wing to confirm the Nagoya Port West Channel No.15 Light Buoy (hereinafter referred to as "the Light Buoy") located at the entrance of the West Channel, while the Vessel was turning with the starboard 15° after passing the southeast end of Tobishima Wharf.

When the bow of the Vessel directing at 190°, Pilot A checked the rudder indicator and noticed that the rudder had been greatly counter-steered. Therefore, he instructed the crew members to set the rudder angle at starboard 15°, and however soon instructed the crew members to ease the helm, and then the Vessel was proceeding while Pilot A paid attention to the East 12 Light Beacon.

Pilot B confirmed on the starboard wing that the Vessel had passed the Light Buoy after the starboard turn, and returned to the bridge inside, and then, he was beside the starboard side radars and noticed that the Vessel's turning movement had already been lost.

Pilot A had planned to begin to make a turn to the starboard for the West Channel just before confirming the Light Buoy on the starboard beam. At around 20:50, he looked toward the starboard thinking that it was about time to turn, and however he was not able to confirm the Light Buoy and realized that the Vessel had already passed the Light Buoy. His mind went blank and he was too confused to determine immediately whether he would be able to make the starboard turn in time for the West Channel or not, and therefore, he continued the Vessel to proceed the south.

The Master did not receive any instruction from Pilot A when it was time to turn to the starboard for the West Channel. The Master repeatedly confirmed with Pilot A that the Vessel was passing through the West Channel, and witnessed that Pilot A nodded affirmatively.

Pilot B called out to Pilot A and urged him to turn to the starboard toward the West Channel because of no instruction having been given to turn to the starboard so far.

Pilot A instructed the crew members to set the rudder angle at starboard 15° as being urged by Pilot B, and however he was afraid of her turning due to having lost sight of the Light Buoy and did not lose the Vessel position. Then, he saw a green light on the bow (note: he did not recognize the green light as the Nagoya Port East Channel No. 11 Light Beacon (hereinafter referred to as the "East 11 Light Beacon")) and recognized that the bow of the Vessel was directing between the East Light Beacon (a red light) and the green light. Beyond the East 12 Light beacon, he saw a row of red lights flashing in sync with the East 12 Light Beacon.

Pilot A, confirming these lights on the bow of the Vessel, realized that he was safely underway in a Channel (note: he was not aware that the Vessel was in the East Channel). He decided that it would be safer to continue heading the south than to turn to the starboard without identifying the Vessel position, and therefore, he instructed the course of 210°, toward the center of the East 12 Light Beacon and the green light.

Pilot A thought that he had lost the opportunity to turn to the starboard for the West Channel when he instructed 210° course. Moreover, he was urged by Pilot B to turn to the starboard again, and then that matter made him think that the evaluation operation (on-the-job pilotage training to evaluate whether the pilot trainee was capable of fulfilling his/her duty independently) had been suspended.

The Master wondered Pilot A's operation was improper, and therefore, he inquired of Pilot A to make sure, "Mistake?", and advised him to take the East Channel, "You go East Channel.", thinking that the Vessel should take to proceed the East Channel, as one of safer options, since it was too late to turn to the West Channel already.

Pilot B felt concerned as Pilot A continued the Vessel to proceed the south and would lose the opportunity to turn to the starboard regardless of his direction to turn to the starboard.

Pilot B looked at the West Channel No. 14 Light Beacon, Nagoya Port (hereinafter referred to as the "West 14 Light Beacon") and estimated the distance to be approximately 650 meters. He thought the Vessel could just barely turn to the starboard for the West Channel considering the necessary normal turning radius, which was approximately three times the Vessel total length, 213 meters. At around 20:51, Pilot B moved beside Pilot A and strongly urged him to turn to the starboard without checking the radars and ECDIS (Electronic Chart Information Display System) screens.

Pilot A, who was strongly urged by Pilot B to turn to the starboard, thought that starboard turn for the West Channel would be possible as being directed by Pilot B, and then he instructed the crew members to set the rudder angle at starboard 15° without confirming the Vessel position with the radars and ECDIS.

After Pilot A instructing the rudder angle of starboard 15° instruction, and furthermore Pilot B continued to instruct the crew members to set the rudder angle of hard to starboard loudly and to set the engine speed to dead slow ahead.

The Master recognized that the distance to the West 14 Light Beacon as approximately 0.4 nautical miles (M) when Pilot B instructed the rudder angle of hard to starboard. Since Pilot B was an experienced pilot, he thought that the Vessel might be able to turn for the West Channel.

The Master thought that Pilot B begun to command the Vessel when he heard Pilot B giving the maneuvering instruction of hard to starboard loudly.

Shortly after the Vessel began to turn to the starboard, Pilot A received a VHF call from NHR asking if the Vessel was still underway to the East Channel. He replied that the Vessel was heading for the West Channel, and then he was inquired from NHR whether the Vessel would veer the course for the West Channel was possible or not, and subsequently he replied that the Vessel would be possible to proceed since Pilot A said that would be all right.

The Vessel continued to turn to the starboard while decelerating from a speed of approximately 10.6 kn, and however entered the 4B Anchorage and ran aground at around 20:59.

AIS recorded the Vessel's speed as 0 kn at around 20:59.

The date and time of the incident was at around 20:59, April 4, 2019, and the location was around 306° bearing 400 meters from East 11 Light Beacon, the 4B Anchorage, Nagoya Port.

2.1.4 Communication on Navigation Passage Plan

According to the statements of the Master, Pilot A and Pilot B, it was as follows.

Prior to the departure, Pilot A and Pilot B boarded the Vessel moored at the Berth, at around 20:10, and shared information with the Master in the navigation bridge. Pilot A confirmed the Vessel's maneuverability and other information with the pilot card*⁴ given by the Master and

*⁴ "Pilot Card" refers to a document handed by master to pilot, containing information on the Vessel's loading condition, propulsion unit and maneuverability.

explained the summary of his pilotage operation plan to Yokkaichi Port through the West Channel, showing the pilot information card*⁵.

He had obtained the approval from the Master of one tugboat use each port on departing from Nagoya Port and arriving at Yokkaichi Port.

2.1.5 Awareness of Maneuvering Command While Pilots being On Board

According to the statement of the Master, the Master thought that when the pilot was on board, the pilot shall give orders. He thought that he done simply observation regarding the pilotage operation did not take maneuvering command himself instead of the pilots.

2.1.6 The Fact That Pilot A Lost Sight of the Light Buoy

According to the statement of Pilot A, when he passed the southeast end of Tobishima Wharf and turned to the starboard, the speed of the Vessel was a little higher at approximately 8 kn and he was paying attention to the East 12 Light Beacon, which was the next bearing target of his course. After the incident, he looked back and thought that he might not have noticed that the Vessel had passed the Light Buoy unnoticeably.

2.2 Injuries to Persons

According to the statement of the Master, Pilot A and Pilot B, there were no fatalities or injuries on the Vessel.

2.3 Damage to Vessel

According to the report of the diving survey supplied by WAN HAI LINES LTD. (hereinafter referred to as Company A), there were no damage on the Vessel.

2.4 Crew member, etc. Information

(1) Age and Certificate of Competence

- ① Master 47 years old Nationality: People's Republic of China
Endorsement attesting the recognition of certificate under STCW regulation: Master (issued by the Republic of Singapore)
Date of Revalidation: June 23, 2017 (valid until June 23, 2022)
- ② Officer A 28 years old Nationality : Republic of China
Endorsement attesting the recognition of certificate under STCW regulation: Third Navigation Officer (issued by the Republic of Singapore)
Date of Revalidation: December 23, 2015 (valid until June 20, 2020)
- ③ Helmsman A 51 years old Nationality : Republic of Indonesia
- ④ Pilot A 51 years old
Ise-Mikawa Wan Pilotage District 1st Grade Pilot
Date of Issue: January 15, 2019
Date of Revalidation: January 15, 2019 (valid until January 14, 2024)
- ⑤ Pilot B 73 years old
Ise-Mikawa Wan Pilotage District 1st Grade Pilot

*⁵ "Pilot Information Card" refers to a document handed to master by pilot, containing information on ports, maneuvering method, and tugboat use.

Date of Issue: December 19, 2000

Date of Revalidation: November 28, 2016 (valid until Dec. 18, 2019)

(2) Seagoing Experience, etc.

According to the statements of Master, Pilot A and Pilot B, it was as follows.

① Master

He had been on board the Vessel since October 9, 2018, as her master and had experienced many departures from Nagoya Port on the Vessel. He had known Pilot B for some time and was aware that Pilot B was an experienced pilot.

At the time of the incident, he was in good health.

② Officer A

He experienced four or five times departures and arrivals from/in Nagoya Port on the Vessel, and experienced them on other vessels.

At the time of the incident, he was in good health.

③ Helmsman A

At the time of the incident, he was in good health.

④ Pilot A

On February 1, 2019, he joined Ise-Mikawa Wan Pilots' Association in Ise-Mikawa Wan Pilotage District (hereinafter referred to as the "Pilots' Association") and underwent approximately a month of on board training for new pilots, and however it was deemed premature for him to work independently. He was on board as a trainee and under additional practical training.

At the time of the incident, he was in good health.

⑤ Pilot B

He obtained the Irago-Mikawa pilot license in 2000 and has been working as a pilot for approximately 18 years, performing approximately 160 to 170 pilotage operations a year. He was boarding as a supervising pilot to instruct and evaluate Pilot A's pilotage operation in his practical training for new pilot.

At the time of the incident, he was in good health.

2.5 Vessel Information, etc.

2.5.1 Particulars of Vessel

IMO number	9342700
Port of registry	Republic of Singapore
Owner	WAN HAI LINES (SINGAPORE) PTE LTD. (Republic of Singapore)
Management company	Company A (Republic of China)
Operator	Company A
Class	Nippon Kaiji Kyokai
Gross tonnage	27,800 tons
L x B x D	213.00 m × 32.20m × 16.50m
Hull material	Steel
Engine	Diesel engine x 1 unit
Output	25,270kW
Propulsion	Fixed pitch propeller x 1 ea.
Date of launch	February 15, 2007

Container load capacity 2,646TEU*6

(See photo 1)



Photo 1 The Vessel

2.5.2 Loading Condition

According to the reply of The Company A, at the time of the incident, the Vessel was loaded with 711/20-foot containers and 534/40-foot containers and had a draft of approximately 8.5 meters at the bow and 9.6 meters at the stern.

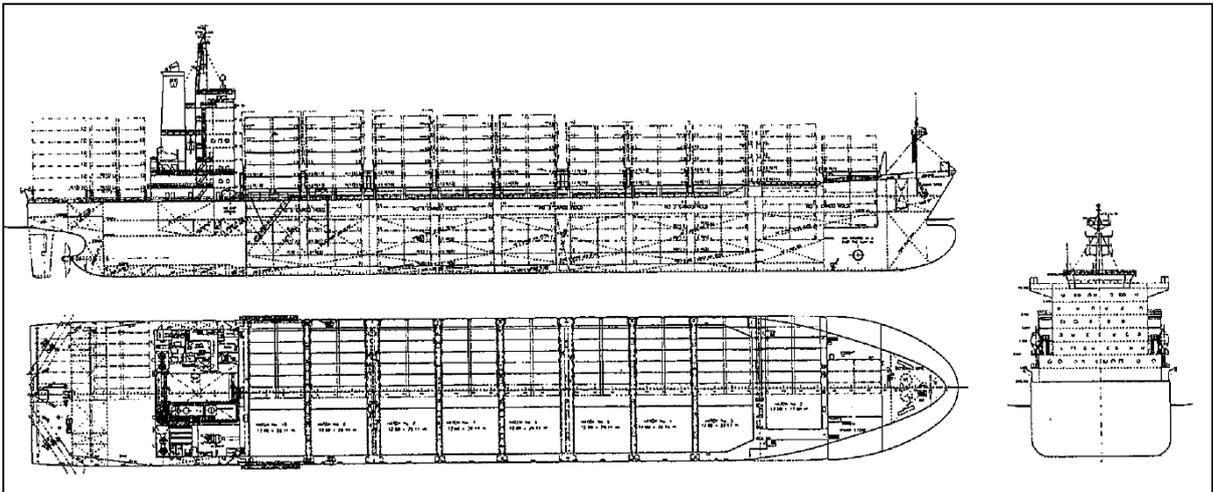
2.5.3 Other Relevant Vessel Information

According to on-site investigation and the statements of Master, Pilot A and Pilot B, it was as follows.

(1) Hull Construction

According to the general arrangement of the Vessel, it was as follows. (See Figure 1)

Figure 1 General Arrangement (extracted)



(2) Navigation Bridge

The wheel stand and device were installed in the center of the bridge, and on its starboard side were two radars and ECDIS. At the time of the incident, the Master and Officer A were standing in front of the radars and ECDIS conducting to do monitoring their screens.

A gyro-repeater was installed at the window side in the center of the bridge, and a VHF radio device was installed on its three-meters starboard side.

*6 TEU refers to container load capacity and acronym for Twenty-foot Equivalent Unit.

From the departure time to the incident, Pilot A was standing beside around the starboard of the compass and hardly moved from that position.

Pilot B was standing at around the window side of port fore in the bridge. After the Vessel passed the southeast end of Tobishima Wharf, Pilot B went out to the starboard wing to confirm that the Vessel passed the Light Buoy and returned to around the radars in the bridge inside, and then came closer Pilot A to strongly urge him to turn to the starboard.

At the time of the Incident, the hull, the engine and the navigation instruments had no defects or malfunctions.

(See Figure 2, Photo 2)

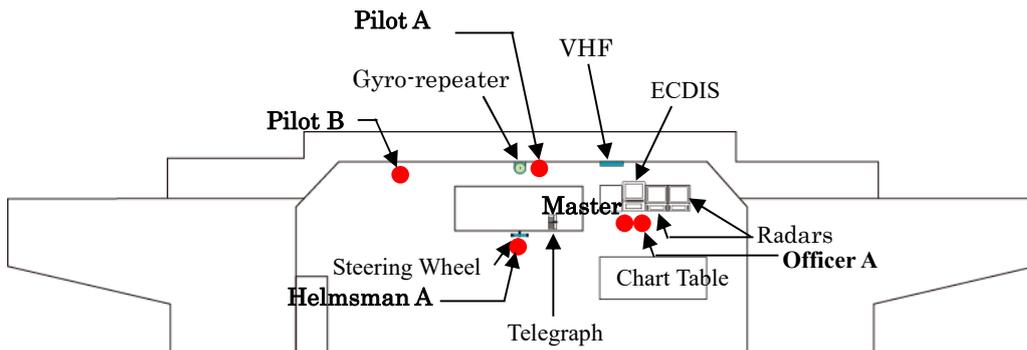


Figure 2 Position of Crew Member in Navigation Bridge (Departure time)

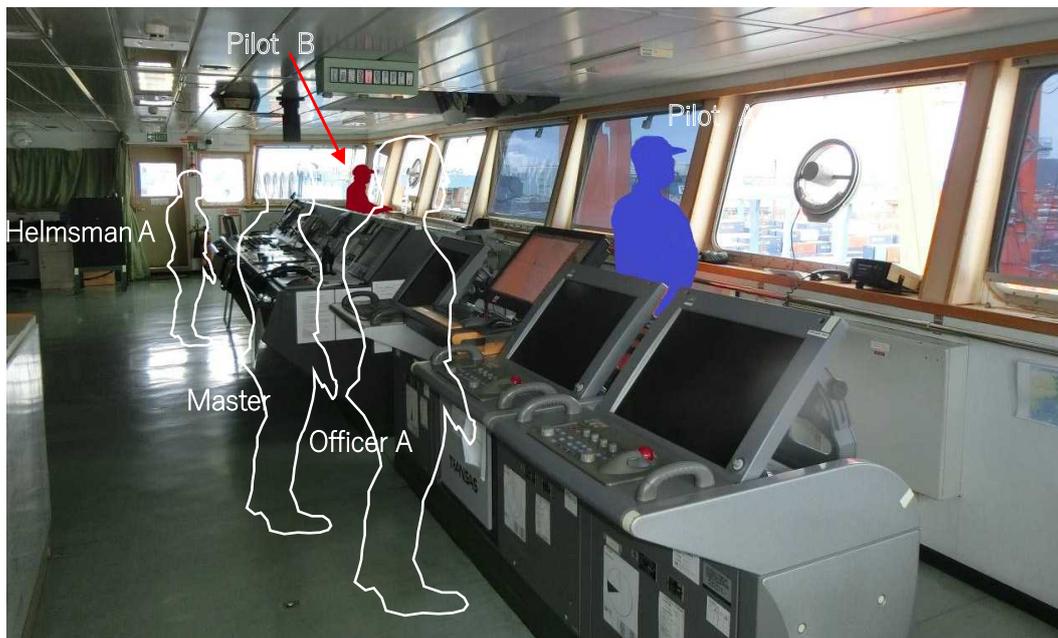


Photo 2 Position of Crew Member in Navigation Bridge

(3) View from the Navigation Bridge

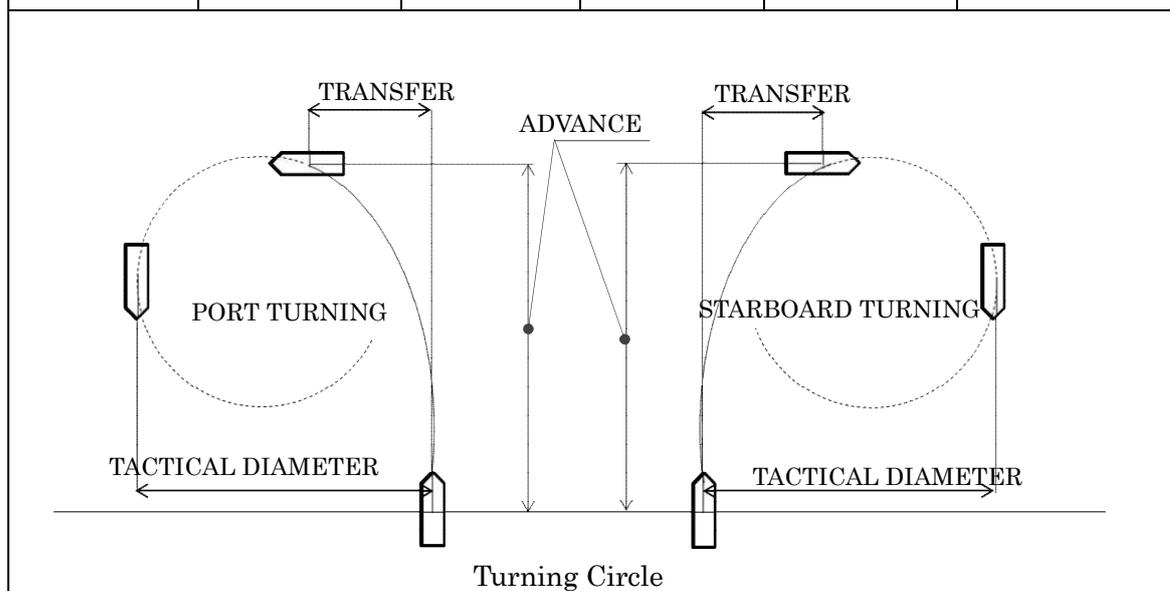
There was no structure obstructed the view in the bow direction.

(4) Information of Maneuvering Performance of the Vessel

According to the maneuvering performance of the Vessel table, her turning performance is as follows. (See Table 4)

Table 4 Turning Performance

		ADVANCE (m)	TRANSFER (m)	TIME (min.-sec.)	TACTICAL DIAMETRE (m)
FULL SPEED	PORT	783	316	6-18	883
	STARBOARD	809	370	6-37	973
HALF SPEED	PORT	748	335	6-33	855
	STARBOARD	812	326	6-54	874



2.6 Weather and Sea Conditions

2.6.1 Meteorological and Maritime Observation

(1) According to meteorological observations at Centrair (Central Japan Aviation Regional Meteorological Station), which is located approximately 17.5 km south of the incident location, there were as follows.

20:00 Wind west-southwest, Wind force 4.4m/s

21:00 Wind west, Wind force 4.6m/s

(2) According to meteorological observations at Nagoya District Meteorological Observatory, which is located approximately 20.8 km northeast of the incident location, there were as follows.

20:30, Wind west, Wind force 2.1 m/s

20:40, Wind west-southwest, Wind force 1.8 m/s

20:50, Wind south-southwest, Wind force 1.5 m/s

21:00, Weather clear, Wind southwest, Wind force 1.5 m/s

2.6.2 Crew Members Observation

According to the statement of Pilot A, it was as follows.

Weather Fair, Wind west-southwest, Wind force approximately 7 m/s, Visibility over 10 km

2.6.3 Tide

According to the 2019 Tide Tables published by the Japan Coast Guard (Bibliography No. 781, February, 2008), the tide at Nagoya Port at 20:59, April 4, 2019, was in the mid-stage of lowering tide, and the tidal height was about 121 cm.

2.7 Safety Management of Company A

The Safety Management Manual of Company A (Safety Management Manual 2009/1/1, Revision:3 2014/5/5) stipulates the following duties and obligations of crew members when a pilot is on board. (See below)

Safety Management Manual

Number: PR-0701

Title: Officer on watch

Despite the duties and obligation of a pilot, pilot presence on board does not relieve the Officer on watch from his duties and obligations for the safety of the ship. The Officer should cooperate with the pilot and maintain an accurate check on the position and movements of the Vessel. If any confusion or doubts arise concerning the pilot's actions or intentions, the Officer should clarify them with the pilot. If matters are still not resolved, immediately notice to the Master and be prepared to take necessary actions before Master's arrival. The "Pilot card" has to hand to the pilot when pilot is on the bridge.

2.8 Information of Characteristics of The Water Area of the Incident, etc.

According to the statements of Pilot A, Pilot B and the Master, prior to the incident, there were no vessels in the East and West Channels in the vicinity.

2.9 Information of Pilots' Association

2.9.1 Pilot Training

According to Pilots' Association Regulations, Pilots' Association Regulation Implementation Rules and Training Instruction, it was as follows.

Pilots' Association Regulations

Chapter 7 Member Quality Maintain, etc.

(Member Training)

Article 32: Pilots' Association shall provide the training in the following respective items to member which is newly admitted as practical training for new member.

(1) Training for securing safety of vessel's navigation

(2) Training for securing safety of members themselves

(3) Training for Pilotage operation as pilot

(Items 2 to 8; omitted.)

Pilots' Association Regulation Implementation Rules

Chapter 3 Supervision and Safety Management

(Practical training for new members)

Article 18: Practical training for new members stipulated in Pilots' Association Regulations

Article 32, (1) shall be performed through onshore training and on-board training.

2 The purpose of onshore training is to acquire knowledge necessary for pilotage operation before starting pilotage service.

3 The purpose of on-board training is to become skilled pilotage skills and to secure safety navigation, etc. by gaining pilot experience in the presence of/under the guidance of a supervising pilot designated by Chairman.

(Items 4 – 7; omitted.)

(Safety Measures)

Article 18. 3: In case of the supervising pilot determining a danger considering weather, marine traffic, other surrounding conditions, or the skills of the trainee in practical training, he or she shall immediately suspend the training and fulfill duties him/ herself.

Training Instruction

Chapter 1 General Provisions

(Definitions)

Article 2: Significance of Terms in Training Instruction are defined as the following items.

(1) Training: training on land (hereinafter referred to as "onshore training") and pilotage operation training on board ships (hereinafter referred to as "on-board training").

(2) Trainee: a member who receives training in accordance with Training Instruction

(3) Supervising pilot: a 1st Grade pilot with over than one year of pilotage experience including 2nd or 3rd Grade pilots with three or more years of pilotage experience who are appointed by Chairman. A supervising pilot provides guidance and evaluation on board with the trainee. "Years of pilotage experience" means years of independent pilotage experience.

(4) Full-time supervising pilot: a 1st Grade pilot among supervising pilots specified in the preceding item (3), who has over than five years of pilotage experience and is appointed by Chairman.

(Responsibilities of trainees)

Article 3: Trainees shall commit themselves to training.

2 Trainees shall follow the directions of their supervising pilot or full-time supervising pilot (hereinafter referred to as "supervising pilot, etc.") during on-board training.

(Items 3 to 4; omitted)

(Training categories)

Article 4: The Pilots' Association shall provide the training in the following respective items, depending on the member's license, opportunity and training purpose.

(1) Practical training: training for newly licensed pilots

((2) to (4); omitted)

(2 to 3; omitted.)

Chapter 3 On-board Training

(On-board training)

Article 6: The purpose of on-board training is to become skilled trainees with pilotage techniques required to grasp sea conditions, to secure safety vessel traffic, and to advance operation efficiency under the supervision of a supervising pilot.

2 On-board training conducted the following duties, etc.

*(1) Bay operation^{*7}*

^{*7} "Bay operations" refers to pilotage operations from the entrance to the bay to the entrance to the port or vice versa.

*(2) Harbor operations*⁸*

(3) Bay and Harbor operations

(4) Evaluation operation

3 Implementation Status of On-board Training shall be implemented as the following respective items

(1) to (2); omitted

(3) Full-area operation in which a trainee independently performs any of the pilotage operations and duties specified in the preceding article under a supervising pilot, etc.

4 (Omitted)

(Evaluation and assessment)

Article 7: The Pilots' Association shall provide trainees evaluation and assessment in the following respective items.

(1) Supervising pilot, etc. evaluation

(2) Mid-term evaluation by Education and Training Committee

(3) Final assessment by the Board of Directors

2 (Omitted)

3 In case of a supervising pilot, etc. determining that it would be unsafe for the trainee to perform the pilotage operations independently in view of his/her experiences and skills, the supervising pilot shall take over and implement the pilotage operations instead of trainee.

2.9.2 Communication between Supervising Pilots And the Trainee of Pilotage Operation during Evaluation Operation

(1) According to the statement of Pilot A, approximately 10 new pilots join in Pilots' Association every year. During evaluation of pilotage operations, supervising pilots inform trainees, not warningly, of important points which trainees should know in order to help them swift to begin independent working smoothly. Normally, supervising pilots often give trainees advice on what to do, and even give them a passing grade of 6 points or higher in their evaluation.

(2) According to the statement of Pilot B, he considered that take communication (information exchange) with Pilot A during the evaluation of pilotage operation would mean giving advice, and therefore, his communication would affect the evaluation result. That was why he had decided to evaluate Pilot A based on the operations performed himself independently.

Therefore, he tried to refrain from communicating with Pilot A.

Pilot A had been late yet to do pilotage independently than contemporaries of the pilots, and therefore, Pilot B wanted to get him working on his own as soon as possible.

3. ANALYSIS

3.1 Situation of the Incident Occurrence

^{*8} "Harbor operations" refers to pilotage operations from harbor entry to docking, or from undocking to harbor entrance.

3.1.1 Course of the Events

According to 2.1, it is considered probable as follows.

- (1) At around 20:28, April 4, 2019, the Vessel departed from the R2 Berth, Tobishima Wharf, Nagoya Port for Yokkaichi Port with a bow draft of approximately 8.5 meters and a stern draft of approximately 9.6 meters.
- (2) Pilot A began to conduct pilotage operations while Pilot B provided guidance and evaluation.
- (3) At around 20:47, the Vessel passed the southeast end of Tobishima Wharf area and turned to the starboard to enter the East Channel.
- (4) Between around 20:48 and 20:49, Pilot A set the bearing target to the East 12 Light Beacon, and the Vessel proceeded on a course of 190° and was increasing the speed from approximately 9.2 kn to approximately 9.9 kn.
- (5) At around 20:50, the Vessel passed the Light Buoy, and then at around 20:51, she increased speed to approximately 10.9 kn and was proceeding the south in the East Channel.
- (6) At around 20:52, the Vessel began to turn to the starboard and was decelerating at the east offing of the West 14 Light Beacon. Until around 20:53, she was turning to the starboard gradually gaining turning movement and subsequently, at around 20:54, she began to lose to turn to the starboard movement. At around 20:55, she was proceeding on a course of 293°. The Vessel ran aground at around 20:59 because her ship speed was at almost 0 kn.

3.1.2 Date, Time and Location

According to 2.1, it is considered probable that the occurrence date and time of the incident was at around 20:59, April 4, 2019, and the location of the incident was around 306° true bearing, 400 meters from the East No. 11 Light Beacon.

3.1.3 Information of casualties or injuries

According to 2.2, there were no casualties or injuries in this incident.

3.1.4 Damage to Vessel

According to 2.3, there was no damage on the Vessel.

3.2 Analysis of Causal Factors of the Incident

3.2.1 The situation of Crew members, etc.

According to 2.4, the situation of the crew members was as follows.

(1) Master

The Master possessed legally valid certificates of competence.

It is considered probable that he was in good health at the time of the incident.

(2) Pilot A

Pilot A possessed legally valid certificates as a pilot.

It is considered probable that he was in good health at the time of the incident.

(3) Pilot B

Pilot B possessed legally valid certificates as a pilot.

It is considered probable that he was in good health at the time of the incident.

3.2.2 Situation of the Vessel

According to 2.5.3, it is considered probable that the hull, the engine and navigational instruments had no defects or malfunctions at the time of this incident.

3.2.3 Information of Weather and Sea Conditions

According to 2.6, it is considered probable that weather and sea conditions at the time of the incident was the weather was fair, a west-southeast wind was blowing approximately 7.0 m/s, the tide was in the mid-stage of lowering tide, and the tidal height was about 121 cm. visibility was good.

3.2.4 Analysis of Safety Management

According to 2.7, it is considered probable that the Master operated the Vessel improperly, even though Company A's safety management manual clearly defined the responsibility of the master when a pilot is on board, because he entrusted the pilots with the Vessel maneuvering when he had suspicion about the maneuvering of Pilot A and Pilot B.

3.2.5 Analysis of Communication in the Navigation Bridge

According to 2.1, 2.4, 2.5.3 and 2.9, it was as follows.

- (1) It is considered probable that Pilot A, who was under on-board training for new pilots and took guidance and evaluation by Pilot B assigned as a supervising pilot, did not communicate with Pilot B, because from the departure time he was maneuvering the Vessel with the objective of conducting pilotage operation independently.
- (2) It is considered probable that Pilot B gave advice and directions to Pilot A, and however did not communicate with Pilot B, because Pilot B was on board to evaluate whether Pilot A could conduct pilotage operation independently or not.
- (3) The Master was informed by both pilots when they boarded on the Vessel that Pilot A would be maneuvering the Vessel. After the departure, the Master hardly had conversation with Pilot B. It is considered likely that the Master gave Pilot A some advice in English, and however the Master receive little response, and therefore the Master did not communicate sufficiently with both pilots.
- (4) It is considered probable that the Master did not understand the contents of conversation between Pilot A and Pilot B, because it was held in Japanese in the pilots' communication.
- (5) It is considered probable that Officer A did not communicate sufficiently in the bridge, simply repeating instructions given by Pilot A and Pilot B.
- (6) Based on above items (1) to (5), it is considered likely that at the time of the incident, the Vessel did not have adequate communication regarding the Vessel maneuvering in the navigation bridge.

3.2.6 Analysis of Position Confirmation and Vessel Maneuvering

According to 2.1, 2.5.3, 2.8 and 2.9, it was as follows.

- (1) It is considered probable that Pilot A did not confirm the Vessel position with the radars and ECDIS from the departure until the occurrence of the incident.
- (2) It is considered probable that Pilot A thought that he could safely enter the West Channel by confirming the Light Buoy as the bearing target when the Vessel would turn to the starboard to the West Channel and beginning to turn to the starboard just before the Light Buoy.

- (3) It is considered probable that Pilot A paid attention to the East 12 Light Beacon (red light), which was the bearing target by taking a starboard turn for the West Channel and noticed that the Vessel had passed the Light Buoy unnoticeably, and then he was unable to determine immediately whether he would be able to turn in time for the Western Channel or not, and therefore, he was continuing the Vessel to proceed the south, he confirmed a green light on the bow (note: he did not recognize the green light as the East No. 11 Light Beacon), and then, the bow of the Vessel was directing between the East 12 Light Beacon (red light) and the green light, and subsequently, he did not notice that the Vessel was navigating in the East Channel even though she continue to proceed the south in the East Channel.
- (4) It is considered probable that as Pilot A had not given instruction to turn to the starboard, Pilot B had suspicion about Pilot A's pilotage operation and urged Pilot A to take a starboard turn, and then Pilot A instructed the crew members to take the rudder angle of starboard 15°, and however the bow of the Vessel was directing between the East 12 Light Beacon (red light) and the green light (the East 11 Light Beacon) and he confirmed a row of red lights flashing synchronously beyond the East 12 Light Beacon, because he noticed that the Vessel was safely proceeding in the Channel (note: he was not aware that the Vessel was in the East Channel), and then he determined it would be safer to proceed the south rather than instructing the starboard turn without confirming the Vessel position and suspended the Vessel to turn to the starboard, and subsequently, he instructed to proceed on a course of 210° heading toward the center between the East 12 Light Beacon and the green light.
- (5) It is considered probable that Pilot A thought that the evaluation operation was suspended, and the Vessel continued to proceeding the south, due to urging continuously to take the starboard turn for the East Channel by Pilot B, and then Pilot A instructed to turn to the starboard due to urging continuously to take the starboard turn, and soon after that, the Master expressed and uttered his intention to refuse to take the starboard turn, because Pilot A instructed to keep the course before beginning to turn to the starboard.
- (6) It is considered probable that Pilot A soon was urged to turn to the starboard strongly, even though the Master gave the advice to keep to proceed the south in the East Channel, Pilot B instructed the rudder angle of starboard 15° without confirming the Vessel position with the radars and ECDIS.
- (7) It is considered likely that the Vessel had reached the east offing of the West 14 Light Beacon with lapse of time, and then Pilot B felt concerned that he would lose opportunity to turn for the West Channel and estimated the distance to be approximately 650 meters by eye-estimation to the West 14 Light Beacon, the distance was three times the Vessel total length, 213 meters, because Pilot B decided the Vessel could just barely turn, and immediately after Pilot A instructed the rudder angle of starboard 15°, and then Pilot B moved beside Pilot A and instructed the rudder angle of hard to starboard loudly without confirming the Vessel position with the radars and ECDIS.
- (8) It is considered probable that Pilot A would realize that the Vessel was not able to turn safely for the West Channel and did not take the starboard turn if he checked the Vessel position.
- (9) It is considered probable that Pilot B would not urge Pilot A strongly to turn to the starboard in dangerous situation of the Vessel turning if he grasped her turning performance.

- (10) It is considered probable that the Master did not share information regarding the Vessel's surroundings with Pilot A and Pilot B even though he was monitoring the radars and ECDIS.

3.2.7 Understandings and Decisions on Maneuvering Command for the Vessel of Master, Pilot A and Pilot B

According to 2.1, 2.4, 2.5.3, 2.7, 2.9, 3.1.1, 3.2.4-3.2.6, it was as follows.

- (1) It is considered probable that the Vessel had departed with the Master's acknowledgement that Pilot A would provide pilotage operation as a trainee and Pilot B would provide guidance and evaluation for Pilot A as a supervising pilot.
- (2) It is considered probable that while the Vessel was proceeding the south after passing the Light Buoy, Pilot A was urged by Pilot B to turn to the starboard on several occasions, because Pilot decided that the evaluation operation was suspended and that he lost the maneuvering command for the Vessel.
- (3) It is considered likely that Pilot B had suspicion that the Vessel was proceeding the south and that Pilot A did not instruct to take the starboard turn he for the West Channel after passing the Light Buoy, and moreover, Pilot B urged Pilot A to turn to the starboard, even so, Pilot A did not order instruction himself to take the starboard turn for the West Channel, because Pilot B ordered instruction to take the rudder angle of hard to starboard and continued to maneuvering the Vessel after that, and subsequently, Pilot B deprived maneuvering command for the Vessel from Pilot A.
- (4) It is considered probable that even though the Master had suspicion that Pilot A had not given instruction to turn to the starboard for the West Channel and that the Vessel was proceeding the south, he saw situation and felt easy that Pilot B, which had a lot of experience, was giving instructions to Pilot A regarding maneuvering the Vessel, and moreover, the Master had a lot of experience regarding the departure from Nagoya Port, and therefore, he knew that the Vessel was able to proceed Yokkaichi Port by continuing to navigating in the East Channel in this situation, because he did not conduct to maneuver the Vessel himself.
- (5) It is considered probable that the Master understood Pilot B began to maneuver the Vessel himself when Pilot B ordered direction to take the rudder angle of hard to starboard, even though the Master had suspicion about the instruction of the maneuvering, Pilot B had a lot of experience of pilotage operation, because the Master did not conduct to maneuver the Vessel himself.

3.2.8 Analysis of Occurrence of the Incident

According to 2.1, 3.1, 3.2.2-3.2.5, it was as follows.

- (1) It is considered probable that Pilot A noticed that the Vessel had passed the Light Buoy unnoticeably which was the bearing target due to taking a starboard turn for the West Channel, and then he did not determine immediately whether he would be able to make the starboard turn in time for the West Channel or not, and therefore, he continued the Vessel to proceed the south.
- (2) It is considered likely that while the Vessel was proceeding the south after passing the Light Buoy, even though Pilot B urged Pilot A to turn to the starboard, Pilot A did not order instruction to take the starboard turn and continued the Vessel to proceed the south, and

then Pilot B felt concerned that they would lose the opportunity to turn to the starboard and estimated the distance to be approximately 650 meters by eye-estimation to the West 14 Light Beacon, and due to the turning radius being approximately three times the Vessel total length, and therefore, Pilot B did not grasp her turning performance and decided the Vessel could just barely turn in light of the Vessel total length, 213 meters, and subsequently, Pilot B urged Pilot A to turn to the starboard strongly, and after Pilot A instructed the rudder angle of starboard 15°, and furthermore Pilot B instructed the rudder angle of hard to starboard.

- (3) It is considered probable that even though the Master had suspicion Pilot A had not given instruction to turn to the starboard for the West Channel and that the Vessel was proceeding the south, he knew there was no problem about proceeding the south in the East Channel and trusted Pilot B with a lot of experience, and subsequently, when Pilot B began to take to turn to the starboard suddenly by the rudder angle of hard to starboard, he began to decelerate ship speed at the similar moment, because he thought that the Vessel would successfully turn to starboard for the West Channel, while the Master was feeling concerned.
- (4) It is considered likely that the Vessel did not have communication sufficiently regarding maneuvering the Vessel among the crewmembers, Pilot A and Pilot B in the navigation bridge, because they did not understand each other regarding intention of maneuvering her.
- (5) It is considered probable that the Vessel was turning to the starboard and proceeding the 4B Anchorage, as the result, she run aground at the 4B Anchorage.

4 Probable Causes

It is considered probable that this incident occurred, while the Vessel was proceeding the south in the East Channel for Yokkaichi Port in the nighttime, Pilot A was conducting pilotage operation as part of practical training for new pilot under Pilot B's guidance and evaluation, Pilot A passed and continued the Vessel to proceed the south without noticing the Light Buoy, which was the bearing target to turn to the starboard for the West Channel, and then Pilot A instructed the rudder angle of starboard 15° without confirming the Vessel position due to being urged to the starboard turn by Pilot B when the Vessel was at the east offing of the West 14 Light Beacon, and furthermore Pilot B instructed the rudder angle of hard to starboard because, the Vessel was turning to the starboard and proceeded 4B Anchorage, with the result that the Vessel ran aground at 4B Anchorage.

It is considered probable that Pilot A passed the Light Buoy and continued to proceed the south without noticing the Light Buoy, because it might be that the speed of Vessel was a little higher at approximately 8 kn when he passed the southeast end of Tobishima Wharf and turned to the starboard, and moreover he paid attention to the East 12 Light Beacon as the next bearing target in situation of increasing the ship speed, and then after noticing the Vessel passing the Light Buoy, and subsequently he did not determine immediately whether he would be able to make the starboard turn in time for the West Channel or not.

It is considered probable that Pilot A instructed the rudder angle of starboard turn 15° without confirming the Vessel position due to urging to take the starboard turn by Pilot B, because he

thought that the evaluation operation had been suspended and Pilot B had maneuvering command of the Vessel.

It is considered likely that Pilot B urged Pilot A to turn to the starboard strongly and furthermore instructed the rudder angle of hard to starboard, because the Vessel passed the Light Buoy, and then Pilot B had suspicion about the situation of proceeding the south in a state of no instruction of the starboard turn by Pilot A, because even though Pilot B urged Pilot A to turn to the starboard, Pilot A did not instruct the starboard turn, and then Pilot B felt concerned that they would lose the opportunity to turn to the starboard, and subsequently, Pilot B decided to be able to turn to the starboard by eye-estimation of the distance to the West 14 Light Beacon

It is considered probable that the Master did not conduct to maneuver the Vessel himself even though he had suspicion about maneuvering the Vessel by Pilot A and pilot B, because Pilot B with a lot of experience of pilotage operation conducted to instruct Pilot A in Japanese and there was no problem to keep navigating to the south in the East Channel in this situation, and moreover, Pilot B knew that the distance to the West 14 Beacon was 0.4 M when he began to take to turn to the starboard by the rudder angle of hard to starboard, and subsequently, he began to decelerate ship speed at the similar moment, and therefore, he thought that the Vessel would successfully turn to starboard for the West Channel.

It is considered likely that he was aware that he should maneuver the Vessel himself to secure safety navigation for her at adequate timing when he had suspicion about maneuvering the Vessel by Pilot A, Pilot B did not clearly inform Pilot A and the Master that the evaluation operation of Pilot A's was suspended at adequate timing, and subsequently, Pilot B did not conduct to take safety measures by maneuvering the Vessel himself at an early stage in accordance with Training Rules of the Pilots' Association.

It is considered probable that it was involved in the occurrence of an incident that Pilot A and Pilot B did not have communication with the crew members in the bridge sufficiently.

5 SAFETY ACTIONS

It is considered probable that this incident occurred, while the Vessel was proceeding the south in the East Channel for Yokkaichi Port in the nighttime, Pilot A was conducting pilotage operation as part of practical training for new pilot under Pilot B's guidance and evaluation, Pilot A passed the Light Buoy and continued to proceed the south without noticing the Light Buoy, which was the bearing target to turn to the starboard for the West Channel, and then Pilot A instructed the rudder angle of starboard turn 15° without confirming the Vessel position due to being urged to the starboard turn by Pilot B when the Vessel was at the east offing of the West 14 Light Beacon because, and furthermore Pilot B instructed the rudder angle of hard to starboard, because the Vessel was turning to the starboard and proceeded 4B Anchorage, with the result that the Vessel ran aground at 4B Anchorage.

It is considered probable that it involved in the occurrence of an incident that Pilot A and Pilot B, did not have communication sufficiently with the crew members in the navigation bridge.

Consequently, implementation of the following measures is necessary to prevent recurrence of a similar incident.

- (1) Pilots shall communicate sufficiently with the Master and the crew members in the bridge. In case of losing targets for navigation and feeling anxious about the Vessel position during maneuvering vessel, pilot shall be not only conducting visual confirmation but also utilizing navigational instruments effectively such as radars, ECDIS, etc., and moreover, shall practice Bridge Resource Management (BRM) which utilize resources in navigation bridge.
- (2) Supervising pilot shall conduct to take safety measures appropriately by maneuvering the Vessel himself at an early stage in accordance with Training Instruction of the Pilots' Association, in case of the pilot being assigned in role of supervising pilot in on-board training for new pilot of the Pilots' Association.
- (3) Master shall give advice to pilot before occurrence of imminent dangerous situation when he has suspicion about pilotage operations, and moreover, he shall conduct maneuvering command himself in situations decided to be dangerous and pursue safety navigation for the Vessel.

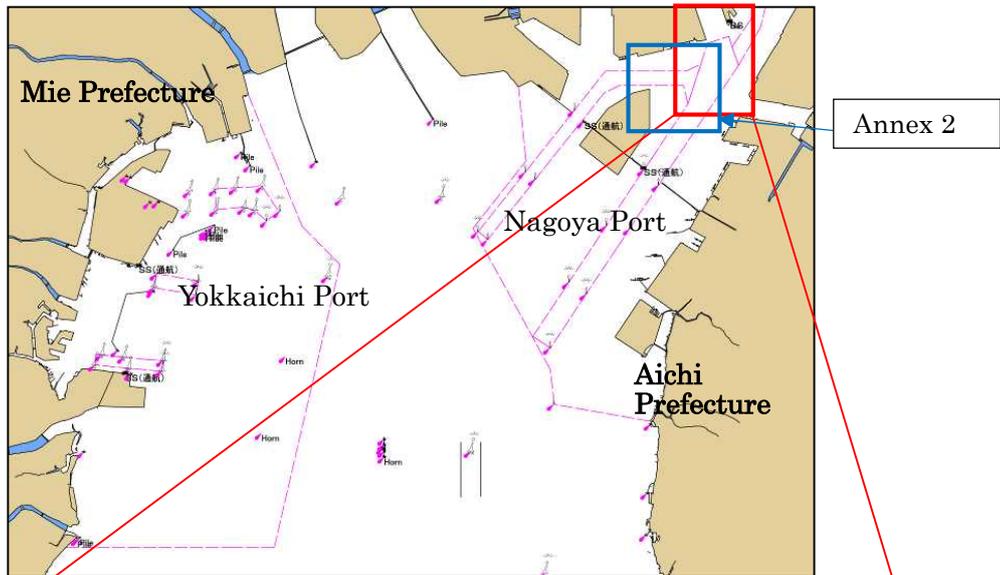
5.1 Safety Actions Taken by the Pilots' Association

- (1) Enhancement of Education and Training System for Pilot Trainee
 - ① Formulation of detailed navigation plans
 - ② Recommendation and saturation of promoting usage appropriately regarding PPU (Portable Pilot Unit : pilotage operation support system)
- (2) Clarification of Supervising Pilot Responsibilities
 - ① Re-recognition of supervising pilot responsibilities
 - ② Provision of information to supervising pilots regarding evaluation summary, etc. in past training.

5.2 Safety Actions Required

- (1) In case of pilot belonging to the Pilots' Association conducting evaluation operation, supervising pilot shall frequently confirm and grasp operating condition to avoid occurrence of dangerous situation for vessel during pilotage operation by maneuvering of pilot trainee. In case danger is anticipated, supervising pilot shall decide to suspend evaluation operation for maneuvering by pilot trainee, and then clearly inform the Master and the trainee of the suspension of evaluation operation, and subsequently, instruct pilot trainee to secure safety navigation for vessel by accurately conducting to maneuver her.
- (2) Pilots on board shall sufficiently communicate with the Master and crew members in navigation bridge in a common language.

Annex 1 Estimated Navigation Route



Enlarged View

