



# **Report on the Investigation of the Collision**

**between**

**Fei Yun He and Zhen Fen 5**

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## Glossary of Abbreviations and Acronyms

AIS - Automatic Identification System

Collision Regulations - International Regulations for Prevention Collisions at Sea

GPS - Global Positioning System

HSC - High Speed Craft

IMO - International Maritime Organization

SOLAS - Safety of Life at Sea Convention

VHF - Very High Frequency

## 1. SUMMERY

At 0011, Apr. 23rd 2004, M/V “FEIYUNHE”, owned by COSCO Container Lines, collided with M/V “ZHENFEN 5”, owned by China Shipping Development CO.LTD, near the D22 light buoy. In consequence of the accident, M/V “ZHENFEN 5” suffered severely on No.4 cargo hold portside and the F.P.T(fore peak tank) of M/V “FEIYUNHE” was broken.

## 2. PARTICULARS of VESSELS

### 2.1. FEIYUNHE

Port of R egistry: Shanghai	GT: 20569
NT: 9379	LOA: 179.70m
Breadth Molded: 27.6m	Depth Molded: 15.90m
Main Engine Type: B&W6L70MC	Building Date: July 12TH, 2002
Ship Body: Steel	Engine Power: 16980kw
Builder: SH. Ship Yard	
Owner: COSCO Container Lines	Operator: COSCO Container Lines

### 2.2. ZHENFEN 5

Port of Registry: Shanghai	LOA: 164.00m
Breadth Molded: 22.00m	Depth Molded: 13.40m
GT: 12827	NT: 6980

Builder: Shanghai

Main Engine Type: Gas Engine

Ship Body: Steel

Engine Power: 5644 Kw

Building Date: Nov. 30th, 1984

Owner: China Shipping Development CO.LTD

Operator: China Shipping Development CO.LTD

### 3. Environmental Conditions

Weather: overcast with Rain

Wind Dir.: NNE

Tide: Rising

Visibility: 6 NM

Wind Force: 6

Current Dir./Speed: NW/2.5 Kn

### 4. Narrative

#### 4.1 FEIYUNHE

At 1535 on 22 Apr. 2004, M/V “FEIYUNHE” , piloted by Gao Xingbao, left No.5 berth of Waigaoqiao Container Wharf for Long Beach in America, loaded with 1624 TEU, fore and after draught both 9.50m and with 25 seamen onboard. There were five persons on the bridge when the collision happened: the pilot, captain, 2/O and 2 helmsmen (including a boatswain).

At about 1600, M/V “FEIYUNHE” arrived at Wusongkou Anchorage Area No.6 and anchored for tide;

At about 2100, M/V “FEIYUNHE” weighed anchor and sailed outbound through the Changjiangkou Deepwater Channel;

At about 2206, M/V “FEIYUNHE” passed by Yuanyuansha Light Vessel;

At about 2321, M/V “FEIYUNHE” passed by D30 light buoy with full speed;

At about 0000, M/V “FEIYUNHE” passed by D24 light buoy with the course 122° and speed 12 kn was altered to manned, but to find an inbound vessel(M/V “ZHENFEN 5” ) and another vessel M/V “NINGBO STAR” in front of her approximate 4 NM away;

At about 0005, the AB found the vessel turning left when operating starboard helm, then turned over the wheel to the boatswain. But the vessel still turned left despite being operated hard a starboard;

At about 0006, the Capt. ordered to stand by the thrusters and anchors and checked the rudder indicator. It showed in good condition. The pilot then gave a hard a starboard order when she turned to course 090° ;

At about 0007, M/V “FEIYUNHE” maintained hard a starboard;

At about 0008, M/V “FEIYUNHE” deviated out of the outbound fairway and then a port helm order was given to avoid collision with D22 light buoy;

At about 0009, M/V NINGBO STAR called: “M/V FEIYUNHE, how do you navigate?” and asked to pass port to port. M/V “FEIYUNHE” agreed and then hard a starboard, half ahead, dead slow ahead 30 seconds later, and finally passed by M/V NINGBO STAR port to port with course 120° , but to find D22 light buoy just in front of her;

At about 0010, M/V “FEIYUNHE” operated hard a port to avoid D22 light buoy, then she turned left fast. The inbound vessel M/V “ZHENFEN 5” called for M/V

“FEIYUNHE” to pass port to port by VHF. M/V “FEIYUNHE” answered: “Something wrong with my vessel, and please be far away from me quickly”, and gave hard a starboard order immediately, and stopped engine, engine astern and switched on the port thruster;

At about 0011, M/V “FEIYUNHE” collided with M/V “ZHENFEN 5” in the inbound fairway with the course 097°.

#### 4.2 ZHENFEN 5

At about 1140 on 20 Apr. 2004, M/V “ZHENFEN 5” left Jingtang wharf, loaded with 19213 tons of coal for Shanghai, fore draught 9.48m, after draught 9.60m, and 27 seamen on board. There were 4 persons on the bridge, the Capt., 2/O and 2 helmsmen when the accident happened, no pilot on board.

At about 2245, 22 Apr., M/V “ZHENFEN 5” passed D7 light buoy, navigated by the Capt.;

At about 0003, 23 Apr., M/V “ZHENFEN 5” passed D21 light buoy, course 304° and speed 11 kn., and there’s another inbound vessel M/V NINGBO STAR, 0.4 NM ahead. The Capt. found the green sidelight of M/V “FEIYUNHE” ;

At about 0007, the Capt. of M/V “ZHENFEN 5” observed M/V “FEIYUNHE” giving a large alteration of course to right, changing from green sidelight to red sidelight;

At about 0009, the Capt. of M/V “ZHENFEN 5” found M/V “FEIYUNHE” changed from red sidelight to green sidelight, and gave a half ahead order, then slow ahead. But then M/V “ZHENFEN 5” found M/V “FEIYUNHE” gave a large

alteration of course to right to avoid collision with M/V NINGBO STAR, seeing the red sidelight of M/V “FEIYUNHE” again.

At about 0010, the Capt. of M/V “ZHENFEN 5” found M/V “FEIYUNHE” turned left near the D22. M/V “FEIYUNHE” changed from red sidelight to green sidelight suddenly, and came up quickly. Then the Capt. of M/V “ZHENFEN 5” connected with M/V “FEIYUNHE” by VHF and asked to pass port to port, but M/V “FEIYUNHE” answered “Something wrong with my vessel, and please be far away from me quickly”. Then the Capt. of M/V “ZHENFEN 5” gave a full ahead order and then hard a starboard;

At about 0011, M/V “ZHENFEN 5” turned from course 304° to 310° when the bow of M/V “FEIYUNHE” collided with M/V “ZHENFEN 5” on the back of the No.4 hold on port side.

On M/V “FEIYUNHE” , there were two radars on work, one 1.5 miles range and the other 1.5-3, both center excursion, three VHF on work, the first one on 06 channel, the second 09 and the third 17-69-71(for the pilot). On M/V “ZHENFEN 5” , there were two radars on work, one 3 miles range and the other 6, two of the three VHF on work, one on 06 channel and the other 09.

## 5. Consequences

### 5.1. FEIYUNHE

The F.P.T was broken, and the ball bow was depressed. For details, seeing the materials from ship survey.

## 5.2. ZHENFEN 5

For ship: The hull and the deck of No.4 cargo hold on port side suffered severe damages, and top of the vessel was broken completely. The dimension of the broken hole: 9 meters long max., 12 meters wide max. and 6.5 meters deep max.. For details, seeing the materials from ship surveying.

For Cargo: Most of the coal in No.4 hold lost.

## 6. INVESTIGATION

6.1. Checked the certificates and documents of both vessels, seamen on board and the certificates of the officers;

6.2. Read and had a copy of the deck logs, engine logs, wheel records, course records, charts, ships' materials, shipping instruments materials and other initial materials of both vessels, with the signature of the Captains;

6.3. Surveyed the accident scene and taken pictures of it;

6.4. Inquired the concerned seamen and made a record;

6.5. Inquired the pilot Gao Xingbao on M/V "FEIYUNHE" and made a record;

6.6. Collected other evidence, and inquired the pilot Yang Ronggui on NINGBO STAR and made a record;

6.7. Viewed the VTS record from Wusong VTS center and saved it;

6.8. Visited Shanghai Shipyard, M/V "FEIYUNHE" 's builder;

6.9. Shanghai Maritime University, who was commissioned by SHMSA, finished the

《 the Simulation Research Report of the Collision Accident between M/V “FEIYUNHE” and M/V “ZHENFEN 5”》;

6.10. Some experienced pilots、Captains and engineers were invited to analyze the accident.

## 7. Analysis

### 7.1. The Rudder Effect of M/V “FEIYUNHE” May Be out of Order in Short Time

The rudder record, navigation record and the simulation report from SHMU indicated that M/V “FEIYUNHE” passed D24 light buoy at about 0000, steered starboard 15° to 20°. At about 0005, M/V “FEIYUNHE” began to turn left, having no trend to turn right even steered hard a starboard. The rudder record indicated the rudder changing from starboard 32° to port 22° at about 0008. After the accident, there were the following words in the inquiring report from the Capt. of M/V “FEIYUNHE”, “I found no rudder effect at about 0008”. At about 0009, M/V “FEIYUNHE” was steered hard a starboard to avoid collision with M/V NINGBO STAR, but to find D22 light buoy in front of her. Then M/V “FEIYUNHE” turned left very fast when a port order was given to avoid the buoy. But it was difficult for M/V “FEIYUNHE” to turn right to avoid M/V “ZHENFEN 5” even steered hard a starboard. Experiment certifies that it will take M/V “FEIYUNHE” just 5 seconds to stop her turning left when steered starboard, but there’s still no obvious effect when steered starboard from 00:10:20 to 00:11:00 (the collision time). From all above, we can conclude that M/V “FEIYUNHE” was out of order for a short time before the collision.

Meanwhile, M/V “FEIYUNHE” was influenced by the wind from port abeam to certain extent. M/V “FEIYUNHE”, with bridge on the back, was loaded with 1624

TEU, and fore and after draught 9.5m, course 122°, and the wind direction was NNE, wind force 6, so the bow should turn left certainly.

## 7.2. The Capt. and the Pilot on M/V “FEIYUNHE” Hadn’t Performed Good Seamanship

M/V “FEIYUNHE” made a large alteration of course to right to avoid collision with M/V NINGBO STAR, but to find that there’s collision danger with D22 light buoy, then she made a large alteration of course to left to avoid collision with D22 light buoy again, however, she was unconscious of the danger of collision with M/V “ZHENFEN 5” .

After making a large alteration of course to right to avoid the collision with M/V NINGBO STAR, M/V “FEIYUNHE” was out of the outbound fairway, then she made a large alteration of course to left to avoid the collision with D22 light buoy without full consideration of the compound effect to rudder of the wind、current、shallow water and the bank, etc..

Changjiangkou Deepwater Channel is narrow channel. 1 min. 46 seconds before the collision, M/V “FEIYUNHE” changed from full ahead to half ahead, and 1 min. 16 seconds later to dead slow ahead, finally leading the collision before stopping the vessel.

When finding the abnormal of the rudder, M/V “FEIYUNHE” had not used all available means(including VHF) appropriate to the prevailing circumstances and conditions to maintain a proper look-out so as to make a full appraisal of the situation and of the risk of collision.

## 7.3. M/V “ZHENFEN 5” Had not Used the Most Appropriate Means to Avoid the

Collision in Time.

M/V “ZHENFEN 5” found M/V “FEIYUNHE” at about 0003 with eyes, and knew that there’s something wrong with M/V “FEIYUNHE” from the VHF, but had not used all available means appropriate to the prevailing circumstances and conditions to make a full appraisal of the situation and of the risk of collision, so as to take the most appropriate actions to avoid the collision.

In a word, M/V “FEIYUNHE” should be mostly responsible for accident, and M/V “ZHENFEN 5” less.

## 8. RECOMMENDATION

8.1. Changjiangkou Deepwater Channel is the key waterway for those vessels with high draft, and is the lifeline for Shanghai Port, even for the whole shipping of Yangze River. Sailing in the Changjiangkou Deepwater Channel is critical operation of key operation, so every vessel must navigate with great caution, maintaining a proper lookout, keeping safe speed. So the Captains and the pilots should make a full consideration of the effect of the wind, current, shallow water and the bank to the rudder when navigating a large vessel, or a vessel with deep-draft, or a vessel with large area above the water-line in the Changjiangkou Deepwater Channel.

8.2. Vessels should take great precautions when in abnormal situation or finding other vessels in abnormal situation. If necessary to avoid collision or allow more time to get through the situation, vessels should slacken her speed or take all way off by stopping or reversing her means of propulsion.

8.3. VTS Center shall offer useful safety information fully and immediately, and the

watchmen should strengthen their responsibilities and improve their operation ability.