附件 **2**

The safety investigation report into collision between

MV FU PING YUAN and *MV CS.CRANE*

June 15 2010 Incheon, South Korea

Maritime Safety Administration, P.R.China

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CONTENTS

1. Summary

At 2356 local time on June 15th 2010, China-flagged cargo ship FUPINGYUAN of Qingdao Fupingyuan Shipping Co., LTD, en route from Tianjin, China to Incheon, South Korea with 3343 tons of steel onboard, collided with cargoless Panama-flagged chemical tanker CS.CRANE in Incheon NO.1 inner anchorage (approximate position: 37° 19′ .41N/126° 25′ .16E) when she was en route from Ulsan to Incheon, Korea. After collision, FUPINGYUAN sank, certain sea area was polluted, but no fatalities and injuries were caused.

2. The investigation

2.1 Investigating activities

As the competent authority of the FUPINGYUAN's flag state, China Maritime Safety Administration (MSA) soon dispatched safety investigators to Korea on June 19th to carry out the safety investigation. The China MSA's investigators started their investigation work following their arrival at Incheon, interviewed the involved captains, chief engineers, chief officers, third officers and others, their accounts of the accident were obtained; surveyed the scene of collision and sinking of FUPINGYUAN, obtained the ships' AIS records, copies of both ships' log book, certificates, wreckage survey record and other relevant documents.

2.1 Glossary of abbreviations and acronyms

AB: Able Bodied Seaman

AIS: Automatic Identification System

ARPA: Automatic Radar Plotting Aid

CMSRC: China Maritime Search and Rescue Center

DGPS: Differential Global Positioning System

DOC: Document of Compliance

ISM: International Safety Management

MSA: Maritime Safety Administration

nm: nautical mile

PSC: Port State Control

SAR: Search and rescue

SMS: Safety Management System

VHF: Very High Frequency

VTS: Vessel Traffic System

3. Ship's particulars

3.1 Ships' technical parameters

Ship name	FUPINGYUAN	CS.CRANE
Flag	China	Panama
Port of registry	Qingdao	Panama
Call sigh	BOXZ	3EJD9
IMO number	8834976	9366926
Ship type	General cargo ship	Chemical cargo ship
Built date	1st JUL,1990	Sep 26th.2006
Building place	Wuchang, China	Busan, Korea
Converting date	Oct 6th. 1997	-----
Classification society	CCS	NKK
Length	87.97 meter	116.5 meter
Width	15.0 meter	20.0 meter
Depth	6.8 meter	11.7 meter
Gross Tonnage	2645	7675
Net Tonnage	1043	3252
Main Engine Power	971KW	4440KW
Owner	Qingdao Fupingyuan shipping Co., LTD, China	CENTRAL STREAM MARINE CORPORATION PANAMA
Management company	Qingdao Futong International shipping Management Co.LTD	DORIKO LIMITED

3.2Ships' surveys and PSC inspection

All the certificates of FUPINGYUAN were within validity. The last PSC inspection was carried out in Inchon on June 7th 2010; four deficiencies were identified and rectified.

All the certificates of MV.CS.CRANE were within validity. The last annual survey was carried out on March 23th 2010. The last PSC inspection was carried out in Dumai, Indonesia on May 27th

2010.

3.3Ship’s Insurance

PICC (People's insurance company of China) was the all-cover insurer of FUPINGYUAN. The insurance period was from January 1st 2010 to December 31st 2010.

3.4Remaining oil storage

57.5 tons fuel oil and 18.4 tons diesel oil remained on board FUPINGYUAN when she sank.

4. Ship’s manning and crews’ certification

4.1 FUPINGYUAN

There were 17 crews on board the ship during her voyage of collision, including one cadet; this meets the requirements of ship’s Minimum Safety Manning Certificate. At the time of collision, there were 3 crew members on the bridge, the captain, third officer and an AB. The captain held the competent certificate issued by Shanghai MSA in August 2007. Third officer held competence certificate issued by Shandong MSA in May 2010. The AB on duty held competence certificate issued by Guangdong MSA. All crews’ certificates were valid.

4.2 CS.CRANE

There were 18 crews on board the ship, which meets the requirements of ship’s Minimum Safety Manning Certificate. At the time of the accident, it was the captain and third officer who were commanding the ship at the bridge. The Korean captain held competence certificate issued by Panamanian authority in September 2009; the Myanmar third officer held competence certificate issued by Myanmar authority in March 2008. Their certificates both were valid.

5. Company management

5.1 FUPINGYUAN

5.1.1 Companies’ particulars

Qindao Fupingyuan Shipping Co.LTD is both the owner and operator of FUPINGYUAN, it is based in China. Qindao Futong International Shipping Management Co.LTD is responsible for the ship’s safety management; the company is a limited liability company privately funded, the validity date of its International Ship Management Qualification Registration is June 30th, 2010.

5.1.2 Scope of business and staffing of Management Company

The ship management company is involved in business that includes ship trading, leasing and

other ship asset management，marine engineering, marine navigation and maintenance, crews' management, training and provisions. At present, the company manages 3 general cargo ships including FUPINGYUAN; its main safety management staffs includes general manager, designated person, marine navigation manager, marine engineering manager, crew manager and director of ISM, for a total of 6 crew members.

5.1.3 Company's operation of SMS

The company obtained its DOC on January 9 2007, the DOC is valid until January 8 2012 ; the latest annual audit was carried out on February 8 2010. No major non-conformity was noticed during the investigation of company's SMS documents and its operational records.

5.1.4 Company's emergency response

At 2340 Beijing time on JUN 15th , after receiving the accident report from its Korean agent, the company's general manager immediately informed his marine navigation manager to set up an emergency response team.

At 0030 on JUN 16th, the company reported the accident to Shandong MSA.

At 0034, the company has got in touch with the captain, learned about the accident, instructed captain to fully cooperate with the search and rescue operation and properly handle the post-accident matters. Meanwhile, according to its contingency plans, the company's responsible employees got ready relevant documents, designated certain contact persons and established 24-hour duty-watch.

At 0040, company reported the accident to the CMSRC.

At 0050, company's emergency response team members assembled in the company office, to keep monitoring the development of matters after the accident.

5.2 CS.CRANE

5.2.1 Companies information

CS. CRANE was owned by a single-ship company registered in panama; her management company was DORIKO LIMITED, which was founded in December 2000, and is a limited liability company privately funded with headquarters in Seoul, South Korea. DORIKO LIMITED has a registered capital of one hundred million Korean won, has representative offices in Busan, Mokpo, Korea, and Nanjing, China.

5.2.2 Scope of business and staffing of Management Company

The ship management company is involved in business that includes ship trading, leasing and safety management, freight agency, marine architecture and marine consultation etc. At present, the company manages 15 ships including CS.CRANE, mainly are Ro-ro ships, bulk carriers and chemical tankers. The company's shore-based department has 33 employees, including 16 marine navigation managers and marine engineering managers.

6. Weather, sea and environmental conditions

At the day of the accident, there was fog in the Inchon No.1inner anchorage, visibility oscillated between good and bad; at the time of accident, the visibility was less than 0.5 nm, cloudy, south wind blowing force 3-4, south-west current about 3 knots.

The accident happened in Inchon No.1 inner anchorage. It is a triangle-shaped anchorage for the use of vessels that are in-bound to or out-bound from Inchon and Pyongtaek ports when they were waiting for berthing. The anchorage is about 4.5 square nm, charted depth 29 meters, 9 vessels were anchoring in it when the accident occurred; the anchorage was narrow and vessel density was relatively high.

7. Sequence of events

The following sequence of events is based on the accounts of captains, officers, and AIS record data.

7.1 FUPINGYUAN

At 1530 local time on June 13th, after loading 3343 tons of steels and general cargos at No.3 berth of No.1 harbor district Tianjin Port, China, she sailed for Incheon Port of Korea, her forward draft of departure was 4.7 meter and aft was 5.45 meters.

At 2230 on June 15th(local time, the following times are local time unless otherwise specified), passed JANG AN SEO island, heading 027°, speed at 6.7 knots; reported Inchon VTS and was informed that a pilot would board at 0230 next day, the captain decided to proceed to and anchor in No.1 inner anchorage waiting for the pilot.

At 2255, ship's position was 37°13′.5N/126°25′.0E, and altered her course to 000°.

At 2314, the ship was abreast No.17 buoy on her port side, informing engine-room to stand-by main engine and convert fuel oil. Altered compass course to 020°, the resulting course made good at about 010°. The ranges of both radars on bridge were set at 3 nm, head-up off-center

display; both VHF were set at channel 14, the AIS was working in good condition.

At 2340, informed the chief officer to go to bow and stand by the anchor.

At 2345, chief officer reported that starboard anchor was ready for dropping.

At 2350, arrived at the edge of No.1 inner anchorage, the captain and the third officer observed almost at the same time that the CS.CRANE was right behind at distance about 0.7 nm; the captain ordered to turn port to approach their anchorage position.

At 2352, main engine stopped, preparing to drop anchor; meanwhile，the captain assessed that there was collision risk according to the radar trail display of the coming vessel，instructed the third officer to verify the name of coming vessel via AIS，and call her on VHF channel 14 with a wish that she would reduce her speed and take collision-evasive action.

At 2354, no response was received from the approaching vessel. The distance between the two vessels was reduced further to 0.2 nm. The third officer can visually see the contour and navigation lights of the approaching vessel, and informed the captain that there was a large vessel approaching; at this time, FUPINGYUAN retained speed of about 2.5 knots, CS.CRANE was still approaching at a speed of about 9knots, the captain realized the existence of critical situation, and Inchon VTS called in Chinese warning FUPINGYUAN the collision risk with CS.CRANE, the captain sounded one long blast and ordered slow ahead, hard to starboard.

At 2356, the starboard aft hull of FUPINGYUAN near to her engine room storage collided with the bulbous bow of CS.CRANE, at an angle about 50; the engine room started flooding with sea water.

At 0000 on the 16th, the captain ordered to drop anchor and stop the engine.

At 0010, the chief engineer arrived at the bridge and reported the mass flooding in engine room, the captain sounded general alarm, instructed the crews to spare no effort to stop the leak.

At 0020, the chief engineer reported the engine room had taken in large amount of water, crews cannot access into the engine room; the captain released the abandon ship alarm, meanwhile called VTS for help.

At 0030, the crews all evacuated the ship via three liferafts.

7.2 CS.CRANE

At 1620 on June 14th, CS.CRANE left Ulsan with no cargo, bound for Inchon.

At 2130 on June 15th, ship's position was 6 nm away from JANG AN SEO Island; the captain

arrived at bridge to take over command of ship's port-entering operation, range of radar was 6 nm and on north-up center display, VHF, AIS, auto-steerage, DGPS, echo sounder were all in good condition.

At 2323, passed No.11 buoy, ship's position was 37°13′.0N、126°24′.7E，altered course to 000°, speed of 12.0 knots; The captain observed on radar that FUPINGYUAN was at his starboard bow about 3.5 nm away.

At 2340, passed No.17 buoy, ship's position was 37°16′. 5N/126°25′.0E，altered course to 030°, speed of 12.8 knots, and was 1.7 nm away from FUPINGYUAN. Second officer arrived at bridge preparing to relieve third officer. Inchon VTS informed that two vessels were approaching the anchorage, and then the captain monitored FUPINGYUAN on his ARPA.

At 2350, ship's position was 37°17′.7N/126°25′.6E，altered course to 352°, speed of 12.5 knots. The captain observed his ship was 0.7 nm away from FUPINGYUAN, adjusted the range of radar to 3 nm; meanwhile, estimating FUPINGYUAN was going to keep course and pass through another two anchored vessels in the anchorage, the captain decided to follow closely and anchor behind FUPINGYUAN, reduced engine to slow ahead, but the speed did not decrease apparently.

At 2354, ship's position was 37°19′.2N/126°25′.4E，started to alter course to port, to course 338°, speed of 8.5 knots, 0.23 nm away from FUPINGYUAN. According to VDR audio records, FUPINGYUAN had called CS.CRANE through VHF channel 14 at this moment, but CS.CRANE did not respond.

At 2355, ship's position was 37°19′.3N/126°25′.2E, altered course to 310°, speed decreased to 7 knots; the chief officer who was standing by anchor at bow warned the bridge that a vessel right ahead is very close, meanwhile the second officer observed starboard light of FUPINGYUAN appearing 30-40 meters ahead and informed the captain, the captain urgently ordered hard to port, stop engine, then full astern, then put the helm from hard to port to hard to starboard, meanwhile short blasts were sounded continuously.

At 2356, ship's position 37°19′.4N/126°25′.2E, the bulbous bow of the vessel collided with the right aft hull of FUPINGYUAN near to her engine room storage, at an angle about 50°, the collision speed was about 6 knots. After the collision, the captain immediately reported to Inchon VTS, VTS ordered the vessel stay close to FUPINGYUAN. Then the vessel dropped anchor at the scene and reported to VTS.

At 0020 on the 16th, observing FUPINGYUAN was preparing to abandon ship, the captain ordered to release lifeboat, and rescued three Chinese crews successfully.

8. Accident losses

As a result of the accident, FUPINGYUAN sank due to the massive flooding in her engine room，certain fuel spilled and caused sea pollution; the bulbous bow of CS.CRANE sustained damage; no injuries or fatalities were caused.

9. Post accident response and SAR

After the collision, two vessels did not communicate and exchange their information. Both ships dropped anchors near the scene at about 0000hrs, while FU PING YUAN was reporting the accident to VTS. Onboard FU PING YUAN, the crew members tried to control the speed of water in-taking by fixing the door of the engine room storage, however, they failed to fix it. Due to part of the holed area was below water line, the water came in the engine room more aggressively as the ship's aft draft increased as a result of the flooding. The captain declared abandon ship at 0020hrs on June 16th. Since the ship's lifeboat was exactly above the holed hull, it was unable to be launched. The crews released 4 liferafts and secured them to the stern of the ship; 17 crew members left the ship and boarded 3 liferafts at about 0030hrs. At 0040hrs, the Korean Coast Guard from Incheon arrived at the scene and rescued 14 crew members in 2 liferafts, and later the other 3 crew members in another liferaft were rescued by the lifeboat launched from CS.CRANE.

At 0140hrs of 16th, about 1 hour after the crews were rescued, FU PING YUAN half submerged. To prevent the vessel from floating to and sinking in the channel, to reduce pollution caused by the spilled oil to the nearby water, the Korea Coast Guard dispatched tugs to tow the half-submerged FUPINGYUAN to the shoal that was 0.5 miles west to the anchorage to sit on seabed there; the approx position was 37°19′.2N/126°22′.9E with the depth of 11 meters. Only the aft mast can be seen above water during high tide, and the cargo hold hatch coaming can be seen above the water during low tide.

10. Analysis

10.1 Unsafe acts

10.1.1 The CS. CRANE was negligent at look-out, failing to have systematic observation of FU

PING YUAN that was right ahead of her. It also failed to assess the situation and risk of collision comprehensively. The ship failed to adopt safe speed when she was navigating in restricted visibility and approaching the anchorage, which resulted in inadequate space and time to take effective avoiding action after the critical situation came into being. The ship failed to take proper collision-avoiding measures under the critical situation, she first turned to portside substantially and soon after turned substantially to starboard, this was clearly not the most conducive act to avoid collision.

10.1.2 FU PING YUAN was also negligent at look-out, failing to maintain adequate vigilance towards the vessel that was approaching from behind at high speed, with a failure of adopting good seamanship under emergency and taking proper collision-avoiding measures when another ship was closing quickly and forming critical danger. She turned substantially to starboard to expose the engine room at ship's stern to the collision impact.

10.1.3 Both ships failed to follow the Rule 35 "Sound Signals in restricted Visibility" of COREG to sound fog signals properly.

10.2 Unsafe factors

10.2.1 The range of radar and its display mode.

The small-range, off-center display radar has the benefits of being able to clearly show the targets ahead as well as has good forward scanning distance; thus it is widely used by many officers in crowded waters, port entering or exiting channels etc. But this off-center display mode has its shortcomings such as short detecting distance for ships approaching from behind and unable to detect them in ample time, it is especially easy to form critic situation with the overtaking vessel when her speed is significantly higher than the overtaken vessel; this is usually ignored by officers. Prior to collision, FU YUAN PING was exactly using this display mode.

10.2.2 Crews' over-reliance on VHF in collision-avoiding actions.

When facing the already developed critical situation, instead of actively taking timely and substantial collision-avoiding action, some crews are used to ask the other ship to take avoiding action by VHF, thus the best time to take action to avoid the approaching vessel is delayed or missed.

10.2.3 The crews' inadequacy of English communication skill

Most of Chinese and Korean crews have problems in English pronunciation, some English words

are pronounced distinctively different resulting from the different pronouncing system of both countries' tongue, worsen by their limited English listening comprehension ability. The ineffective English communication often makes misunderstand during marine navigation.

11. Other issues discovered during investigation

11.1 Crews' emergency response ability

Facing of danger, the senior crew members of CS.CRANE lost of psychological composure, showed poor emergency response ability. When facing the imminent danger, the captain failed to take actions such as reducing speed, putting engine astern, and altering course reasonably etc to help avoiding the collision.

After collision, FU PING YUAN dropped anchor at the spot, and hastily declared to abandon ship shortly after being informed about the failed attempt to leaking stoppage of the engine-room, rather than assess the risk of immediate sinking on time, discharge flooding water, and sail to nearby shoal and other measures to mitigate losses.

11.2 Problem of crews' emergency exercise and drill

Crew members should pay great attention to emergency training and exercise. Although log book onboard showed that FU PING YUAN conducted life saving and fire drills every month in accordance with the regulation, the fact is that the abandon-ship organizing was terrible. The captain took along huge amount of personal possessions to evacuate rather than stand on his command position to organize the abandon-ship.

12. Safety Recommendations

12.1 The safety issues revealed in this investigation are currently common among many Chinese crew members.

The company of FU PING YUAN is recommended to strengthen its management regarding crews-recruiting, training of new crews, the evacuation technology of senior crew members etc; to strengthen supervision and inspection regarding crews' on-job training, emergency drills, develop specific preventive measures. Meanwhile, the company should strengthen all-aspects training of crew members, when facing the dilemma among ship's, company's and personal interests.

12.2 During the investigation, it was also found that the mates of CS.CRANE failed to follow the regulations of COREG, failed to adopt good seamanship to avoid collision when entering

anchorage.

The management company of CS.CRANE is recommended to strengthen the updated training of sailors, including the understanding of COREG and ship’s maneuverability.