



**Report on the Investigation of the sinking of
An Jin
on 19 June 2006**

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Contents

Glossary of Abbreviations and Acronyms	3
1. Summary	4
2. Particulars of vessel	4
2.1 Basic data	4
2.2 Crew	5
2.3 Company	5
2.4 Survey of the ship	6
3. Environmental conditions	6
4. Narrative	7
4.1 The shipment	7
4.2 The ship's condition on departure	7
4.2.1 The Securing of Cargoes	7
4.3 Covering conditions of the ship	8
4.4 Accident descriptions	8
4.5 Emergency Respondence	10
5. Search and Rescue	11
6. Analysis	11
6.1 Cargo shifting	11
6.2 Lack of cargo lashing plan	12
6.3 Cargo had not been lashed properly	12
6.4 Lack of support from the company	13
7. Recommendations	13

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. Summary

About 0018 on 22 November 2005, M.V "AN JIN", which belonged to Shanghai Yong Zheng Shipping Co., Ltd, encountered gale on the voyage from Shanghai to Singapore and sank in the South China Sea. The approximate wreck position was 09 08.0'N/109 10.0'E. All the 22 crew fell overboard. 9 crews were rescued and 13 crews were missing.

2. Particulars of vessel

2.1 Basic data

Ship name: AN JIN

Hull material: Steel

LOA: 96.04m

Molded Depth: 7.20m

NT: 1763

Registry No.: 010005000009

Ship Type: General cargo

Crew No.: 22

Port of registry: Shanghai

Holds and Hatches: 2X2

Molded Breadth: 16.20m

GT: 3124

LT: 5118 tons

M/E Type: Internal-combustion engine

M/E Power: 2270KW

Date of built: 10th March 1982

Speed: 15kt

Place of build: Japan Kurushima Dockyard

Ship owner: Shanghai Yong Zheng Shipping Co., Ltd

Operator: Shanghai Yong Zheng Shipping Co., Ltd

Latest PSC: 27th May 2005

Inspection Authority: VIETNAM MARITIME ADMINISTRATION

Latest FSC: 29th Aug. 2005

Inspection Authority: Lianyungang MSA of P.R.C

2.2 Crew

There were 22 crews on board. They all held kinds of valid certificates.

And the number of crew meet minimum safe manning requirement. The

Crews were from different shipping companies.

2.3 Company

The company obtained temporary document of compliance (DOC) on 19th December 2004. And the DOC was issued after auditing and authorizing.

2.4 Survey of the ship

From 17th Jun. to 24th Aug. in 2005, CCS Ningbo branch conducted its special survey, dock survey, the stern shaft survey, boiler survey and full statutory renewal survey in Beilun, Ningbo city.

Hull

According to CCS Rules and Regulations, the close-up inspection and thickness detection was carried out on the basis of the special survey of dry general cargo ships which were more than 20 years of age. The measuring thickness was conducted by Ningbo TianYi technical testing center which was recognized by CCS.

According to the result of survey and measuring thickness, the hull structure was made a large number of repairs and a lot of plates were replaced. The survey showed that the repair complied with the requirements.

Machine and electrical equipment

According to CCS Rules and Regulations, CCS Ningbo branch conducted survey over the main engine, generators, pumps, electrical equipment, tc, within the range of special survey requirement. Parts of the repair were conducted. Inspection records showed that their examination, repair, and test were normal.

3. Environmental conditions

Height of wave: 4m Visibility: About 6 nm

Direction of wave: NE

Wind force: Beaufort scale 7 to 8 gust 9

4. Narrative

4.1 The shipment

M.V "AN JIN" arrived in Shanghai in ballast on 12 November 2005. The voyage was VOY513 (Shanghai-Singapore). About 1300 on 12th May, the ship was alongside with the Shanghai JunGong Road wharf NO.6 berth. About 1400, stevedores began loading, the specific loading number is: NO.1 cargo hold with round steel, flat steel, and 8 pieces of equipment, a total of 1766.8 tons; NO.2 cargo hold with round steel, flat steel, H characters steel, plate and roll steel, a total of 2835.8 tons; 6 pieces large cargo (traveling crane structure) and a construction vehicles on deck, a total of 118.8 tons. About 1000 On the 14th, loading were finished with a total of 4721.4 tons of cargo.

4.2 The ship's condition on departure

About 1000 on the 14th, the ship sailed from Shanghai for Singapore, and the ETA to Singapore would be 2400 on 24th Nov.. While sailing, the draft of fore and aft were 5.7 meters and 6.6 meters respectively, in the meantime, the ship Loaded F.O oil 173.1 tons, light oil 28.2 tons, fresh water 120 tons.

4.2.1 The Securing of Cargoes

1. The "cargo securing manual" of M.V "AN JIN" was verified and approved by Shanghai MSA on 12th Jan. in 2005.
2. With regard to volumes of steel on holds, the "cargo securing manual"

stipulates that the last three row steels in the most tops be lashed and the last top row of steel plate be secured by wooden cushion and steel wire. By investigation, it was found that they were lashed 3 times by steel wires with a diameter of 15mm in Nov. in 2005.

3. With regard to volumes of steel on holds, the "cargo securing manual" stipulates that the arrangement of securing fittings be able to withstand the transverse and longitudinal power. By investigation, it was found that there was only the transverse lashing, without longitudinal lashing.

4.3 Covering conditions of the ship

More than 10 pieces of hoisting steel plate hatch covers were covered at NO.1 hold and NO.2 hold. There was a larger gap between the hatch cover. And there were 4 holes in each hatch cover (which was used to hoist), with the size 0.15m X0.05m. 3 storey canvas were covered on hatch covers and they were secured by iron bars and wooden wedge in the surrounding. The transverse lashing was made by nylon rope about 28 mm in diameter to prevent canvas from opening by wind.

4.4 Accident descriptions

At 1100 on 14 November 2005, "ANJIN" left Shanghai port for Singapore. About 1800 hours, wind force, scale 7-8, NE, wave height 3-4 m, M/V.ANJIN arrived at Nanchao light vessel (CJK, shanghai, China), rolling and pitching violently, heavy green water getting on deck. The large and heavy piece (24.91*2.3*2.02m, 13.5 tons) located at portside of hatch NO. 2 on main deck listed to starboard side. The other cargoes on deck also loosed in different extent and some lashing wires were broken.

Thus, the captain decided to alter the course and proceed to Lvhuashan waters for anchoring and reported to the company. About 2000, ship anchored. On 15th, the crew re-lashed and re-secured the deck cargoes. About 1800 on 15th, the ship weighted anchor to proceed. When proceeding around Fujian Niushan Island, wind force 7-8 scale, NE, the large and heavy piece padded with wood cushion (24.91*0.68*2.02m, 11.2 tons) on hatch NO. 2 was moved 1.5 meters to starboard side, and the canvas covering on the hatch was torn with one-meter length crack. The vessel continued to proceed. And when the ship arrived at Taiwan strait, the wind force blew up to scale 8-9, wave height was up to 4-5 meter, and the ship rolled to 10-15 degrees by one side, the large and heavy piece (24.91*2.3*2.02m, 13.5 tons) located at portside of hatch NO. 2 were turned over. Then the ship altered her course to slow the rolling. From 1200 on 16th to 1200 on 20th, wind NE. scale 7, the ship proceeded with speed 10 knot.

At 1200 on 21st, ship's position: 11 03'N/110 01'E, GC 203°, speed 9.8 knot, wind NE, scale 8. About 1300 on 21st, the sea condition deteriorated, the ship rolled more violently, more and more green water got onboard starboard side on Hatch No2., and two large and heavy pieces moved to the port side edge of hatch No.2, and the canvas covering on the hatch was torn violently.

The captain ordered to adjust the course to starboard side to avoid carrying green water abeam. However, hatch No. 2 was flooded due to the broken canvas; the chief officer informed the engine room of pumping out flooding water.

About 1354, the company ordered the ship to adjust course and navigate along the sea, keep proper look-out and pump out flooding water in the cargo hold, and if available, re-lash and re-secure the deck

cargo and prepare a Sea protest before arriving the port.

About 2200, the two large and heavy pieces were struck by the sea and moved to port side. The canvas was torn totally. The captain and 2/O found that the pumping capacity was lower than the flooding. Then the 3/O adjusted the course to avoid suffering from Beam Sea.

About 0005 on 22nd, the engine room reported that they had kept pumping. About 0010, the ship flooded seriously and the freeboard reduced quickly. When the ship listed to portside about 4 degrees, the water submerged the portside. The captain raised the abandoning alarm. After abandoning, the crew transmitted the DSC alarm and turned on EPIRB, but they did not lower lifeboats.

4.5 Emergency Responce

About 1329 on 21st Nov. 2005, the captain of M.V "AN JIN" transmitted messages by ship C station transmitter, and reported that the ship encountered rough sea with the height of 5-6 meters. The cargo on the hatch NO.2 had serious risk of loss, and sea water flooded into cargo hold.

About 1329, the company ordered the ship to adjust course and pump out

Water in holds, and, if possible, to reinforce securing, and to get ready a

Note for sea protest before arriving the next port. About 0830 on 22nd, China Maritime Search & Rescue Center informed the company of receiving the distress alarm from M.V "AN JIN".

According to safe management system requirement, the company organized an Emergency Response Group immediately. The emergency response group of the company, China Maritime Search & Rescue

Center, the General Consulate of Ho Chi Minh City, Singapore MPA, COSCO Guangzhou and COSCO Shanghai took common effort to help search for the ship and rescue the crew, and designated a local agent in Vietnam to assist in handling with the rescue work.

5. Search and Rescue

At 0018 on 22 November 2005, Singapore Maritime SAR Center received the distress message, and then she released a navigational warning, ordering the nearby vessels to search and rescue. China SAR Center contacted Vietnam SAR Center, Singapore and Hong Kong, and informed them of participating in the searching, and they also commanded M/V JINYUHE and M/V YANGHE nearby proceed to the accident spot for search and rescue. China Consulate in Ho Chi Minh, Thanh Pho contacted Vietnam SAR Center and hoped they could do all they could to search and rescue.

At 1645 on Nov. 22nd, some tugs from the petroleum platform nearby saved 5 seamen in distress, and another 4 seamen were saved by other vessels participating in the salvage.

At 0900 on Nov. 28th, Singapore SAR Center declared the end of this salvage. There were 55 vessels participating in this salvage, searching in the waters about 85000 square kilometers, and finally 9 persons were saved.

6. Analysis

6.1 Cargo shifting

Goods on the deck moved when gale and rough sea came, because

of being wrongly lashed. In addition, the canvas on the hatch was torn, then water poured into the cargo hold, which was the direct

6.2 Lack of cargo lashing plan

On No.513 voyage, M/V ANJIN was loaded with great steelwork and tip lorry on the deck. According to the company's safety management system, M/V ANJIN must make the lashing plan according to cargo condition, weather and sea condition on the way. But Shanghai Jie Lun Shipping Service Company lashed the cargo without lashing plan, just according to their experiences.

6.3 Cargo had not been lashed properly.

The steelwork, two of them 26 tons respectively, was loaded on the deck.

Cargo moved due to the strong wind and waves, which caused pitching and rolling of the ship.

Because of improper rebounding, cargo moved and canvas was torn, which resulted in the pouring of great water into the hold. The steelwork, in the no.2 hold on the main deck portside, fell down to the starboard side ground when the ship arrived at Nanchao Light Vessel at about 1800, and some of other cargo also got loosed under this condition, M/V ANJIN had to alter course and bound for Lvhua Shan Anchorage. The captain ordered the seamen to re-bind the cargo on deck the next day, and kept on sailing at about 1800. Shortly after leaving the anchorage, the cargo on deck began to loose again. At 1300 on Nov. 21, the vessel began to roll and much wave rushed to the deck near No.2 hold on starboard side. Finally the great steelwork in No.2 hold moved to portside of the hatch, and the canvas was torn. Then the vessel began to list to portside due to the pouring of great water into cargo hold

6.4 Lack of support from the company

The company did not launch the emergency plan and give the vessel proper ideas to control the danger because they did not recognize the great danger to the vessel when they received the report from the vessel.

The cargo moved when M/V ANJIN navigated in Changjiangkou waters, where weather and sea conditions were very bad, but the company did not inform the vessel of keeping clear of the gale and of paying more attention to the cargo moving, and no further supports were received from the company.

7. Recommendations

7.1 In recent years, many sinking accidents happened because the hatch was not water-tight or the canvas was torn. The canvas of this kind of vessel plays a very important role in preventing the water from pouring into hold. So we should inspect canvas strictly when we carry out ship safety inspection.

7.2 We find cargo lashing has become the direct cause of many accidents, so ship companies should strengthen the training of the seamen and require seamen to lash cargo strictly according to the requirements of loading manual and lashing manual.

7.3 At present, all vessels on international voyages have safety management system and were issued safety management certificate, but it is our important mission to make sure whether they all carry out the operation procedures according to these

regulations.

7.4 From this accident, we also find that the captain had worked on a vessel of tens of thousands GT all the time, but he was not familiar with the characteristics of the vessel of thousands of GT. As a result, he could not recognize the danger and lacked working experience. All of other officers should learn lessons from this accident.