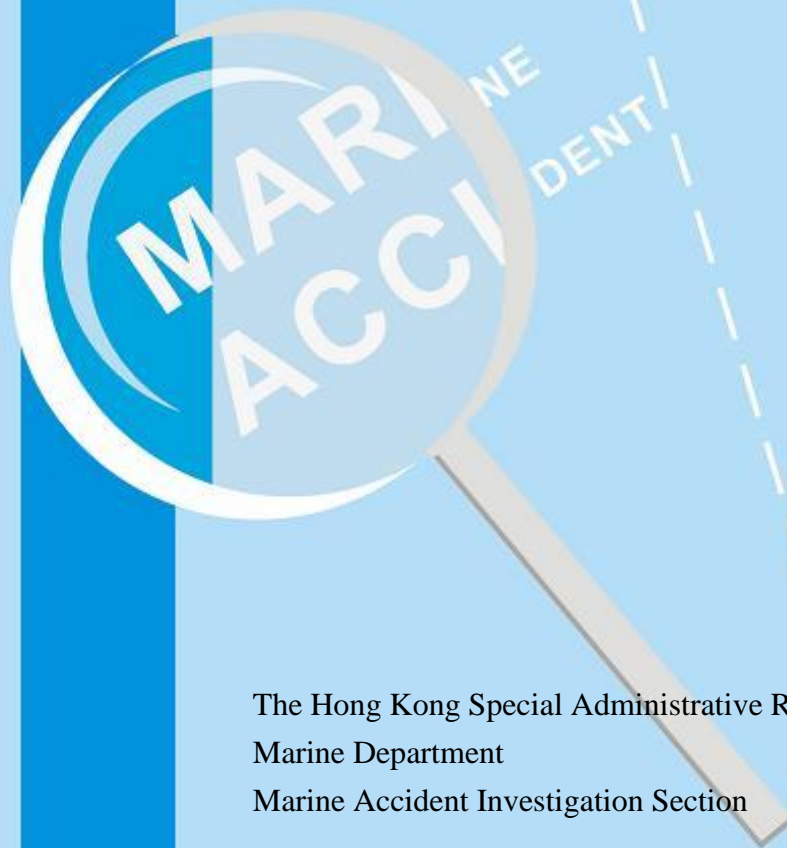




Report of investigation into the  
listing and grounding of  
Vietnam registered vessel  
*Sunrise Orient* in Hong Kong  
waters on 21 February 2014



The Hong Kong Special Administrative Region  
Marine Department  
Marine Accident Investigation Section



## **Purpose of Investigation**

This incident is investigated in accordance with the Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (the Casualty Investigation Code) adopted by IMO Resolution MSC 255(84).

The purpose of this investigation conducted by the Marine Accident Investigation and Shipping Security Policy Branch (MAISSPB) of Marine Department, in pursuant to the Merchant Shipping Ordinance Cap. 281, the Merchant Shipping (Safety) Ordinance (Cap. 369), the Shipping and Port Control Ordinance (Cap. 313), or the Merchant Shipping (Local Vessels) Ordinance (Cap. 548), as appropriate, is to determine the circumstances and the causes of the incident with the aim of improving the safety of life at sea and avoiding similar incident in future.

The conclusions drawn in this report aim to identify the different factors contributing to the incident. They are not intended to apportion blame or liability towards any particular organization or individual except so far as necessary to achieve the said purpose.

The MAISSPB has no involvement in any prosecution or disciplinary action that may be taken by the Marine Department resulting from this incident.



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## 1. Summary

- 1.1 On 20 February 2014, the Vietnam registered cargo vessel *Sunrise Orient* (“*the vessel*”) departed the port of Nansha in Guangzhou, China loaded with 2830 tons of soil stabilizer in the two cargo holds. The soil stabilizer was packed in bags and stowed on wooden pallets.
- 1.2 On the morning of 21 February 2014, *the vessel* was proceeding to the Western Anchorage No.1 in Hong Kong for taking fuel oil. While on the way, she suddenly listed to port side by more than 50 degrees and lost control.
- 1.3 The master ordered abandon ship. All crew members were rescued by marine police launch. After *the vessel* was abandoned, she was still moving at sea without crew on board. Under the monitoring by the harbor launches, she finally grounded at Tung Wan Tsui, Cheung Chau. There was no crew injury and oil pollution to the sea.
- 1.4 At the time of accident, the sky was cloudy. Winds were northerly of force 5 to 6 on the Beaufort scale. Wave height was about 1.5 metres.
- 1.5 The investigation into the accident revealed that the main contributing factors to the accident were:
  - the cargo inside cargo holds were not secured properly in accordance with cargo securing manual; some of the cargo collapsed and shifted to the port side and resulted in heavy listing of *the vessel* to port side; and
  - the master and crew did not follow the abandon ship procedure; without having switched off the engines, the vessel was still moving at sea without crew on board until she went aground.

## 2. Description of the Vessel

### 2.1 *Sunrise Orient*

#### .1 Ship Information

Nationality	:	Vietnam
Port of Registry	:	Hai Phong
IMO No.	:	9550072
Call Sign	:	3WFD9
Ship Type	:	General Cargo Ship
Year of Built (Delivery)	:	24 November 2011
Gross Tonnage	:	2580
Net Tonnage	:	1467
Deadweight	:	4244.1 mt
Length (Overall)	:	89.99 m
Breadth (moulded)	:	13.6 m
Depth (moulded)	:	7.66 m
Summer Draft	:	6.15 m
Main Engine & Power	:	Diesel Engine LB8250ZLC-7, 1470Kw
Classification Society	:	Vietnam Register
Management Company	:	Haiphong sea product shipbuilding joint stock company
Crew on board	:	17

- .2 The minimum safe manning requirement is 10. The vessel was manned by a master, 3 deck officers, a chief engineer, 3 engineers, 4 deck ratings, 3 engine ratings and one cook. The nationality of the master and the crew was Vietnamese.





Fig.1 – Vietnam registered vessel *Sunrise Orient* listed to the port.

**3. Sources of Evidence**

- 3.1 Statements provided by the Master and crew of Sunrise Orient;
- 3.2 Information provided by the operation company;
- 3.3 Information provided by Vessel Traffic Centre (VTC);
- 3.4 Information provided by Harbour Patrol Section (HPS) of Marine Department;
- 3.5 Weather information provided by Hong Kong observatory.

#### 4. Outline of Events

All the times are local (UTC+8) if it is not otherwise specified.

- 4.1 At about 1300 on 20 February 2014, the Vietnam registered general cargo vessel *Sunrise Orient (the vessel)*, laden with about 2830 tons of packed soil stabilizer, departed the Nansha in Guangzhou, China for her discharge port in Tikima, Indonesia. A total of 17 crew members were on board the vessel. The forward and after drafts of the vessel upon departure were 4.9 m and 5.4 m respectively.
- 4.2 At about 0630 on 21 February 2014, *the vessel* was proceeding towards Hong Kong for taking fuel oil. The master reported to the Hong Kong Vessel Traffic Centre (VTC) that the estimated time of arrive (ETA) of the vessel would be at about 1200 on 21 February 2014.
- 4.3 The bridge team comprised of the master who was on the command, the third officer (3/O) and one Able-Bodied seaman (AB). The 3/O was on look-out duty while the AB was on the helm. At about 0928, *the vessel* was sailing at a speed of 5.5 knots towards Hong Kong. *The vessel* rolled in the range of about 10° to 15° evenly while sailing.
- 4.4 At about 1000, *the vessel* sailed past the Cheung Chau buoy and entered the South Cheung Chau Recommended Traffic Separation Scheme (TSS). The master reported to VTC that the ETA at the Western Anchorage No.1 would be at about 1200. *The vessel* then altered course and sailed along the TSS.
- 4.5 At about 1010, *the vessel* suddenly listed more than 50 degrees to the port side and was not able to return upright (Fig.2). It caused the 3/O to fall down on the floor. The master immediately turned the rudder hard port and ordered to press VHF distress button for transmission of distress signal. The master activated the general alarm to alert all crew to evacuate. The master, the 3/O and the AB evacuated from the bridge to the starboard muster station immediately. However, they did not switch off the propulsion engine.
- 4.6 Three engine crew (the chief engineer(C/E), the fourth Engineer (4/E) and one oiler) were working in the engine room when the vessel suddenly listed to the port side. As the port side deck edge immersed into the water, rendering sea water to flood into the engine room through the emergency door on the main deck, the C/E immediately asked the 4/E to start fire pump and ballast pump to pump out the water. Soon afterwards, they heard the general alarm ring and they immediately evacuated from the engine room.

- 4.7 At about 1025, all crew members mustered on the starboard side deck at stern and waited for assistance. At about 1040, a police launch arrived and rescued all 17 crew members. *The vessel* drifted continuously for some time and finally grounded at position 22°13.2'N 114°02.1'E in Tung Wan Tsui, Cheung Chau with the port side stranded on the rocky sea bed (Fig. 3 and 4). It was about 1.6 nautical miles away from the abandon ship position. The Marine Department rigged oil booms to round up *the vessel* for preventing spread of oil spill. A small amount of oil leak from the vessel was cleaned up. No significant oil pollution to sea water was reported. No person injury was reported in the accident.
- 4.8 At the time of the accident, it was cloudy and there was a northerly wind of about force 5 to 6 on the Beaufort scale. Wave height was about 1.5 m. The visibility was good over 6 nautical miles. The vessel was rolling at about 10° to 15°.
- 4.9 After the accident, the vessel was refloated on 20 May 2014. Series crack damage on the port side hull due to stranding on the rock was found.



Fig.2 – *The vessel* listed to port and lost control.

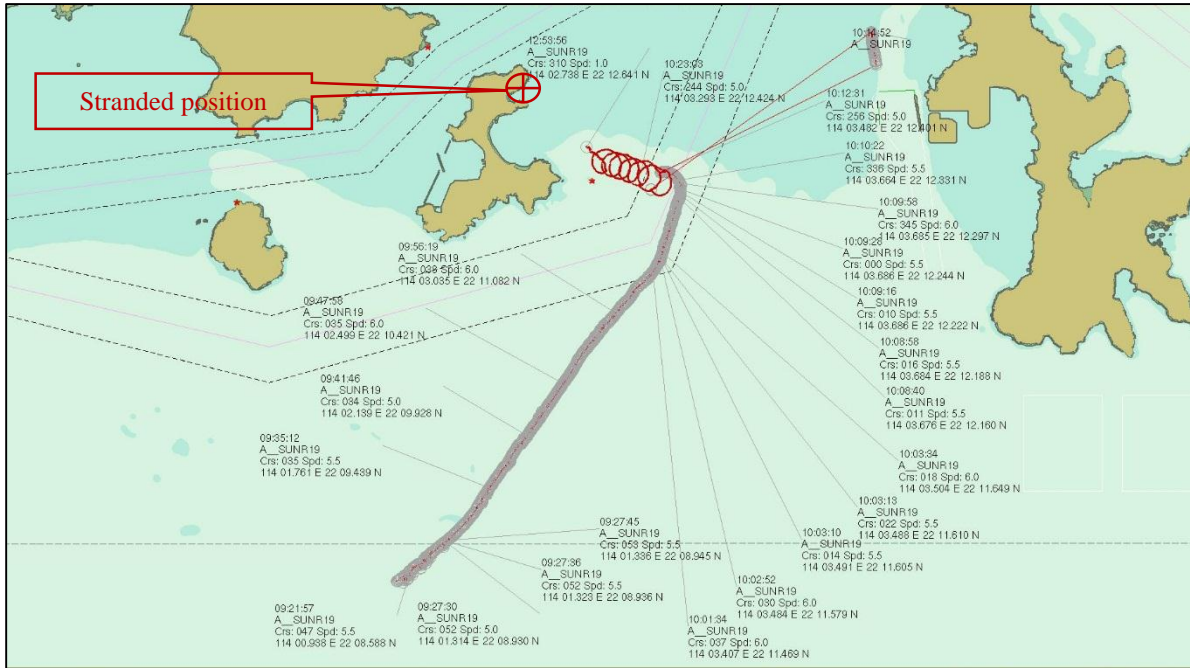


Fig. 3 - The vessel was moving in circular motion after being abandoned and finally grounded at Tung Wan Tsui, about 1.6 n.m away from the position of abandon ship.



Fig.4 – The vessel grounded at northeast of Tung Wan Tsui, Cheung Chau.



## 5. Analysis

### Vessel and manning

- 5.1 At the time of the accident, all statutory certificates of *Sunrise Orient* were valid. *The vessel* should have been manned by at least 10 crew members in accordance with the Minimum Safe Manning Certificate. There were a total of 17 Vietnamese crew members on board. All of them held valid Certificates of Competency respectively to their posts.
- 5.2 The master had worked on board ships for more than 10 years, two years of which were in the capacity as a master. The chief officer had a total sea going experience of about 10 years, one year of which was in the capacity as a chief officer.

### Cargo securing

- 5.3 At the port of Nansha, Guangzhou, China, the cargo of soil stabilizer was packed in paper bags and stowed on wooden pallet. The weight of each bag was 40 kg and a total of 40 bags were stowed on each pallet. Each pallet was then wrapped by plastic film (Fig.5). The gross weight of each pallet was 1628 kg and the volume was about 1.83 m<sup>3</sup>. Shore cranes were used to lift the pallets into the cargo holds of the vessels. There were a total of 1738 pallets (total number of bags equal 69520).

Fig.5 – The begs of soil stabilizer were stowed on the pallet



5.4 60 of the pallets, a total of 2400 bags, were unwrapped from the pallets and stowed in the forward bottom of No.2 cargo hold. The other 1678 pallets were stowed inside No.1 and No.2 cargo holds in an array of about 9 to 10 pallets for each row and six tiers high with the upper surfaces of the top-tier pallets close to the underneath of hatch covers (see Fig. 6). The three to four tiers of pallets from the top were rounded up together by ropes and then secured to ship structures by nylon belts. The distribution of cargo in holds is shown in the table below:

	<i>Cargo Hold No.1</i>	<i>Cargo Hold No. 2</i>
<i>Pallet (Bags)</i>	608 (2432)	1130* (45200)
<i>Weight (GW in mt)</i>	990	1840
* 60 pallets were dismantled into 2400 bags and stowed in No.2 Hold		

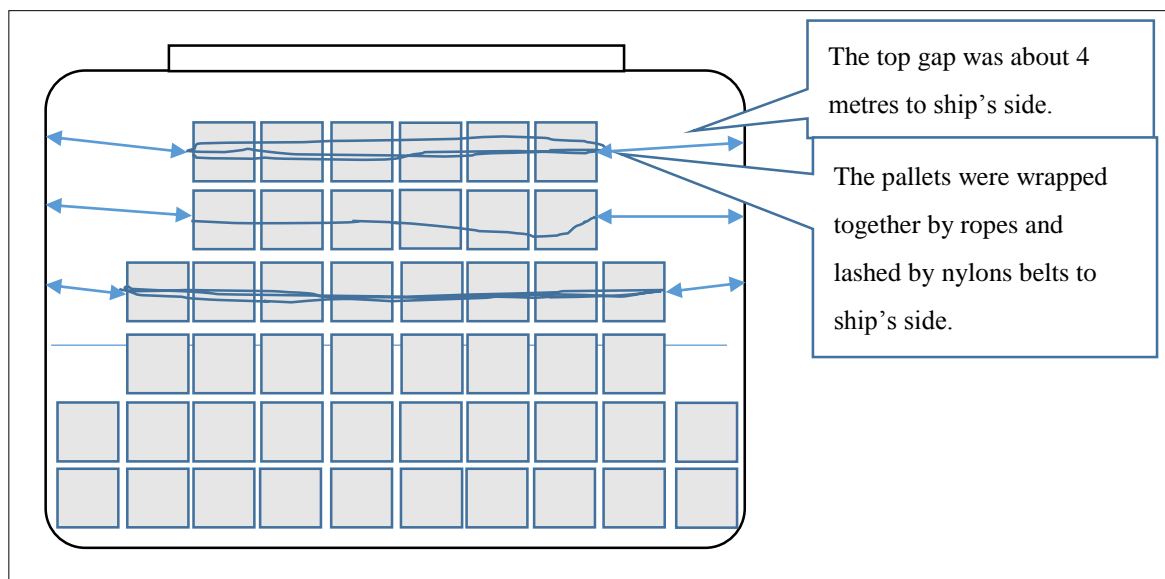


Fig.6 - illustration of pallets stack in cargo hold. Maximum gap was about 4 m.

5.5 There were free spaces on both sides of the cargo holds. For instance, at the top tier, the free space between the sides of the cargo and the ship's sides were about 4 m wide (Fig.6).

5.6 According to the cargo securing manual, the unit loads should be stowed without any free spaces between the unit loads and the ship's sides to prevent the unit loads from racking during ship sailing. Also, lashing wires with grating and plywood should be used for securing of the cargo stack. Timbers should be used to transform any irregular shapes inside cargo holds into rectangular shapes. However, at the time of

the accident, the upper tiers pallets of cargo were only lashed by ropes and secured to the ship's structure by nylon belts. There was no proper support (i.e. use of timbers or steel bars) to prevent cargo from shifting despite the 4 m wide free space emerging between the cargo and the ship sides. As such, it was evident that the cargo securing arrangement did not comply with the ship's cargo securing manual. The crew also admitted that the cargo was not stowed satisfactory.

### **Ship stability**

- 5.7 After having finished the loading of cargo, the chief officer assessed the ship's stability. He was satisfied about the more than 1 m corrected metacentric height from the ship's gravity centre (GoM) upon departure. However, he was not aware of the fact that the cargo units inside cargo holds were not secured properly in accordance with the cargo securing manual and the consequence of which would cause cargo shifting and deteriorate ship stability.
- 5.8 *The vessel* listed more than 50 degrees to the port side. As a result, sea water flooded into engine room through a weather tight door on deck which had not properly closed. Consequently, flooding of engine room worsened the ship stability and accelerated further listing of the vessel to port.

### **Abandon ship**

- 5.9 The bridge team members evacuated from the wheelhouse without having stopped remotely of ship propulsion. On the other hand, the engine crew also evacuated from the engine room without having shut down fuel oil supply to the engines. When the vessel was abandoned with engines still running, she was still moving at a slow speed at sea and made many circular turns until it finally grounded at Tung Wan Tsui, Cheung Chau. It was dangerous to the other vessels in the vicinity, and increased the difficulty in salvage and rescue operation. The master, officers and crew on board did not follow the ship procedure for abandoning ship.

### **Probable cause of the accident**

- 5.10 It was probable that some pallets on the upper tiers shifted during the voyage. It caused *the vessel* to roll at about 10 to 15 degrees even though the sea and weather conditions were not so bad. Due to frequent and heavy vacillating, some nylon belts yielded at one point that resulted in the collapsing and shifting of the pallets on the upper tiers to the port side. *The vessel* was suddenly listed heavily to the port side and lost control.
- 5.11 After *the vessel* was abandoned, she was still moving at sea without crew on board. Under the monitoring by the harbor launches, she finally grounded at Tung Wan Tsui, Cheung Chau.



## 6. Conclusion

- 6.1 On 20 February 2014, the Vietnam registered cargo vessel *Sunrise Orient* (“*the vessel*”) departed the port of Nansha in Guangzhou, China loaded with 2830 tons of soil stabilizer in the two cargo holds. The soil stabilizer was packed in bags and stowed on wooden pallets.
- 6.2 On the morning of 21 February 2014, *the vessel* was proceeding to the Western Anchorage No.1 in Hong Kong for taking fuel oil. While on the way, she suddenly listed to port side by more than 50 degrees and lost control.
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- 6.4 At the time of accident, the sky was cloudy. Winds were northerly of force 5 to 6 on the Beaufort scale. Wave height was about 1.5 metres.
- 6.5 The investigation into the accident revealed that the main contributing factors to the accident were:
- the cargo inside cargo holds were not secured properly in accordance with cargo securing manual; some of the cargo collapsed and shifted to the port side and resulted in heavy listing of *the vessel* to port side; and
  - the master and crew did not follow the abandon ship procedure; without having switched off the engines, the vessel was still moving at sea without crew on board until she went aground.

## **7. Recommendations**

- 7.1 A copy of the investigation report into the accident should be provided to the management company and the master of *Sunrise Orient* advising them of the findings of the investigation. The management company should issue a safety circular instructing the master, officers and crew of *Sunrise Orient* to strictly follow:
- a) cargo securing arrangement in accordance with the cargo securing manual; and
  - b) the company procedure in abandoning of ship.

**8. Submissions**

- 8.1 In the event that the conduct of any person or organization is criticized in an accident investigation report, it is the policy of the Marine Department that a copy of the draft report should be given to that person or organization so that they can have an opportunity to express their comments on the report or offer evidence not previously available to the investigating officer.
- 8.2 Copy of the draft report has been sent to the following parties for comments:
- a. The operation company, the master and the chief officer of *Sunrise Orient* ; and
  - b. The Vietnam Administration, as the flag State *Sunrise Orient*.
- 8.3 No submission was received from above parties.