



Report of Investigation  
into the fatal accident happened  
on board *m.v. "Najran"* at  
Kwai Chung Container Terminal  
on 15 May 2008





## **Purpose of Investigation**

This incident is investigated, and published in accordance with the IMO Code for the Investigation of Marine Casualties and Incidents promulgated under IMO Assembly Resolution A.849(20). The purpose of this investigation conducted by the Marine Accident Investigation and Shipping Security Policy Branch (MAISSPB) of Marine Department 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 An industrial accident happened on board the Saudi Arabia registered container ship "*Najran*" at Kwai Chung Container Terminal on 15 May 2008. While a stevedore was walking along a walkway on a lashing platform on the main deck in between No.5 and No.6 cargo holds, he fell about 20 metres down to the bottom of cargo hold and sustained fatal injuries. A stevedore foreman learnt the accident and rushed to the scene. On the walkway, he sustained electric shock injury.
- 1.2 The investigation revealed that the fatal accident was caused by the removal of proper fencing to prevent fall of person.
- 1.3 The injury case was caused by exposed live electric cable.
- 1.4 The accident was also contributed by the failure of providing adequate lighting to the workplace.
- 1.5 The abovementioned unsafe conditions were results of non-compliance of the safety requirements under the Shipping and Port Control (Works) Regulation and the International Labour Convention No.152.

## 2. Description of the Vessel

### 2.1 Particulars of the Vessel

Name of the Vessel	:	<i>"Najran"</i>
Port of Registry	:	Dammam
IMO No.	:	9149744
Call Sign:	:	HZQE
Classification Society	:	Lloyd's Register
Type of Ship	:	Container Ship
Year of Build	:	1997
Built At	:	Kawasaki Heavy Industries Limited, Sakaide, Japan
Ship Manager	:	United Arab Shipping Company
Length	:	257.96 metres
Breadth	:	32.20 metres
Depth	:	18.20 metres
Gross Tonnage	:	48,154
Net Tonnage	:	26,721
Engine Power	:	34,824 kW
No. of Crew	:	29



Fig. 1: M.V. "Najran" at Kwai Chung Container Terminal

"Najran" (hereinafter referred as the "Vessel") (see Fig.1), is a eight-hold fully cellular container ship with total carrying capacity of 3,802 TEU.

## 2.2 Particulars of the Lashing Platform

The lashing platform on the main deck in between No.5 and No.6 cargo holds of the *Vessel* is of 2 levels (see Fig.2) and made of steel. The walkway at the first level of the platform is about 2 metres above the main deck and the headroom of the walkway is about 2.6 metres. The width of the walkway is about 0.59 metre. Electric power supply socket outlets of voltage 440 volts, a.c., are installed along the walkway for the use of refrigerated containers (see Fig.3). Stevedores usually stand on the lashing platform to secure container stacks on the deck/hatch covers with lashing bars and turnbuckles.

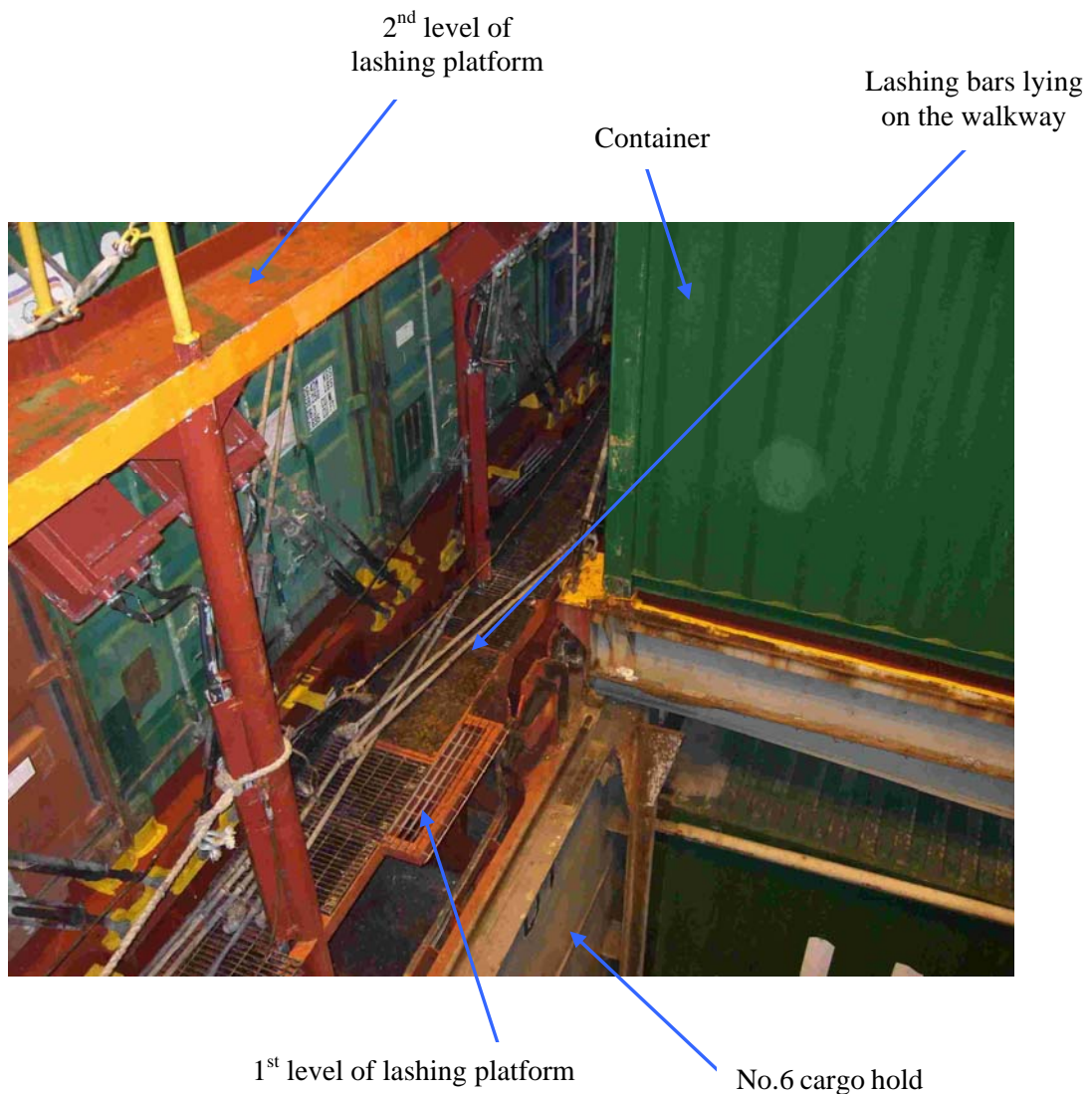


Fig. 2: The Lashing Platform in between Nos.5 & 6 Cargo Holds on M.V. "Najran"

Electric power supply socket outlets



1<sup>st</sup> level of lashing platform

Fig. 3: Electric Power Supply Socket Outlets Installed along the Walkway of Lashing Platform



### **3. Sources of Evidence**

- a) The foremen and stevedores of Everbest Port Services Limited
- b) Crane operator of CSX World Terminals Hong Kong Limited
- c) Safety officer of DP World
- d) Master and Electrical Officer of the *Vessel*
- e) Drawings, plans and record books of the *Vessel*
- f) Weather report from the Hong Kong Observatory
- g) Medical certificate of the injured foreman
- h) Autopsy report of the deceased

#### 4. Outline of Events

- 4.1 At about 2210 on 15 May 2008, the *Vessel* from Shenzhen arrived in Hong Kong and was alongside Berth 3, Kwai Chung Container Terminal for loading containers. Stevedores of Everbest Port Services Limited went on board the *Vessel* for container handling.
- 4.2 The gang of stevedores worked for container handling at Nos.4, 5 and 6 cargo holds of the *Vessel* consisted of a foreman (“Foreman A”), a leading stevedore and two stevedores (“Stevedore B” & “Stevedore C”). Their job was mainly to secure the containers loaded on deck/hatch covers with lashing bars and turnbuckles. Since the *Vessel* had been scheduled to sail after two hours, they were required to speed up the work. They first went to the main deck at starboard side of No.5 cargo hold to pick up lashing bars and turnbuckles.
- 4.3 The crane operator of the No.8 gantry crane at the Berth asked the leading stevedore through walkie talkie whether the steel hatch cover at centre of Bay 39 of No.6 cargo hold had been unlocked. The leading stevedore went to the hatch cover to check all the locking pins around the cover and replied to the crane operator that all of them had been unlocked. The hatch cover was then lifted up by the gantry crane and placed at shore (see Figs.4 & 5).



Fig.4: Gantry Crane at the Berth



Fig.5: A Hatch Cover Placed at Shore

- 4.4 The space under main deck in the Bay 39 at the centre forward of No.6 cargo hold was

empty and 20-Foot containers were to be loaded in. However, the No.8 gantry crane could not be used for loading because the adjacent No.7 gantry crane was defective and blocked the way.

- 4.5 At that time, the gang of stevedores had found out some pieces of lashing bars and turnbuckles at starboard side of No.5 cargo hold, and they conveyed them to the walkway at the first level of lashing platform between No.5 and No.6 cargo holds. The lashing bars and turnbuckles would be used later to secure the containers stacked on the hatch cover of No.6 cargo hold. Then Foreman A and Stevedore C (Foreman A's younger brother) went to the main deck at port side of No.5 cargo hold looking about for lashing bars and turnbuckles.
- 4.6 The leading stevedore and Stevedore B went to the main deck at starboard side of No.6 cargo hold looking for lashing bars and turnbuckles. After a while, they found plenty of lashing bars and turnbuckles at the main deck starboard side of No.6 cargo hold. The leading stevedore then went to port side of No.5 cargo hold to inform Foreman A leaving Stevedore B working alone.
- 4.7 At about 2228, the No.7 gantry crane at the Berth had been shifted away to give way to No.8 gantry crane. Then the loading operation commenced. As a 20-Foot container was being loaded by No.8 gantry crane to the bottom tier of Cell 02 at Bay 39 of the *Vessel*, the crane operator suddenly saw there was a person with a reflective vest lying at the bottom of Cell 01 at Bay 39 at the centre forward of No.6 cargo hold. He told the office of the Berth at once and the office informed stevedores through walkie talkie.
- 4.8 A stevedore foreman ("Foreman D") who was working at shore near the *Vessel* learnt the incident through walkie talkie and he rushed on board to the scene at once. On the way he felt pain at his neck and became dazed on the walkway at the first level of the lashing platform in between No.5 and No.6 cargo holds and he fell down on the walkway (see Figs.6, 7 & 8).
- 4.9 Police was informed. The person lying at the bottom of No.6 cargo hold was identified to be Stevedore B who was working alone at the main deck starboard side of No.6 cargo hold before the accident. He was found no sign of life by the rescue team from the Fire Services Department. The injured Foreman D was sent to hospital for medical treatment.

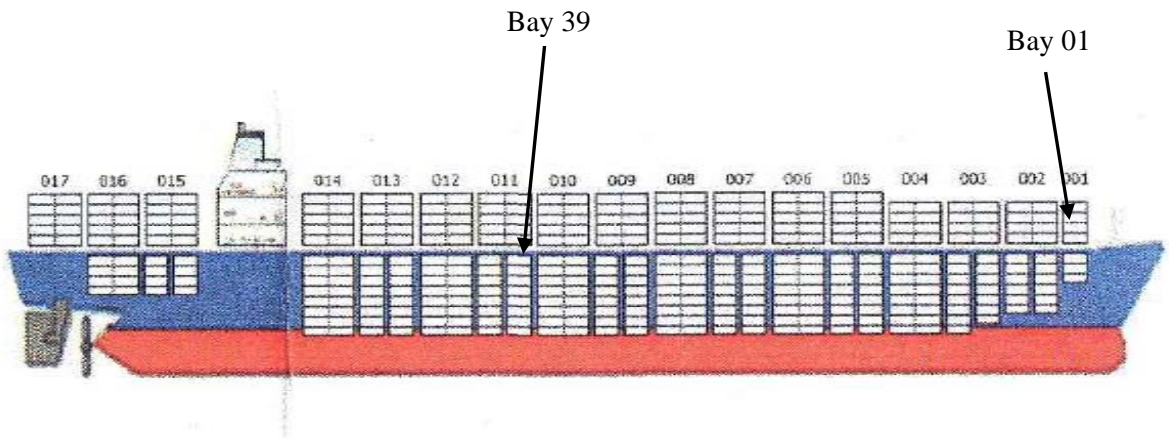


Fig.6: The Container Plan of M.V. "Najran"

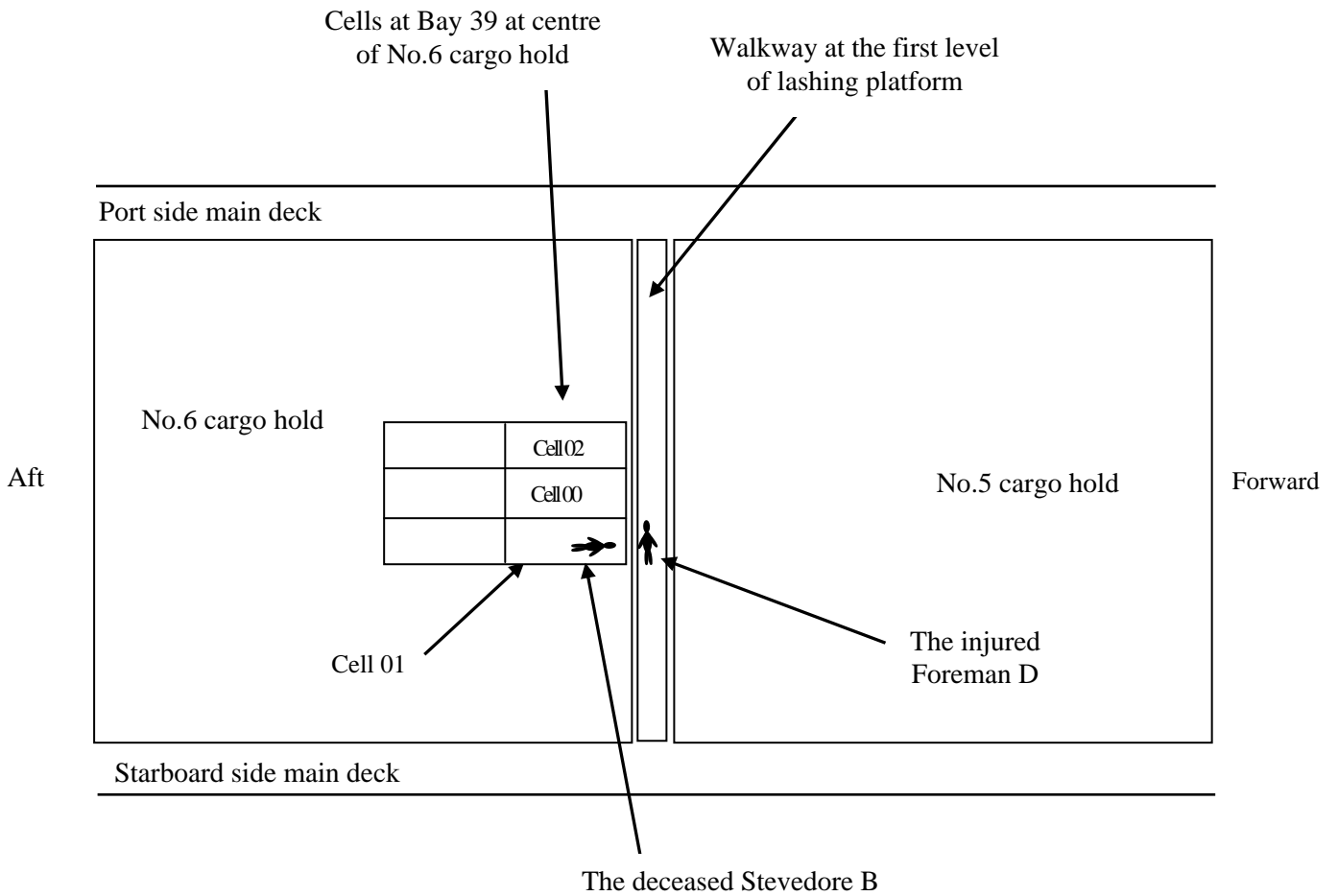


Fig.7: The Scene of Accident on M.V. "Najran"

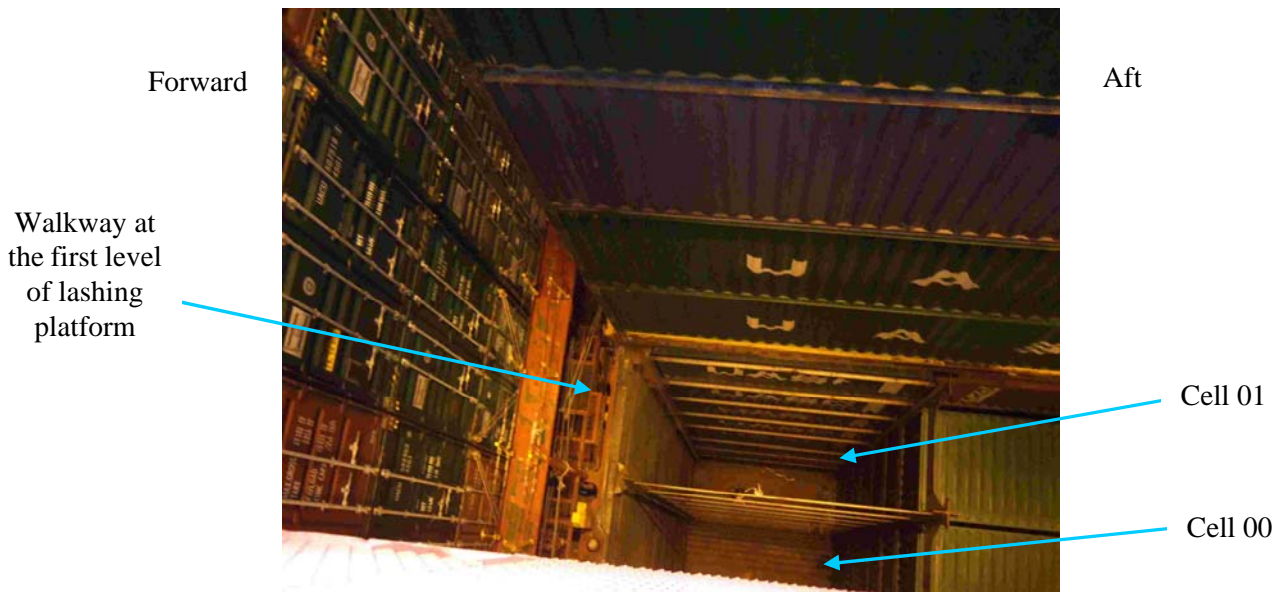


Fig.8: The Cell 01 in No.6 Cargo Hold at Bay 39 on M.V. "Najran"

## 5. Analysis of Evidence

### Bare Electric Wires

- 5.1 An electric cable with three bare electric wires was found in the walkway at the first level of the lashing platform between No.5 and No.6 cargo holds of the *Vessel* (see Figs.9 & 10). The cable was the power supply cable and it had been disconnected from an electric power supply socket outlet near Cell 01 of Bay 39.

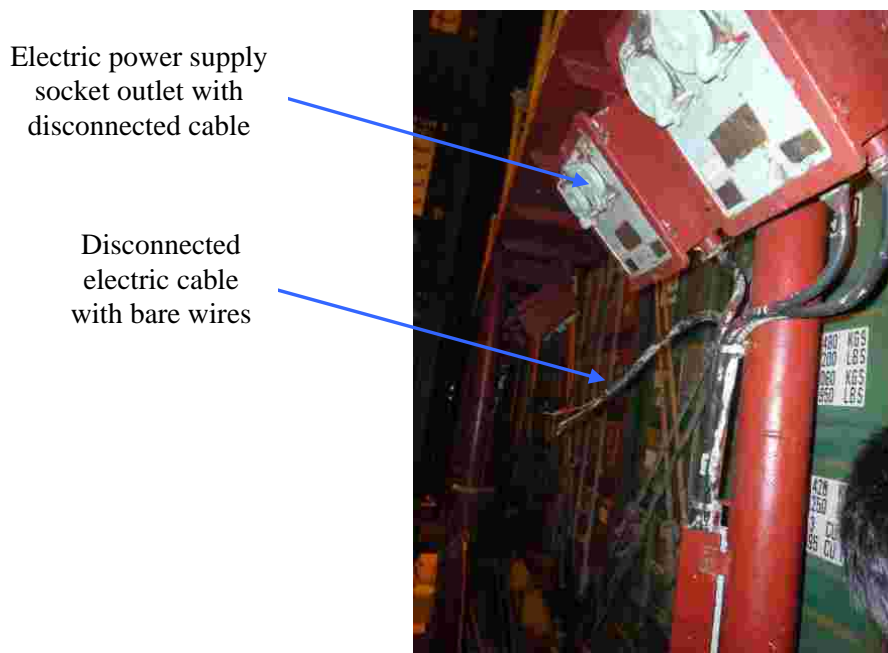


Fig.9: The Electric Cable with Bare Wires at the Walkway on M.V. “Najran”



Fig.10: The Electric Cable with Bare Wires at the Walkway

5.2 Inside the electric power supply socket outlet, it was found that the plastic junction rack for connecting the power supply cable had been broken (see Figs.11 & 12).

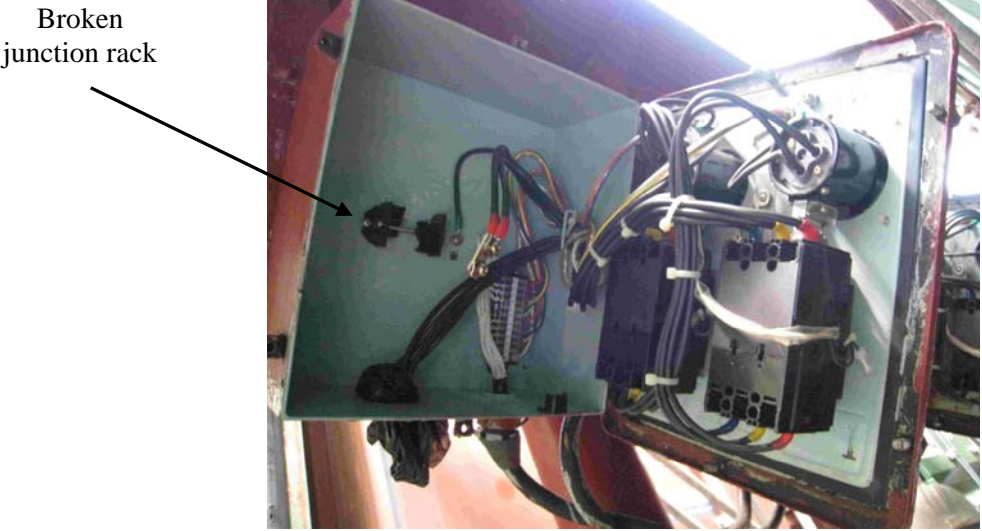


Fig.11: Broken Junction Rack inside the Electric Power Supply Socket Outlet

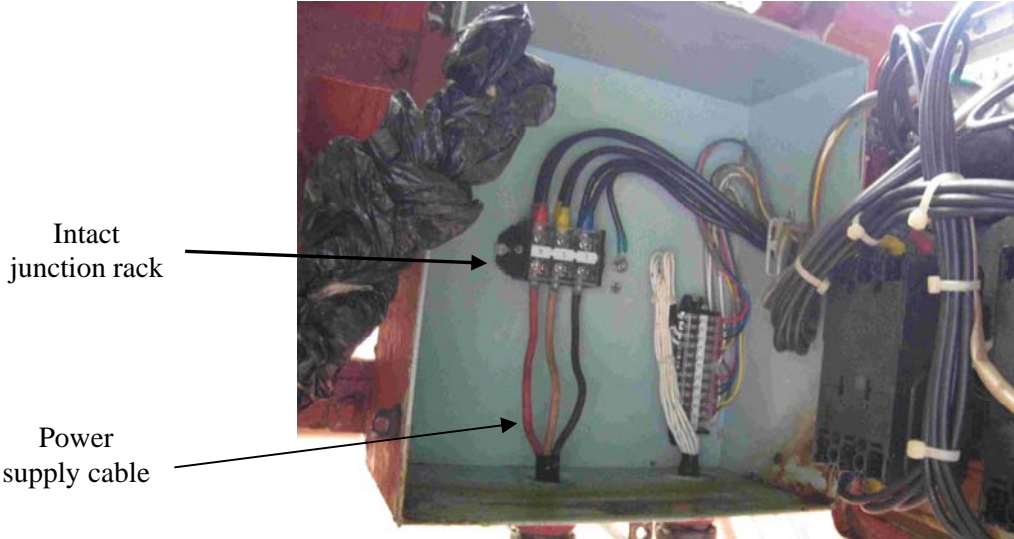


Fig.12: Intact Junction Rack inside an Adjacent Electric Power Supply Socket Outlet

5.3 The lugs of all the three bare wires of the power supply cable were found broken (see Fig.13). Evidence suggested that they were detached from the junction rack by force.

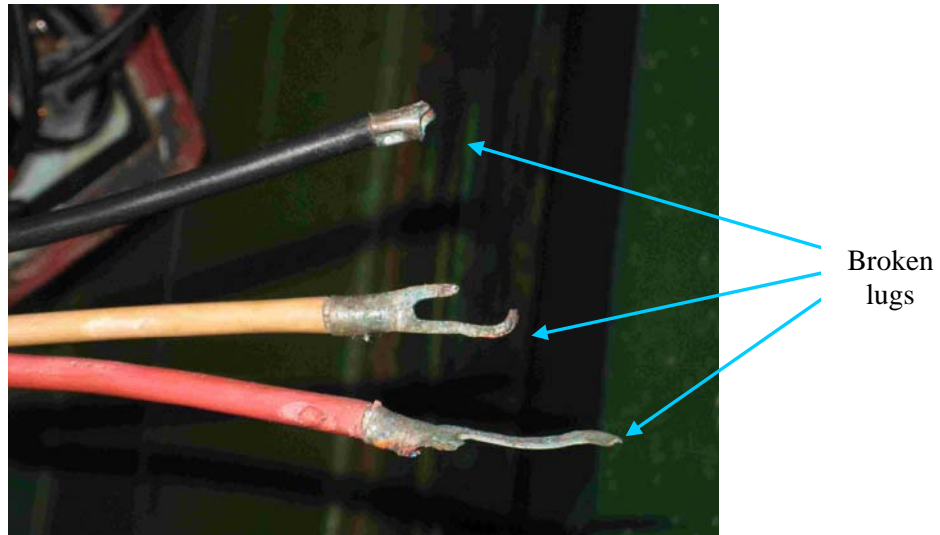


Fig.13: The Electric Power Supply Cable with Bare Wires at the Walkway

- 5.4 All the electric power supply socket outlets at the walkway had been checked by the crew of the *Vessel* two weeks before the accident and the electric cables/socket outlets were found tight and intact.
- 5.5 If the electric wires were detached from the junction rack by force when they were live, the wires would contact each other and short-circuit be occurred. Then the circuit breaker would probably trip and the crew of the *Vessel* could be aware of the damage.
- 5.6 It is highly probable that the wires were detached by force when the power was off deck some time before the accident. It is probable that the power supply cable had been struck by a hoisting/lowering container at the loading/discharging port in the two weeks time before the accident.
- 5.7 The bare ends of the electric wires were estimated at 1.65 m high above the walkway. The height of the deceased was about 1.6 m. Hence the deceased might not contact the bare wires at the walkway at the time of accident. The height of the injured Foreman D was about 1.78 m, hence his head or neck would easily contact with the bare wires when he rushed to the scene of accident.
- 5.8 The power supply to the electric wires was 440 volts, a.c. Power had been off deck when the *Vessel* was in dry dock two weeks before the accident. Though there was no refrigerated container carried on board, to supply power to a cleaning machine, power was on deck at the time of accident and the electric wires were live. The circuit breaker of the electric power supply socket outlet was found tripped after the accident.



5.9 Under section 5 of the Shipping and Port Control (Works) Regulation, Cap.313 subsidiary legislation, dangerous parts, such as live electric conductors, of a workplace should be securely fenced.

**The walkway of lashing platform**

5.10 The fatal accident happened at about few minutes before 2230. No lighting was provided at the walkway at the first level of the lashing platform between No.5 and No.6 cargo holds of the *Vessel*. The bare electric wires were in the dark area at the time of accident. They would not be noticed by the deceased or Foreman D.

5.11 Under section 9 of the Shipping and Port Control (Works) Regulation, a workplace should be efficiently lighted.

5.12 There were lashing bars lying on the walkway (see Fig.2). There was a foreseeable risk for the stevedore at the walkway of tripping and falling.

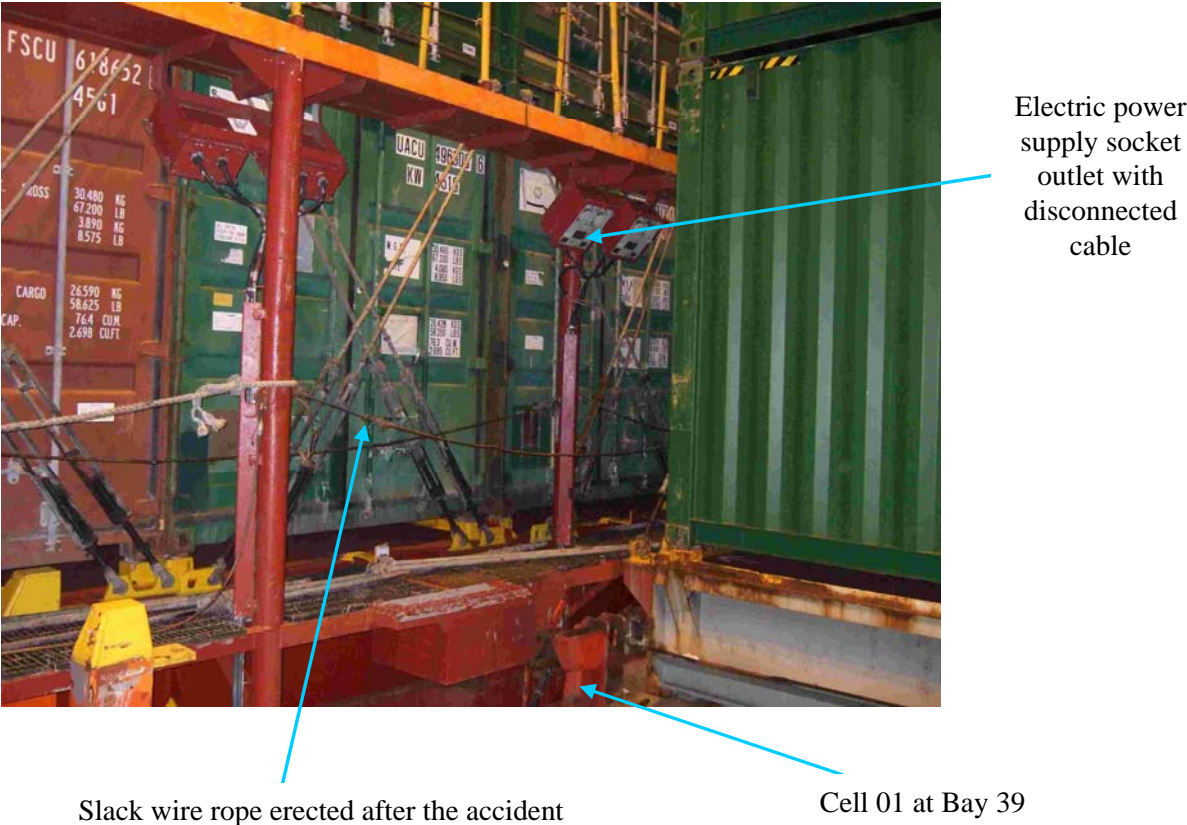


Fig. 14: Walkway of the Lashing Platform

5.13 The walkway was designed with taut wire ropes and stanchions to provide fencing throughout on both sides. It was said that the wire rope had been removed before the

accident and no fencing was erected on the walkway at the aft side where the hatch cover at the No.6 cargo hold was removed. A slack wire rope was erected as fencing after the accident (see Fig.14). Even the wire rope had been erected before the accident, it could hardly prevent persons falling over since it was too slack. Hence there was a foreseeable risk for the stevedore at the walkway of falling down to the bottom of the cargo hold.

5.14 Under section 5 of the Shipping and Port Control (Works) Regulation, a workplace should be securely fenced to prevent persons falling.

5.15 At the time of accident, the deceased was probably walking along the walkway at the first level of the lashing platform between No.5 and No.6 cargo holds looking for his leading stevedore or conveying the lashing bars. Suddenly he was tripped by the lashing bars lying on the walkway since there was inadequate lighting. Consequently he lost his balance and fell down about 20 metres to the bottom of No.6 cargo hold at his left hand side.

### **International Labour Convention**

5.16 The International Labour Convention No.152: Occupational Safety and Health (Dock Work) Convention, 1979 of International Labour Organization stipulates that:

- (a) Any time that a workplace has become unsafe, effective measures shall be taken (such as by fencing) to protect the workers;
- (b) All places where dock work is being carried out shall be suitably and adequately lighted; and
- (c) All electrical equipment and installations shall be so operated and maintained as to prevent danger.

5.17 The abovementioned safety requirements are similar to those stipulated under the Shipping and Port Control (Works) Regulation.

### **Working experience & training**

5.18 The deceased had 16 months working experience in container handling on container ships. He also had several years working experience in container handling on local vessels. He had completed the mandatory basic safety training of cargo handling as required under the Shipping and Port Control (Works) Regulation.

5.19 Foreman D had thirteen years working experience in shipboard container handling. He had completed the mandatory basic safety training of cargo handling and the works

supervisor safety training as required under the Shipping and Port Control (Works) Regulation.

5.20 Both of them had experience and were competent in shipboard container handling.

### **Fatigue**

5.21 The deceased commenced work at 0800 on the day of accident. Before the occurrence of the accident, he had several breaks of rest each of not less than one hour. There was no evidence showing that he had suffered from fatigue.

5.22 The accident occurred at about two hours after Foreman D had commenced work. There was no evidence showing that he had suffered from fatigue.

### **The environment**

5.23 At the time of accident there was light air and the weather was fine. The weather condition was not considered to be a contributory factor of the accident.

### **Autopsy report**

5.24 According to the autopsy report of the deceased furnished by the Department of Health, he died of multiple injuries. The injuries were consistent with having been produced by falling from a considerable height.

### **Medical certificate of the injured stevedoring foreman**

5.25 According to the medical certificate issued by the Princess Margaret Hospital of Hospital Authority, the injured Foreman D was suffering from electric shock injury.

## **6. Conclusions**

- 6.1 An industrial accident happened on board the Saudi Arabia registered container ship "*Najran*" at Kwai Chung Container Terminal on 15 May 2008. While a stevedore was walking along a walkway on a lashing platform on the main deck in between No.5 and No.6 cargo holds, he fell about 20 metres down to the bottom of cargo hold and sustained fatal injuries. A stevedore foreman learnt the accident and rushed to the scene. On the walkway, he sustained electric shock injury.
- 6.2 The investigation revealed that the fatal accident was caused by the removal of proper fencing to prevent fall of person.
- 6.3 The injury case was caused by exposed live electric cable.
- 6.4 The accident was also contributed by the failure of providing adequate lighting to the workplace.
- 6.5 The abovementioned unsafe conditions were results of non-compliance of the safety requirements under the Shipping and Port Control (Works) Regulation and the International Labour Convention No.152.

## **7. Recommendations**

- 7.1 A copy of this report should be sent to the employer of the stevedores, ship manager, Master of the *Vessel* and flag state advising them the findings of this accident.
- 7.2 A Marine Department Notice should be issued to promulgate the lessons learnt from this fatal accident, drawing the industry's attention on the findings of this accident and urging them to comply with the safety requirements under the Shipping and Port Control (Works) Regulation and to carry out inspection of the electric power supply cables at lashing platforms after cargo operation in order to prevent recurrence of similar accidents.

## **8. Submissions**

8.1 In the event that the conduct of any person or organization is criticized in a casualty investigation report, it is the policy of the Hong Kong Marine Department that a copy of the draft report is given to that person or organization so that they have the opportunity to rebut the criticism or offer evidence not previously available to the investigating officer.

8.2 The draft report was forwarded to the following:

Master of the *Vessel*

Everbest Port Services Limited

DP World

8.3 Submissions on the report were received from the Master of *Vessel* and DP World concerning the following issues.

(i) the removal of wire ropes and stanchions of the walkway;

(ii) the reason of the deceased stevedore entering the walkway;

(iii) the damage of power supply cable; and

(iv) the safety requirements under section 5(2) of the Shipping and Port Control (Works) Regulation.

8.4 No submission was received from Everbest Port Services Limited.

8.5 Amendments have been made as appropriate.