

# 海事工業安全最新動向

## Latest Initiatives of Marine Industrial Safety

海事處

Marine Department

### 概況

自2007年新例施行以來，海事工業安全組積極準備應付「新」與「舊」的銜接問題，包括海事工業安全督察相繼退休的安排。為了延續海事工業安全的不斷提升，海事處徵用驗船督察執行有關海事工業安全條例。2007年5月後，海事工業安全組專責執行違規檢控和安全訊息宣傳等職務。在2008年底推行ISO9001:2000質量管理制度，並獲香港品質管理局頒發證書，系統最近已更新至ISO9001:2008版。施行質量管理其中所帶來的好處，包括更妥善地保證運作暢順，高度可靠和尺度一致。

2010年為加強壓抑不安全行為而發出的指示／警告信共380封，較過去兩年總和310封還要多。檢控數字（見下圖）是按實際情況執法而得到的結果，沒有傾向特別針對規例所界定的某類別要求或某類角色／職能。

年度	2008	2009	2010
提控宗數	42	14	21
罪成宗數	40	14	11*

\* 檢控程序仍在進行中

2007年到2010年底期間，船舶安全主任在宣傳新例、工作守則、違規事故及講解如何避免事故重演等等方面，在香港及內地主講了37次專題及公開講座。整體事故數字從2007年的315宗逐年下降至2010年的185宗。

### 持續改善措施

(1) 除了為新上任的助理驗船督察提供基本在職訓練外，更安排他們

接受各式各樣的特別訓練，以達到預期的勝任水平。基於助理驗船督察個人學歷已達至機械工程學士學位程度或同等學歷，海事工業安全組提供的服務質量不單可以超越現有水平，還能夠有更大的發展空間。內部運作和執勤可進一步利用新科技開拓高水平的服務，例如最近已添購網絡存取伺服器一併解決減省紙張、改善資料交換／分享／儲存等問題，兼且可以促進知識管理，把有價值的經驗及知識相傳下去。

- (2) 1995年以來，海事工業安全組對安裝在駁船的吊臂力學驗算加以複驗。現有的大型躉船（俗稱橫雞躉）上的重型吊機（Jumbo Derrick, heavy lift）是逐漸進化自基本設計甚為簡單及負荷細小的蘇格蘭吊杆式起貨設備（Scotch Derrick），除了附有油壓及氣動系統配合人力操作，其設計與操作均符合規範及法例要求。港內運作中的人字吊臂起重機（簡稱derrick／嗙嘍）均符合以下其中一項或多項要求：《中華人民共和國船舶檢驗局—船舶起貨設備規範（1981）》，《船舶及海上設施起重設備規範（1989）》，《船舶及海上設施法定檢驗規則（1999）—起重設備法定檢驗技術規則》，《中國船級社—船舶及海上設施起重設備規範》，《勞士船級社—船舶起貨設備的建造及檢驗工作守則（1967）》和《海事起重裝備規則2009》。

人字吊臂起重機的可操控性是無容置疑的，吊機操作員對已吊起貨櫃的操控能力受制於海面情況，

機械設計及在有限時間完成各操縱動作。然而，每次吊運必須跟從整套安全操作程序才可以達到為減少事故而應有的安全水平。若然在機械設計方面未能盡善盡美，吊機操作員在充分配合純熟的訊號員、工程督導員及掛鉤員的協作下，應不會構成導致事故的壓力。另外，我們已著手為《工作守則—本地船隻上人字吊臂起重機強度計算、測試和檢驗》進行修訂。

- (3) 在內河船方面，2010年的傷亡數字較過往有輕微上升。調查後的建議認為，主要原因是由於工作方法並不跟從工作守則所建議的方法而引起。我們希望內河船在吊運每隻貨櫃時，掛鉤員數目可逐步適當地減少，例如從4名減至1到2名，在櫃頂的停留時間也應該盡量縮短。
- (4) 香港的千噸級非自航鋼殼駁船事實上是一種極具競爭力的運輸工具。不單穩性和載重量高，因操作而引致事故亦與停泊在港口內操作的遠洋輪不相伯仲。我們亦希望業界在出口這些駁船到世界各地的同時，也順帶將有關安全技術一併轉移給用家。

### 展望

香港裝卸業整體質素持續提升，貨物在港裝卸效率和安全性均有所提高。我們樂於見到貨物儲運業仍極具優勢，為香港帶來豐厚回報。隨著內地物價飆升及海事工業安全標準更進一步嚴格執行，期望可以催生更多公司聘用港人在香港水域內進行大小船隻的中流裝卸。 ❀

### General Situation

Since the implementation of new legislation in 2007, the Marine Industrial Safety Section has been preparing to bring the 'newies' and the 'oldies' together, including arranging for the gradual retirement of Marine Industrial Safety Inspectors. In order to maintain continuous enhancement of marine industrial safety, the Marine Department recruited ship inspectors to enforce legislations related to marine industrial safety. After May 2007, the Marine Industrial Safety Section was exclusively responsible for tasks including prosecution upon violation of regulations and promotion of safety messages. Quality Management System ISO9001:2000 was implemented in late 2008, and was certificated by the Hong Kong Quality Assurance Agency. The system was recently updated to ISO9001:2008. A number of advantages were brought from the implementation of a quality management system, including guaranteeing smooth operation due to a highly reliable unified standard.

In 2010, a total of 380 directions/warning letters to reduce unsafe activities were issued, or more than the combined total, 310, issued in the previous 2 years. The prosecution number (refer to the table below) was a result of law enforcement upon actual situations, without any focus on groups or roles/jobs as the regulation defined.

Year	2008	2009	2010
No. of cases prosecuted	42	14	21
No. of cases convicted	40	14	11*

\* prosecution was still under progress

From 2007 to the end of 2010, Shipping Safety Officers conducted 37 public talks in Hong Kong and Mainland China, promoting new legislations, work regulations, code of safe working practices, contravention incidents and explanations on how to prevent the recurrence of accidents. The total number of accidents dropped from 315 in 2007 to 185 in 2010.

### Continuous

#### Improvement Measures

(1) Other than providing basic on job training to newly recruited assistant ship inspectors, they are also arranged to receive special training to help them achieve expected standards. As all assistant ship inspectors have a bachelor degree in mechanical engineering or equivalent, the quality of service that the Marine Industrial Safety Section provides can further be enhanced, surpassing present standards. There is also ample room for development. Internal operations and duty discharges benefit further from services developed with the latest technologies. For instance, a newly purchased dedicated server could reduce paper usage, improve information exchange, share and store, as well as enhance knowledge management. This way, valuable experiences and knowledge can be passed on.

- (2) Since 1995, the Marine Industrial Safety Section has conducted checks to the design calculations of the derricks to be installed on barges. In fact, the existing Jumbo Derricks (heavy lift) on large barges (cargo vessels) evolved gradually from the basic design of simple and light duty loaded Scotch Derricks, in addition to hydraulic and pneumatic systems, both the design and operation are able to meet the requirements of the rules and legislations. Derricks cranes operating in the harbor meet one or even more requirements below: 'Register of Shipping of the People's Republic of China - Rules for Lifting Appliances of Ship (1981)', 'Rules for Lifting Appliances of Ships and Offshore Installations (1989)', 'Regulations of the statutory Surveys of ships and Offshore Installations (1999) - Technical Regulations for Statutory Surveys of Lifting Appliances', 'China Classification Society - Rules for Lifting Appliances of Ships and Offshore Installations', 'Lloyd's Register - Code for Construction and Statutory Surveys of Lifting Appliances of Ships (1967)' and 'Rules for Lifting Appliances in a Marine Environment 2009'.

The controllability of derrick cranes is beyond doubt. The crane operator's ability to control suspended cargo is restricted by sea state, machine design and time limits. Even so, each stevedoring operation has to follow an entire set of safety operation procedures in order to achieve expected safety standard to reduce the occurrence of accidents. Even if in the machine design, is not perfect, when the crane operator is able to operate in coordination with experienced signallers, work supervisors and slingers, there should be limited stress leading to occurrence of accidents. Work has begun on the amendment of 'Code of Practice on Strength Calculations, test and examinations of derrick cranes on local vessels'

- (3) In terms of river-trade vessels, the number of casualties in 2010 was slightly increased when compared with previous years. After investigation, it was suggested that the main cause of this result was that working methods and procedures suggested by the codes of practice were not followed. It is hoped that the number of slingers for each container load on the river-trade vessels can be reduced gradually, say from 4 slingers to 1 to 2 slingers. In addition, time spent on top of containers should be minimized.
- (4) The thousand-tonne class steel dumb barges in Hong Kong are a very competitive means of transportation. Not only they have good stability and high capacity, but their accident rates are similar to ocean-going vessels in port. It is hoped that members of industry can also transfer the related safety technology when they export these barges to other parts of the world.

### Prospects

The quality of the cargo handling operations industry of Hong Kong has been enhancing continuously. The efficiency of stevedoring operation, as well as the safety standard in Hong Kong have been improved. We are glad to see that the cargo transportation industry is still in an advantageous position, and brings good return to Hong Kong. Upon the rapid inflation and the advancement of marine industrial safety standards in Mainland China, it is hoped that the recruitment of more Hong Kong people to perform stevedoring work in Hong Kong waters can be encouraged. ❀