The fire explosion on board the container ship “Kum Song 8” at position 22°18.131’N 114°04.329’E in Hong Kong on 20 November 2012

1. The Incident

1.1 At about 08:50hrs on 20 November 2012, a fire explosion happened on board the Democratic People’s Republic of Korea registered general cargo/container vessel Kum Song 8 while she was mooring in the Western Anchorage No.1 at the position 22°18.131’N 114°04.329’E.

1.2 At the time of the accident, two officers were transferring diesel oil from the starboard diesel oil storage tank to the port heavy oil storage tank by using a portable electrical submersible pump with the manhole covers of the two fuel oil storage tanks. They left opened during the transfer.

1.3 When the power supply to the portable submersible pump was interrupted by the disconnection of the power plug from the socket, it caused electric sparks at the socket of the portable power extension cable. Fire was caused subsequently near the diesel oil storage tank as flammable vapour was ignited by electric sparks. The fire flashed back inside the tank and generated a great pressure which forced a flame of burning vapour out into the store room.

1.4 Two officers were engulfed by flame. Their working clothes were burned and they sustained serious skin burns. The Chief Engineer was repatriated on 6 December 2012 and the Engineer Officer was certified dead on 21 December 2012;

1.5 Investigation into the accident revealed the following main contributing factors:-

a) safety awareness of engineer officers was poor when handling fuel oil transfer in the area where oil vapour could be trapped and electric sparks from the interrupted power supply to the portable pump could be generated during operation;

b) Chief Engineer was not familiar with the fuel oil specification requirements for the main engine and the ship management company did not investigate and resolve the cause of the problem since heating up the heavy oil could be burnt by the main engine;

c) the two officers on board were not familiar with fuel oil piping system;

d) the ship management company did not object the Chief Engineer to use a portable electrical submersible pump for transferring diesel oil to mix with the heavy oil; and
e) the piping system for the newly installed screw pump did not comply with the SOLAS requirements or approved by the Classification Society of the vessel.

2. Lesson learnt

2.1 The ship management company of the vessel is required: -

a) to enhance the safety awareness of crews, in particular, the engineer officers with respect to the use of portable electrical appliances in hazardous environment;

b) to ensure the Chief Engineer is familiarized with the fuel oil specification requirements of main engine on board;

c) to ensure the Chief Engineer and Engineer officers are familiarized with shipboard fuel oil piping systems, particularly to the piping systems designed for internal transfer of fuel oils; and

d) to ensure the piping arrangement for the newly installed screw pump for circulating heavy oil in the port storage tank comply with the relevant SOLAS requirements and approved by the Classification Society of the vessel.