SYNOPSIS

At 1700 BST on 18 May 2002, the large passenger cruise ship *Queen Elizabeth 2*, left Southampton for a trans-Atlantic passage to New York. She had 1457 passengers and 973 crew on board.

At approximately 0200 UTC on 21 May, the senior watchkeeping engineer discovered a large sea water leak in the aft engine room. This was found to be caused by the perforation of a 250mm diameter sea water inlet pipe serving an evaporator used for producing fresh water.

Because the position of failure was between the isolating valve and the vessel's skin, the ingress of sea water could not be stopped by closing this valve. After several efforts at effecting emergency repairs, the ingress of sea water was stopped using an ingenious arrangement of a flexible bladder, inserted into the failed pipe and then filled with compressed air. This allowed the vessel to reach New York safely, where permanent repairs were made.

During the emergency repairs, large quantities of sea water entered the aft engine room. Although some of this water was pumped into the vessel's oily-water holding tanks, these were soon filled and several hundred tonnes were pumped directly overboard using the bilge injection system. In view of the direct risk to the vessel's safety caused by flooding, this was in accordance with the provisions of anti-pollution regulations.

The pipe's failure was found to have been caused by simple sea water corrosion. Although the pipe had been examined 2½ years previously, as part of an approved five-year survey cycle, the degree of corrosion was difficult to assess because of the presence of a welded flange. Thorough internal cleaning and examination was also difficult because of the length and relatively small diameter of the pipe.

Recommendations have been addressed to MCA, Cunard and Lloyd's Register of Shipping which, if implemented, should help to prevent a similar accident in the future.