

## SYNOPSIS

During the morning of 18 January 2007, when on passage in the English Channel, the 4419 TEU container ship *MSC Napoli* encountered heavy seas, causing the ship to pitch heavily. The ship was making good a speed of 11 knots and the height of the waves was up to 9m. At about 1105, the vessel suffered a catastrophic failure of her hull in way of her engine room. The master quickly assessed the seriousness of the situation and decided to abandon ship. Following the broadcast of a distress call at 1125, the 26 crew abandoned the vessel in an enclosed lifeboat. They were later recovered by two Royal Navy helicopters. There were no injuries.

*MSC Napoli* was subsequently taken under tow towards Portland, UK but, as the disabled vessel approached the English coast, it became evident there was a severe risk she might break up or sink, and she was intentionally beached in Branscombe Bay on 20 January 2007. A number of containers were lost overboard when the vessel listed heavily after beaching.

The investigation has identified a number of factors which contributed to the failure of the hull structure, including:

- The vessel's hull did not have sufficient buckling strength in way of the engine room.
- The classification rules applicable at the time of the vessel's construction did not require buckling strength calculations to be undertaken beyond the vessel's amidships area.
- There was no, or insufficient, safety margin between the hull's design loading and its ultimate strength.
- The load on the hull was likely to have been increased by whipping effect.
- The ship's speed was not reduced sufficiently in the heavy seas.

In view of the potential vulnerability of other container ships of a similar design, the MAIB requested the major classification societies to conduct urgent checks on the buckling strength of a number of ship designs. Over 1500 ships were screened, of which 12 vessels have been identified as requiring remedial action; a further 10 vessels were identified as being borderline and require more detailed investigation; and the screening of 8 container ships was still in progress at the time of publication. Remedial action has either been completed, planned, or is being arranged; where necessary, operational limitations have been agreed or strongly advised until the remedial work has been completed.

Recommendations have been made to the International Association of Classification Societies, which are intended to increase the requirements for container ship design, consolidate current research into whipping effect, and to initiate research into the development and use of technological aids for measuring hull stresses on container ships. Recommendations have also been made to the International Chamber of Shipping with the aim of promoting best practice within the container ship industry, and to Zodiac Maritime Agencies, with reference to its safety management system.