

SYNOPSIS

On 31 January 2008, the Bahamas registered ro-ro cargo vessel, *Riverdance*, grounded and became stranded on the Shell Flats, off Cleveleys Beach, Lancashire. The prevailing severe weather conditions prevented the vessel from being refloated, and subsequent attempts to salvage her failed. *Riverdance* was finally cut up in-situ. Fortunately, the crew were all safely recovered and there was no pollution.

The following is a summary of the main causal factors and key events that were identified during the investigation:

- The true weights and the disposition of the vessel's cargo were not known.
- The stability of *Riverdance* was not calculated before sailing from Warrenpoint.
- Ballast was never adjusted regardless of cargo or expected weather.
- The vessel was known to be tender¹.
- Some openings on the weather deck were not closed off in anticipation of the expected poor weather.
- The vessel was proceeding in following seas at a speed slightly slower than that of the following wave train. Under these circumstances, a reduction in the vessel's stability can occur and more pronounced rolling can be experienced.
- As the vessel approached more shallow waters, the seas became steeper and rolling increased further. This resulted in a small shift of cargo to port.
- The vessel sustained a series of large rolls to port which caused additional trailers and their contents to shift.
- In an attempt to bring the vessel's head into the wind, the master decided to make a broad alteration to starboard. This exacerbated the port heel causing the deck edge to immerse, possibly allowing water to enter the vessel through openings on her weather deck. Ingress of water would have further reduced the vessel's residual stability.
- The port main engine tripped due to the excessive list and, with only one engine, there was not enough power to bring the ships head into the wind. The vessel lay beam on to the wind and seas, rolling heavily with a large list to port as she drifted towards shallow water. The weather deck on the port side continued to be intermittently immersed.
- The vessel took the ground and returned to an almost upright position. An attempt was made to redistribute the ballast to compensate for the expected port list once she refloated on the rising tide.
- Because the disposition of the weights on board the vessel was unknown, the amount of ballast transferred was based on the master's estimate. The owner's shore based crisis management team did not have access to accurate stability information. Had this been available, they would have been able to provide better support to the master.
- Attempts to use the engines to refloat the vessel were unsuccessful and resulted in *Riverdance* drifting closer to the shore.
- *Riverdance* grounded again and began to roll progressively more heavily to starboard until she came to rest on her starboard bilge. During this period the vessel lost all power and the crew were evacuated.

A number of safety issues have been identified and recommendations have been made during the course of this investigation.

¹ Term used to describe a vessel with a relatively small GM. This produces a slower/easier rolling motion.