SUMMARY

On 12 April 2021, a refresher course in the operation of survival craft and rescue boats was conducted at a training centre in Frihamnen harbour in Stockholm. One of the practise sessions was an exercise in rescuing survivors from the water using a lifeboat. The lifeboat was a totally enclosed model with side hatches that is intended for a maximum of 26 persons. The lifeboat was also approved for use as a rescue boat.

During the exercise, the lifeboat started listing heavily and became flooded with water through a side hatch. Three people ended up in the water and the lifeboat had to be abandoned. None of those on board suffered any injuries.

During the occurrence, the lifeboat was lightly loaded, with few persons on board in comparison to the capacity of the lifeboat. Some of the basic equipment such as water, provisions etc. was not on board either. All the hatches were open to allow the participants to practise bringing casualties on board out of the water. The forces that arose when the participants in the exercise moved around in the boat resulted in a change in the centre of gravity, which led to the lifeboat starting to list heavily and to the edge of the side hatch ending up under the waterline.

The lifeboat complied with applicable stability requirements. Nevertheless, the investigation shows that, under certain conditions, this type of lifeboat has a small stability margin. This means that small forces are able to generate large angles of heel and that, under certain conditions, lifeboats of this type are able to take on water and heel over if the boat is being manoeuvred with open side hatches. This is especially the case when the lifeboat is lightly loaded with few persons on board. It is reasonable to assume that other lifeboats of similar types and sizes may have similar stability properties.

The accident was caused by the lifeboat's stability properties, which meant that small changes in centre of gravity gave rise to large angles of heel. When those on board moved around in the lifeboat in order to allow the helmsman to be changed, the centre of gravity moved upwards. This led to the boat heeling heavily, taking on water through an open side hatch and heeled over. At system level, the accident was caused by insufficient stability requirements for small, enclosed lifeboats with side openings near the gunwale.

Safety recommendations

The Swedish Transport Agency is recommended to:

- Take necessary measures in order to ensure that the problem of lifeboats' stability is noticed within the EU with the aim of ensuring that the requirements in respect of lifeboat stability are fit for purpose and do not constitute a risk to maritime safety. *(RS 2022:07 R1)*
- Act to ensure that instructions are developed at the international level for the safe use of small, enclosed lifeboats with side openings near the gunwale with respect to these boats' stability properties. *(RS 2022:07 R2)*

VIKING Life-Saving Equipment A/S is recommended to:

- Revise the operation and maintenance manual for the lifeboat type and make the adaptations required in order to ensure safe operation with respect to the stability properties. *(RS 2022:07 R3)*