



ICE GOING CAPABILITY OF A SMALL UNCONVENTIONAL VESSEL IN THE KASHAGAN FIELD

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ABSTRACT

The North Caspian Sea area and the Kashagan Fields can be considered a unique environmental scenario which has assumed a strategical importance during this decade owing to the development of off-shore structures. In this paper is shown the analysis on ice going capability of a small unconventional vessel (an Ice Breaking Emergency Evacuation Vessel operated by Agip KCO) operating in the Kashagan field, equipped with two pulling type thrusters.

The open water performance has been investigated in the shallow water tank of Krylov Shipbuilding Research Institute. The purpose of the research in the hydrodynamic basin was to study the influence of shallow water and ultra shallow water on resistance, propeller-hull interaction and propulsion. Some bow and stern shape variants have been tested in ice model tank in order to verify the ice going capability of the vessel and to reduce ice resistance.

Three campaigns of full scale trials in ice were performed in North Caspian Sea during the last years. The scope of these trials was to verify the maximum performance of the vessel and to investigate its operative limitations. Ice going capability and manoeuvrability were widely investigated for different ice thickness and flexural strength. A great deal of further analysis and measurements, not discussed in this paper, were also performed during the trials as vibration on hull, machineries and propulsor, torsional vibration and hull strain measurements (strain gauges).

The overall result of the conducted study is identification of the allowable combination of ice thickness and flexural strength to achieve a minimum safety speed. Moreover, some operative recommendations are given in order to preserve the vessel from any damage (failure) and assure safety operations.