

## **Schottel caters for emergencies**

### **The Schottel Pump-Jet can provide emergency propulsion, not least for tankers and other ships carrying hazardous cargoes**

Schottel of Germany reports that its Pump-Jet (SPJ) propulsion system has been specified for use as an emergency propulsion and manoeuvring system on a number of new product and chemical tankers.

The SPJ was initially designed as a shallow-water propulsion system, but is now enjoying increasing use as a powerful and reliable manoeuvring system on ships and vessels of all kinds operating under exceptional conditions. Also, with tanker safety and pollution prevention now such a high-profile issue, tanker owners have been investigating options which provide an element of propulsion system redundancy in the event of an emergency.

In this respect, Schottel has been marketing Jets with power ratings of up to 3,500 kW as an independent standby means of propulsion on tankers and other ships carrying hazardous cargo for use in the event of failure of the main engine or steering gear.

The option has been taken up and SPJs have been fitted on a number of ships, including the Swedish tankers *Ametist* and *Amber* and three ethylene carriers built for Reliance Industries in India now operating in the Gulf of Khambhat. A total of 300 ships worldwide are provided with emergency/bow propulsion by means of Schottel Pump-Jets.

Schottel points to a number of advantages of the SPJ technology, not least its compact design and the fact it can be installed flush with the hull. Also, it can be used both as a manoeuvring aid in the bow and to provide forward thrust.

To demonstrate the soundness of the concept, Schottel carried out a formal safety assessment (FSA) which was submitted by Germany to IMO's Maritime Safety Committee (MSC). This was the first feasibility study and cost-benefit analysis of emergency propulsion devices (EPD) using the FSA method.

One example in the FSA study centred around a 145,000 dwt Suezmax tanker powered by a single diesel engine of 13,000 kW to provide a service speed of 14 knots loaded. When fitted with two SPJs of 3,500 kW each, driven by electric motors, to provide emergency propulsion, the tanker can still proceed at 2 to 3 knots against the wind and in a sea state corresponding to 7 on the Beaufort scale. In calm weather the Pump-Jets would enable speeds of more than 8 knots.

The SPJs plus power supply for this Suezmax configuration would cost \$4.4 million. The Pump-Jets, one forward and one aft, also provide the tanker with a powerful bow and stern thruster, enabling enhanced manoeuvrability in restricted areas and harbours. However, this benefit was not considered in the study.

The FSA cost-benefit analysis showed that, on the basis of past history of accidents and compensation settlements, the tanker industry has to pay out an average of three-quarters of the capital cost of the SPJ in pollution damage claims for each Suezmax tanker over its working life.