

**Chosen by 'Tanker Shipping & Trade' English magazine**

# Sedra-2 declared 'Ship of the Year 2008'

KOTC vessel Sedra II was selected as 'Ship of the Year 2008' in bunker tanker category by Tanker Shipping & Trade magazine, published from United Kingdom. The following article published in December / January 2008/9 issue of the magazine.

'Sedra II' sets new benchmarks in bunker tanker performance. Kuwait Oil Tanker Co has taken delivery of a second 5,058 dwt high specification tanker marked by its hull strength, and superior noise and vibration characteristics.

'Sedra II' is a double hulled, single screw bunker tanker that was delivered in 2008 from Jurong SML in Singapore (a company formed from the re-organisation within the Sembcorp Marine group of the former SML and Atlantis yards). It follows the completion at the end of 2007, of an identical sister, Al-Wataniah IV, from the same yard. During the design phase, a detailed midship finite element analysis was carried out to predict global vibrations, also to determine torsional, lateral and axial vibration/noise levels, as well as shafting and hull strength. Additional model tests were conducted to improve hull lines and improve manoeuvring characteristics.

The resultant hull structure design exceeds the requirements of Lloyd's Register in terms of strength and fatigue, with additional steel inserted. The vessel has a conventional pumproom arranged forward of the machinery space, while the cargo area consists of four pairs of cargo tanks and one pair of slop tank, with the ballast tanks forming the double hull construction. A cofferdam is also installed between the cargo tanks and collision bulkhead.

Built for global trades, Sedra II has been designed primarily to supply HFO and MDO bunkers, although it is also fully compliant with class regulations for carriage of cargoes with flash points below 60°C. The eight cargo tanks are partially coated to meet a PCWT notation (coated within 1m of the top and bottom), while the slop and ballast spaces are fully coated. Jotun epoxy is used throughout. The hull antifouling system is of a five year type.

At any one time the ship has the capability to carry, load and discharge three grades of cargo, using its two valve segregation layout, with pumping handled by a pair of frequency controlled variable speed Bornemann screw type pumps, each with a HFO capacity of 600m<sup>3</sup>/h, and a further screw pump of 300m<sup>3</sup>/h for marine diesel oil. Both the cargo and slop tanks are heated by coils, with steam raised in an Aalborg Mission OS boiler of 2,300kg/h capacity. Cargo loads can be calculated using a Napa V-E-024 on line computer.

A Saab radar type gauging with closed sounding system for MMC tapes has been installed, while Endress & Hauser modern dual flow Cariolis type flow meters with a printer have been provided for both HFO and MDO lines. These compute correction factors for density and temperature, and monitor the amount of water in the cargo. Should any tank be accidentally overfilled, an Omicron alarm will sound.

The ballast system consists of two 200m<sup>3</sup>/h Hamworthy pumps with a ring main piping arrangement. Both the cargo and ballast systems feature Damcos hydraulically operated remote valves, which have been arranged to allow for manual operation if required. Each cargo tank has two high velocity Pres-Vac valves, plus a Pres-Vac common vent valve on the mast riser.

The neatly arranged engine room is spacious and houses the main engine, a Daihatsu 6DKM-36L model of 2,942kW at 600 rpm, as

well as three Daihatsu auxiliary units for alternator drive (2 x 500kW and 1 x 740kW), with the electrical power management handled by Kongsberg and Terasaki equipment. The propulsion engine drives (through a Daihatsu reduction gearbox) a five bladed manganese bronze fixed pitch propeller; as on a number of other recent ships, this has been coated with silicone based paint.

In terms of manoeuvrability, 'Sedra II' has been fitted with a rudder with a larger than usual area, together with a Kamome bow thruster with an output of 52kN to facilitate operation in congested waters. The Rolls-Royce SR662 steering gear works with a fully adaptive autopilot system and is capable of reaching angles of 45 deg.

A Unitor CO2 firefighting system has been installed in the engine and pumprooms, while the same company also supplied a foam system to cover the cargo area on the main deck; local watermist nozzles are additionally fitted in certain designated key areas. A centralised gas detection system for the pumproom and ballast tanks was procured from Swedish specialist Consilium, which also supplied a fire detection system to cover the machinery space, accommodation, stores and paint lockers. A Hervis CCTV system reporting from six cameras monitors the main deck, pumproom and machinery space.

Pollution prevention equipment includes a Seil-Seres S-3000 oil discharge monitor and a Delta Detegassa incinerator with a 300,000 kcal/h capacity for both solid and liquid waste. Sewage is treated in a Hamworthy ST2A bio filter plant suitable for 25 persons.

The mooring equipment package was supplied by MacGregor Plimsoll and is based on a low pressure electro-hydraulic layout for both windlass and winches, with additional rope storage drums. Extra bollards and fairleads provide good flexibility for mooring alongside different ships and quays. Permanent stowage is provided for the ship's Yokohama pneumatic fenders, and hoses are handled by an electro hydraulic crane.

Modern, comfortable accommodation is provided for a complement of 18 people and includes cabins with bathrooms, a galley, saloon, recreation room, gymnasium, hospital and stores. Also situated here are the cargo control and fire control stations. The entertainment system provided includes a satellite TV system.

Fresh water for crew use and other purposes is generated by an Aquamar two-stage reverse osmosis plant. Lifesaving equipment is mainly comprised of two Hyundai totally enclosed lifeboats.

An ergonomic wheelhouse has an outfit of modern equipment for efficient navigation, including two JRC radars, three digital GPS units, an echo sounder with two transducers, a dual axis doppler log, weather facsimile recorder and independent offcourse alarm. As is now becoming more common, to meet new requirements, 'Sedra II' also has an automatic identification system (AIS), voyage data recorder (VDR) and a Purple Finder and JRC security alert system.

## SEDRA II Particulars

Shipbuilder: Jurong SML, Singapore - Owner/operator: Kuwait Oil Tanker Co  
 Length, oa: 90.0m - Length, bp: 83.0m  
 Breadth, moulded: 19.0m - Depth, moulded: 8.20m  
 Draught, design: 5.50m - Draught, scantling: 6.00m  
 Deadweight, design draught: 4,306 tonnes  
 Deadweight, scantling draught: 5,048 tonnes  
 Speed, design draught, 90% mcr with 15% sea margin: 12.9 knots  
 Classification: LR +100A1, Double Hull Tanker, ESP, IMS, PCWT, Flash Point below 60°C, LMC, UMS

