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Integrated Automation System (IAS) for MISC LNG Carrier Tenaga and Seri Class

Location: Malaysia
Industry: LNG



Tenaga Class 5 Ships Capacity: 130,000 cbm per ship
Start: 2002
Finish: 2006



Seri 'A' Class 5 Ships Capacity: 145,000 cbm per ship
Start: 2005
Finish: 2007

Project Profile

Yokogawa has been selected to supply the CENTUM CS 3000 for Integrated Automation System (IAS) and Boiler Integration as well selected field instruments for MISC Tenaga and Seri 'A' Class of LNG Carriers.

One of the tasks in the Tenaga Class project is to replace the existing panel instrumentation and obsolete PLCs with the advanced CS 3000 Integrated IAS which partly will extend the service life of the ships built in the early 1980's. Whereas in the Seri 'A' Class, the CS 3000 IAS will provide a reliable automation system onboard of all the newly build ships each with capacity of 145,000 cbm. The certification bodies for the Tenaga and Seri 'A' class are from ABS and BV respectively.

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Challenges and Solutions

There was a requirement for an intensive site survey onboard of the Tenaga ships to ensure that the engineering and design works could be carried out successfully. A dedicated survey team comprises of Yokogawa global team with the assistance from the end-user did the onboard survey to map out all the necessary engineering details.

Part of the scope of work is to convert the existing panel instrumentation made in the early 1980's to accommodate the latest in the DCS technology. These include the previous boiler control which was based on obsolete PLC to be integrated into the new DCS. With the Yokogawa capability in handling major project using the Main Automation Contractor (MAC) approach as well as with existing close cooperation from Marine Boiler Maker and Marine Consultant, the project was able to be successfully completed even with a really tight yard schedule, all within a period of 2 months per ship on the average.

In the Seri 'A' Class ships, the challenge was in different nature as these are newly build. With the knowledge gained and the same dedicated team all the engineering, installation, testing and commissioning as well as during sea trial, the Seri 'A' projects have been successfully delivered to the satisfaction of customers. This including the DCS integration of with Terasaki Power Management System as well as integration of ship's boiler system.

Benefits Realized

With the completion of the retrofitting of the new CS 3000 IAS in Tenaga and new installation on Seri 'A' Class LNG Carriers, MISC could be ensured of better information visibility, performance foresight, and operational agility to deliver overall operations excellence, reliability, safety and on-time cargo deliveries to the confidence of their charterers.

MISC operation team could also benefit from the global Yokogawa support around the world in all the destinations during the Tenaga and Seri 'A' Class voyage.

To ensure the adherence to the highest safety standards, for all periodic vessels' inspection and audit conducted at the Malaysian dry docks, MISC will be guaranteed of Yokogawa support and expertise from the Malaysian office.

Because of similar operating system the Tenaga and Seri 'A' Class ships' crew could be interchangeable and hence optimise the cross-fleet integration and operations.

MISC will also benefit from the training and process simulation at Yokogawa DCS Training Simulator Centre located at their world class Malaysian Maritime Academy to train sea personnel.

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Customer Satisfaction

One of the MISC engineer commented, “We want an idiot proof, user friendly and reliable IAS system to ensure safe operations for our LNG carriers. Yokogawa CS 3000 system has proven in both the Tenaga and the Seri Class LNG carriers that their hardware is very reliable with very less problem. This means that we have fewer spare parts to purchase and hence a reduced maintenance cost and a faster turn-around for the vessels.”

He further added, “Yokogawa CS 3000 software and operating system proven to be most user friendly as almost any ship engineer can familiarise with the system in a very short time. The system is also very easy for our trouble shooting works.”

Customer Profile

MISC Berhad (MISC), a subsidiary of the PETRONAS Group of Companies, is a renowned leading international shipping and logistics company with a formidable presence in energy transportation and marine engineering. With a fleet of 27 LNG tankers, which is expected to expand to 29 by April 2009, MISC is the world’s single largest owner operator of LNG Carriers.

<System Details>

Systems: **CENTUM CS 3000**