Case History

Forum ICE Rig Monitoring System Adds Future-Proof Rig Instrumentation System to 1980s Jackup Rig

The Challenge

A leading international offshore drilling contractor was moving an existing rig to a Middle East shipyard to upgrade a number of components, including its instrumentation and monitoring package, which would help it compete with the latest generation of rigs equipped with sophisticated rig instrumentation.

They had challenging space constraints inside and outside the driller's cabin and needed a solution that would work with the small driller's console and drill floor area. The rig's indicators consumed the majority of the console, while the cabin walls were filled with excessive enclosure panels with a variety of independent systems. The rig was overpopulated with cable runs that took up valuable space above and below the drill floor.

Prior to the rig arriving at the shipyard, the contractor approached several rig instrumentation providers to assess the rig's existing equipment and required the following features as part of the upgrade:

- Keep the topdrive panel in its current position
- Do not obstruct the existing window openings and simplify enclosure panels
- Provide a system that had duel-redundancy capabilities to help eliminate nonproductive time

The instrumentation solution needed to be compact, integrated, modular and failure proof. By demonstrating a proactive commitment to providing a comprehensive system and a collaborative relationship capable of exceeding expectations, the contractor selected Forum Energy Technologies to complete the upgrade.

The Solution

Since timely equipment delivery was a key factor in the refurbishment process, surveys, schematics and concept drawings were prepared during the enquiry. This allowed Forum to present their instrumentation/controls portfolio and work with the customer to determine the best solution, which included designing, manufacturing, installing and testing a driller's console, inclusive of a 19-in. touch panel monitor and electronic and hydraulic indicators.

Forum worked with the customer to ensure their console design needs were met: the topdrive panel remained in place, the windows were not obstructed, and the indicators were arranged per the contractor's specs. In addition to the new console and independent hydraulic and electronic gauges, the latest generation of Forum's ICE rig monitoring system was integrated.

The rig monitoring technology addressed problems and enhanced the upgrade by:

- Utilizing analog and digital smart boxes at remote locations to consolidate the number of enclosure panels that were required inside the driller's cabin, as well as providing Profibus communication as an alternative to many multicore cable runs
- Providing multiple workstations connected via Ethernet network, in OIM and the company man's offices, while adding remote real-time telemetry capability via the Forum web portal and TCP/IP communications
- Allowing the contractor and operator to view the rig's drilling systems remotely and integrating the rig with third-party service personnel, such as mud loggers or cementers

Before

After

The Benefit

Forum provided a solution that met the required design specifications within the shipyard refurbishment window, allowing the contractor to offer its customers a next-generation rig with maximum drilling efficiency capabilities. Due to the modular nature of the ICE rig monitoring system, the contractor has the flexibility to add features in the future, such as additional tank levels, cementing pressures, mud temperature and density sensors.

Following the installation, the customer also received:

- Software upgrades that identify/alarm users of hardware-related issues that can harm personnel or equipment
- Forum's 24-hour support capabilities, which maximizes uptime and reduces cost
- Efficient remote service, giving visibility to operations from anywhere in the world
- Increased data security with controlled-access permissions and log system changes