Drilling Vessel Power Plant Control Systems

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Abstract

Power plant control on marine drilling vessels must be responsive and robust as mission critical power demands are very dynamic. Drilling system loads for example can change from no load to several megawatts in milliseconds. Additionally, through out these swings, power for other shipboard equipment such as bilge pumps, ballast pumps, propulsion and thrusters must be available.

A novel power management and blackout protection system was designed for the Vessel Management System, VMS, installed during the *Glomar Explorer* refit for deepwater drilling service. In addition, Automation Solutions Inc. was chosen by Global Marine Drilling Company as the System Integrator to develop the VMS. Through an Open System approach Automation Solutions, Inc. was able to meet the design specification while also providing improved performance, ease of use, and lower cost than traditional industrial control systems. Several years of deepwater drilling operations worldwide have proven the VMS system to be reliable and powerful.

The philosophies and decisions that influenced the design of the *Glomar Explorer* VMS are discussed in this paper. The following areas in particular are highlighted.

- What the Open System Approach Is
- The *Glomar Explorer* VMS Architecture
- Power Plant Control Philosophies

Finally, the performance of the *Glomar Explorer* VMS is reviewed.

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