

Title: **Operations Planning and Management Tool**

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Abstract

The paper presents a new tool developed to facilitate reduced downtime and enhanced reliability of drilling vessels, coined the Operation Planning and Management Tool (OPMT). The tool is initially configured for use on drilling units. The philosophy and methodology adopted is to configure the tool so that it is adaptable and can be applied to a variety of applications, including DP and moored drilling vessels.

The mission is to reduce downtime and enhance reliability by providing a tool that can aid the crew in making better decisions. To achieve this, the OPMT provides an environment which can be used for operation planning and training, and also as a knowledge base and information portal for the vessel's systems and their interdependencies.

The tool is well suited for operations planning as it allows easy and intuitive running of "What-if" analyses. The tool also provides a platform that the crew can use to learn and understand consequences of failures in the power system, consequences of setting up the power system in configurations that differ from the one defined as the most reliable, and consequences of having one or more components/systems unavailable (e.g. for maintenance or repair).

The operator can set up a planned configuration for a given operation (included setting equipment out of service if applicable) and immediately get feedback and guidance on whether a planned scenario is impossible or involves increased risk compared to the recommended system configuration.

A pilot version of the OPMT has been created for a turret moored drillship operating for Shell. All dependencies and redundancy in the power plant and drilling systems were analyzed in workshops and in two FMECA's. For each drilling operation, the equipment and systems required for that specific operation were mapped. Each item of equipment and system used for the drilling operations was then analyzed by FMECA to find dependencies within the power and auxiliary systems (MCC's and switchboards). The results were used to configure a simulator for the specific vessel that uses the information on dependencies and redundancy in the power plant and drilling systems to predict the effects of equipment outage.

The OPMT, as it was implemented in the pilot version, is a standalone computer program that can be run on a standard desktop or laptop PC/Mac, onboard the vessel or anywhere else, such as in an onshore support centre. Internet connection is only

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