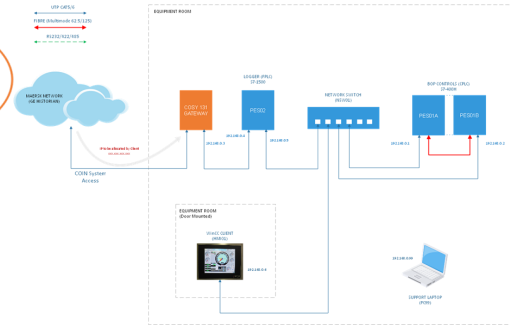
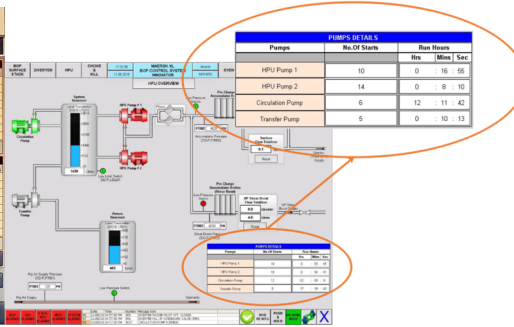
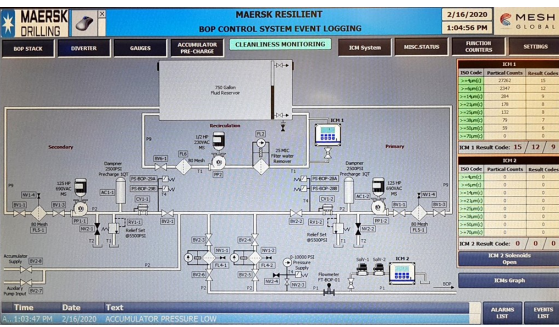


Condition Based Monitoring System



MESH
GLOBAL



Duration

4 Weeks

Scope Overview

- Initial review of existing software & hardware.
- Development of specification documentation, including hardware requirements, operating system / software, programming environments, functional requirements, data requirements, and interfaces to all external systems.
- Manufacture of hardware to available space / footprint.
- Completion of the following pre-delivery scope: generating all Factory Acceptance Test (FAT) documentation, and conducting a final integration test using simulation where physical devices were not available. System was then witness tested by the client.

Provision of personnel for the following tasks:

- Installation and commissioning of the new system.
- Conducting offshore training on the system covering operation, maintenance and fault finding.

Achievements

MESH has expanded its portfolio of systems by incorporating several Condition Based Monitoring (CBM) elements. This project serves as a prime example of our capability to integrate modern systems into existing, aged equipment when devising solutions. Our strong partnership with Noble played a pivotal role in ensuring that MESH comprehensively grasped the project's objectives. Furthermore, during the solution development phase, the valuable insights provided by Noble were instrumental in refining our approach and enhancing the final product.

Requirement

Noble Drilling enquired about the potential to upgrade an existing well control system with condition based monitoring capabilities. There was a desire to be able to monitor component running times & cycle counting on specific equipment. There were a number of reasons for this but the main premise was to try and eliminate failures, ensure that parts and materials were not being discarded unnecessarily, and to lower costs associated with certain equipment.

Approach

The project requirements underwent thorough discussion with the client, leading to exploration of several options. The primary objective centered around guaranteeing the accuracy of readings within the MESH system. It was imperative to address potential false readings, such as instances of dry firing functions on the BOP, where an action was initiated but no movement ensued. The consequence of inaccurate readings could result in the operation of equipment or parts beyond their intended lifespan. To mitigate this risk, an increase in data points was necessary to enable the system to effectively distinguish between various operator behaviours.

The physical size of the system was kept very compact consisting of a stainless steel wall mounted enclosure (safe area) with a 15" panel (door) mounted HMI (touch screen). Network interface to GE Historian (Via COIN).

Software consisted of the following: OPC UA server for interfacing to GE Historian, graphics & diagnostics for monitoring system and a firewall configuration.

Results

Implementing the system allowed the client to transition from a 'time-based' maintenance schedule, to a data-backed 'condition-based' schedule. This resulted in substantial cost savings, enhanced efficiency and increased safety during operations.

Benefits

The Client can now make significant cost savings by eliminating the need to change out parts on a time based schedule rather than a data backed schedule. This is also much better for the environment, as equipment, parts & materials are no longer discarded when there is clearly life left in them. Clients and suppliers of the equipment can also get better metrics on the durability of wear parts.

Noble Drilling and MESH collaborated seamlessly to realise the development and implementation of the CBM system. The partnership exemplified exceptional teamwork and synergy, resulting in the successful deployment of this cutting-edge solution. Through effective communication, mutual understanding, and a shared commitment to excellence, Noble Drilling and MESH ensured the project's success from inception to completion.

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