

## Our agile drilling system saves 40% cost and 65% installation time

MECHANICAL • ELECTRICAL • SOFTWARE • HYDRAULIC ENGINEERING

### *Procurement and installation of a new drilling data acquisition system for major North Sea operator*

#### LOCATION

- UKCS

#### DURATION

- Manufacturing - 10 wks
- Install and commission - 4wks

#### SCOPE OVERVIEW

- Review of existing hardware and setup
- New documentation including
  - Hardware programming, data and functional requirements
  - Operating system/software and interfaces to all external systems
- Pre-delivery scope including:
  - FAT documentation and integrated simulation test
  - Decommissioning of the existing system
  - Installation and commissioning of the new system
  - offshore training covering operations, maintenance and fault finding



#### BACKGROUND

Many platforms situated in the UKCS, are in the later stages of their life. A major UK operator approached Mesh Global regarding the replacement of two drilling management systems (on adjacent platforms) that had become obsolete. Because of the systems' age, there were limited compatible spare parts and neither had digital or remote access.

Two Zone 1, advanced drilling information management systems were specified as replacements, which would provide an integrated, easy to use interface for all drilling operations on the field. The systems had to be compliant to current standards and guidelines, as well as be reliable and operational for the duration of the assets' remaining life.

Mesh Global is an agile engineering company renowned for its innovative and forward-thinking approach to solving complex engineering problems. We were invited to review the scope of work and identify where and how potential savings could be made. From our initial survey we were able to quickly identify areas of the system that could be reused to save on schedule time and cost.

#### PROJECT HIGHLIGHTS

At Mesh Global our ethos is to always look for ways to add more value to our customers' projects and in this instance, we identified further ways to improve the drilling management system.

Through our initial review we identified a way to implement a new system which could be manufactured and installed 65% more quickly than a full replacement. In addition, our solution saved the customer around 40% on the cost of purchasing a completely new system.

During the build we reviewed the replacement sensors that had been selected and identified an alternative, more effective solution that would enable better reliability and data collection. We then upgraded these at no additional cost to the customer.

We also added additional interfaces such as pipe stand counting functionality to provide more accurate and less labour-intensive measures for the drillers, as well as a wellsite information transfer standard (WITS) which negates the need to install additional sensors or cables to the drilling infrastructure for tasks such as mud logging.

Once it was built, we invited the customer to review the system and screen layouts at our facility. Some interface changes were requested which we implemented within 24 hours, enabling factory acceptance testing (FAT) to proceed without delay.

Once the installation and commissioning phases were completed, we provided familiarisation training to the crew who would manage the ongoing operation and maintenance of the system.

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#### REQUIRED SPECIFICATIONS AND COMPLIANCE

##### Control system:

- Controls hardware and instrumentation
- Installation and commissioning workpacks
- Documentation (user, maintenance and data-book)
- Full compliance to stated references

##### Electrical hardware:

- Central control unit (close coupled EEx D/E enclosure, including PLC and associated I/O)
- 3-off HMI control panels
- 1-off central SCADA PC
- 1-off customer server PC
- Network and communications equipment
- Instrumentation and sensors
- Audible alarms
- Customised software and operator screens

#### ISSUES

Our customer required the new systems quickly, but it had to meet exacting criteria, as well as able to support future operations for at least another 12 years. We reviewed all options thoroughly and based on several critical factors, selected Siemens S7 infrastructure as most suitable.

The equipment was readily available, and it could be utilised with some of the existing infrastructure. There was also flexibility in the design, enabling seamless integration with additional 3<sup>rd</sup> party systems.

#### BENEFITS

Our solution provides our customer with two identical, fully compliant drilling management systems at a significantly lower cost and lead time than originally proposed.

##### The systems provide several benefits including:

- Spare parts optimisation with two identical systems across both platforms
- Remote access via a secure IT connection enabling onshore operations access to real-time drilling data
- Ability to link to and from 3<sup>rd</sup> party interfaces for the collection, storage and analysis of drilling data from a variety of sources
- WITS interface saves time and cost by negating the need for temporary sensors for tank level gauging and flow monitoring during mud logging
- Having us deliver the offshore installation enabled the project to be completed quickly and we continue to provide 24/7 ongoing onshore engineering support to our customer as required



**40%**



**65%**

