

A CONDUCTOR SYSTEM FEASIBILITY STUDY THAT SAVED OVER £600,000 IN CAPEX

CLIENT:
AN INTERNATIONAL OIL AND GAS EXPLORATION AND PRODUCTION COMPANY

PRODUCT:
RISER ANALYSIS

In 2015, we were contracted to perform a feasibility study to assist the international Operator's decision making with the selection of a slim riser system, or a conductor system. We were awarded the analysis project based on our extensive experience with platform wells.

We delivered analysis that demonstrated that not only was the Operator's preferred conductor system feasible, but that a smaller conductor would meet the project requirements.



BACKGROUND The client required analysis of a jacket supported conductor that was located in the North Sea, in approximately 100m of water depth. The jacket and well design were in the early stages, with many components yet to be specified. The preliminary jacket design had suggested the use of 36 inch conductor for the eight wells which were to be drilled using a jack-up rig.

SOLUTION Involving Aquaterra Energy early in the design phase offered a number of advantages and opportunities to reduce the cost of their drilling campaign.

We were able to offer realistic assumptions for unspecified equipment, meaning indicative results for the proposed configuration were available to the client earlier in the design process. Providing indicative results early on greatly helped the client's decision making when purchasing suitable equipment and reducing the impact of lengthy lead times.

In the case of wellhead and conductor connectors, a range of connectors with indicative strength and fatigue parameters were considered. This provided the client with an idea of connector capacities and fatigue performance parameters ahead of component selection, allowing confident cost vs. performance decisions to be made.

Our experience from previous projects enabled our recommendation that the 36 inch conductor was replaced with a 30 inch x 1.0 inch conductor, as this would offer both cost savings on equipment and improved performance for their specific project. The results of the analysis were then validated against previous projects in this region. Additionally, as this recommendation was made before any analysis was carried out, the number of analysis iterations was minimised, reducing the cost of analysis for the client.



RESULTS The subsequent analysis found that the 30 inch conductor performed well in all assessments, and indicated that it carried a number benefits over the 36 inch conductor:

- The reduced stiffness of the 30 inch conductor allowed the system more flexibility to accommodate rig offsets and reduced loads on the surface equipment
- The smaller diameter of the 30 inch conductor resulted in lower drag from wave and current loading reducing the guide loads at the jacket interface
- The 30 inch x 1.0 inch conductor corresponded to cost savings of approximately £20,000 per well over an equivalent 36 inch x 1.0 inch conductor and £70,000 over a 36 inch x 1.5 inch conductor, in addition to the typically better availability of joints and interfacing equipment.

As the platform had eight wells planned, this represents a potential cost saving of up to £600,000 for the conductor pipe alone (excluding connectors).