

Advanced Technologies Enable Plan for Complex Offshore Project, Potentially Saving Operator USD 500 Million

CHALLENGE

- » Enable the client to reach its reservoir beneath another operator's reservoir without intersecting 1,200 existing wells
- » Deliver FDPs that meet the client's budget and time frame for drilling 179 offshore wells
- » Determine which trajectories would be safely drillable within the client's material constraints

SOLUTION

- » Utilize EDM™, COMPASS™, WellPlan®, and StressCheck™ software applications to establish drilling capabilities
- » Create field development scenarios that would avoid hazards and conform to drilling limit constraints
- » Perform sensitivity analysis and categorize well designs according to drilling difficulty index and levels of risk
- » Provide field development configurations with the most drillable well trajectories according to constraints and what would best meet client production goals and budget targets

RESULT

- » Created FDPs that would yield potential savings of USD 500 million for the operator over the original designs
- » Reduced scope of work to save time and costs
- » Delivered a cost-efficient plan with optimal well design and placement and did so in record time

APPLICATIONS CONFIGURE 179 TRAJECTORIES TARGETING RESERVOIR BENEATH ANOTHER OPERATOR'S RESERVOIR IN CROWDED FIELD

MIDDLE EAST

OVERVIEW

An operator in the Middle East sought to drill 179 offshore wells, targeting a reservoir beneath another operator's reservoir. This challenging project involved using trajectory designs that would not intersect the operator's own wells or the other operator's 1,200 wells, while also meeting the client's budget, schedule, safety protocols, and material constraints. Halliburton used its DecisionSpace® software platform and other digital applications to design the wells and simulate the drilling, thus providing the client with optimal designs, appropriate well paths, durations, and costs in an unusually short amount of time.

CHALLENGE

While Halliburton had extensive experience providing past field development plans (FDPs) and well integrity analysis for the client, this project was uniquely complex in that the many well simulations and other FDP work had to occur concurrently to save time. Adding to the complexity was the fact that both operators would be adding several hundred more wells to the field in the future.

SOLUTION

To ensure proper well placement, the wellhead towers and artificial islands, as well as the surface and subsurface hazards, were entered into the DecisionSpace well planning software. The surface and target coordinates were defined while avoiding the other operator's wells, and the well plans were then imported into Engineer's Data Model™ (EDM™) software. Concurrently, EDM, COMPASS™, WellPlan®, and StressCheck™ software applications were used to design a well with generic coordinates to establish the client's drilling capabilities based on its engineering guidelines, casing specifications, and daily operations. To determine which configurations would meet the client's budget and schedule, simulations were conducted using Well Cost software. The results were then combined with the client's costs for facilities and for the construction of artificial islands and wellhead towers in order to arrive at the total duration and cost of each well.

HALLIBURTON EXPERTISE AND SOFTWARE APPLICATIONS

Ultimately provided the operator with FDPS that could yield potential savings

**OF USD 500
MILLION**

RESULT

Halliburton delivered a cost-saving plan with optimal well design and placement and did so in record time. By expertly dividing the work into parallel tracks and using several Landmark platforms, the project team was able to expeditiously deliver FDPS that would yield a potential savings of USD 500 million for the operator.

ORIGINAL DESIGNS		ALTERNATE HALLIBURTON DESIGNS			
No. 1	No. 2	No. 1	No. 2	No. 3	No. 4
\$5.46B	\$5.21B	\$4.82B	\$6.31B	\$4.76B	\$4.61B

Comparison of costs between the client's original designs and the alternate designs provided by Halliburton, using Landmark software, shows a potential savings of USD 500 million.

In addition to the sophisticated capabilities of the Landmark software applications, the expertise provided by Halliburton Consulting team members, along with their close collaboration with the client, were keys to the success of this project. Although the reservoir stacking and multiple production intervals made the project somewhat atypical, these characteristics will likely become increasingly common as fields around the world become more crowded.

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