

# Det Norske Achieves Drilling Performance Consistency in Multiwell Field Development Project, Offshore Norway

The operator used the OptiWell service to increase ROP and improve tripping practices, setting project records for speed and dry hole days

## CHALLENGE

Improve operational efficiency and drilling performance during casing and completion run in an oil field offshore Norway.

## SOLUTION

Deploy the OptiWell\* well construction performance service with additional support delivered through the InterACT\* global connectivity, collaboration, and information service and VIRTUAL HYDRAULICS\* drilling fluid simulation software.

## RESULTS

- Set project records for net and gross ROP in the 8½-in and 12¼-in sections.
- Improved consistency of drilling and tripping performance to enable multiple successful casing and completion runs.



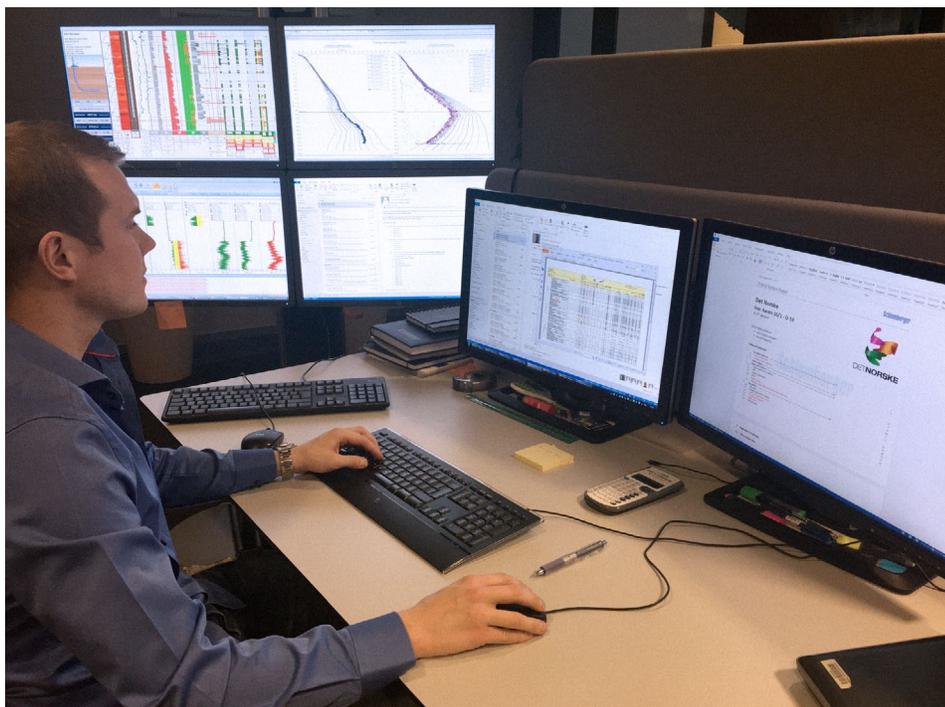
## Introduce real-time well monitoring and KPIs

As part of Det Norske's development of the multiwell Ivar Aasen project, Schlumberger personnel were deployed to provide the OptiWell service. They were assigned to provide 24/7 monitoring of the offshore Norway operation for approximately one month.

The scope of work was to perform single-well monitoring focused on the new well construction KPIs established by Schlumberger and Det Norske. The wells included in this initial period were drilled in three sections by the Maersk Interceptor jackup from predrilled topholes.

After collaborating with the operator to set benchmarks for each KPI, the well operations analyst deployed to the project was able to alert Det Norske each time rig performance deviated from plan. By coordinating with the offshore mudlogger and using the InterACT service, the Schlumberger well operations analyst was able to display real-time KPIs. With this capability, the operator took action in real time, instead of having to access the KPIs in the following day's report.

By comparing each section of the current well to those in previous wells, the Schlumberger well operations analyst pointed out where performance could be improved in the next well. Measuring this performance marked the first step toward identifying efficiencies and potential cost savings.



*Real-time continuous well monitoring services enabled Det Norske to improve ROP and reduce issues related to undesirable tripping performance.*

### Maximize ROP within allowable limits

Throughout drilling, the Schlumberger well operations analyst outlined well monitoring workflows and processes that would enable Det Norske to push ROP to the maximum limit as safely as possible. In a field development project in which each well is very similar to the next, ROP limits could be challenged, especially in the overburden. By determining this limit, it becomes possible to drill wells at a higher ROP without jeopardizing well-bore integrity or safety.

To avoid similar challenges experienced in past wells, Schlumberger well operations analyst designed a program with a focus on monitoring and detecting warning signs during tripping. Real-time broomstick plots are streamed to the drilling supervisor's screen on the rig and at the Det Norske office to increase awareness of any trouble zones experienced while tripping.

Schlumberger well operations analyst providing the OptiWell service are trained and experienced in using VIRTUAL HYDRAULICS software, enabling tripping schedules and hydraulic simulations to be available to operators 24/7. While tripping, real-time KPIs—including actual versus simulated tripping speeds—are used to determine tripping efficiency.

### Prioritized a focus on tripping to reduce NPT

In consideration of significant challenges in running lower completions and casings in the past, Det Norske and Schlumberger updated the operator's drilling and tripping practices and completed several runs without any of the previous challenges.

Since integrating the OptiWell service across its operations on the Ivar Aasen project, Det Norske has also seen a continuous improvement in the makeup and laydown times of its BHAs.

On the recent D-19 well in the Ivar Aasen project, Det Norske set new field records for net and gross ROP in both the 8½-in and 12¼-in sections. The operator experienced a 48% decrease in slip-to-slip tripping time compared with the project average and achieved improved casing slip-to-slip performance.

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