

Wintershall estimates 19 days saved while drilling a vertical exploration well in the IMSA prospect in the Norwegian Sea

Partnered with Maersk Training and eDrilling to help optimize drilling performance, and increase safety.

CHALLENGE

Pre-drill the 17 1/2" section was highlighted as an extremely challenging section. This challenge was of course increased in the winter season with increased time exposure, one disconnect and multiple hang offs. In addition to the general need to save cost on drilling and operations.

SOLUTION

The LWS (Live Well Support) service was started on 4th. February 2015. The initial start-up phase in this section was to ensure a proper test & tune phase in order to verify model simulations for further drilling operations. Thereafter hydraulic-simulations, risk analyses, and 3D visualization of the wellbore were conducted on a daily basis. On a daily basis eDrilling and Maersk Training representatives participated in the operational meetings to advise and support the exploration department.

Throughout the challenging sections the information from eDrilling was actively used to highlight the limitations the team were working within. Enabling the team to fine-tune the mud weight strategy as the pore pressure buildup started deeper than was modelled and ended higher than predicted.



The information gathered during both these sections helped to make the right decisions during well construction and led to a flawless P&A phase of this well. Offset wells in this area have used up to 25% of their total time in P&A, Imsa used 12%.

Laurie Scott, Drilling Superintendent, Wintershall

SOLUTION (cont.)

This was extremely valuable when it eventually came to cementing. The job was completed with partial returns but the information generated detailed clearly the job performance. The main risk for this section was to have to re-drill it.



BENEFITS

- The simulations performed along with the display of the 3D visualization of the risks involved led to a proactive assessment and evaluation of operational constraints related to the safe drilling window of the well.
- During the casing running job and the subsequent cement job, the simulations provided the team with valuable input to the operational execution. As a direct result of the simulations, the casing running speed was decreased to avoid breaking the formations. At the same time the speed was optimized to ensure rig effectiveness.
- The cement job procedures were revised based on the simulation input. The cement job was according to simulations. The simulation quality and the well boundaries were confirmed, and hence, the Wintershall team felt comfortable that proper zonal isolation had been achieved.
- The Operator avoided to pull out of hole and replace the PWD sub prior to continue drilling, and thus saved a 48 hour roundtrip operation.
- Potentially around 19 rig days was saved due to the use of the simulation technologies on this well.

ABOUT WINTERSHALL

Wintershall is an international energy company specializing in the exploration and production of natural gas and crude oil – for over than 80 years. The company employs more than 2.500 staff worldwide from 40 nations and is Germany's largest crude oil and natural gas producer.

The headquarter of the Wintershall group is based in Germany (Kassel) and is a wholly owned subsidiary of the chemical company BASF.

ABOUT MAERSK TRAINING

Maersk Training focuses on providing the right competencies to be prepared for the great powers of both nature and technology. Training is designed to meet the embedded challenges and risks in the oil & gas industry. The company trains people from all over the world, and travels to train people wherever they are. Maersk Training will through its present 10 worldwide centers and 200+ highly skilled and competent instructors fulfil global training requirements – locally. The centers are located in the major hubs for the offshore maritime and offshore energy E&P industries.

ABOUT eDRILLING

eDrilling is a world leading provider of drilling and well performance solutions.

We work closely with E&P companies, operators, and service companies to help them save cost, improve safety, and increase efficiency of drilling operations through one solution with mathematical models developed, tested and verified over 20 years.

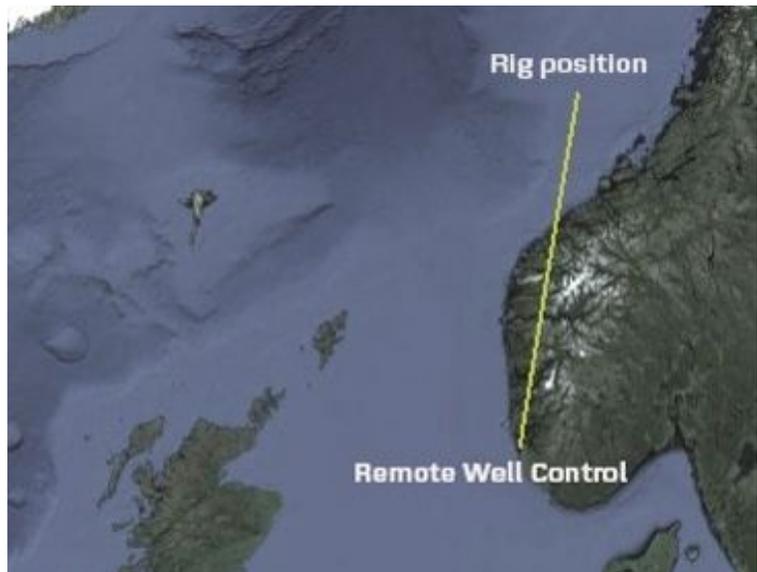


With estimated 19 days saved, at a total operation cost of around one million dollar per day, big money is being saved. That makes everyone happy.

Just Sverre Wessel,
Operations Manager, Maersk Training

ABOUT IMSA

- The site is 15 km south of the Kristin field and around 190 km NNW of Kristiansund. Water depth at the site is approximately 262 metres.
- The drilling was carried out using Transocean Arctic, a semi-submersible drilling rig owned and operated by Transocean. The rig was built by Mitsubishi Heavy Industries in Japan in 1987, and upgraded in 2004.
- Wintershall Norge is the operator with an ownership interest of 40 per cent. The other licensees are Dea Norge AS (30 per cent) and Repsol Exploration Norge AS (30 per cent).



DELIVERIES IN NUMBERS

Days on well	61
Daily Reports generated	44
Meters drilled	3077 MD
Risk analysis ahead/next operation simulation	23 simulations in 14 reports
Kick simulations performed	5 simulations in 2 reports
What-If simulations performed	3 simulations in 1 report