

Factory Drilling

Prospect-to-Production Field Development

Challenge

The development of many oil and gas reservoirs requires intensive, efficient drilling programs focused on reducing time-based costs in economically marginal fields.

Solution

A comprehensive Factory Drilling* project integrating rig, wellsite, and BHA technology with products and procedures from related disciplines, customized to deliver a factory approach to field development.

Results

In Mexico, Factory Drilling operations reduced the average time to drill a well from 22 days to 7–9 days; in Russia, a similar approach increased the average drilling from 6,000 m a month to more than 10,000 m a month—ultimately reducing time-based costs.



Factory Drilling operations in central Mexico.

Factory Drilling

A growing number of economically marginal oil and gas reservoirs require high drilling intensities, primarily focused on drilling efficiencies and the reduction of time-based costs. The seamless integration of modern drilling rigs, wellsite services, and BHA technology combined with robust, streamlined well construction processes constitute our Factory Drilling approach for field development.

Multiyear, multirig Factory Drilling programs, where planning is linked to execution (from prospect to production and Lean Six Sigma processes), results in a performance step change in field development.



A multiyear, multirig Factory Drilling program in Mexico.

Advanced Fit-for-Purpose Rigs

Factory Drilling operations employ specialized rigs designed to maximize drilling efficiency and reduce drilling time and associated costs. These highly mobile units are optimized for rig moves and/or pad skidding, and they are operated by experienced crews familiar with advanced automation technologies and

- modern drive systems (variable frequency AC, hydraulics)
- superior hydraulic capacities and topdrive torque to power high-performance bottom-hole assemblies
- updated drawwork systems (rack and pinion, etc.).



Two Factory Drilling operations on the same pad in Mexico. Simultaneous operations (drilling, completion, production) lead to increased efficiency, lower environmental impact, and fewer access roads.

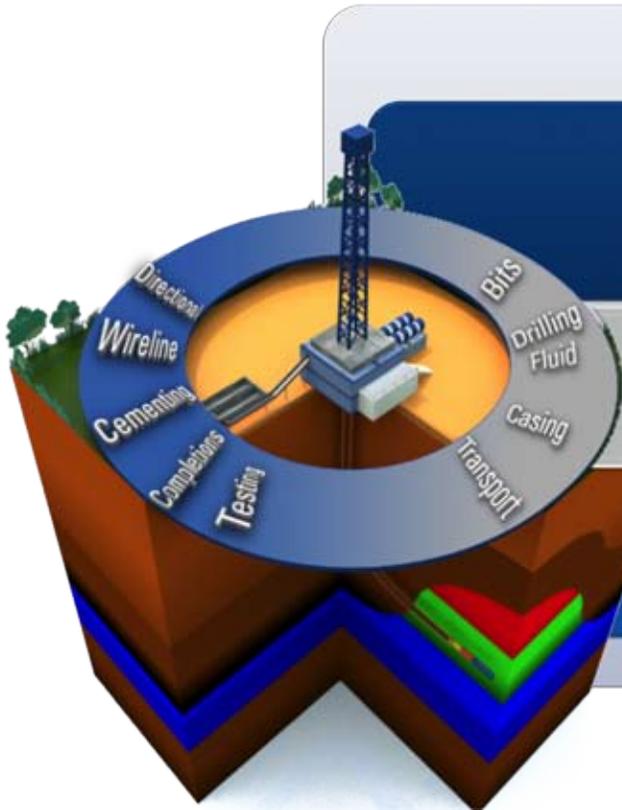
Prospect

Civil Works



Drilling





Advanced Rigs

Advanced VF-AC Drives
 Modern Rig Designs—Automation
 High Hydraulic Horsepower
 Smaller Pad Footprints
 Fast Well Skidding and Rig Moves



Wellsite Services Footprint

Leading technology fit for factory approach by leading service company and our partners.



Bottomhole Assembly

Specialized BHAs aimed at drilling performance, accurate positioning of the well in the reservoir, and minimal formation damage.



Framework

Lean Sigma Six re-design of all processes and responsibilities.

Redefine wellsite personnel roles and responsibilities.

Standardized well engineering for field.

24-h remote real-time support embedded in operations.

Wellsite Services

Schlumberger (IPM) supplies the latest technology and information solutions to optimize reservoir performance. Our wide range of wellsite expertise covers formation evaluation, well testing, directional drilling, well cementing, stimulation, well completions, and artificial lift. In addition, we seamlessly integrate and manage our services alongside the logistics and supply chain practices of third-party partners.

In Factory Drilling operations, a 24/7 central operations support team consisting of key well-construction disciplines manages multiple wellsite operations in real time. The deployment of automated and remotely operated technologies enables the Factory Drilling team to manage multiple sites centrally, using cost effective, time-saving workflows.

Completion



Production Tie-In



Production



Factory Drilling operations in Western Siberia, Russia, have achieved 10,000 m per month on a pad.

Bottomhole Assembly

With a systems approach to the design and engineering of the complete downhole drilling function, the total bottomhole assembly is optimized to enable Factory Drilling operations that increase ROP and lower failure rates, trips, and drilling downtime during on-bottom drilling. This is achieved by combining BHA modeling, directional driller, MWD, and LWD technology with drill bits and tools such as the RSS, motors, jars, reamers, and carefully designed drilling fluid programs. And the intelligent engineering of drilling fluid composition, which impacts hole cleaning, wellbore stability, stuck pipe, and lost circulation incidents, can also lead to significant savings for our customers. The combination of Schlumberger downhole measurements and drilling fluid engineering enhances the understanding and management of borehole hydraulics and wellbore interaction so that drilling performance is further improved.

For more information on the Schlumberger Factory Drilling service, please contact your local IPM representative or e-mail ipminfo@slb.com.

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