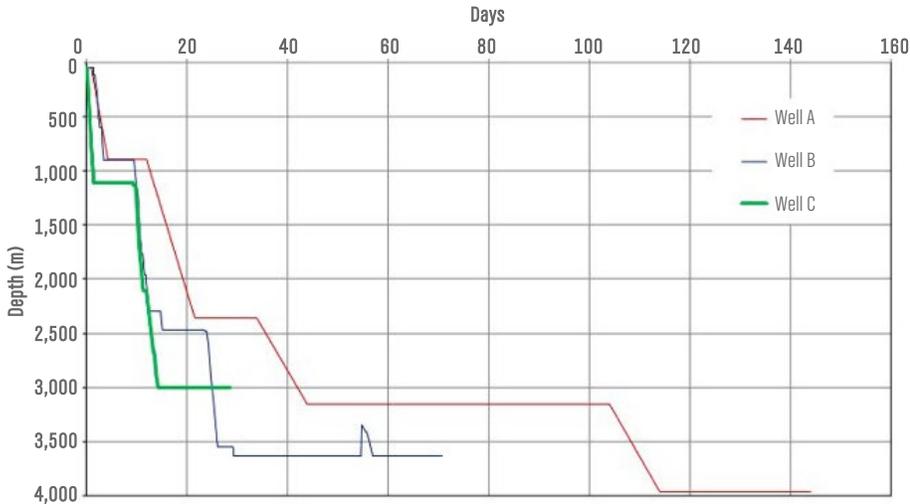


Integrated Solution and Centro™ Platform

Deliver Well 62% Faster With 32% More Production



The above graph illustrates the delivery of three wells in the same field. Weatherford Integrated Services delivered Well C (green) with just two casing sizes in approximately 25 days. By comparison, competitors delivered Well A (red) and Well B (blue) with four and three casing sizes in approximately 145 and 72 days, respectively.

Objectives

- Drill and complete a well with a simplified design in a complex field. Competitors had failed to reach the planned total depth (TD), experienced three stuck-pipe events, and accrued more than 8 days of nonproductive time (NPT) because of challenges with different pressure regimes over a single drilling interval.
- Reduce rig time and costs by transmitting data in real time to shorten response times compared to traditional, manual transmission methods.

Our Approach

- Weatherford recommended an integrated solution supported by the Centro well construction optimization platform to overcome challenges and deliver the first-ever well design with two rather than three casing sizes in that field. The solution also featured Victus™ intelligent managed pressure drilling (MPD) and the Magnus® rotary steerable system (RSS).
- Before the job, the Weatherford Integrated Services team worked with the operator to create a detailed plan, covering the integration of services from drilling, formation evaluation, managed pressure drilling, and drilling fluids as well as use of the Centro platform.
- The team aligned the Centro platform to project requirements in accordance with the Weatherford global procedure. From a centrally located and secure land-based office, the team connected the platform with customer data fed in by rig sensors. They also customized 15 real-time operational dashboards for different disciplines, tested data transmission with Weatherford and third-party software, and trained project personnel on functionality.

LOCATION

Comalcalco, Tabasco, Mexico

WELL TYPE

Onshore, deviated J-type, oil and gas

FORMATION

Mioceno Superior (mainly sandy shales and sandstones)

HOLE SIZES

12-1/4 and 8-1/2 in.

HOLE ANGLE

54° maximum inclination

CASING SIZES AND TYPES

- Conductor: 13 3/8-in., 54.5-lb/ft J55
- Surface: 9 5/8-in., 36-lb/ft J55
- Production: 7-in., 26-lb/ft P110; 7-in., 26-lb/ft N80

LINER SIZES AND TYPES

Production: 7-in., 26-lb/ft P110; 7-in., 26-lb/ft N80

BOTTOMHOLE TEMPERATURE

185°F (85°C)

BOTTOMHOLE PRESSURE

3,700 psi (25,511 kPa)

TOTAL DEPTH

- 9,843 ft (3,000 m) MD
- 8,668 ft (2,642 m) TVD

PRODUCTS/SERVICES

- Integrated services
- Drilling services
 - Centro well construction optimization platform
 - Magnus RSS
 - Victus MPD
- Measurement-, logging-, and pressure-while-drilling services
- Well completions and cementing tools
- Drilling fluids and waste management
- Well testing



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Our Approach (continued)

- The team also designed a Real Time Operations Center (RTOC) to support maximum data transmission and availability 24 hours a day, 7 days a week. They presented the RTOC strategy, shared technical workflows, and distributed an incident process map.
- During the job, the Centro platform supported data aggregation, secure data storage, and effective communication. It provided web-based, real-time visualizations to a multidisciplinary unit comprised of Weatherford specialists from drilling, managed pressure drilling, and drilling fluids. It also enabled real-time data monitoring, with access to more than 100 users from Weatherford product lines, RTOC support personnel, the operating company, and three external vendors.
- Beyond the above functionality, the Centro platform enabled many critical capabilities. Automated, condition-based alarms offered early risk detection to respond to and avoid unexpected events. Continuous real-time data compared with simulation models helped to avoid issues. These comparisons relate to torque and drag, hydraulics, and hole cleaning to detect deviations with possible hole problems, as well as geopressure to avoid differential sticking problems found in offset wells. Real-time data transmission during logging-while-drilling and pressure-while-drilling operations indicated formation changes. Fully customizable multiwell, multidomain operational dashboards helped to properly monitor each key rigsite operation.
- The integration of services and the use of the platform made drilling the well to TD possible with less than 5% nonproductive time and zero incidents.

Value to Customer

- Weatherford Integrated Services implemented a solution with the Centro well construction optimization platform to deliver a simplified well design with one fewer casing size while optimizing execution time. In fact, the services drilled and completed the well 42 days faster compared to the best offset well result, which saved the customer 62% in rig time valued at US \$1,810,000. On top of that, the well has achieved a production rate 32% higher than expected.
- The Centro platform served as an end-to-end solution for careful orchestration of the integrated execution plan. By offering capabilities for real-time data monitoring, multidomain collaboration, and drilling optimization, the platform not only engendered success, but also contributed to overall project savings. As a result, the customer requested using this solution for the remaining wells in the field.

