

## Multidisciplinary Solution Enables Operator to Complete Well 35% Faster and Exceed Production Expectations by 50%



The above photo shows the coiled-tubing unit used to run formation evaluation tools, perform sand jetting, and mill multiple frac plugs in between 17 stages of hydraulic fracturing treatments.

### Objectives

- Plan and execute a completion program for an unconventional well. The operator sought to expand its portfolio to include shale resources.
- Comply with newly released regulations set by two regulatory entities.

### Our Approach

- Weatherford Integrated Services comprised a team of technical specialists from multiple disciplines, including subsurface, lab analysts, flow assurance, formation evaluation, and completion design.
- Working in collaboration with the operator, the Integrated Services team developed a completions program—from design to delivery—that adhered to all requirements for safe and compliant project execution. The program followed the proprietary FracAdvisor<sup>®</sup> workflow and included a thorough economic evaluation.
- The team used Weatherford WellFlo<sup>®</sup> nodal analysis software to optimize the placement of perforations clusters and the spacing of hydraulic fracturing treatments. They also tailored the final well design to maximize recovery in the unconventional play.
- The team coordinated logistics for formation evaluation, coiled-tubing services, hydraulic fracturing pumping equipment, and large volumes of fluids and sand ahead of the multistage treatments in an environmentally safe manner.

#### LOCATION

Mexico

#### WELL TYPE

Onshore, unconventional, horizontal

#### FORMATION

Shale

#### HOLE SIZE AND ANGLE

6-1/8 in., 90°

#### CASING SIZE AND TYPE

4 1/2-in., 15.1-lb/ft P-110

#### LINER SIZE AND TYPE

5 1/2- × 4 1/2-in. tapered long string

#### TEMPERATURE

230°F (110°C)

#### PRESSURE

4,800 psi (33.1 MPa)

#### DEPTH

13,215 ft (4,028 m)

#### PRODUCTS/SERVICES

- Integrated services
- Wireline and logging services
  - Compact™ memory tools
- Coiled-tubing services
  - Sand jetting
- Fluid pumping services
  - SureSlick<sup>®</sup> slickwater fluid systems
- Completion tools
  - Composite plugs
- Production software
  - WellFlo nodal analysis
- Well testing services
- Wellhead services



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### **Our Approach (continued)**

- The team deployed new and proven technologies and applied lessons learned from unconventional completion operations in other geographical areas, such as the continental United States and South America.
- Jointly developed by the operator and Weatherford, the well program helped to achieve flawless operational execution in the field.

### **Value to Customer**

- The Weatherford Integrated Services team executed a well program resulting in 35% faster completion operations and 50% more oil production than expected. The production results validated recovery of reserves in the unconventional play to justify the auction of oil leases in that area.
- By working closely with the operator, the team developed a well program that complied with new and rigorous government regulations and enabled successful navigation of uncharted territory. The team also handled many of the necessary certifications to accelerate compliance approvals.

