

## Integrated Services Team Helps Operator Reestablish Presence in Colombia with Zero HSE Issues and <3% NPT



Weatherford provided integrated project management and support services for the entire operation.

### Objectives

- Provide integrated services for all phases of an exploratory project in the Middle Magdalena Valley, a region in Colombia with high potential for recovering unconventional resources. This was the operator's first project in the country in more than 20 years.
- Drill a stratigraphic test well and gather essential formation information.
- Assist the client with all legal, environmental, logistical, civil, and community-relations aspects of the project. Provide project management and additional support services as needed.

### Our Approach

- Weatherford assembled a multidisciplinary team of personnel experienced in project management; logistics; health, safety, and environment (HSE) supervision; procurement; civil-works design and operations; and security. The client vetted and approved all personnel before operations began.
- The Weatherford team adapted a nearby yard for use as a logistical base of operations. Together with the client, the team completed infrastructure improvements including road upgrades, the construction of a new platform, and the design and construction of a bridge over the Caño Caiman River.

#### LOCATION

Middle Magdalena Valley, Colombia

#### WELL TYPE

Exploratory

#### FORMATIONS

La Luna, Simiti, Umir

#### HOLE SIZE

- 12 1/4-in. openhole section
- 26-, 17 1/2-, and 8 1/2-in. cased sections

#### TOTAL DEPTH

16,406 ft (5,000 m)

#### CASED-HOLE SECTION

12,103 ft (3,689 m)

#### OPENHOLE SECTION

10,000 ft (3,048 m)

#### PRODUCTS/SERVICES

- Drilling Services
- Surface Logging Systems
- Laboratory Services
- Secure Drilling
- Wireline Services
- Cementing
- Drilling Tools
- Tubular Running Services
- Well Engineering and Project Management
- Drilling Fluids and Waste Management
- Drilling Rigs



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### Our Approach (continued)

- Using a Hyperline QLE6750 mud motor, the team drilled a stratigraphic test well to 16,406 ft (5,000 m). The Microflux® control system monitored the formation pressure throughout the drilling process, which enabled efficient drilling through the high-pressure Umir and Simiti formations.
- The team completed the well using 9 5/8-in. casing. At 12,103 ft (3,689 m), pressure increased unexpectedly to more than 15 lb/gal (1,797 kg/m<sup>3</sup>). The Microflux control system and managed pressure drilling (MPD) techniques quickly stabilized pressure.
- With the pressure stable, the next challenge was to obtain a core sample of the La Luna formation. The team recovered 730 ft (223 m), or 90%, of core using wireline coring technology. The water-based WellDrill Plus formula helped to maintain wellbore integrity and mechanical stability in the pay zone during the coring operation.
- GC-TRACER® surface gas detectors collected and analyzed hydrocarbon and nonhydrocarbon gases within the returning mud during the coring operation, and the IsoTube® Autoloader™ system provided isotopic analysis of the mud-gas samples. The resulting data enabled Weatherford wellsite advisors, working together with the client, to identify the pay zone and the formation tops.
- The team preserved and analyzed the core sample and provided local services including slabbing, spectral gamma ray analysis, extrusion, photography, and CT scanning.
- The hydraulic catwalk handled pipe throughout the operation, which enhanced safety.

### Value to Client

- The team completed the entire job—including the design and execution of civil works projects—in 291 days with less than 3% nonproductive time and within budget.
- Weatherford met the client's goal of zero HSE incidents.
- As a result of the integrated logistical and operational services provided by Weatherford, the client was able to reestablish its presence in an unfamiliar country with a unique social and political environment.

