

# Managed Pressure Drilling Reduces Drilling Time by 95.4% in a Highly Depleted Formation

## Objectives

- Drill through 434 ft of a highly depleted hole section in Colombia's Llanos Basin.
- Reduce drilling time and mitigate fluid losses to significantly improve overall well costs. While drilling this section in a previous well, the operator had experienced massive fluid losses of 36,000 barrels.

## Our Approach

- Weatherford recommended managed pressure drilling (MPD) techniques, combined with the use of nitrogenized mud, to manage the wellbore pressure profile while drilling the 7,541 to 7,975 ft (2,298 to 2,430 m) hole section.
- Using the Weatherford WellFlo\* simulator to calculate the required equivalent circulation density (ECD), the crew used 1,600 standard cubic feet per minute (scfm) of nitrogen to drill through the depleted section while maintaining an ECD between 6.1 and 6.5 ppg.

## Value to Client

- MPD techniques enabled the operator to drill the depleted section in 2.6 days—a reduction in operational time of 55 days compared to previous drill attempts.
- Using the MPD approach, the drilling crew successfully drilled through the depleted zone with zero fluid losses or HSE incidents.
- MPD technology helped the operator redesign the mud density strategy to drill additional producer wells in the field.



The SafeShield® Model 7100 rotating control device (RCD) enabled use of managed pressure drilling techniques to drill through the depleted hole section.

### LOCATION

Meta, Colombia

### WELL TYPE

Onshore, conventional, oil

### HOLE SIZE AND ANGLE

8-1/2 in. vertical

### CASING SIZE

9-5/8 in.

### PRESSURE

Pore Pressure: 3.6 ppg  
ECD: 6.1 ppg

### DEPTH

Hole section: 7,541 to 7,975 ft.  
(2,298 to 2,430 m)

### PRODUCTS/SERVICES

Managed pressure drilling services  
SafeShield® Model 7000 RCD  
Two-phase separator  
Nitrogen injection choke manifold  
WellFlo simulator

\* SafeShield is a registered trademark of Weatherford in the US, Canada, and the United Kingdom. WellFlo is a registered trademark of Weatherford in Colombia and the United Kingdom.

