Turbopower™ Turbodrill Delivers Field Record ROP in Pre-Salt Carbonates and Saves Three Days of Rig Time
Location: Deepwater Brazil

OPERATOR’S CHALLENGE – After a PDC bit failed in rotary to perform in the pre-salt of this deepwater well, drilling just 121 meters (397 feet) of 8-1/2-inch hole at 2.2 m/hr (7.2 ft/hr), the operator asked Sperry Drilling services to provide a turbine motor assembly to drill the section at the best possible rate of penetration (ROP). Drilled in 1,469 meters (4,816 ft) of water offshore Brazil, the 348-meter (1,142-feet) interval would be Sperry’s first pre-salt turbodrilling job in the Campos basin.

HALLIBURTON’S SOLUTION – Based on experience drilling the pre-salt in the Santos cluster, Sperry provided a Turbopower™ T172 steerable turbine for the long 8-½-inch interval of this well.

In this case, the Turbopower turbodrill assembly drilled the remainder of the 8-½-inch hole section in a single run at a field-record ROP, double that of the previous run. All drilling objectives, including a superior hole quality, were accomplished with zero non-productive time and zero HSE incidents.

ECONOMIC VALUE CREATED – In spite of the poor drillability of the challenging formation, the Sperry Turbopower turbine delivered the fastest ROP in the pre-salt of this field, drilling the 8-1/2-inch hole 348 meters (1,142 feet) to total depth in 79.55 hours, achieving a field record ROP of 4.4 m/hr (14.43 ft/hr) and saving the operator three days of rig time.

• Application: Deepwater in 1,469 meters (4,819 feet) of water
• Objective: Drill 8-1/2-inch interval with an ROP exceeding 2 m/hr (6.5 ft/hr)
• Formation Type: mixed lithology of clastics, carbonates, volcanics
• Interval: 8-1/2-inch
• Tool/BHA: T172 steerable turbine
• Depth In/Out: 5,030 meters (16,502 feet) / 5,378 meters (17,644 feet)
• Footage: 348 meters (1,142 feet)
• Total Drilling Hours: 79.55 hrs
• Average ROP: 4.4 m/hr (14.43 ft/hr)
• Inclination In/Out: 4.6 degrees / 6.3 degrees