

Nonretrievable DwC™ System With Defyer® DPA Drillable Casing Bit Saves 3 Days of Rig Time Valued at \$1.5 Million in Offshore Well

Objectives

- Simultaneously drill and case a 13 3/8-in. section to total depth (TD) in a soft to medium formation.
- Eliminate one casing string in a standard large-OD well design.

Our Approach

- The operator enlisted Weatherford for comprehensive services, from onshore preparation and bucking operations to offshore casing-running and drilling-with-casing operations.
- The Weatherford team ran simulations that determined the optimal placement of centralizers in the string and then welded six sets of 16 3/4-in. OD solid spiral-blade centralizers onto the bottom three casing joints with two sets per joint. All the welding was done onshore.
- The team deployed the DwC system, including a DwC spear, conventional casing-handling and running tool, and Defyer DPA drillable casing bit.
- Two regulated-opening-pressure float collars maintained the fluid levels inside the casing while making connections.
- The team drilled 1,987 ft (605.6 m) with an on-bottom penetration rate of 184 ft/hr (56.2 m/hr) and weight on bit between 500 to 8,000 lb (227 to 3,629 kg). Torques ranged between 500 and 15,000 ft-lb (678 and 20,337 N·m), and rotations per minute ranged between 40 and 60.
- The final TD of 2,369 ft (722 m) was reached at an inclination of 0.93° in less than 11 hours.
- Using a standard polycrystalline-diamond-compact (PDC) bit, the Defyer DPA bit was drilled out in 20 minutes and then drilling continued to TD in the next section without issues.

Value to Client

- The DwC system, including the DwC spear and Defyer DPA drillable casing bit, enabled the operator to simultaneously drill and case the section to TD, eliminate one casing string from the well design, and finish 1 day ahead of schedule.
- Compared to drilling times for a standard large-OD well design, the DwC system saved 3 days of rig time valued at US\$1.5 million.
- Using the Defyer DPA drillable casing bit eliminated the need for a dedicated drillout run and the costs associated with redressing the PDC bit after drillout.



The Defyer DPA drill bit shown above has a selectable blade count and configurable cutter size to suit the formation type and application.

LOCATION

China

WELL TYPE

Offshore, exploration

FORMATION

Claystone and sandstone

CASING TYPE

13 3/8-in., 68-lb/ft L80, TSH-3SB

DEPTH

- In: 382 ft (116.4 m)
- Out: 2,369 ft (722 m)

FLOW RATE

400 to 900 gal/min (1,514 to 3,407 L/min)

STANDPIPE PRESSURE

380 to 1,500 psi (2,620 to 10,342 kPa)

PRODUCTS/SERVICES

- Bucking services
- 13 3/8- x 17-in. Defyer DPA 8516
- RMS 2000 rotary-mounted slips
- 14-50 hydraulic power tong
- Regulated-opening-pressure float collars
- JAMPro™ torque-turn monitoring system

