

Nonretrievable DwC™ System Drills Unstable Seabed, Sets 24-in. Conductor Casing for Two Wells

Objectives

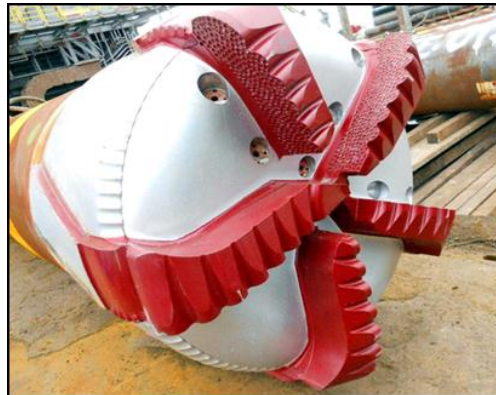
- Drill and cement 24-in. conductor casing string in a single trip on each of two offshore wells. Each well is located in adjoining drilling slots.
- Mitigate the risk of seafloor instability and lost circulation zones.

Our Approach

- Weatherford recommended the nonretrievable drilling-with-casing (DwC) system using a 24-in. x 27-in OD Defyer® drillable casing bit and Internal Casing Drive tool (ICDT).
- Drilling fluid comprised of prehydrated gel sweep, sea water, and silicate KCL pills was used to ensure proper hole cleaning and to stabilize loose sands while drilling and making connections.
- The ICDT was run on heavy-weight drillpipe below the rig floor to accurately space the top of the casing and structural centralizers in the platform. The pipe provided enhanced string rigidity and the ability to transmit the weight and torque needed to release the ICDT.
- Both wells were successfully drilled to the target depth. The average rate of penetration (ROP) was limited to 19.5 to 30 ft/hr (6 to 10 m/hr) to prevent excessive equivalent circulating density (ECD) caused by cuttings loading in the annulus. The reduced ROP also minimized disturbance to the adjacent drilling slot, which mitigate the chance for compromised well integrity in the adjacent wells.
- Promptly after landing the casing, cement was pumped through the ICDT without cement plugs.

Value to Client

- Use of the Weatherford DwC ICDT and Defyer drillable casing bit enabled the operator to successfully drill and set the 24-in. casing to the desired depth in single trip and safely case-off weak surface formation.
- The DwC technologies mitigated risk of seafloor instability that could lead to tilted subsea suction base, streamlined drilling operations, eliminated tripping of conventional bottomhole assembly (BHA), and improved wellbore cleaning by means of higher annular fluid velocity.
- Pumping cement through the ICDT expedited the cementing operation.



In a single run, the Weatherford 24-in. x 27-in. Defyer DT506 casing bit drilled a 24-in. casing string through a 171-m interval at a record depth.

LOCATION

Offshore, New Zealand

WELL TYPE

Well 1: oil producer
Well 2: water injector

FORMATION

Sand

HOLE SIZE AND ANGLE

27 in., 0°

CASING TYPE AND SIZE

24-in., 246 lb/ft, X-56, RL-4S

DEPTH IN/OUT

Well 1: 495 to 1,053 ft (151 to 321 m)
Well 2: 495 to 1,056 ft (151 to 322 m)

DRILLING PARAMETERS

Weight on bit: 1,000 to 15,000 lb
Flow rate: 400 to 700 gal/min
Torque: 1,000 to 12,000 ft/lb
RPM: 10 to 45
Pressure: 60 to 400 psi

PRODUCTS/SERVICES

- Tubular running services
- DwC services
- 24-in ICDT tool
- 24 x 27-in Defyer DT506 bit

