

REAL RESULTS

MaxFlo[™] Sand Screens, FloReg[™] ICDs Provide Full Sand Control, Bypass Shale Extrusions, Minimize Erosion, Provide Uniform Flow

Objectives

- Maintain optimal drainage area. The Grane field is characterized by large shale protrusions into the sandstone reservoir. To avoid shale swelling and cave-ins, the operator circumvented these shale protrusions when drilling out the reservoir, consequently losing a portion of the drainage area.
- Run sand screens past a steerable drilling liner (SDL) that remained in the wellbore. The operator, in trying to avoid the shale protrusion issue, used an SDL to drill the reservoir. After drilling through the shale section with a 7-in. SDL, the liner section was left in place as the drillstring was pulled out. The last section of the wellbore was drilled out to 6 in., forcing the operator to run 4 1/2in. sand screens rather than the planned 5 1/2-in. screens.
- · Minimize the risk of erosion in the wellbore.

Results

- Weatherford deployed 4 1/2-in., 13.5-lb (6.1-kg) MaxFlo metal mesh sand screens with FloReg nozzle-type inflow control devices (ICDs), mitigating common challenges in horizontal wells such as the heel-toe effect and coning. The more uniform inflow pattern would give the operator an increased oil recovery and postpone the breakthrough of water and/or gas.
- The screens were successfully installed 131 ft (40 m) into the SDL section, potentially increasing the velocity of fluid along the annulus and, subsequently, increasing the risk of erosion.
- The *MaxFlo* screen design provided an additional drainage layer between the shroud and the filter media, reducing the gap velocity through the weave and causing the inflow to be more evenly distributed over the filter media, decreasing the risk of erosion.

Weatherford's MaxFlo sand screens with FloReg ICDs provide uniform inflow distribution in horizontal and deviated wellbores and reduce water or gas production for more efficient

reservoir drainage.



Location North Sea

Formation Sandstone

Well Type Offshore, horizontal, oil

Products/Services

- MaxFlo sand screens
- FloReg ICD screens

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Value to Client

- Using Weatherford's MaxFlo[™] sand screens and FloReg[™] ICDs enabled the operator to produce the well with full sand control from the far end of the reservoir, bypassing the shale protrusions.
- The combined systems extended the life of the well, reducing and delaying workover and intervention costs.



The operator ran *MaxFlo* sand screens past a steerable drilling liner that remained in the wellbore. The screens were set in place, bypassed the shale extrusions, and optimized a more uniform well flow.

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