

Case study: Malaysia

TransCoil ESP system extended life of mature deepwater field

An operator was looking for an economic intervention solution to stabilize production and handle increasing water production in a mature field offshore Malaysia. Rig-based workovers in the field located in 6,500 ft (1981 m) of water cost as much as \$20 million USD.

Baker Hughes Artificial Lift Systems installed the first 300 series **TransCoil™ rigless-deployed electrical submersible pumping (ESP) system** in one well that had been shut in for 18 months due to inadequate reservoir pressure to achieve natural flow with an increasing water cut, and reduced gas rates.

The TransCoil system eliminated the need for a costly offshore rig to install the ESP system, saving the operator approximately half the cost of a rig-based intervention. Plus, the ESP was installed through the 4 ½-in. production tubing, eliminating the time and cost required to pull and replace the tubing. Following the installation of the TransCoil system, the production from the well stabilized at 2,300 BFPD with a 70 to 80% water cut.

The TransCoil system features an inverted ESP that connects the motor directly to a new, proprietary power

cable configuration that extends the setting depth of rigless-deployed ESP systems. Unlike first-generation coiled tubing-deployed ESP systems that are limited to approximately 7,000 ft (2134 m), the TransCoil system can be deployed to 12,000 ft (3658 m) or deeper depending on the operational load of the ESP system.

By connecting the motor directly to the power cable, the TransCoil technology improves overall system reliability by eliminating the traditional motor lead extension from the power cable to the motor—the single weakest point in all ESP systems. Plus, unlike wireline-deployed ESPs, the fully retrievable TransCoil system does not have an in-well “wet connection,” which requires a rig to pull and replace if the wet connection fails.

This first offshore installation of a TransCoil system saved the operator approximately \$11 million USD vs. a rig-deployed operation and stabilized production at 2,300 BFPD vs. 1,663 BFPD prior to the well shutting down. Based on a water cut of 80%, the TransCoil system improved oil production by 127 BOPD, generating an additional \$6,300 USD per day for the operator.

Challenges

- Inadequate reservoir pressure to drive natural flow
- High rig-based intervention costs
- 6,500 ft water depth
- 5,518 ft ESP setting depth

Results

- Brought 2,300 BFPD back on production after being offline for 18 months
- Reduced workover costs more than 50% or \$11 million USD
- Improved total production by 637 BFPD
- Boosted oil production by 127 BOPD
- Increased revenue more than \$6,300 USD per day (based on \$50 USD oil price)