

# ZEiTECS Shuttle System Reduces Deferred Production Even Before ESP is Commissioned, Offshore Africa

Third-party ESP developed fault during installation and was retrieved on rods, enabling operator to continue running tubing without waiting on a replacement

## CHALLENGE

Minimize costs, production deferment, and operational disruption due to ESP replacements for the life of a well offshore West Africa.

## SOLUTION

Deploy the ZEiTECS Shuttle\* rigless ESP replacement system.

## RESULT

In addition to the long-term benefits, the ZEiTECS Shuttle system mitigated the impact of a third-party ESP motor short-circuit during installation, saving 2–3 days of rig time and reducing production deferment.

**“We are very excited about the potential economic benefit of applying this new technology in our fields. This technology is particularly suited for wells where accessibility, rig cost, and safety are major concerns.”**

Senior Artificial Lift Engineer



## Operator sought to minimize ESP replacement costs

ESPs are traditionally run on jointed tubing, and rigs or heavy workover hoists are required to pull out the production string when the ESP needs replacement. The production deferment that results from waiting on rig availability and the increase in opex to replace the ESP significantly erode asset value and increase total cost of ownership; the impact is greater offshore. Other unwelcome consequences include disruption to drilling operations caused by diverting a rig, more personnel on board, and increased HSE exposure and risk. An operator working offshore West Africa sought to minimize these effects.

## Rigless ESP replacement system provided alternative to a rig or hoist

The innovative ZEiTECS Shuttle rigless ESP replacement system consists of a downhole docking station and a motor connector that mates with it. The motor connector is attached to an ESP assembly, and together they constitute the retrievable ESP string. The motor connector orients and connects the ESP to the docking station. The ZEiTECS Shuttle system and ESP are initially installed in the well during a rig-supported workover. Subsequently, the ESP string can be quickly unplugged from the docking station and retrieved in a few hours using wireline, coiled tubing (CT), or sucker rods. After service or replacement, the ESP string is redeployed using the same method.

The plug-and-play design of the ESP replacement system enables any standard ESP assembly to be retrieved and redeployed without a rig or hoist. The system thus eliminates the uncertainties, inconvenience, and economic impact of using a rig. Production deferment is minimized and intervention time, cost, and risk are reduced.



*By eliminating the need to pull out the tubing and suspend completion operations while the third-party ESP was repaired, the ZEiTECS Shuttle system saved 2–3 days of rig time.*

### Early changeout of ESP motor proved benefits of new system

For the initial rig-supported installation, the docking station was attached to the bottom of the production tubing. A third-party ESP system was preinstalled in the docking station at surface, and all checks were successful. However, when the string was lowered to the fluid level in 9<sup>5</sup>/<sub>8</sub>-in casing, electrical integrity was lost. The ZEiTECS Shuttle system thus had an unexpectedly early opportunity to demonstrate its value. There was no need to pull out the production string; the ESP was retrieved on rods and the competitor's motor was found to have shorted.

The docking station was run "empty" to its setting depth of nearly 4,400 ft [1,341 m] while a new motor was sourced. By eliminating the need to pull out the tubing string and suspend completion operations until a replacement motor was found, the operator saved 48–72 hours of rig time. After replacing the motor, the ESP string was reinserted, again on rods. Impressed with the ZEiTECS Shuttle system's functionality, the operator cancelled plans for a rigless replacement demonstration, deeming it unnecessary, resulting in further time savings. The operator also enjoys the long-term benefit of rigless ESP replacement capability for the rest of the well life. This was the first installation of the ZEiTECS Shuttle system in Africa and offshore.

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