

SPM Oil & Gas Overhauls Seawater Lift Pump Motor

Leaking Component Restored to Usability

SPM™ Oil & Gas
A Caterpillar Company

Case Study

SPM Oil & Gas' Center of Manufacturing and Engineering Excellence in Baku enables oil and gas companies to reduce total cost of ownership (TCO) and nonproductive time (NPT) by providing superior engineering expertise to identify and repair damaged pumps quickly with quality materials, backed by a warranty.

FUN FACTS



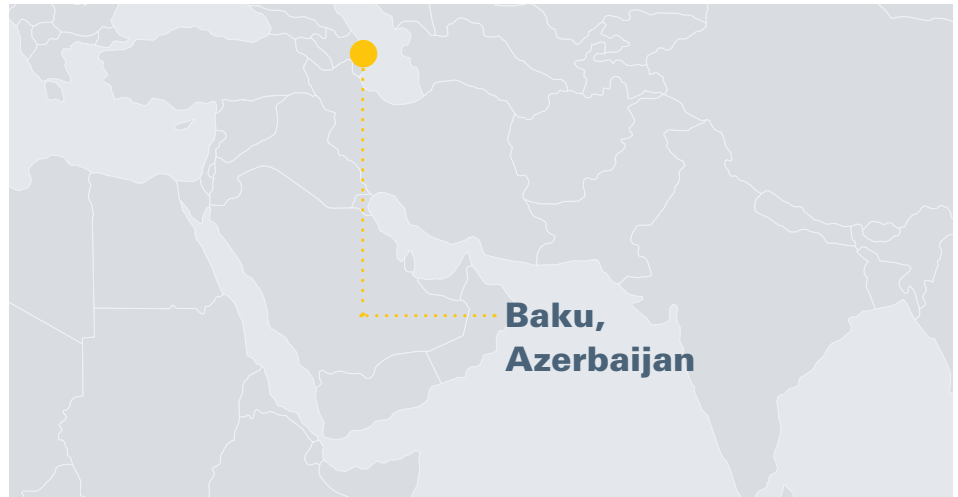
Overhauled
to industry standards



50%+ Faster
turnaround



In-Country
Commitment



**Baku,
Azerbaijan**

THE CHALLENGE

An exploration and production (E&P) company operating an offshore platform in Azerbaijan had removed a seawater lift pump motor from operation after detecting leaks from its mechanical seal. The main power cable was found to be seriously damaged in several areas. A Megger test was performed, revealing that the power cable's insulation was no longer reliable. Without a functioning motor, the pump would not be able to convey seawater to the platform's operational systems.

THE APPROACH

The E&P sent the malfunctioning motor to SPM Oil & Gas' Center of Manufacturing and Engineering Excellence in Baku for inspection. After the pump was stripped down for analysis, SPM discovered that both the stator and the rotor were significantly corroded, with the rotor's bearing sleeves showing pitting. The pump's top and bottom bearing bushes were found to be out of the range of acceptable tolerance when measured. The main power cable was confirmed to be damaged beyond repair.

Multiple "soft" components of the pump including the bushes, bush bearings, washer tabs, and mechanical seal required replacement due to extensive wear, and the power cable was removed and replaced with a new version. However, other elements of the pump were able to be salvaged and reworked.

SPM Oil and Gas cleaned and sand-blasted the internal spares of the motor. Contaminants were removed from the coreplate zone of the stator and the rotor shaft, which were then covered with Belzona coating as protection from future corrosion and erosion. The motor's thrust pads were able to be reused despite showing moderate scoring marks, and the thrust disk was found to be in good condition. SPM Oil and Gas also manufactured and installed new sleeves for the rotor-bearing journals and ensured that the rotor was successfully balanced.

HIGHLIGHTS:

- Detected significant internal corrosion in multiple components of motor following observations of leakage
- Replaced power cable and other components too damaged to recondition
- Cleaned components able to be re-used; applied Belzona coating to stator and rotor shaft for future protection
- Confirmed overhauled motor passed multiple Megger tests and pressure tests.
- Returned motor to service in 57 days

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CASE STUDY *Continued*

THE RESULTS

Following the overhaul, the re-assembled motor underwent a Megger test in dry condition absent its main cable to analyze its level of electrical insulation. Afterwards, the motor was Megger tested both without and with the new main cable in wet and submerged conditions. No abnormalities were detected in any of the testing. During a pressure test, the motor was kept at 4.5 bar with filled MEG 30% for 30 minutes, with no leakage points observed.

THE SOLUTION

SPM Oil & Gas' state-of-the-art Center of Manufacturing and Engineering Excellence in Baku and in-country engineering expertise assure best-in-class quality, delivery, and responsiveness for oil and gas companies across the Eastern Hemisphere. SPM Oil & Gas can solve engineering challenges and improve efficiencies with a global product offering and localized service capabilities that meet the needs of each operating environment. Its strategically located Centers of Excellence, engineering and technical proficiency and locally manufactured parts enable SPM Oil & Gas to reduce turnaround times by more than 50% compared to returning equipment to OEMs.

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