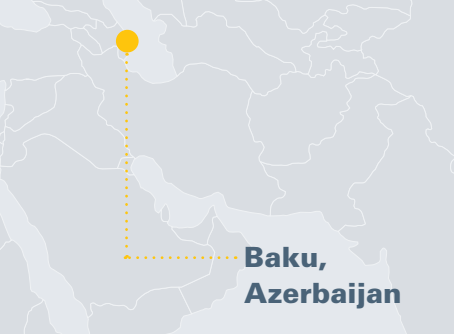
Optimizing the Functionality of 17-year-old Pump

Vacuum Pump Reconditioned with Tungsten Carbide

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

Increased
pump life 7 years

50%+ Faster
turnaround

In-Country
Commitment

HIGHLIGHTS:

- Reconditioned pump through welding, machining and replacements.
- Coated key elements with tungsten carbide to extend equipment life.
- Returned pump to service in 44 days.

THE CHALLENGE

An exploration and production (E&P) company operating an offshore platform in the Caspian Sea decommissioned a 17-year-old vacuum pump as a result of its poor operational performance. The company sought to restore the pump to proper working condition and return it to service quickly to avoid compromising production.

THE APPROACH

The company approached SPM Oil & Gas' Center of Manufacturing and Engineering Excellence in Baku for a solution. Upon a thorough inspection, SPM Oil & Gas technicians discovered the equipment suffered cavitation, which caused severe erosion. Additionally, the key slot of the pump's shaft was extremely damaged, the bearing was worn, the mechanical seal had failed, and the first and second stage impellers showed erosion on their vane edges and structural beam supports.

SPM Oil & Gas' reconditioning process restored the impellers, welding their most damaged area. The quality of the repair was confirmed with a dye test to verify the absence of defects. The impellers were properly shaped with machining and grinding, the shaft was polished, and the key groove repaired. A pneumatic brush was used to polish the internal side of the casing. One side plates was reconditioned while others were replaced due to extreme wear.

Prior to re-assembly, the pump elements most prone to abrasion, corrosion and erosion were coated with tungsten carbide to extend their useful life.

THE RESULTS

A leak pressure test confirmed the reconditioned pump's full structural integrity and noted the absence of leaks. The quality of SPM Oil & Gas' repair process added 7 years of life to the pump, enhancing the operator's total cost of ownership.

The pump was returned to service in just 44 days, minimizing the operator's downtime.

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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