

Operator Saves USD 450,000 in Abrasive, High-Temperature Well

TURBOPOWER™ TURBODRILL WITH DIAMOND IMPREGNATED BITS DOUBLES ROP AND ACCELERATES PRODUCTION SCHEDULES

EGYPT

CHALLENGE

Improve drilling performance in hard, abrasive, high-temperature formation and reduce well costs

SOLUTION

System matched engineered drilling solution: Turbopower™ turbodrill and diamond impregnated bits

RESULTS

- » Drilled 2,286 ft. (693 m) at double the previous ROP
- » Reduced well time by delivering the well ahead of schedule and accelerating well production by 15.5 days, saving the operator approximately USD 450,000

OVERVIEW

In the western desert of Egypt, an operator was drilling a gas well through the very hard, abrasive, and high-temperature kaolinite siltstone formation. The well was proving to be one of the most challenging high-temperature applications. The operator challenged Sperry Drilling to drill the 6-inch vertical section of the S-shaped well faster, safer, and on target through the formation.

HARSH ENVIRONMENT THREATENS WELLBORE QUALITY AND PRODUCTION

Harsh and abrasive formations are known to cause slow rates of penetration (ROPs) and tool failure when using conventional drilling motors, but adding high temperatures can cause excessive tool failure and internal elastomer components to fail. A previous service company fell 105 feet (32 meters) short of the planned target depth (TD) in the 8-1/2-inch section, so this distance would need to be included when drilling the 6-inch section.

ENGINEERED DRILLING SOLUTION HELPED DRILL FARTHER AND FASTER IN HARSH ENVIRONMENT

Through reservoir insight, Sperry Drilling engineered a drilling solution that would be reliable and resilient, and that would provide the desired ROP in the harsh, abrasive, and high-temperature environment while reducing well time and costs. The Sperry Drilling team designed a matched system of a 4-3/4-inch Turbopower™ turbodrill with diamond impregnated bits. The all-metal design of the turbine allows operation in ultra-high temperatures (up to 572°F/300°C). With no elastomers to break down, longer runs can be delivered with consistent power, and nonproductive time (NPT) relating to failures is minimized. The diamond impregnated bits resist wear in abrasive formations, resulting in longer life and reduced tripping for bit wear. The solution included 5-15/16-inch bottom sleeve stabilizers, 5-7/8-inch mid-body stabilizers, and a bendable housing set to zero degrees to help maintain verticality. The durability of the matched system keeps the bit on bottom drilling continuously, thus avoiding costly trips from bit and mud motor wear.

SPERRY DRILLING REDUCES WELL TIME AND ACCELERATES PRODUCTION SCHEDULE

The first-ever application of the Halliburton Turbopower turbodrills in Egypt allowed Sperry Drilling to drill the 6-inch vertical hole to a TD of 17,717 feet (5,400 meters) in just four runs. This depth included an additional 722 feet (220 meters) to reach a more promising target identified through formation evaluation. The Sperry Drilling team drilled 2,286 feet (693 meters) at an average ROP of 7.11 feet/hour (2.17 meters/hour).



Turbopower Turbodrills

REDUCED DRILLING & COMPLETION TIME
SAVED 15.5 DAYS

REDUCED WELL COSTS:
USD 450,000

HAL123883

CASE STUDY

The results of using the matched drilling engineered solution in this harsh, abrasive, and high-temperature formation exceeded all customer expectations. Sperry Drilling successfully delivered more footage than originally planned at more than double the ROP with ZERO NPT. Sperry Drilling helped the operator maximize asset value by delivering the well ahead of schedule, allowing the customer to accelerate well production by 15.5 days and saved USD 450,000 in drilling costs.



HAL122386

Turbopower™ turbodrills improve drilling performance in hard, abrasive, and high-temperature formations and reduce well costs.

www.halliburton.com

Sales of Halliburton products and services will be in accord solely with the terms and conditions contained in the contract between Halliburton and the customer that is applicable to the sale.

H011223 05/18 © 2018 Halliburton. All Rights Reserved.

HALLIBURTON