

Successful Collaboration Between Halliburton and WEPCO Added 150% in Oil Daily Production Rate

RIGLESS PULSED-NEUTRON AND PRODUCTION LOGGING OPERATION USED TO IDENTIFY BYPASSED OIL ZONES AND WATER SHUTOFF RESERVOIRS

EGYPT– WESTERN DESERT

CHALLENGES

- » Mature field with sharp decline in oil production
- » Identify bypassed pay zones and select the optimum perforating performance
- » Identify water-producing zones and select the optimum methodology for water shutoff
- » Carefully design rigless well intervention work to optimize the cost

SOLUTIONS

- » Halliburton recommended using its surveillance production logging tool (PLT) and Reservoir Monitor Tool (RMT™) services to identify current oil saturation and potentially unlock bypassed zones
- » The Halliburton Perforation Tool Kit (HPTK) was used to select the right charge to maximize the production
- » Rigless well intervention and well production optimization helped to increase field oil production at lower costs

RESULTS

- » Successfully identified bypassed zone
- » Reduced operational cost by using rigless well intervention and surveillance work
- » Increased oil production by 150% of the original BOPD

OVERVIEW

WEPCO has one concession (Bed-1), which is located in the Western Desert, Egypt. The main producing clastic horizons of Bed-1 field are the Upper Cretaceous, Kharita, Bahariya, and Abu Roash reservoirs. The main diagnostics work was performed on the Kharita clastic reservoirs of Bed-1 field. The purpose was to unlock any economic potentiality by identifying bypassed oil zones, isolating water-producing zones, improving oil recovery, and production.

Using production logging and pulsed-neutron technologies, WEPCO and Halliburton were able to identify several bypassed oil and watered-out zones, which were candidates for chemical and mechanical water shutoff.

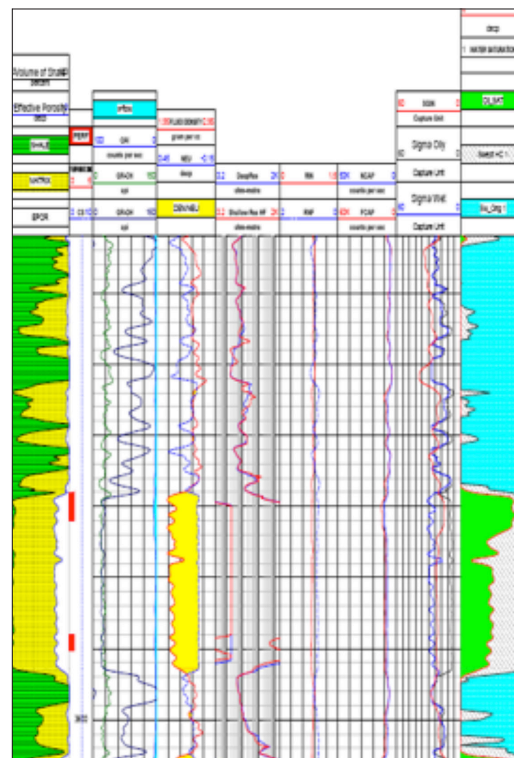
CHALLENGE

WEPCO, on behalf of EGPC, mainly operates the Bed-1 field, which is considered one of the major mature fields in the Western Desert. Several years ago, the Bed-1 field faced an oil production decline and an increase in water production. WEPCO's main challenges were to identify the source of water production, allocate bypassed oil zones, select the optimum methodology for water shutoff, and increase oil production at a lower cost per barrel with no rig intervention.

SOLUTION

To start, Halliburton proposed reviewing the openhole logs, production history, and previous surveillance work completed, which helped pinpoint the right solution.

Halliburton recommended a production logging tool (PLT) and Reservoir Monitor Tool (RMT™) campaign to identify the current zonal contribution, oil/water saturation, and water flow logs (WFL). The work would conclude with optimum



Reservoir Monitor Tool™ saturation evaluating bypassed zones and remaining oil saturation.

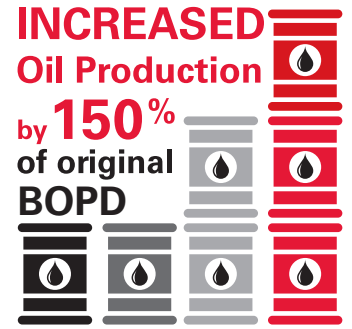
The proper solution and design selection followed by flawless execution unlocked the economic potential of this mature field through extended production and improved recovery.

perforating and water shutoff techniques to increase field oil production, using the Halliburton Perforation Tool Kit (HPTK) to select the ideal charge to maximize production.

RESULTS

The proper solution and design selection followed by flawless execution unlocked the economic potential of this mature field through extended production and improved recovery. More than 20 wells using RMT™ and PLT surveillance work have been analyzed. This work successfully identified the presence of bypassed pay zones and enabled the shutoff of water-producing zones.

The total added-value along the bypassed zones was found to add 150% to the original produced BOPD. The optimum commercial and operational technique has been properly designed and carefully implemented by using a rigless wireline intervention solution.



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