

# Mirage® Plug Turns 3 Hours of Rig Time into 20 Minutes

## OPERATOR MAKES HALLIBURTON FLOW CONTROL SOLUTION THE NEW STANDARD

MALAYSIA

### CHALLENGES

A major operator in Malaysia challenged Halliburton to design a single horizontal openhole completion for 18 wells.

- » Design must include fluid loss control
- » Cost-effective solution

### SOLUTIONS

A Copper Beryllium Flapper EGF fluid loss device to isolate the reservoir from the completion fluid, as well as replacing the POP with a Mirage® plug and autofill sub in the upper completion.

### RESULTS

The customer chose the Halliburton solution for the upper and lower completion on all 18 wells.

- » Takes 20 minutes to pressure-cycle and expend the Mirage plug, vs. three hours with ball-drop
- » The Halliburton EGF and Mirage plug became the standard requirement in openhole horizontal wells for this operator

### OVERVIEW

A major operator in Malaysia challenged Halliburton to design a single horizontal openhole completion for 18 wells. This design not only had to include fluid loss control, but it had to be cost-effective.

Halliburton recommended the Mirage® plug and autofill sub in the upper completion to replace the pump out plug (POP) they were using.

After comparing the 20 minutes it took to pressure-cycle and expend the Mirage plug, to the three hour of rig time required to pump a ball down to activate the POP, the customer chose the Halliburton solution for the upper and lower completion on all 18 wells.

### CHALLENGES

Halliburton had already won the contract for the upper completion, but was now competing against two major competitors to offer the best solution for the lower completion as well. While the original completion design included a POP in the upper completion to allow testing the tubing and setting the packer, there was no provision for preventing fluid loss to the openhole formation.

### SOLUTIONS

Halliburton proposed the addition of a copper beryllium flapper EGF fluid-loss device to isolate the reservoir from the completion fluid. In addition, Halliburton recommended replacing the POP with a Mirage plug and autofill sub in the upper completion.

The Mirage plug was suggested to replace the POP, which can be problematic in horizontal or highly deviated applications. A ball must be pumped down the tubing to seat before pressure can be applied to set the packer and expend the plug. Since the Mirage plug only requires the proper number of pressure cycles to be applied to the tubing, it is ideally suited to be run in either vertical or horizontal sections of a well while providing for truly interventionless performance.

### RESULTS

After comparing the approximately three-hour rig time required to pump a ball down to activate the POP, to the 20 minutes necessary to pressure-cycle and expend the Mirage plug, the customer chose the Halliburton solution for the upper and lower completion on all 18 wells.

One year later, all the wells are completed without any issue related to the use of the EGF fluid-loss device and Mirage plug. In fact, for all of the customer's horizontal openhole wells, the Halliburton EGF and Mirage plug have become the standard requirement.

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