

ABRASIJET Service Helps Operator Triple Production and Maintain Rate for More Than One Year

Combined technologies provide data to increase production by 500 bbl/d

CHALLENGE

Achieve increase in production by accurate placement of downhole fluids during acid treatment in large openhole horizontal section with tight formation and reservoir heterogeneity.

SOLUTION

Combined system of a high jetting nozzle—ABRASIJET* hydraulic pipe-cutting and perforating service—coupled with ACTIVE DTS Inversion* distributed temperature measurement analysis to ensure tunneling through formation damage, followed by selective fluid placement.

RESULTS

Achieved increase in production from 200 to 700 bbl/d and continued to maintain increased production for more than one year.



Uncontrolled placement of stimulation acid

An operator needed to improve the production from wells in a field in the Middle East. Standard matrix treatments of horizontal openhole wellbores in these two fields have typically consisted of spotting stages of preflush, acid, and diversion systems in front of the formation from toe to heel without proper control over the placement process. The lack of uniform acid coverage across all target intervals led to ineffective matrix stimulation and modest production.

In addition, the evaluation of such standard matrix treatments was extremely difficult because of the limited information about the downhole events. Thus, a downhole real-time monitoring system was required to assess and adjust the diverter efficiency and acid placement.

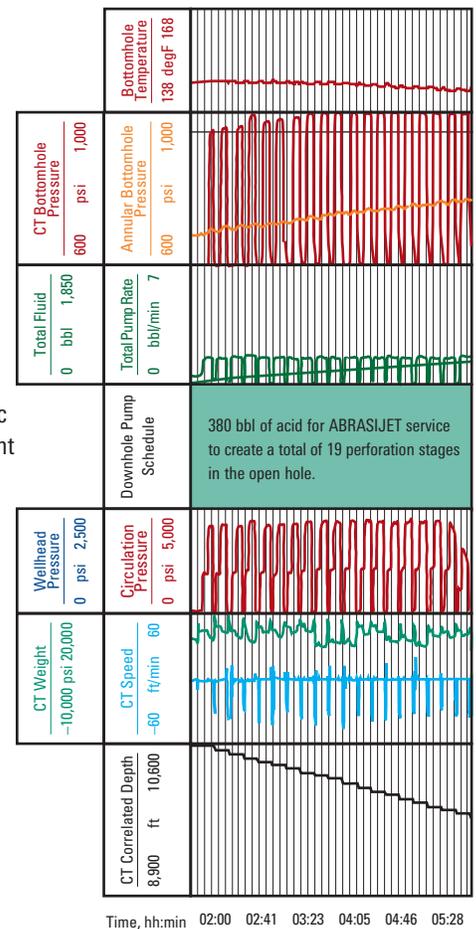
Treated zone targeted using DTS analysis

Schlumberger proposed a stimulation method that combined the ABRASIJET service’s high-pressure jetting tool with ACTIVE DTS Inversion analysis. This downhole system configuration enabled the identification of initial and future developed thief zones during the treatment, which allowed optimal placement of the VDA* viscoelastic diverting acid. DTS profiling was used posttreatment to confirm placement of the VDA acid.

The interpretation of DTS along with FMI* fullbore formation microimager and other openhole log data assisted in the identification of hydrocarbon-bearing damaged intervals. These intervals were then targeted by the ABRASIJET service’s high-pressure jetting tool to cut slots into the open hole, bypass the filter cake, and place the acid in the rock.

Well production increased by more than 500 bbl/d

The posttreatment well production exceeded customer expectations and increased production from 200 bbl/d to 700 bbl/d, which was maintained for more than a year. The real-time measurements provided by the combination of the ABRASIJET service and ACTIVE DTS Inversion analysis enabled the operator to overcome the obstacles presented by conventional treatment and evaluation techniques.



Surface and downhole parameters during ABRASIJET service slot-cutting procedure.

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