

Delaware Basin

Illusion® frac plug helps provide optimum zonal isolation and regains full casing ID post-stimulation

Operator gains production value of more than 51 million USD

CHALLENGE

A Permian operator required frac stage isolation in the toe section of extended horizontal wells to help eliminate the need for removal intervention

- Coiled tubing limitations in extended-reach laterals
- Eliminate risk and cost associated with drilling out composite frac plugs
- Increase production earnings

SOLUTION

Halliburton proposed using Illusion dissolvable frac plugs.

- Operator initiated a test well - successfully using 10 Illusion frac plugs

RESULT

Illusion plugs helped provide optimum stage isolation during the fracturing operation, and then dissolved to return the full casing ID post-stimulation.

- Operator changed their frac plug program to include an average of seven Illusion plugs in all their lateral wells
- Modified frac plug program - using 117 Illusion plugs in the toe section of 16 wellbores
- Gained production value of USD 51 million more than a 16 well program

Overview

A Permian Basin operator drilling and completing extended horizontal wells wanted to achieve optimum stage isolation during the stimulation operation to help reduce or eliminate the risk and time associated with drilling composite frac plugs from the toe section of the well using coiled tubing. Using Halliburton Illusion® dissolvable frac plugs, the operator achieved frac stage isolation, regained full casing ID after the stimulation operation and eliminated intervention. On their test well, the operator gained production value of more than USD 3 million using, Illusion frac plugs in their toe section (1,631 ft). These positive results led the operator to continue the deployment of the Illusion frac plugs on an additional 16 wells which provided an increased production value of more than USD 51 million.



Illusion® frac plug helps provide optimum zonal isolation and regains full casing ID post stimulation, to help operator gain production value of more than USD 51 million

Challenge

An operator in the Permian Basin was using composite frac plugs to provide stage isolation during their stimulation job. Post stimulation, they were using coiled tubing and a drilling bottomhole assembly (BHA) to remove the composite frac plugs from the well. However, coiled tubing could not effectively reach or drill the toe section in order to remove the composite plugs. The operator noted that they could potentially lose approximately USD 1,900 per foot of lost lateral in production earnings if they were not able to remove conventional composite plugs in the toe section.

Solution

Halliburton proposed Illusion dissolvable frac plugs as the solution to this unconventional challenge. Before deciding to embrace this solution, the operator set up a test well with 10 Illusion frac plugs and planned to trip-in the well with coiled tubing and drilling BHA post-stimulation to test and prove the technology.

Result

Ten Illusion frac plugs were successfully installed with an average pump down speed of 350 ft/min and reached a maximum speed of 450 ft/min. RapidBall™ DM self-removing balls were dropped and pumped to the frac plugs with pressure indications that confirmed they landed and sealed on the Illusion plugs.

As promised, the operator achieved greater stage isolation during the stimulation operation. Fifteen days after the plugs were installed, coiled tubing was tripped in the hole with the drilling BHA and confirmed that eight of the Illusion dissolvable frac plugs had completely dissolved; the other two were easily removed with drillout times of one to three minutes each.

With the use of the dissolvable Illusion frac plugs, the Permian operator achieved optimum stage isolation during the fracturing operation in the test well. The operator also regained the full casing ID, which eliminated the risk and time associated with the drillout of conventional composite frac plugs in the toe section using coiled tubing.

After successful deployment and performance of the Illusion frac plugs, the operator changed the frac plug program to include Illusion frac plugs in the toe section of the next 16 extended lateral wells.

Using Halliburton dissolvable Illusion frac plugs, the operator gained a production value of more than USD 51 million from the 16 wells where the plugs were installed. A total of 117 plugs were installed covering 27,261 ft of lateral section. The successful test resulted in the operator only having to drill out the composite plugs and none of the Illusion plugs. This substantially reduced coiled tubing intervention time to drill out additional composite plugs, and provided the operator with additional operational cost savings.

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