CASE HISTORY

Pinpoint Multistage Fracturing

HALLIBURTON

The CobraMax® DM service enables a discreet placement of an unlimited number of fracturing stages in a horizontal section with the flexibility of on-demand, downhole changes in proppant concentration.

OPERATOR’S CHALLENGE – The operator’s wells are in a naturally highly fractured formation, a situation where conventional stimulation methods did not provide ideal production results. Conventional techniques often extended out of zone due to the lack of overburden stress needed to contain the fracture within the zone. This formation also contains a high volume of moveable water, requiring surgical precision in placing the stimulation treatment throughout a 7,000 foot horizontal cased hole completion.

HALLIBURTON’S SOLUTION – Halliburton recommended the new coiled tubing deployed CobraMax DM process due to its ability to offer a low risk, operationally efficient service while optimizing the stimulation treatment at low rate. The highlights of the CobraMax DM multistage fracturing process demonstrated in this case history are as follows:

- Performed 24 fracture stages
- Achieved efficiency rate of 6 fracture stages in 24 hr. operations
- Pumped all 1.42 million lbs. of proppant placed through one tool
- Average rate per interval of 11 bbls/min
- Average bottom hole concentration of 4 ppg
- Max bottom hole concentration of 16 ppg
- Proven ability to avoid a screenout and continue pumping into the same fracture on 7 of the stages, non-productive time avoided. Enormous time savings over conventional perf & plug method.
- Achieved far field diversion through screenout avoidance

CobraMax DM service involves pumping concentrated sand slurry down the tubing to mix downhole with a high rate clean fluid being pumped down the annulus. This creates uniform slurry within 6ft of the mixing tool.

- Used less than half of the hydraulic horsepower typically used on conventional jobs in the area
- Time between treatment stages was reduced to about 38 minutes, compared to the 2-4 hours per stage using the conventional perf & plug method which requires a trip in and out of the well

ECONOMIC BENEFIT – The CobraMax DM process offers the potential to improve long-term production by using reservoir diversion as a means of increasing the conductive stimulated reservoir volume surface area. This technique had been approached tentatively in the past due to sensitivity of the rock from changing proppant concentrations but lacked the ability to
control downhole proppant concentrations instantaneously. The CobraMax DM process enables this downhole control and enables low-risk, aggressive treatment schedules required for effective stimulation. The production increased 51% over the two offset wells completed by the Plug and Perf method. The total economic value created (EVC) is $122,718.28, based primarily on increased BOE production. (04/30/2013 prices)

The CobraMax DM service provided the ability to avoid a screenout and continue pumping into the fracture (1/2). In addition far field diversion was achieved and a propped branch fracture was potentially created (2/3). As per schedule a sand plug was placed and the interval was isolated (4).

For more information about how CobraMax® DM service can help optimize your stimulation treatment, contact your local Halliburton representative or email stimulation@halliburton.com.

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