



Radial Drilling Pilot Project For The Development Of Hard To Recover Oil And Gas Condensate Deposits In Siberia

Lateral jetting technique cost effectively increases completion performance in low productive terrigenous formations.

CHALLENGE

Analyze the practicality of the full-scale application of radial drilling technology. Utilize laterals as a cost effective alternate to fracking to achieve & improve production in terrigenous formations.

SOLUTION

Accurately place a sequence of laterals maximizing formation penetration with surgical depth precision.

RESULTS

Bettered AFE time/cost substantially. Increased delta production of oil by 32 M3/Day (268 bopd).



Terrigenous formation suffers from low productivity.

Five wells were chosen to test the cost effectiveness of utilizing radial drilling laterals to produce terrigenous formations of low reservoir characteristics not conducive to frac applications.

Surface core tests and analysis indicated good formation response to designed stimulation fluids, opening additional flow channels not normally seen with conventional completion fluids.

Effective solution through sequenced lateral placement.

The operator decided to evaluate the effectiveness of sequential placement of laterals in addressing low production rates associated with fracturing and conventional completions.

The laterals were systematically placed to allow delivery of maximum natural flow returns to the main wellbore and to surface.

Laterals were achieved using fluid volumes no more than 1,000 liters per lateral and configured for zero formation invasion.

28% increase in production, reduced cost without loss of efficiency .

Following lateral placement, the wells flowed back and produced using similar choke sizes. A production increase of 28% was achieved.

Radial drilling efficiency on multi horizon wells was proven. Cost effective delivery per lateral was proven.

Hydraulic fracturing	Radial Drilling	Reperforation
Fluid production increase, chance to involve thin sands, risk of penetrating water-saturated beds	"Surgical" deep penetration into formation, major change of water content and reservoir coverage is possible; possibility of selective treatment	No major change of water content, possibility of selective treatment
Remedial cementing is not possible	Remedial cementing is possible	Remedial cementing is possible
Logistic difficulties	Simple supply logistics	Simple supply logistics
High cost	Average cost	Low cost



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