WI14

Performance Assessment of Maximum Reservoir Contact Well in a Tight Carbonate Formation and Impact on Field Development

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SUMMARY

The paper describes the work undertaken in designing, planning and execution of a testing program for assessment of production and injection performance in a Maximum Reservoir Contact well drilled in a 1-2 mD permeability reservoir. The well is successfully geo-steered within dolomitized zone (4 ft) of relatively higher permeability near the base of the reservoir interval. The well is completed with a 11,000 ft pre-perforated liner designed for selective acid stimulation across compartments isolated by external packers.

Moreover, core plug analysis showed a high percentage of micro pore throat size distribution in some layers. Therefore, a water injection test was carried out to address the concerns of potential plugging by large particle size. Hence, a water injection plant using a reverse osmosis filters was installed to remove solids above 0.5 microns and to ensure minimum plugging. Testing results have shown effective injection index and intake rates and no major evidence of formation damage due to pore plugging.

Production and injection data acquired have been utilized to tune simulation model and improve full field production and injection forecasts

The conclusions provided insights on well placement, completion design & recovery process for effective sweep efficiency to maximize recovery & reduce capital expenditure.

Abstract

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A production testing program included pre & post stimulation PLT (Production Logging Tool) jobs, showed a relatively uniform flow distribution and proved the efficiency of the pre-perforated liner for stimulation.

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