Ceramic proppant outperforms sand completed wells in Bakken, Dunn County

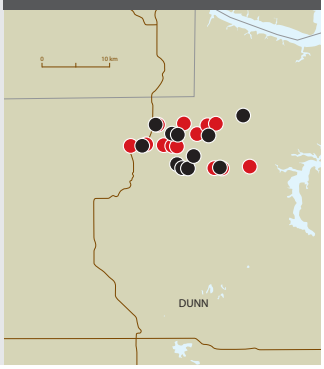
Production and ROI from 15 wells engineered with a ceramic proppant completion outperformed comparable sand completed wells. Additionally, the optimized design reduced environmental and operational impact.

Production and economic benefits

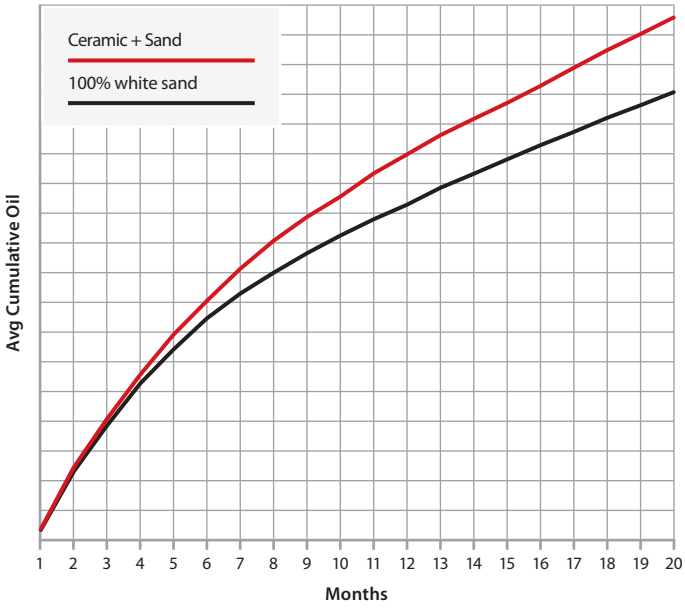
Logistical, operational & environmental benefits

25%	17%	8%	18%	16%
IMPROVEMENT	INCREASE	INCREASE	DECREASE	DECREASE
Return on investment	Production volume	Fracturing cost	Frac fluid volume	Fracturing time

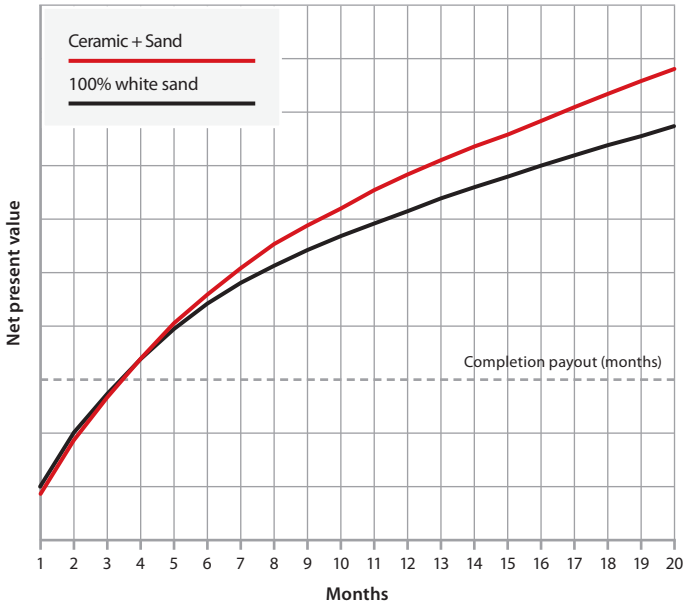
Well depth: 10,800 ft TVD



Avg Cumulative Oil (STB) vs. Months



Net present value vs. Months



Note: Cost and prices for 2017 based on Well Operating Cost of $10,000 per month, Discount Factor of 10%, Oil Rate of $50.00 bbl, Gas Rate of $2.00 MCF and Water Disposal Cost of $3.00 bbl

Proppant Type (No of Wells)	TVD (ft)	Lateral Length (ft)	Proppant Mass (lb)	Fluid Volume (gal)	Number of Stages	Fracturing Cost ($M)
Ceramic + Sand (15)	10,799	8,676	3,801,151	3,395,959	26	$2.78
White Sand (15)	10,906	8,618	4,015,335	4,129,623	31	$2.57

Talk to CARBO to find out how we can help you to engineer an optimized completion to maximize your return from every well.

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