




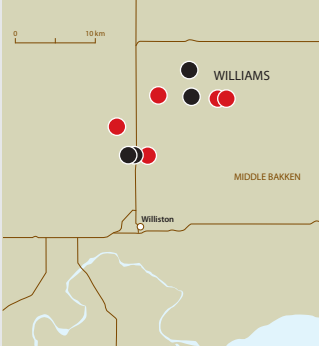


Ceramic-enhanced completion improves ROI compared to sand only, Middle Bakken, Williams County

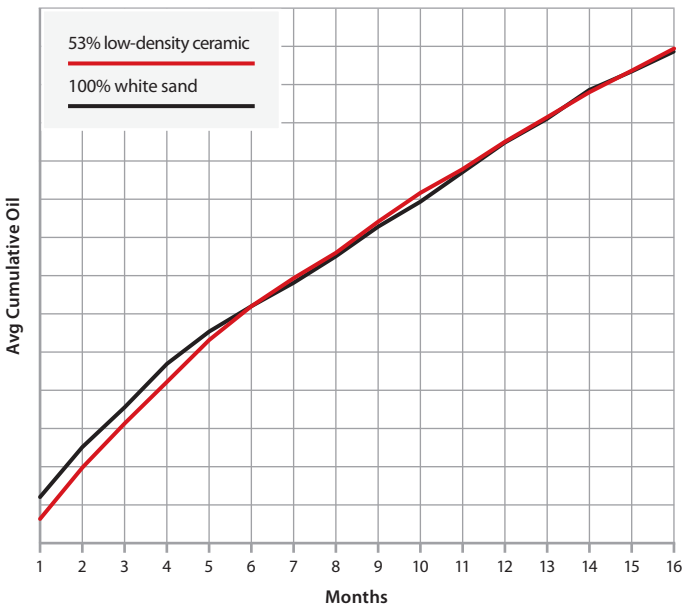
Production and ROI from wells with completions engineered with 47% sand and 53% low-density ceramic proppant outperform comparable sand completed wells. The optimized completion design lowered fracturing costs, while reducing environmental and operational impact.

Production and economic benefits			Logistical, operational & environmental benefits	
 30% IMPROVEMENT Return on investment	 NO CHANGE Production volume	 17% DECREASE Fracturing cost	 45% DECREASE Frac fluid volume	 45% DECREASE Proppant truck traffic

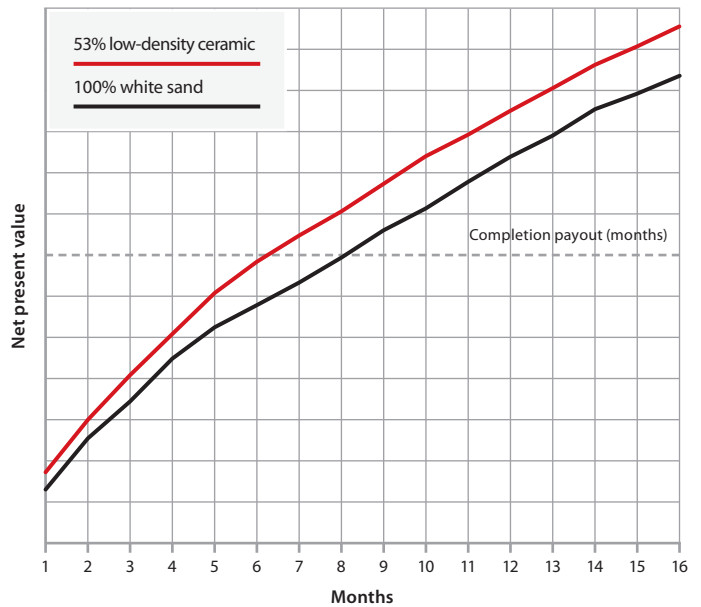
Well depth: 10,490 ft TVD



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)
Sand + Ceramic (9) (53% Ceramic)	10,618	9,873	3,380,442	5,062,601	31	\$2.95
White Sand (5)	10,470	9,490	6,183,072	9,274,702	34	\$3.44

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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Production. Enhanced.