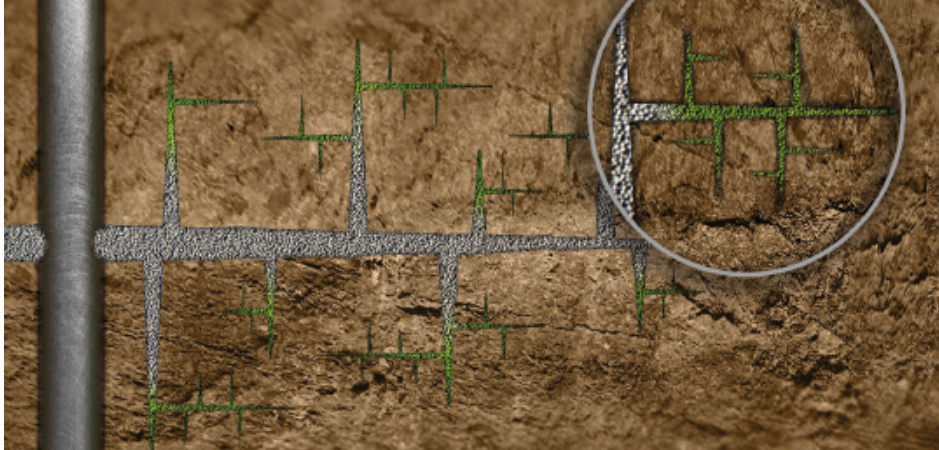


Enhanced recovery and value in Bakken

NANOMITE ceramic microproppant provides 10% uplift

Mountrail County, ND



Well Data

Location: Mountrail, North Dakota

20 Wells
Middle Bakken and Three Forks

7 Wells leading with NANOMITE™:

- 1 well pad
- 4 Wells in Three Forks Formation
- 3 Wells in Middle Bakken Formation
- 10,000-15,000lbs. NANOMITE per stage

13 Offset Wells - No NANOMITE:

- 13 offset well pads
- 7 wells in Three Forks Formation
- 6 wells in Middle Bakken Formation

The challenge

A major independent operator is continually looking for ways to improve recovery in their Bakken acreage. Improving recovery from their wells will not only improve return on investment, but also reduce their environmental impact per barrel produced.

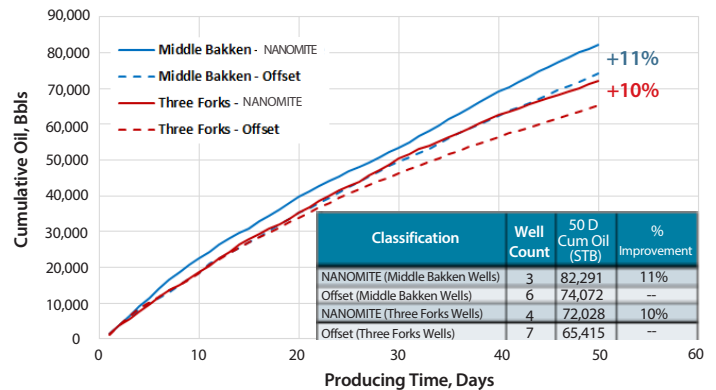
The solution

CARBO recommended a lead-in of NANOMITE, a ceramic microproppant which has the ability to improve cluster efficiency as well as prop open microfractures after the well is placed on production. These aspects will improve production and ultimate recovery. The operator deployed ~12,000 lbs of NANOMITE (2.5% of total proppant) in each stage of the 7 well pad, with three wells completed in the Middle Bakken, and four wells in the Three Forks. The production performance was compared to 13 wells on three offset pads (6 Middle Bakken and 7 Three Forks), with similar lateral lengths and proppant loading per foot.

The results

After 50 days of production, the wells treated with NANOMITE are producing ~10% more production than the offset wells, with an average uplift of 7000 BOPD per well, generating an incremental \$500k value per well, and have already paid-out the incremental NANOMITE investment. The operator is pleased with the results and is now planning to deploy NANOMITE on upcoming wells.

NANOMITE Wells vs. Offset



	% Uplift @50 days	Bbls Uplift @50 days	Incr Revenue* @50 days	Projected 365 day Uplift	Incr Revenue* @ 365 days
Middle Bakken	11%	8,219 BO	\$616k	26,879 BO	\$2.7MM
Three Forks	10%	6,613 BO	\$496k	22,870 BO	\$1.7MM

NANOMITE payout in <50 days at \$75/bbl offering a 10x investment after one year.

Talk to CARBO to find out how we can help you enhance your production.

carboceramics.com



Production. Enhanced.