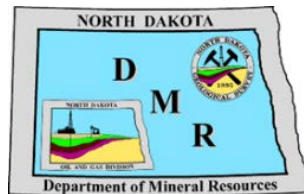


**NORTH DAKOTA
DEPARTMENT OF MINERAL RESOURCES:**
OIL & GAS UPDATE

September 5, 2018 | Government Finance Committee



Visit Us: www.dmr.nd.gov

PRODUCING WELLS

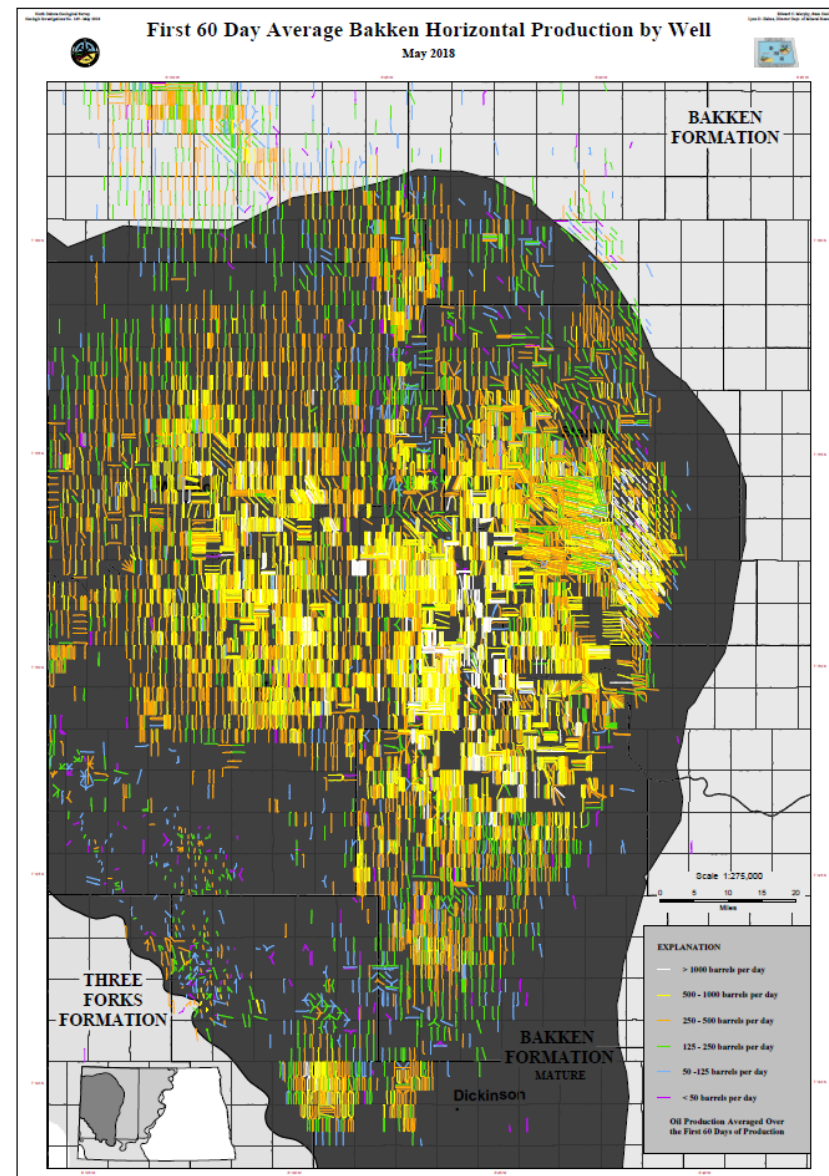
ACTIVE DRILLING RIGS

OIL & GAS PRODUCTION

Wells

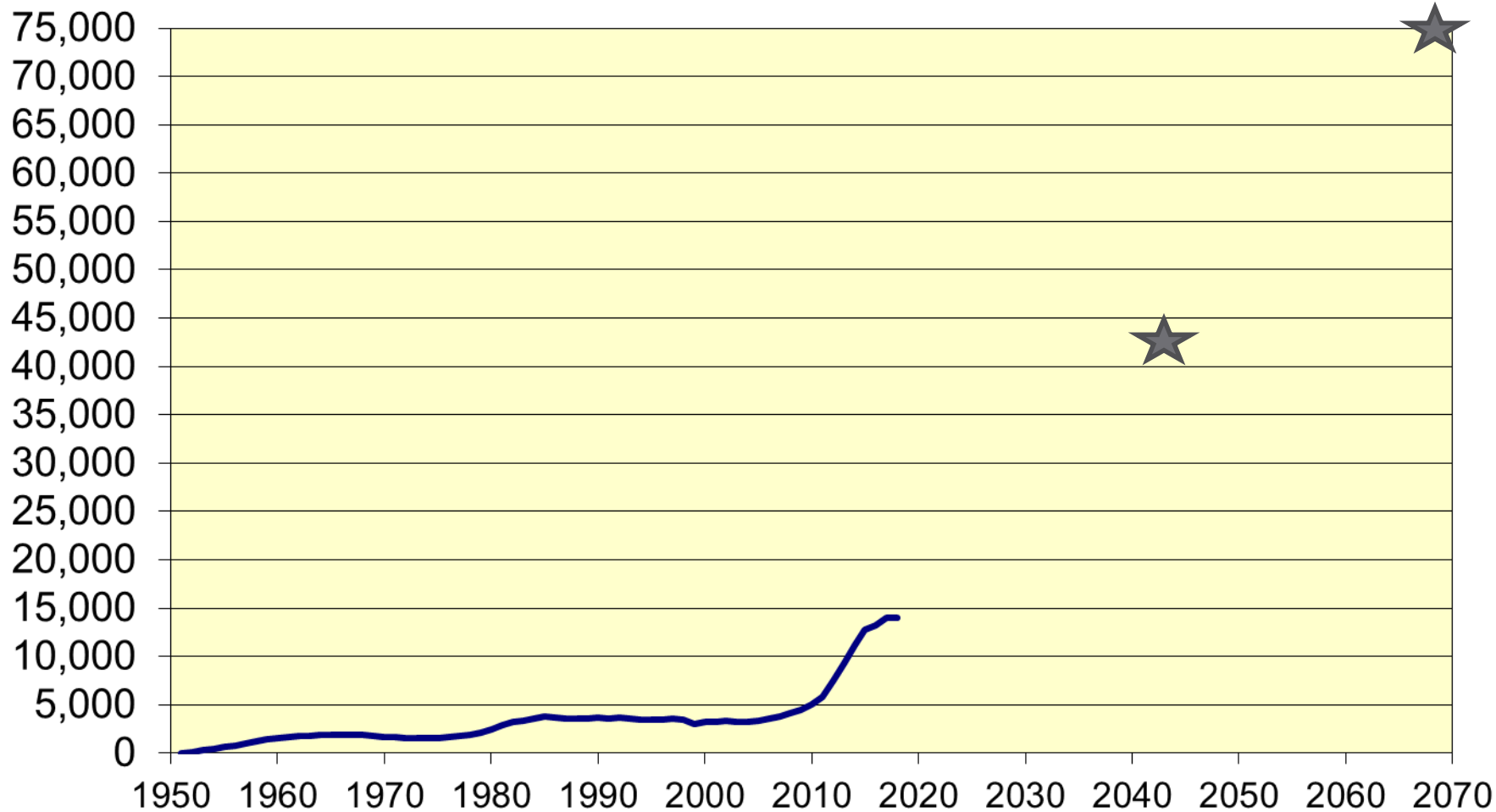


Active	14,778
Conventional	1,875
Bakken/Three Forks	12,903
Inactive	1,458
+\$50 for 90 days Jan 2018	
Waiting on Completion	993
+\$55 for 90 days Feb 2018	
Permitted	1,922
+\$60 for 90 days April 2018	
Increase Density	13,087
Approved 07/06/18	
Total	32,238
Estimated Final	42,000 - 75,000
\$60-80/BO & 60-70 rigs	24 - 49 years



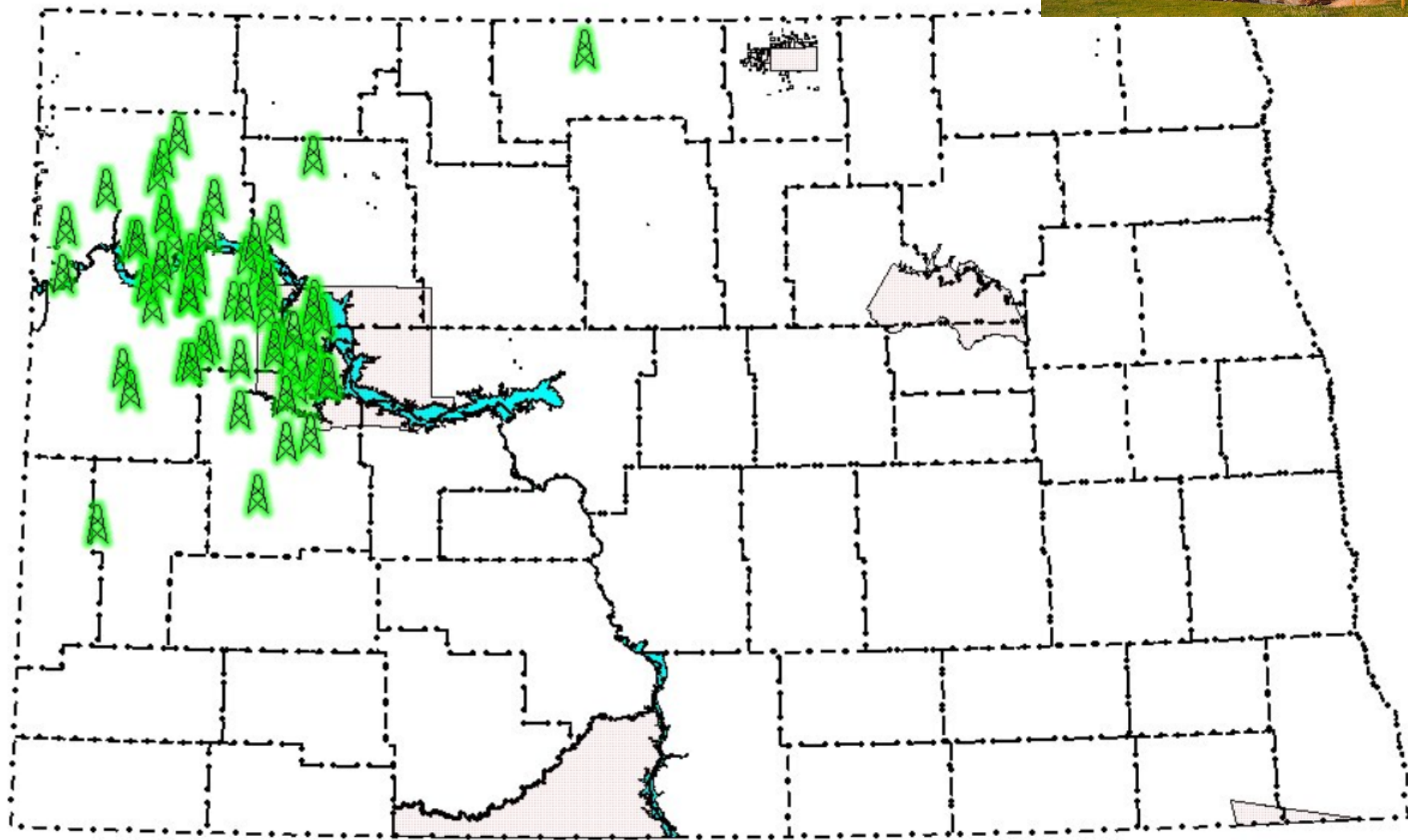
Producing Wells

North Dakota Wells Producing

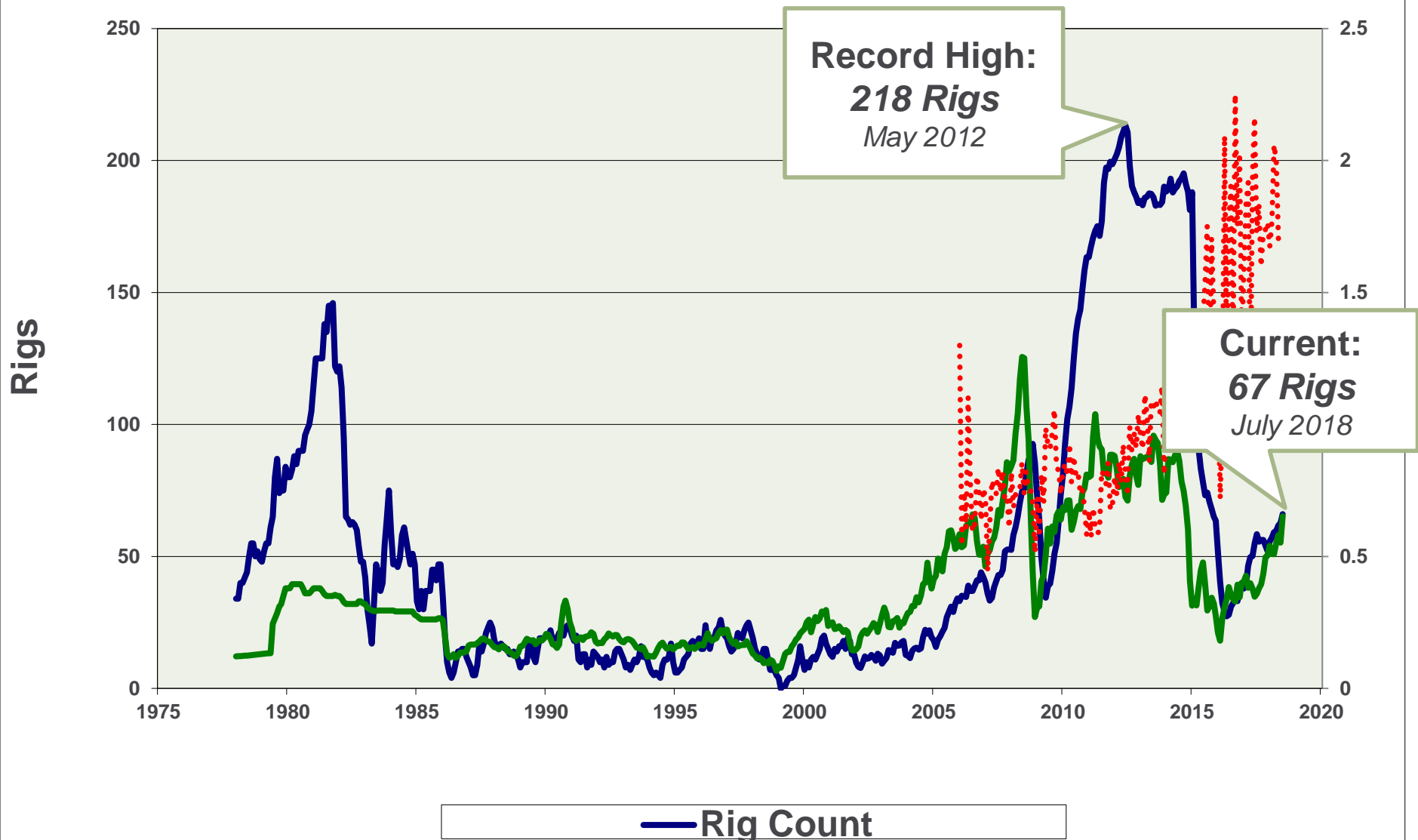


PRODUCING WELLS
ACTIVE DRILLING RIGS
OIL & GAS PRODUCTION

Rigs - 61

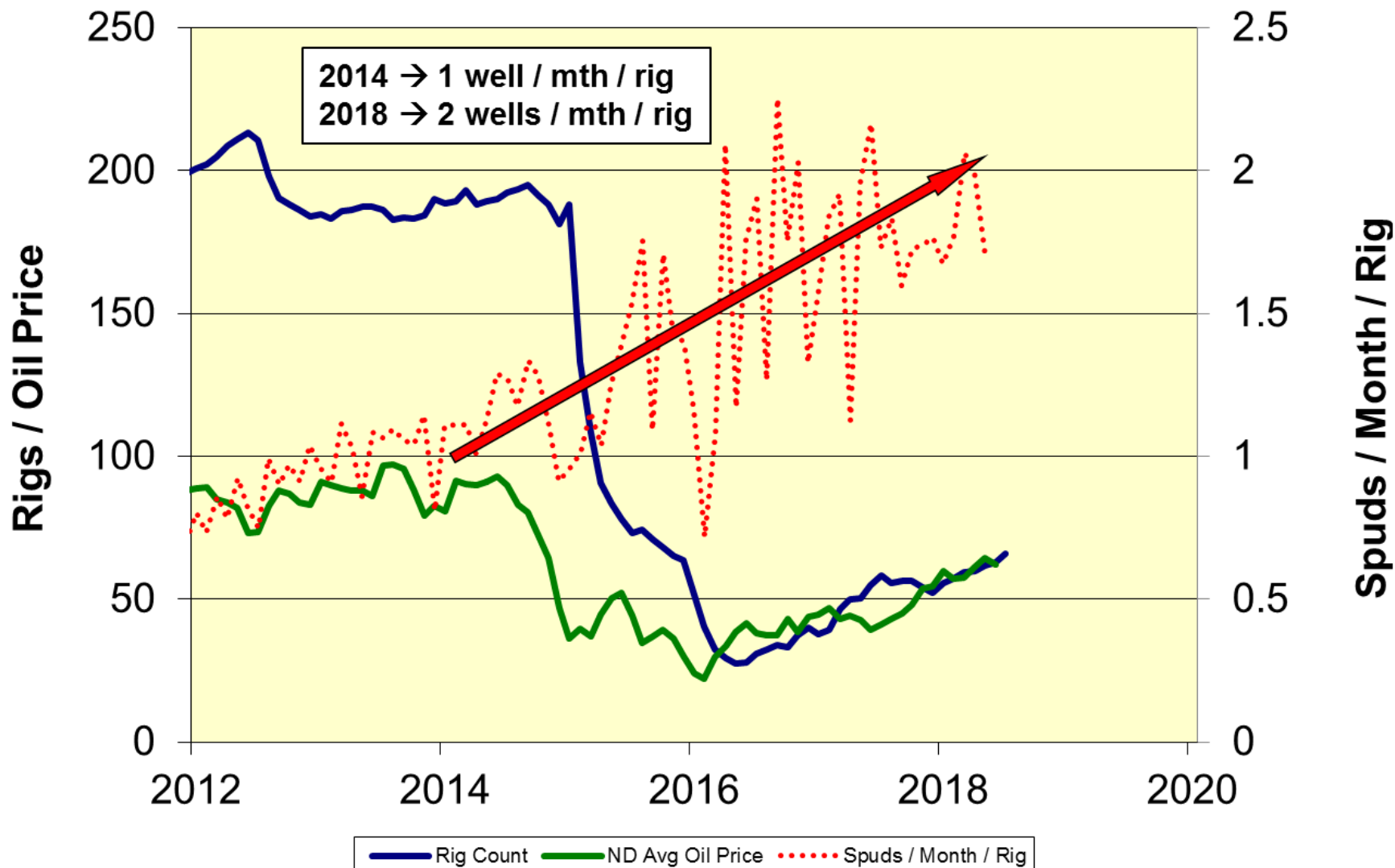


North Dakota Average Monthly Rig Count





North Dakota Average Monthly Rig Count



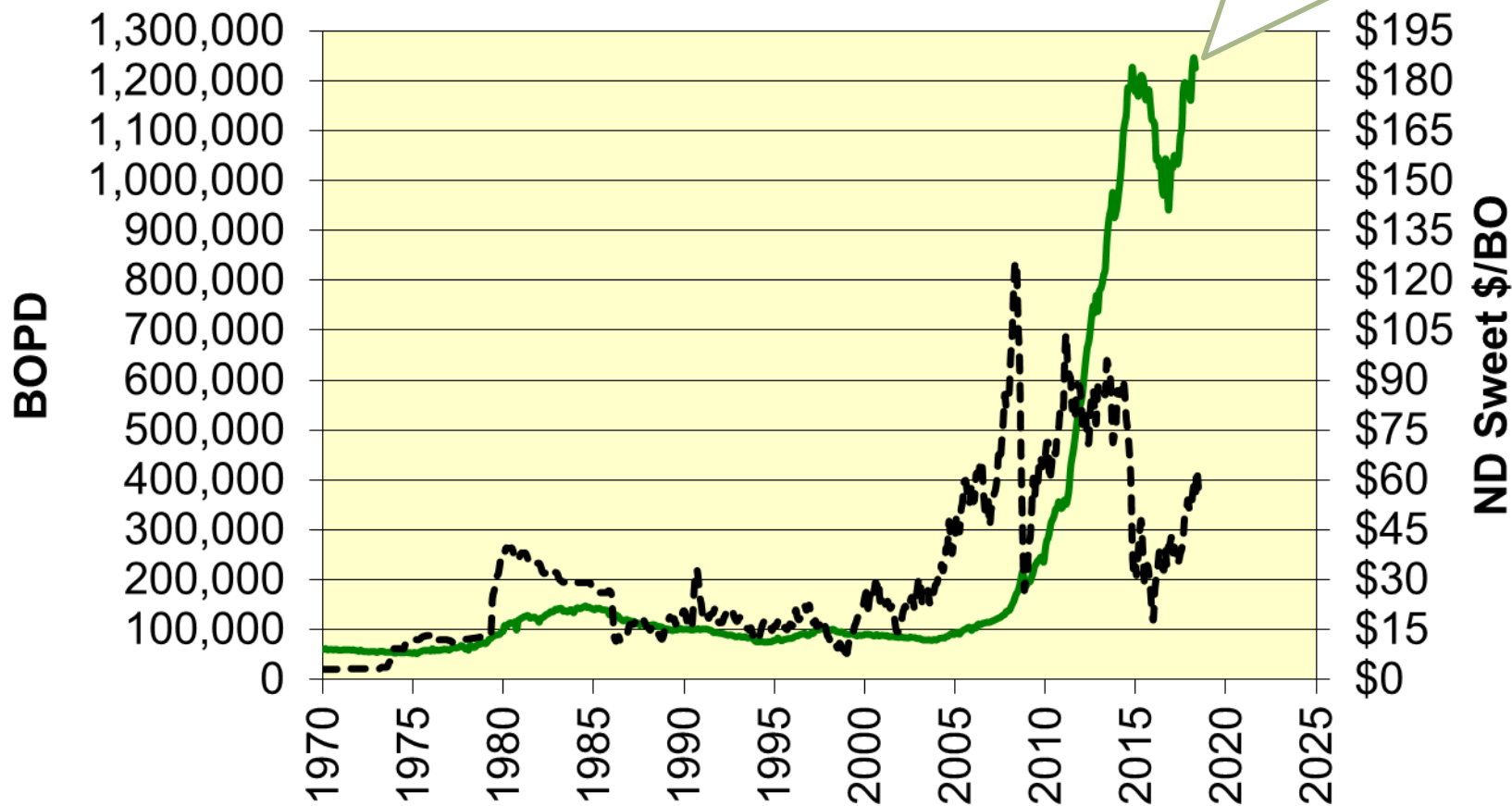
PRODUCING WELLS
ACTIVE DRILLING RIGS
OIL & GAS PRODUCTION

Oil & Gas Production



North Dakota Daily Oil Produced and Price

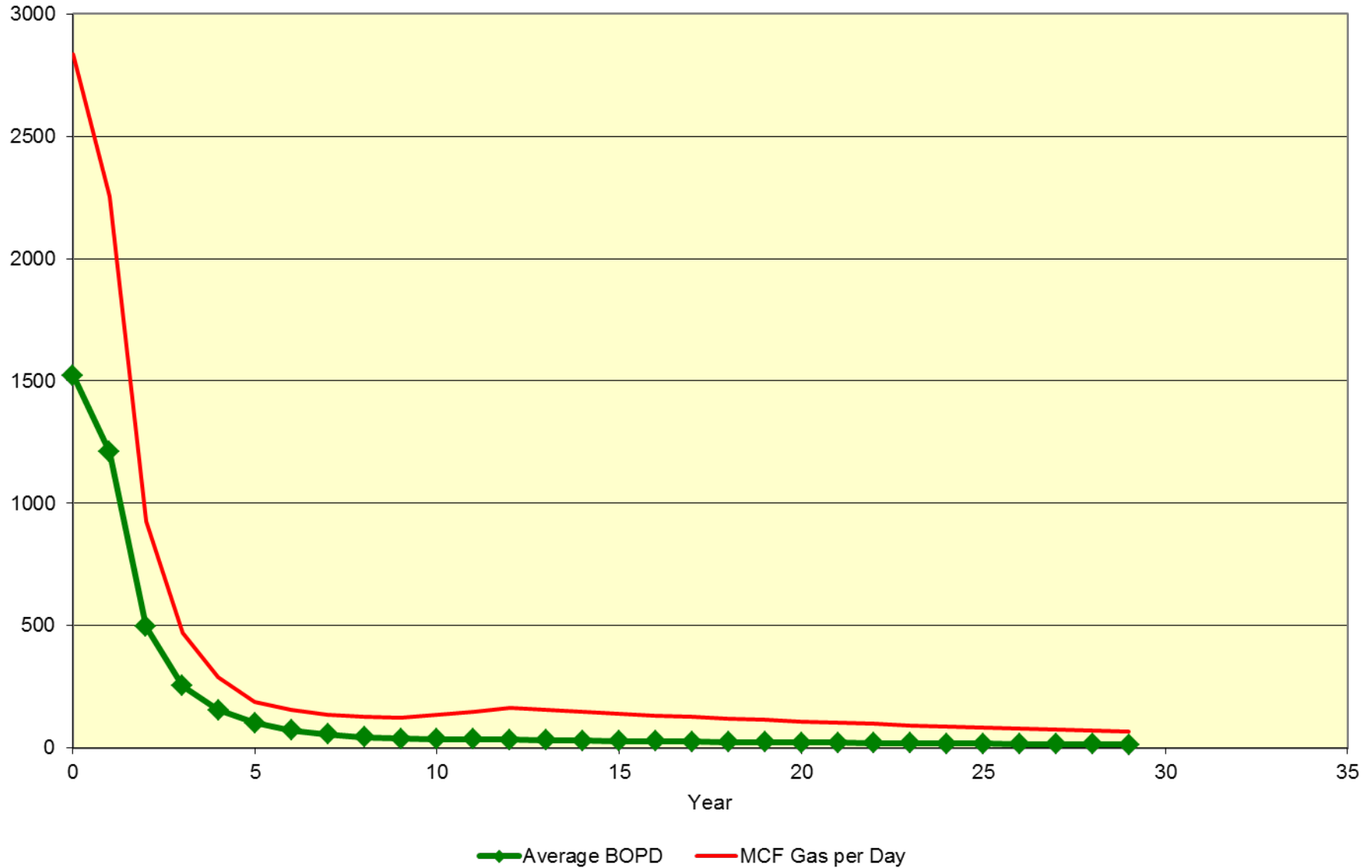
All-time high
1,244,629
barrels/day
May 2018



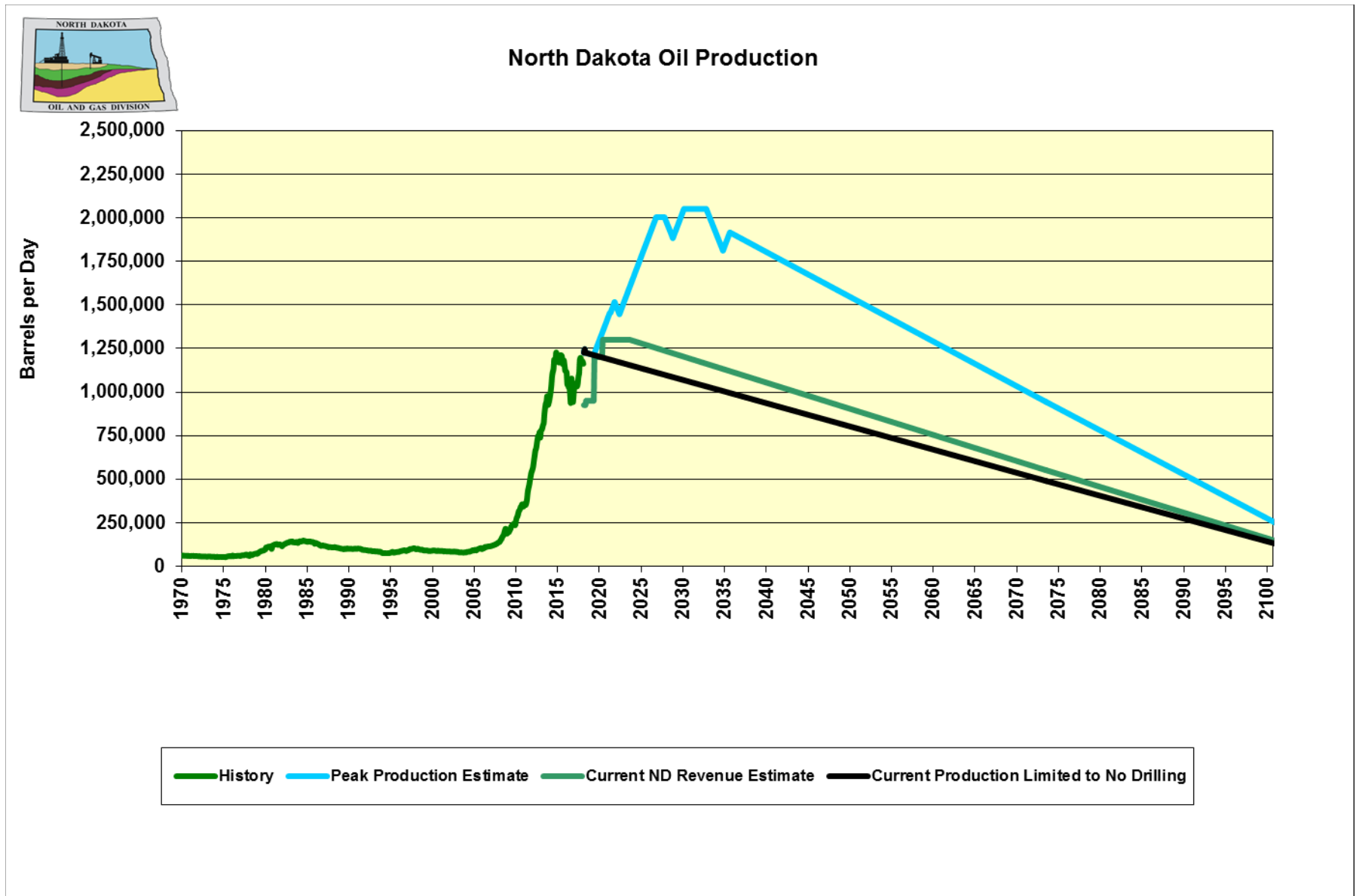
— BOPD --- \$/BO

Oil & Gas Production

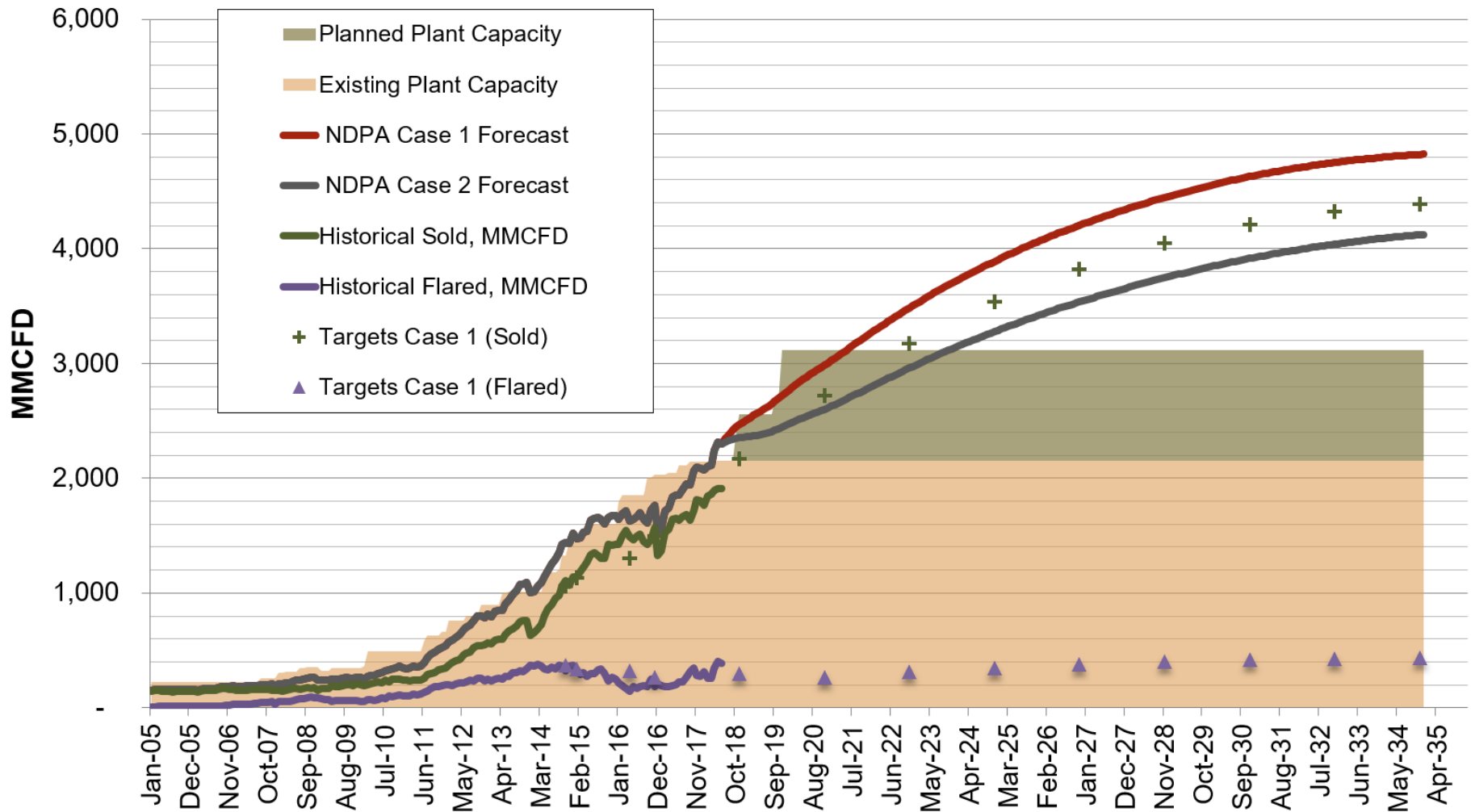
Typical Bakken Well Production



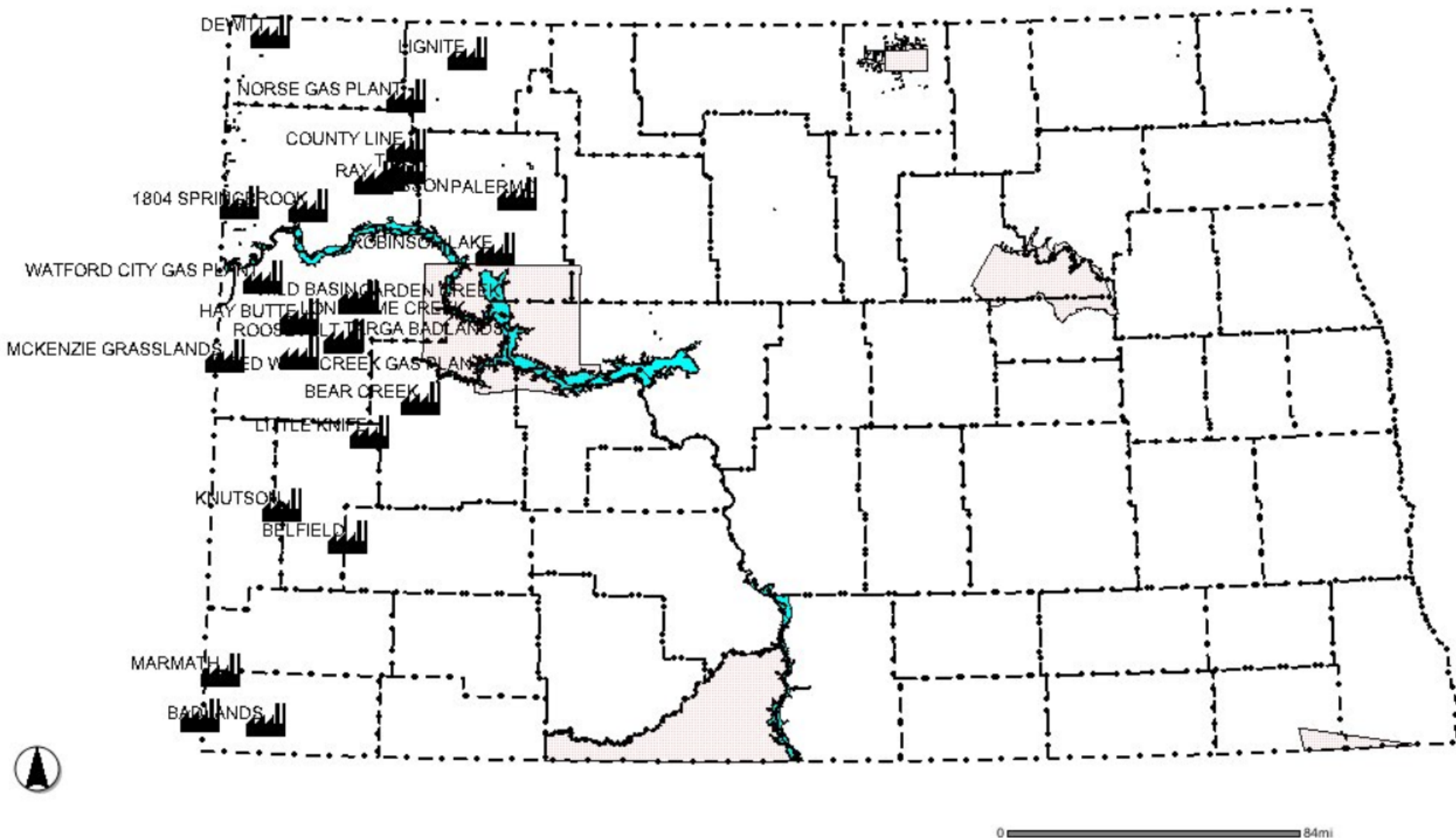
Oil & Gas Production



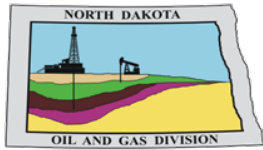
Gas Production Forecast



Gas Processing Plants



Oil & Gas Production



North Dakota Oil Production and Price



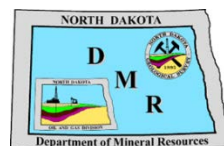
— \$/Barrel NDSweet History ◆ Revenue Forecast — \$/Barrel WTI - 10%

NORTH DAKOTA
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Enhanced Oil Recovery (EOR)¹

- EOG is the 1st company to say it has significantly increased oil production from an unconventional play using gas injection.
- Field tests since program started in 2013:
 - The production increases on 15 wells indicated from 30-70% reserve gains.
 - A 32-well test in 2016 added 300,000 bbl of oil at \$6/bbl finding cost.
 - Work is ongoing on 100 wells in six areas in 2017.

Enhanced Oil Recovery (EOR)¹

Inputs and Outputs

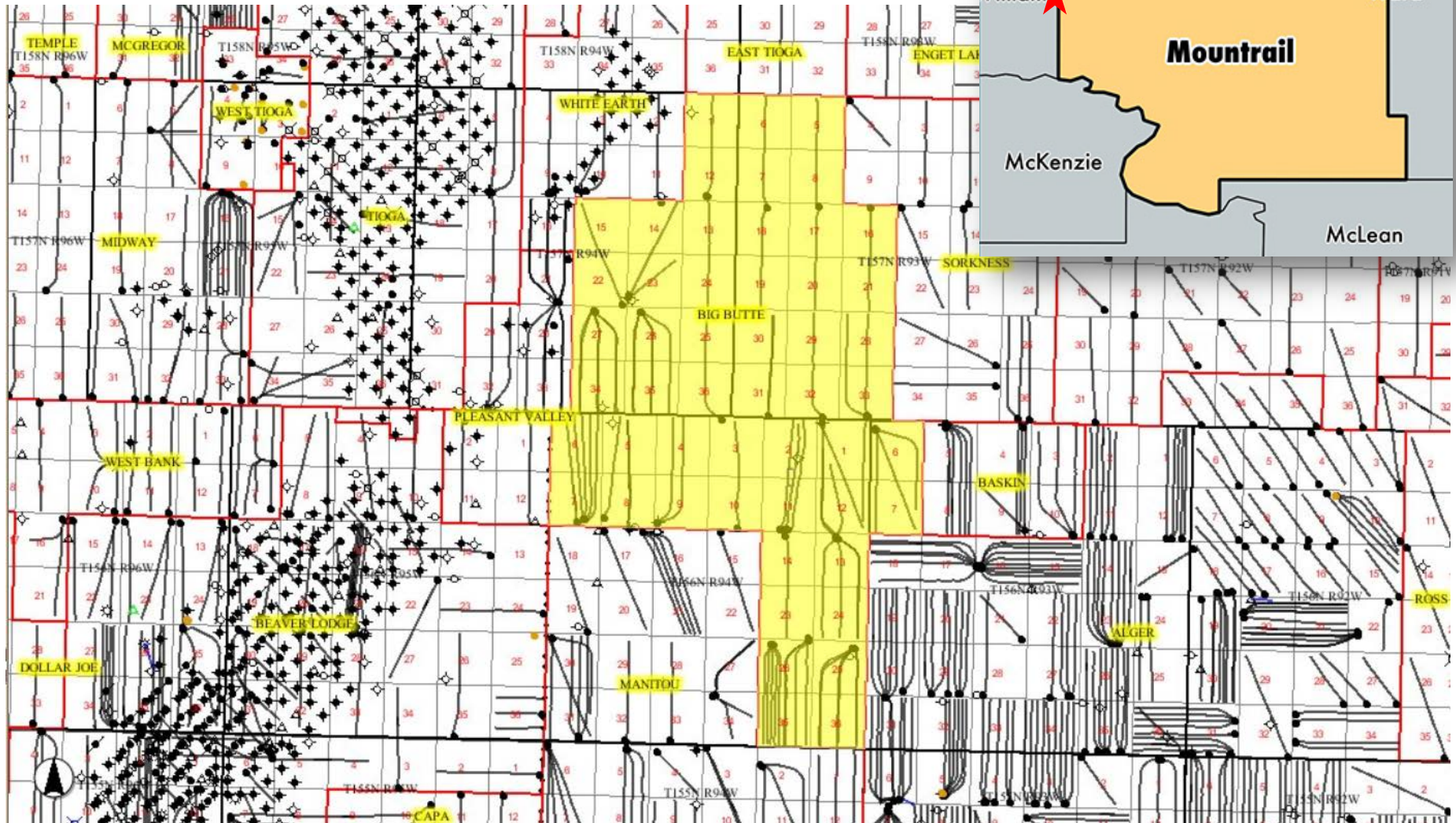
- Additional capital costs average about \$1 million per well
- The process uses associated gas from its wells
- Production response is in 2-3 months
- \$1 invested adds \$2 to net present value

It Works if:

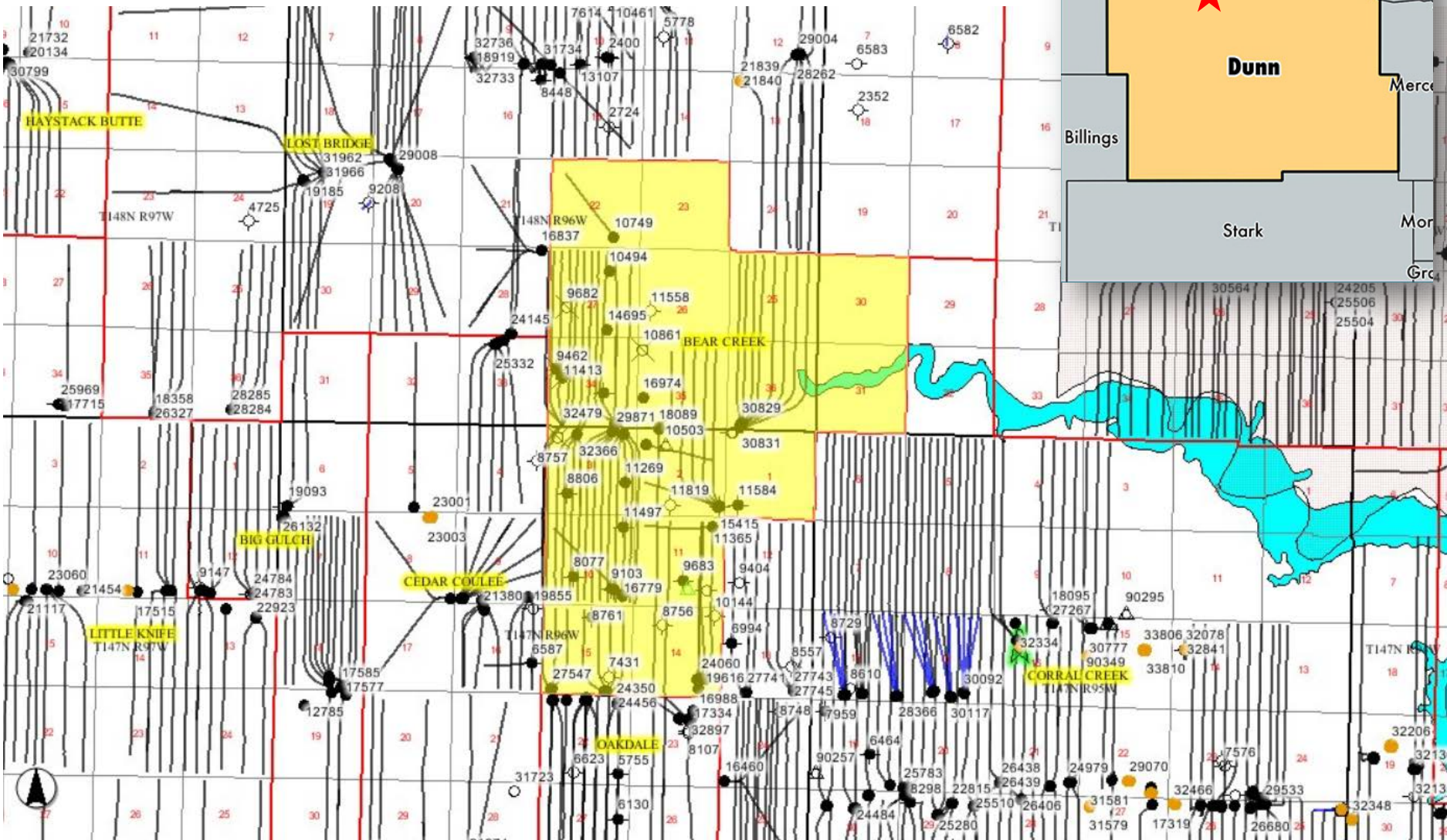
- The formation is able to contain high-pressure gas injection near the well.
- Wellbores contact the most productive rock.
- The completion maximizes the fractured area within a restricted zone around the wellbore.

¹ Source: EOG

Big Butte



Bear Creek



Red Wing Creek

