



Department of Mineral Resources

Mark Bohrer

June 19, 2024

NORTH
Dakota Be Legendary.™

History

Abandoned Oil and Gas Well Plugging and Site Reclamation Fund (AWPSRF)

- Started in 1983 NDCC 38-08-04.5
- Historically underfunded by fees, fines, and confiscated bonds. Took many years to clean up locations.
- 80% of the orphaned sites that used CARES Act funding were drilled 1950-1985
- Since 2013 a portion of Gross Production Tax allocated to the fund creating a growing fund balance.
- Now allocate \$15 million a biennium to AWPSRF.
- Industry and State have successfully reclaimed more than 14,552 wells and sites.
 - 2,600 sites in progress pending final approval.
- State has successfully reclaimed more than 360 wells and sites.
 - \$50 Million CARES Act funds plugged 258 wells and reclaimed 173 sites
 - \$5.9 Million Bond Forfeitures plugged 50 wells and reclaimed 70 sites
 - \$36.4 Million AWPSRF plugged 60 wells and reclaimed 118 sites
 - \$17 Million IIJA Initial Grant (\$25 Million) plugged 73 wells, reclaimed 53 sites. 49 sites to finish in 2024
- Worked with Terracon and NDSU to develop a process and long-term plan to restore salt damaged lands at a cost of \$1.7 million.
 - Terracon has completed 2 brine pond sites, and the outcome has been successful. \$1.2 million spent
 - One more site was started this spring
 - 70% of IIJA Formula Grant Phase I money will be spent to restore all known sites, beginning 2025₂

2023-2025 GOALS

Abandoned Well and Site Restoration

▪ June 30, 2023, fund balance		\$25,312,303
▪ Fees, fines, and forfeitures	5,539,117	
▪ Gross Production Tax distribution	7,500,000	
▪ ARPA and IIJA Initial Grants Revenue	15,640,080	
▪ ARPA and IIJA Initial Grants Work	-15,596,135	
▪ Plugging and reclamation work	-3,172,373	
▪ Evaporation pit remediation (legacy brine pits)	-1,638,071	
▪ Ag Dept Pipeline Ombudsman Program	-34,412	
▪ Ag Dept Royalty Oversight Program	-70,568	
▪ Miscellaneous (credit card fees)	-6,052	
▪ Estimated June 30, 2024, fund balance		\$33,473,916
▪ Future Gross Production Tax distribution	7,500,000	
▪ ARPA and IIJA Initial & Formula Grants Revenue	11,360,000	
▪ ARPA and IIJA Initial & Formula Grants Work	-11,404,000	
▪ Plugging and reclamation work	-1,500,000	
▪ Evaporation pit remediation (legacy brine pits)	-1,400,000	
▪ Transfer to DEQ Environmental Quality Restoration Fund	-400,000	
▪ Remaining Ag Dept Pipeline Ombudsman Program	-165,588	
▪ Remaining Ag Dept Royalty Oversight Program	-429,433	
▪ Anticipated June 30, 2025, fund balance		\$37,434,817

5-10 year Goals

Abandoned Well and Site Restoration

- “Vision Zero” for spills. Encourage operators/owners to use new technologies for leak detection, protection, and monitoring to prevent pipeline spills and minimize the damage from any that do happen.
- Reduce physical inspections through the use of drone technology for all but final release inspections.
- Reduce excavate and replace method of spill restoration and replace with bioremediation when possible.
- Annual operator meetings concerning asset management and asset retirement to improve tracking.

- Implement Terracon process and long-term plan to restore salt damaged lands.
 - Continue to monitor full site projects.

- 2024-2029 use IJA funds to plug 50 wells, reclaim 116 Sites, and remediate 166 brine impacted sites at an estimated cost of \$100 million
 - Use Terracon’s developed plan to finish remediation of 105 brine ponds; goal is to finish during 2026.

CONSTRAINTS

Abandoned Well and Site Restoration

- Gross Production Tax allocation.
- Litigation.



- **Statistics**
- **The Next 10 Years** (Bakken Development & EOR) (Legacy EOR)

Oil Production

March	1,129,539 barrels/day (final)
April	1,241,106 barrels/day (all-time high 1,519,037 BOPD Nov 2019)

Revenue Forecast 1,100,000 barrels/day at \$70/barrel
GPT+OET+ST+IT > 52% of total State Tax Revenue

Gas Production and Capture

March Production	3,392,549 MCF/day
95% Capture	3,221,999 MCF/day
April Production	3,490,476 MCF/day (all-time high 3,582,821 MCFD Dec 2023)
95% Capture	3,328,104 MCF/day (all-time high 3,355,110 MCFD Dec 2023)

April Gas Capture

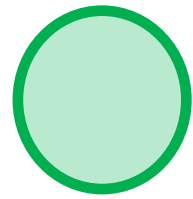
Statewide	95%
Statewide Bakken	96%
Non-FBIR Bakken	95%
FBIR Bakken	97%
Trust FBIR Bakken	97%
Fee FBIR	96%

Permits

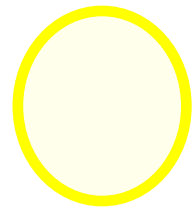
March	72 drilling and 2 seismic
April	79 drilling and 2 seismic
May	95 drilling and 0 seismic (all-time high 370 in 10/2012)

Rig Count

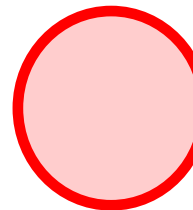
March	40
April	38
May	37 (all-time high 218 on 5/29/12)
Federal surface	0



Core=Tier 1
 90% developed
 +7,000 wells
 1-2% growth = 40 rigs = 5 years
 EOR – U – Riverbed – Straddle Wells

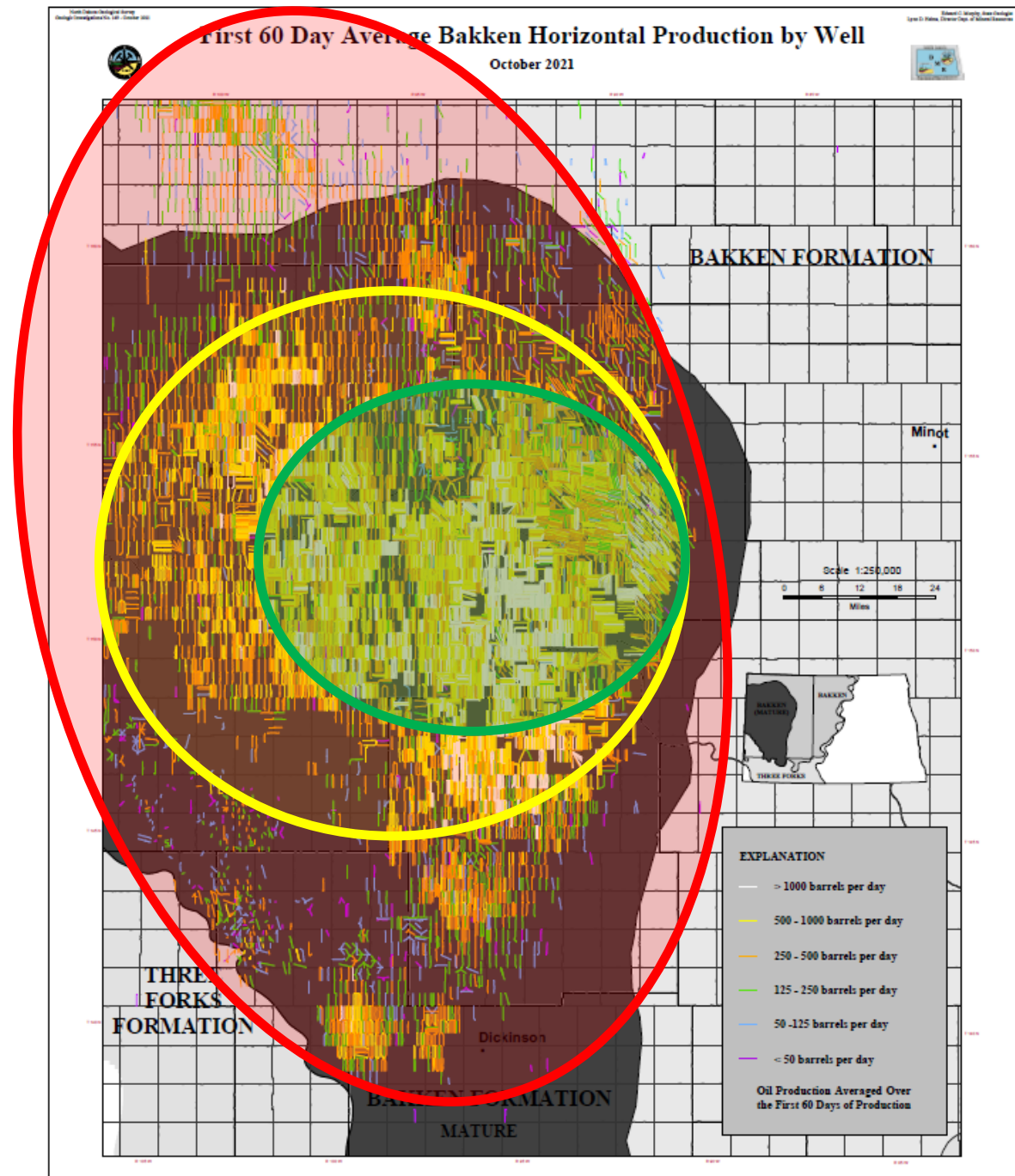


Tier 2
 55% developed
 +7,000 wells
 1-2% growth = 40 rigs = 5 years
 3-mile laterals & federal minerals



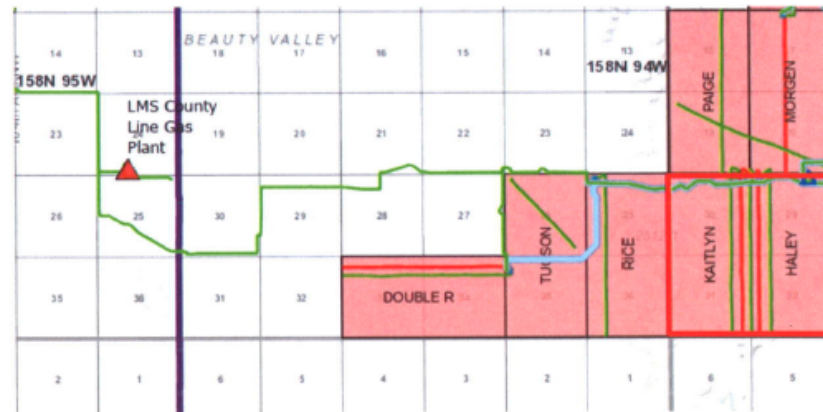
Tier 3
 25% developed
 +7,000 wells
 1-2% growth = 40 rigs = 5 years
 3&4-mile laterals & federal minerals

Total = 21,000 wells & 15 years
 Current 19,000 wells in 18 years



East Tioga

Features of Project Location



- 2560-acre Spacing Unit of Interest
- Existing Middle Bakken Horizontal
- Existing Three Forks Horizontal
- Existing Gas Pipeline (LMS)
- Existing Water Pipeline (LMS)

- Location selected based on results and learnings from prior Bakken EOR pilots, specifically the “Stomping Horse” pilot documented in NDIC Case No. 27926.
- Utilizes more recently completed infill wells (August ‘19); limited depletion.
- Accesses rich gas via connection to the gas plant gathering line.
- Liberty operates most of the offsetting DSUs.
- Well & completion design provides for favorable conformance along the horizontal interval using cemented liners with “Plug & Perf” completions.
- Jet pump operations ease well conversion to injection.
- Offset well configuration allows for surveillance and boundaries.

INDUSTRIAL COMMISSION
 STATE OF NORTH DAKOTA
 DATE 6-17-21 CASE NO. 28830
 Prepared by Liberty
 Exhibit E-2
 Identified By Rospigil

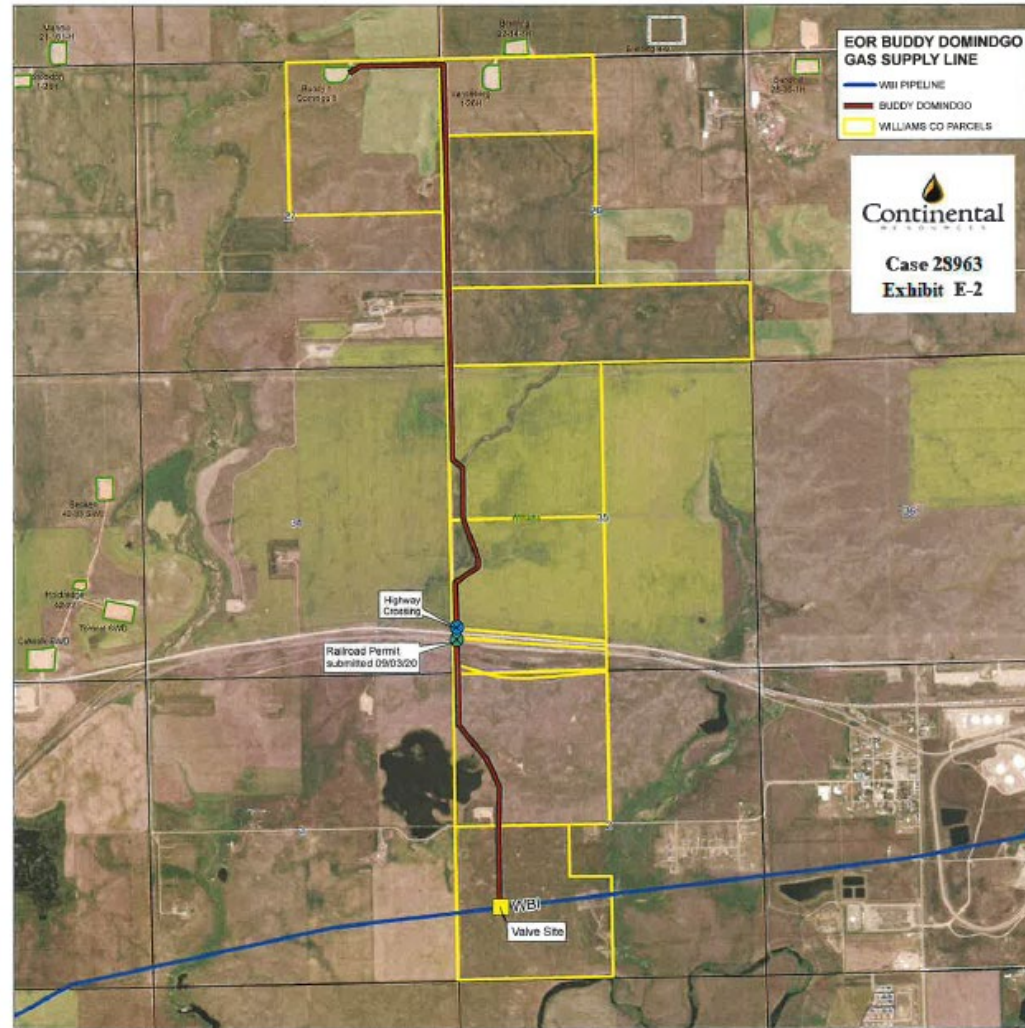


Big Butte

Location Map – Hess WI



East Fork



INDUSTRIAL COMMISSION
STATE OF OREGON
DATE 9-30-21 Case No 28963
APPROVED BY Continental
EXHIBIT E2
IDENTIFIED BY Bennett

Injection Schedule

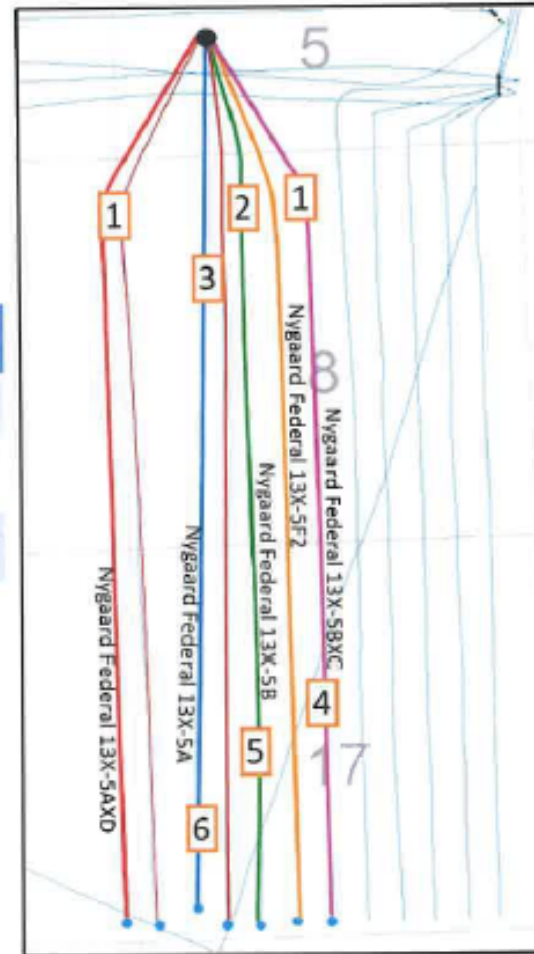
Four Nygaard Federal 13X-5 Middle Bakken wells to be used for treatment

- 5AXD – Surfactant ONLY (no gas)
- 5A, 5B, 5BXC – Surfactant and gas Co-Injection

WELL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER
5AXD	surfactant					
5A			Co-injection			Co-injection
5B		Co-Injection			Co-Injection	
5BXC	Co-injection			Co-Injection		

Starting May 2024 through October 2024 (only operating through “good weather window”)

1. Treat first co-injection well (5BXC) and then control well (5AXD, surfactant only)
2. Approximately one month later, treat second co-injection well (5B)
3. Approximately one month later, treat third co-injection well (5A)
4. Approximately one month later, repeat treatment in first co-injection well (5BXC)
5. Approximately one month later, repeat treatment in second co-injection well (5B)
6. Approximately one month later, repeat treatment in third co-injection well (5A)



Lost Bridge

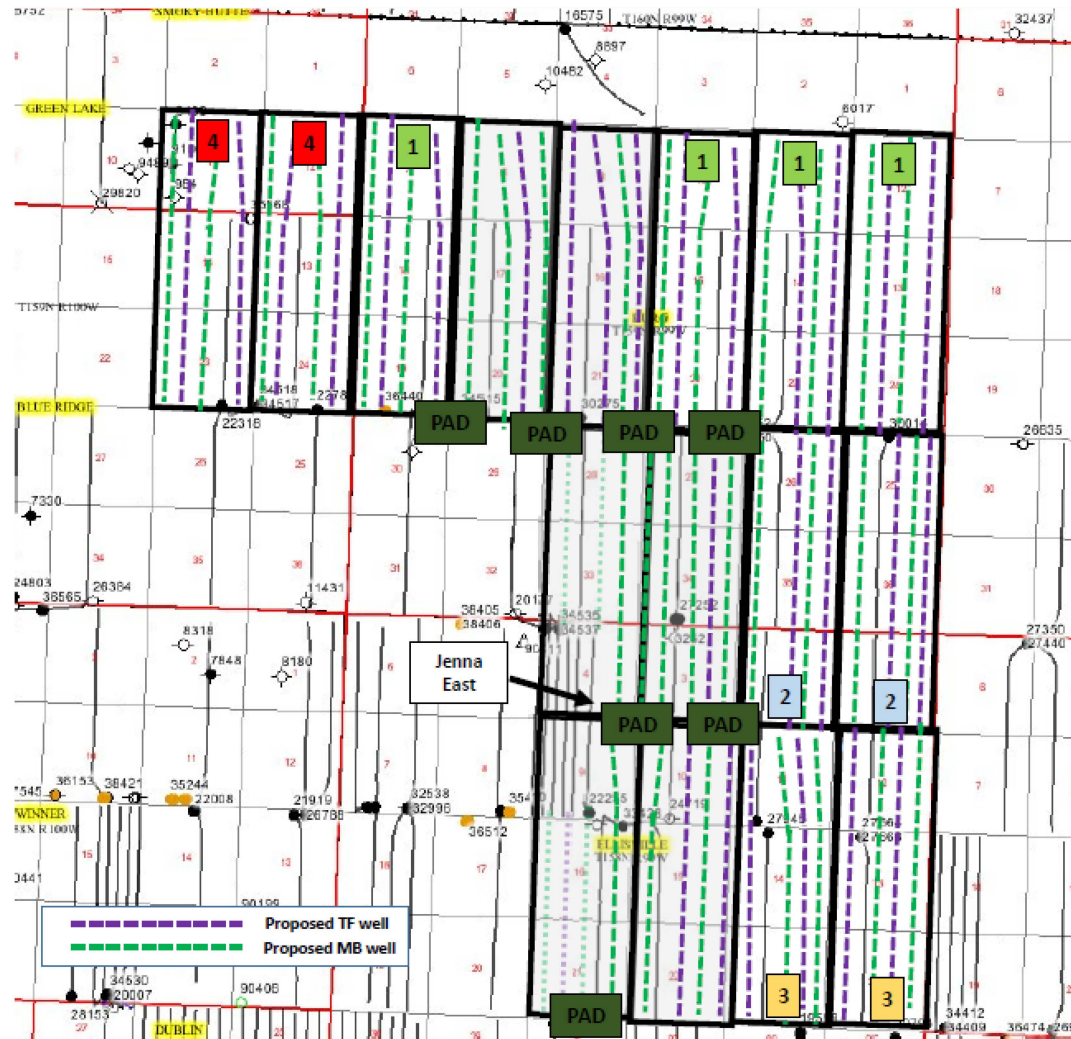
INDUSTRIAL COMMISSION
 STATE OF NORTH DAKOTA

DATE 3/21/24 CASE NO 30693

Introduced by XTO

Exhibit #10

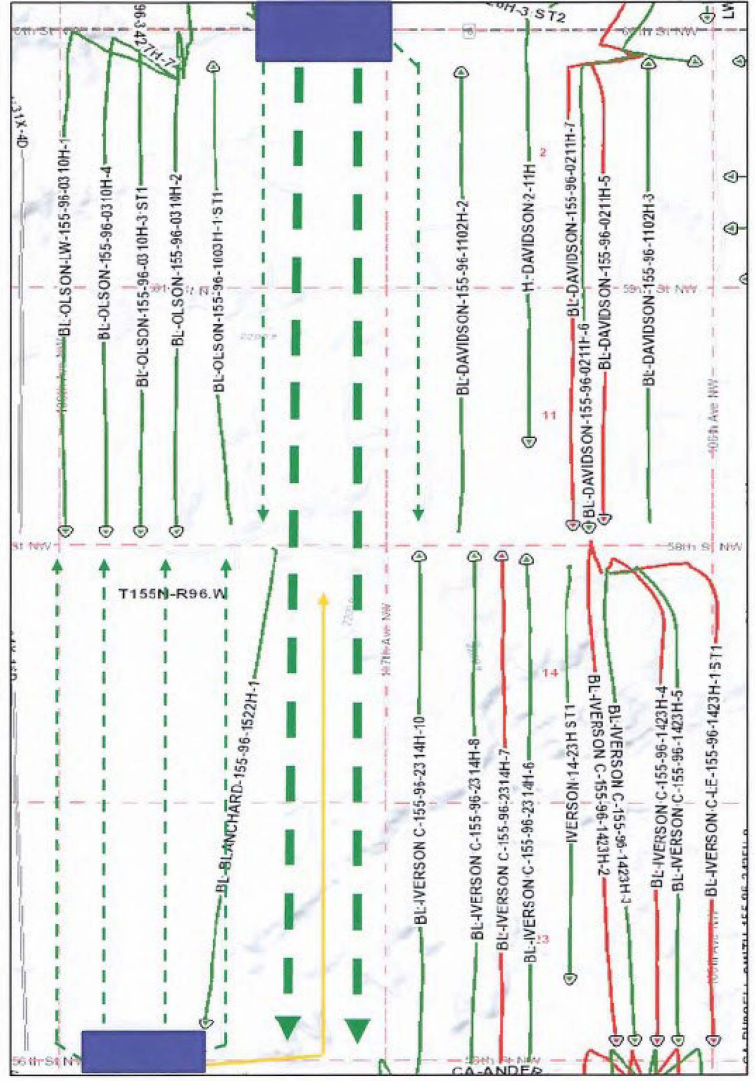
Identified By Leonardi



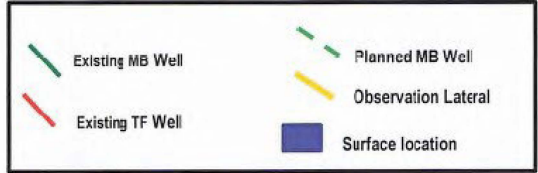
Legend	Case Status
	Heard in May/June 2021
1	28855
2	28856
3	28857
4	28858

Kraken Operating, LLC
Case Nos. 28855, 28856,
28857, 28858
July 28, 2021
Supp. Exhibit A

Proposed 2560 Developments in Beaver Lodge Field, ND
T155N-R96W, Sections 3,10 and 15,22



Note: Surface location, lateral placement, and casing set-points approximate only



INDUSTRIAL COMMISSION
STATE OF NORTH DAKOTA
DATE 1/17/24 CASE NO. 30611
Introduced By Hess
Exhibit 5
Identified By Kecheniv

Case # 30611
January 17, 2024
Exhibit # 5

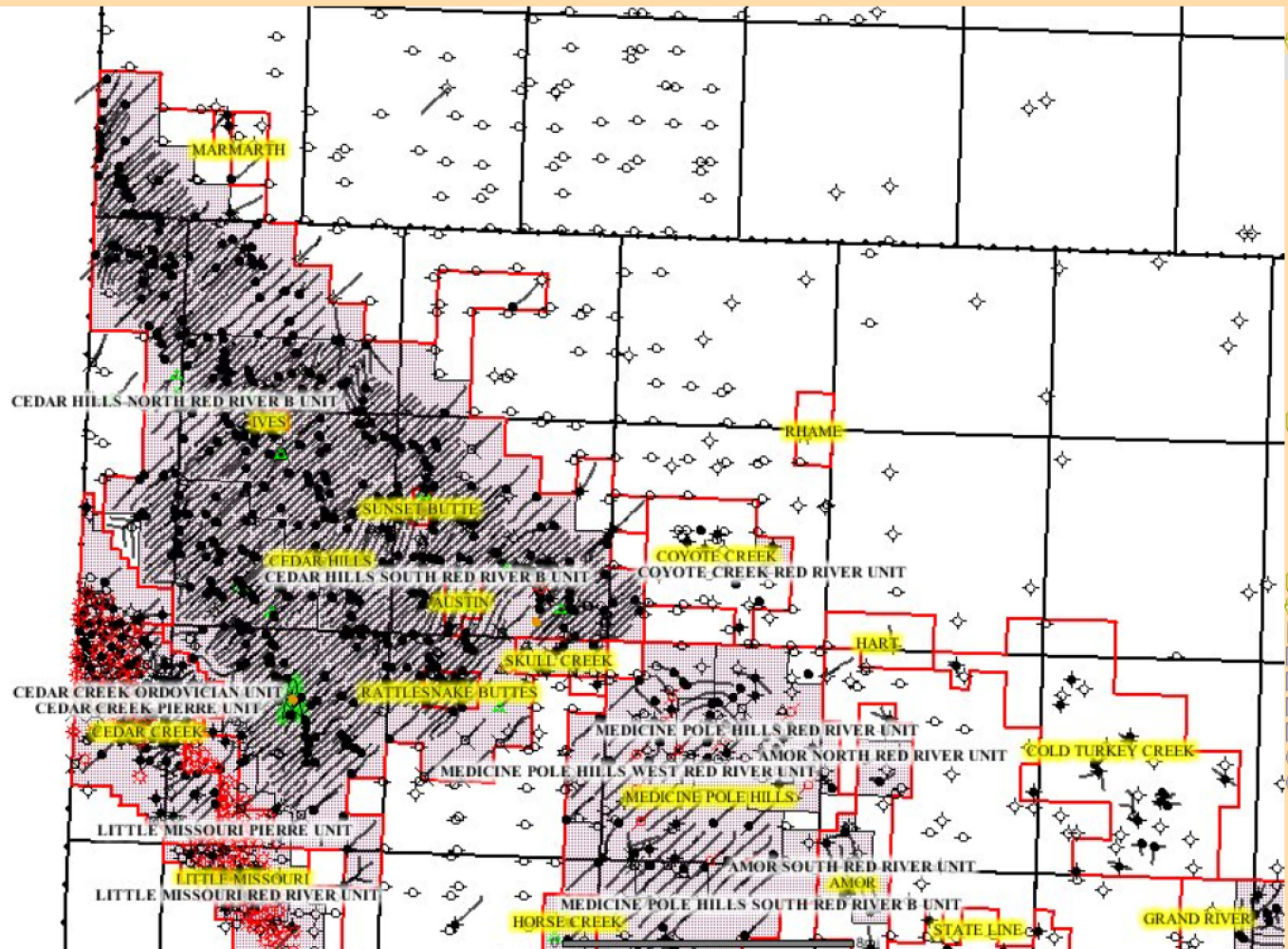
Oil and Gas : ArcIMS Viewer

- Legend / Layers
- Overview Map
- View Entire State
- Previous View
- Clear Selection
- Search
- Create PDF

- Zoom In
- Zoom Out
- Pan
- Rect Identify
- Select Object
- Buffer
- Distance

- Find Well
- Find Field / Unit
- Find Section

- Browser Settings
- Suggestion



- ### ND OIL & GAS LAYERS
- Oil and Gas
 - Wells
 - Permit Status Before Spud
 - Rig Location
 - Directional Surveys
 - Directional Legs
 - Horizontal Surveys
 - Horizontal Legs
 - Cases Docketed
 - Oil Fields
 - Unit Boundaries
 - Inspector Areas
 - Drilling / Spacing
 - Seismic
 - Gas Plants
 - Other

Refresh Map

Auto Refresh

Help:

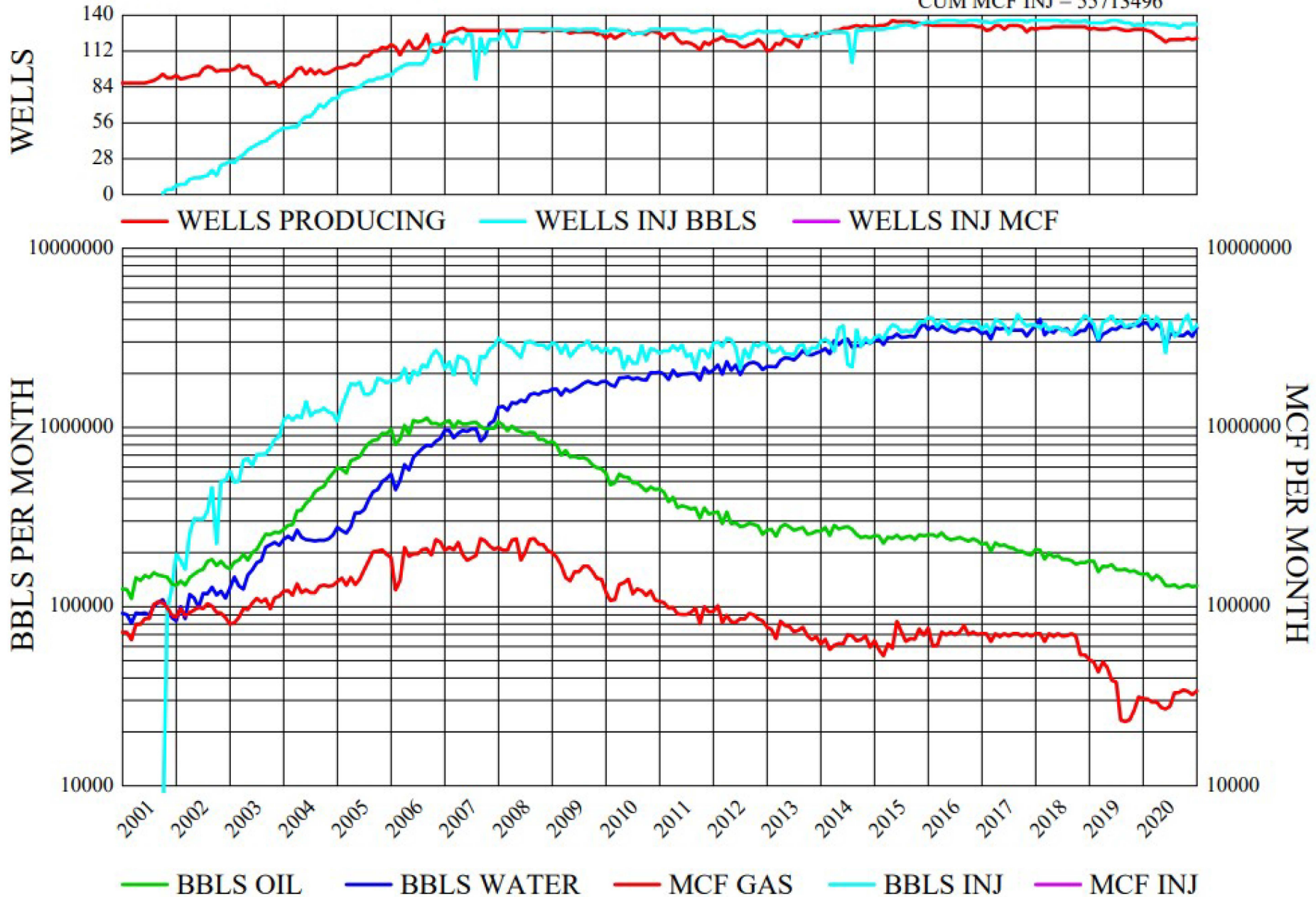
- A closed group, click to open.
- An open group, click to close.
- A map layer.
- A hidden group/layer, click to make visible.
- A visible group/layer, click to hide.
- A visible layer, but not at this scale.
- A partially visible group, click to make visible.
- An inactive layer, click to make active.
- The active layer.

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<input type="radio"/>	CENTENNIAL	oilGas	Print
<input type="radio"/>	CHAMA	oilGas	Print
<input type="radio"/>	CHARBONNEAU	oilGas	Print
<input type="radio"/>	CHARLIE BOB	oilGas	Print

Find

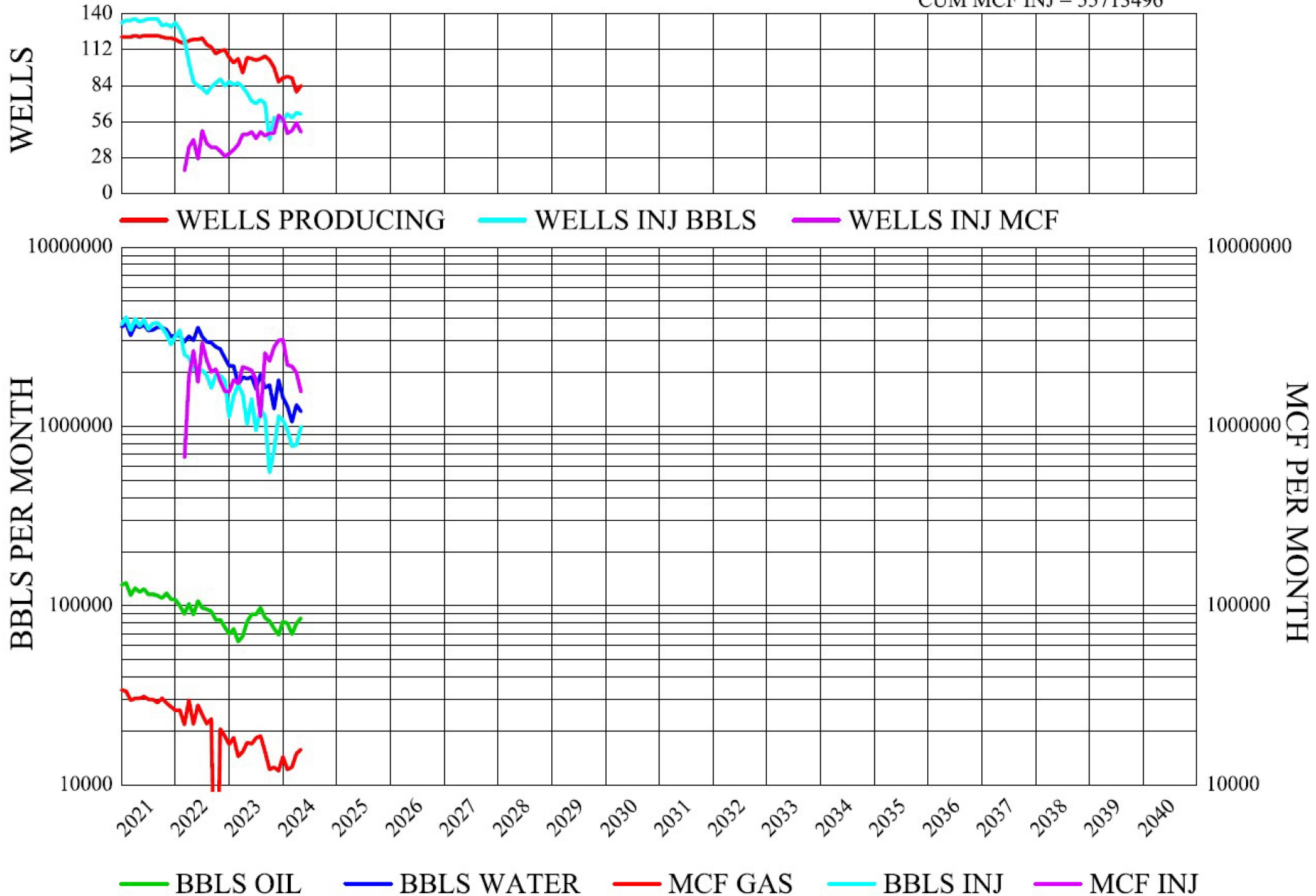
CEDAR HILLS SOUTH RED RIVER B UNIT

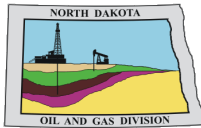
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 CUM WATER = 566043449
 CUM GAS = 31116192
 CUM BBL INJ = 688048440
 CUM MCF INJ = 55713496



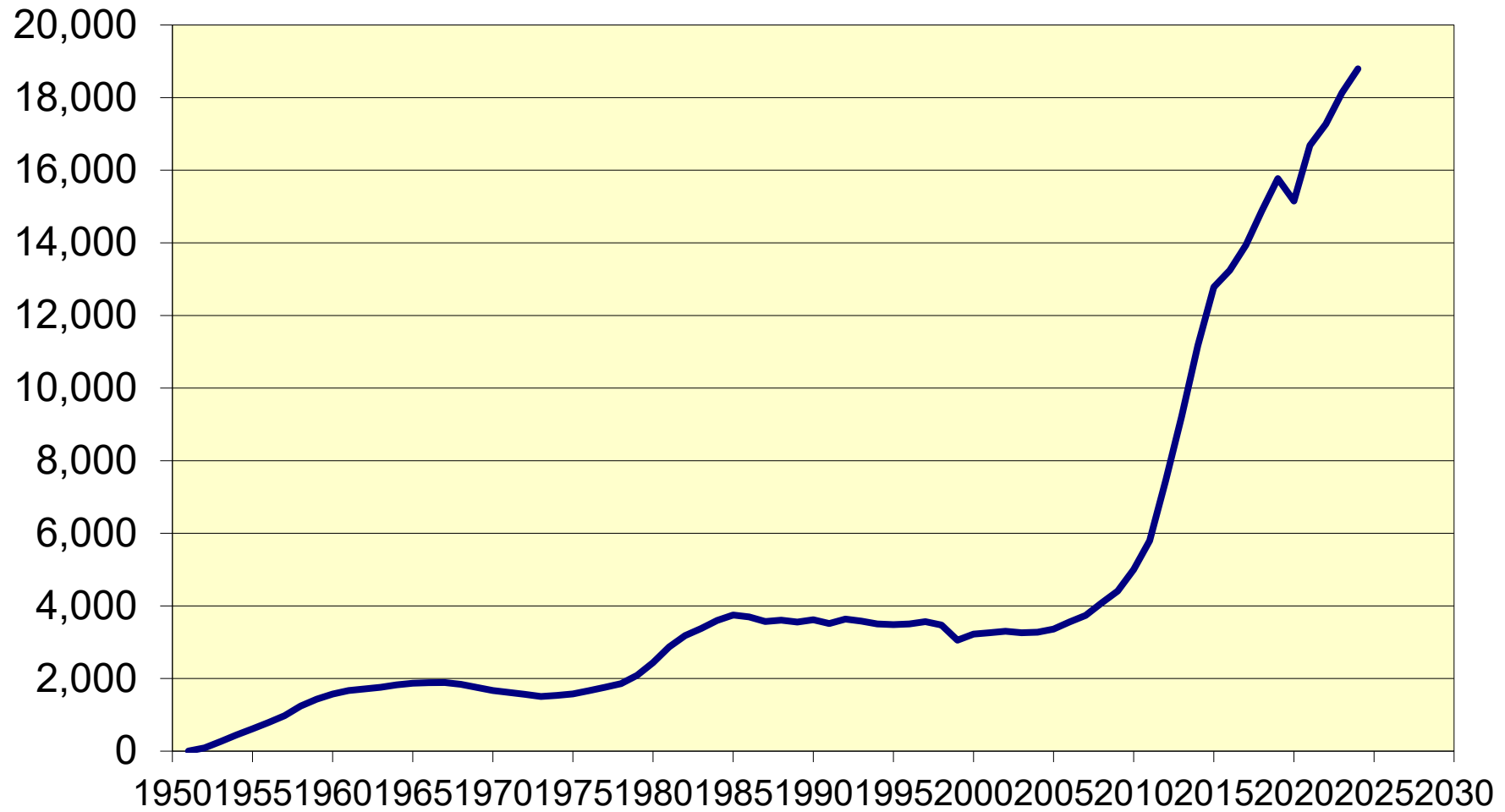
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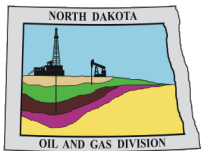
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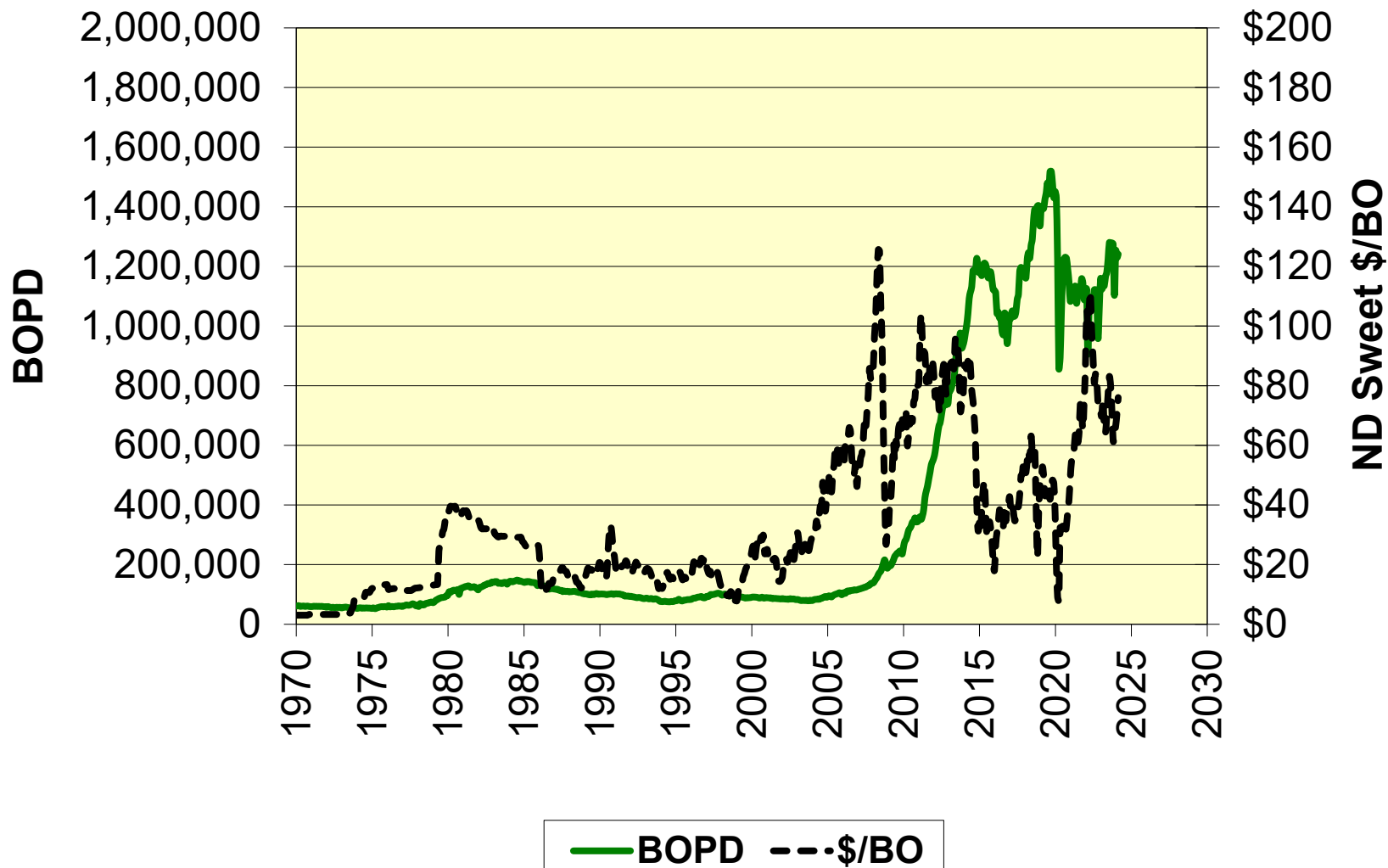


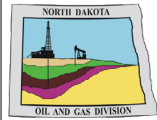
North Dakota Wells Producing



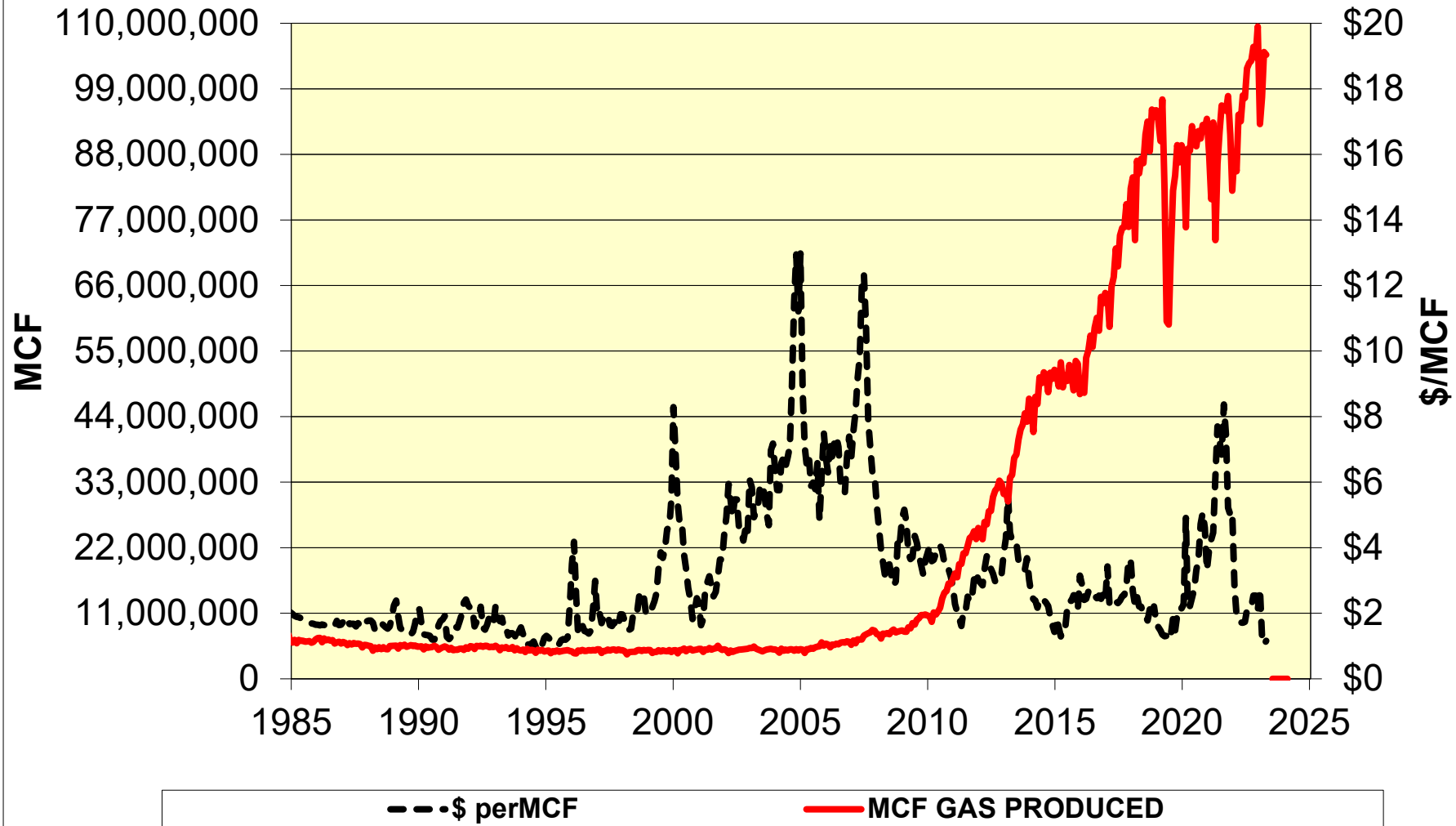


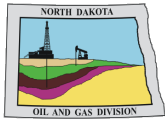
North Dakota Daily Oil Produced and Price



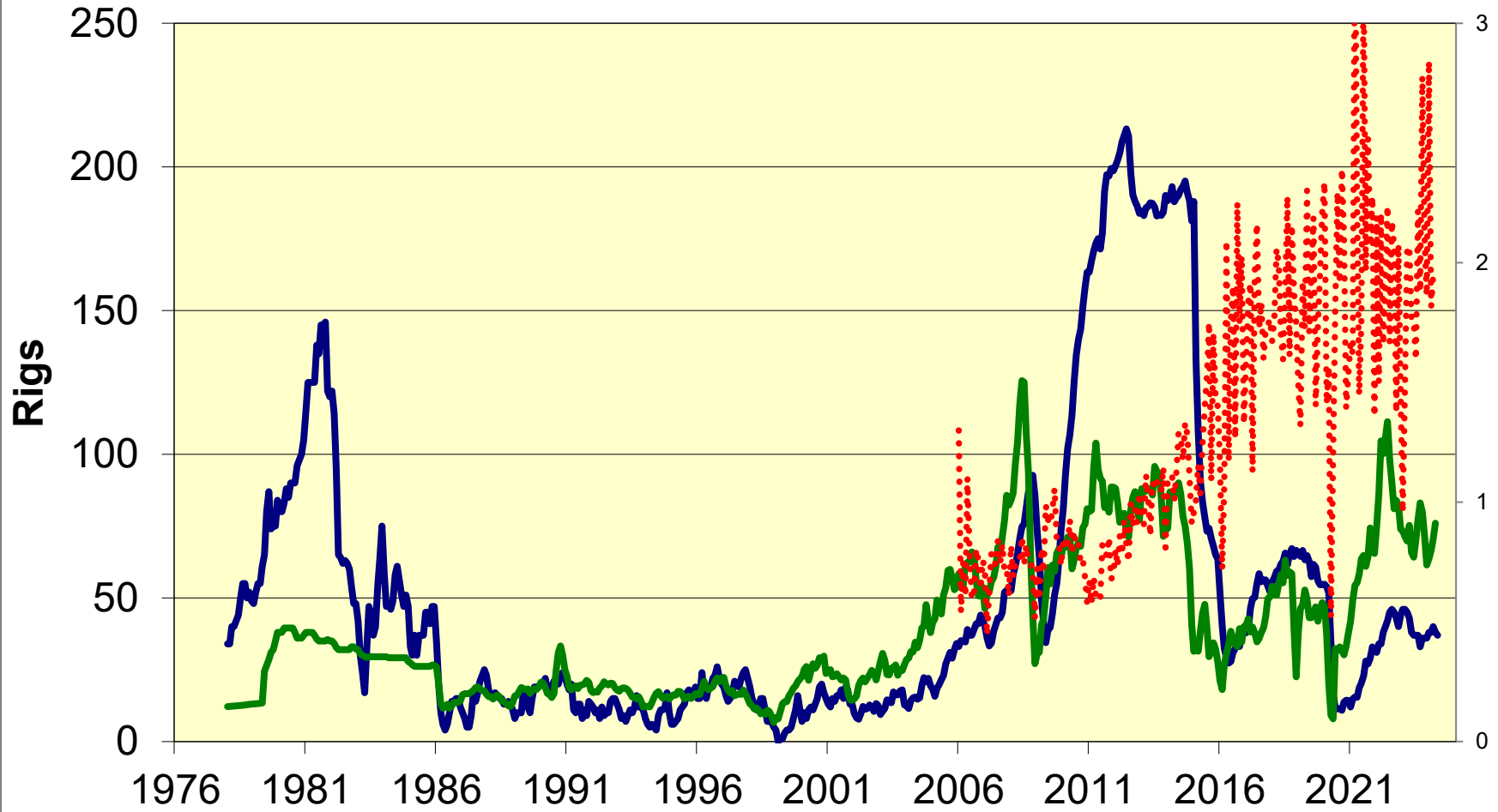


North Dakota Monthly Gas Produced and Price



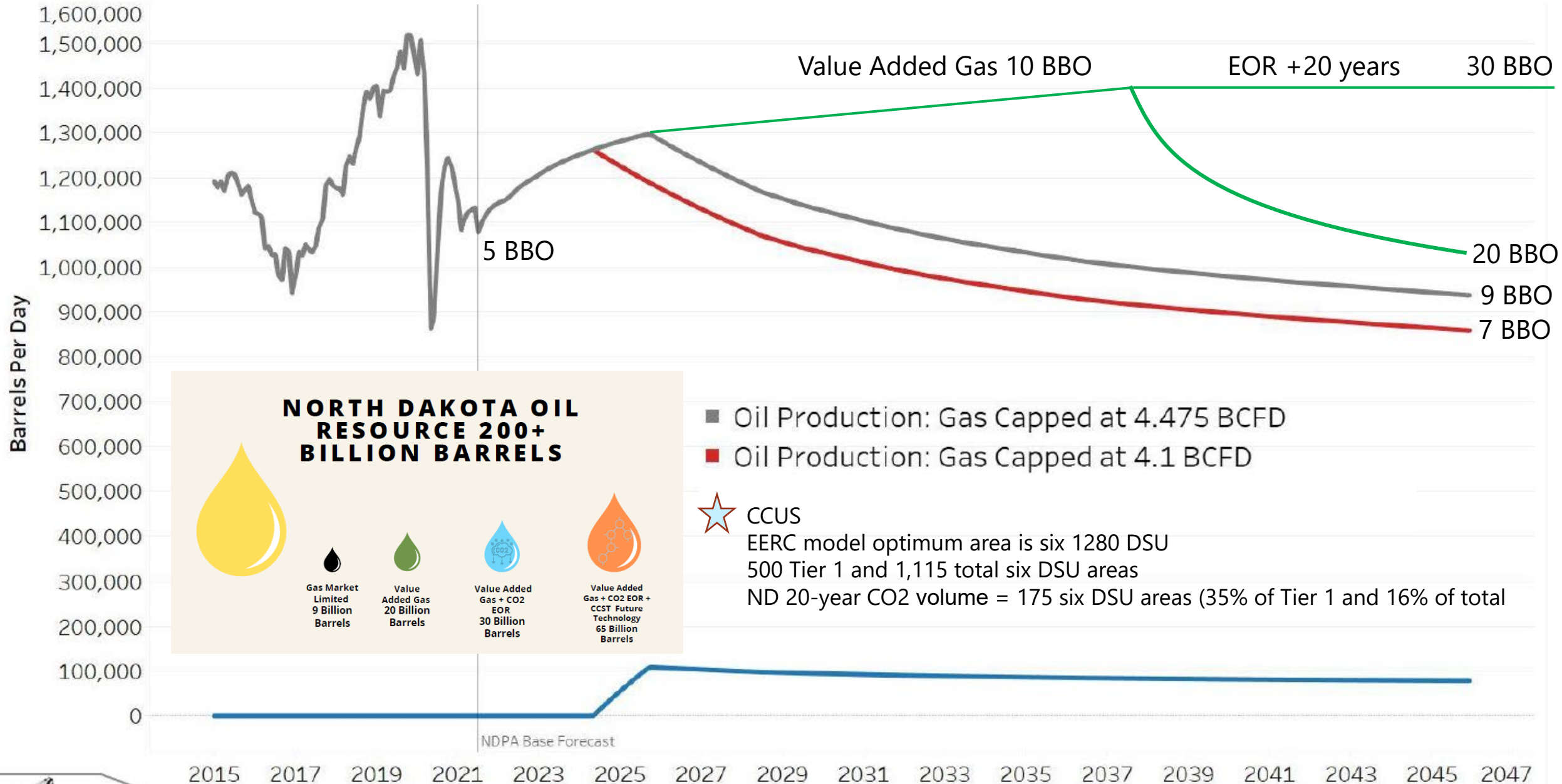


North Dakota Average Monthly Rig Count



— Rig Count — ND Sweet Oil Price ••• Spuds / Month / Rig

North Dakota Oil Resource Potential





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