

North Dakota Department of Mineral Resources

GOVERNMENT FINANCE COMMITTEE

Tuesday, March 15, 2016

Roughrider Room, State Capitol

9:50 a.m. Presentation by Mr. Lynn Helms, Director, Department of Mineral Resources, regarding:

- The status of oil and gas development in the state
- Current workload and any planned staffing changes
- The department's plan to meet the Governor's 4.05 percent general fund allotment



<http://www.oilgas.nd.gov>

<http://www.state.nd.us/ndgs>

**600 East Boulevard Ave. - Dept 405
Bismarck, ND 58505-0840
(701) 328-8020 (701) 328-8000**

Wells

13,129 active

2,307 conventional

10,822 Bakken/Three Forks

1,334 inactive

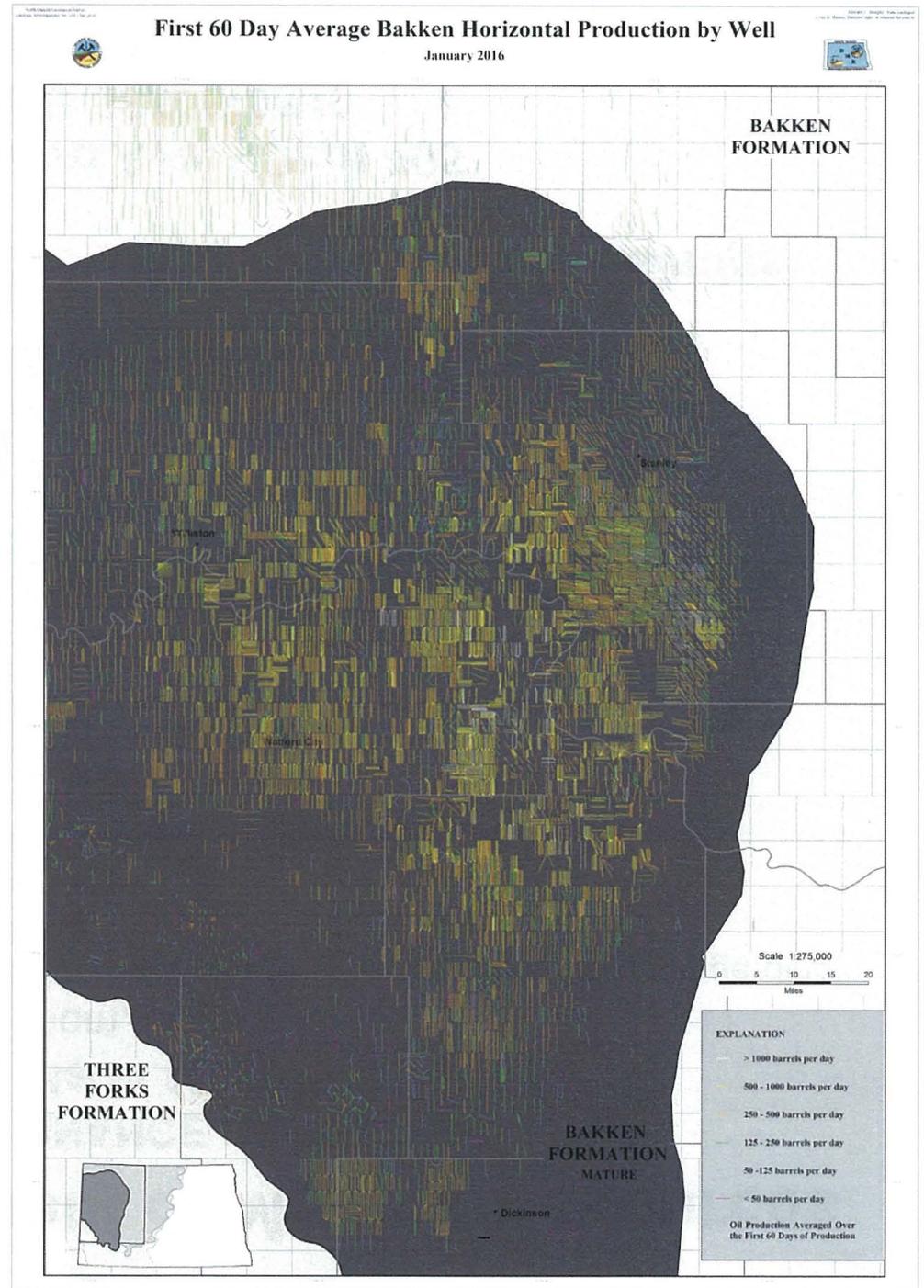
945 waiting on completion

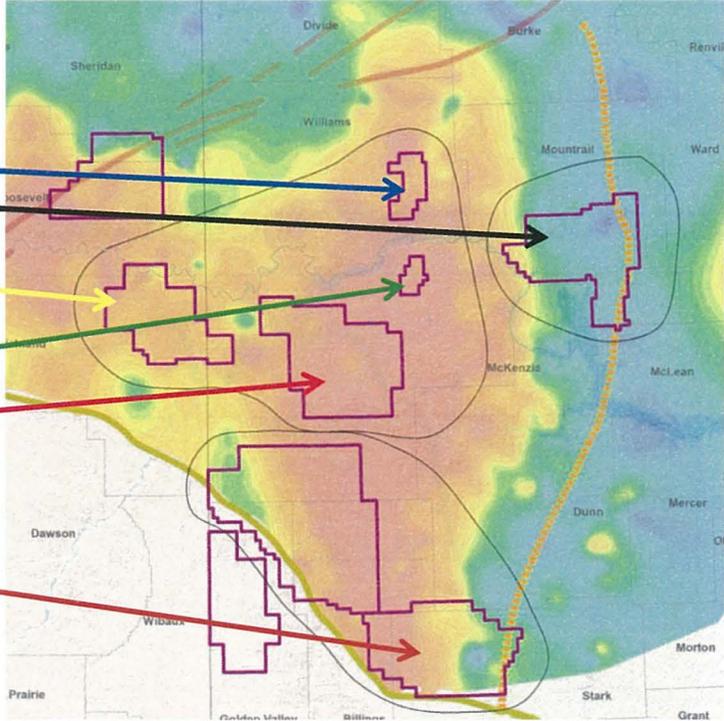
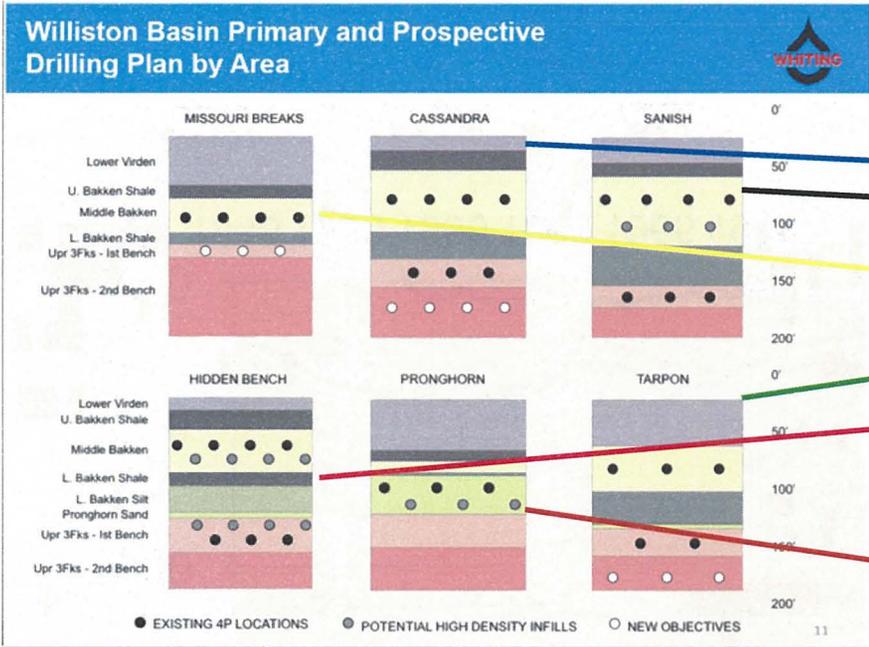
1,969 permitted

13,325 increased density approved

30,702 total

55,000-65,000 estimated ultimate

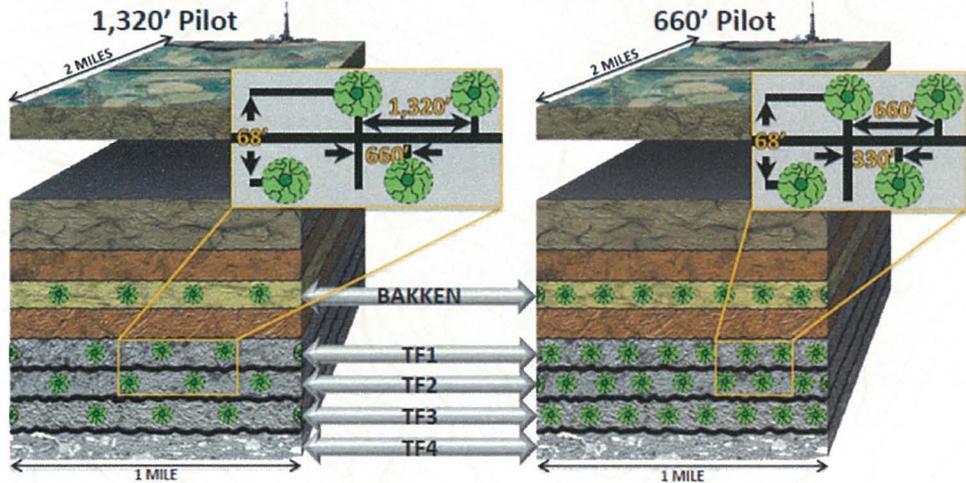




1,320' & 660' Pilot Density Projects: 2013-14

Hawkinson, Tangsrud, and Rollefstad

Wahpeton, Lawrence, Mack, and Hartman



- 🔥 3 project areas
- 🔥 1,320 ft. same-zone spacing
- 🔥 15 new wells (gross)

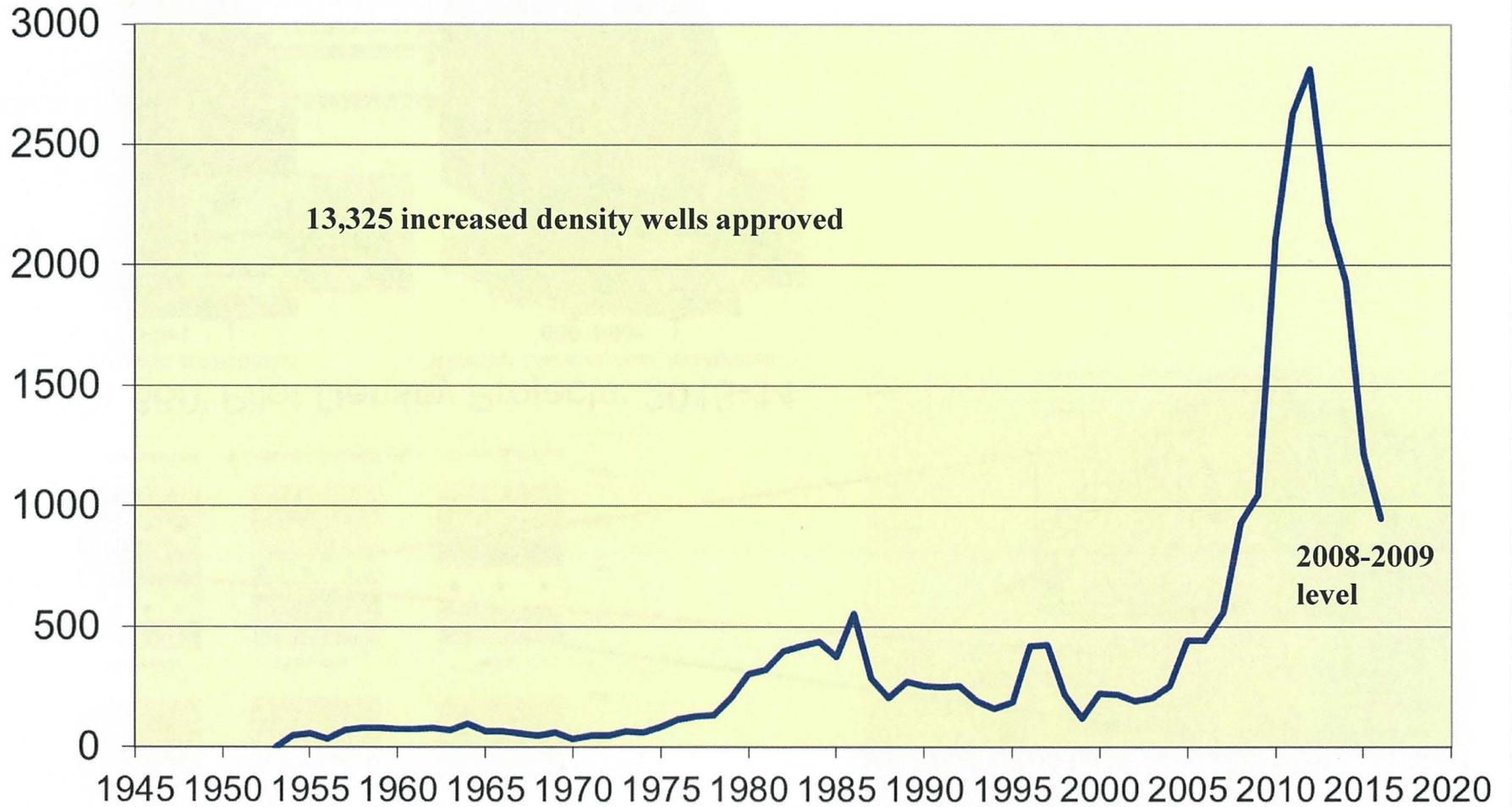
- 🔥 4 project areas
- 🔥 660 ft. same-zone spacing
- 🔥 31 new wells (gross)

55,000-65,000 wells

Source: Continental Resources

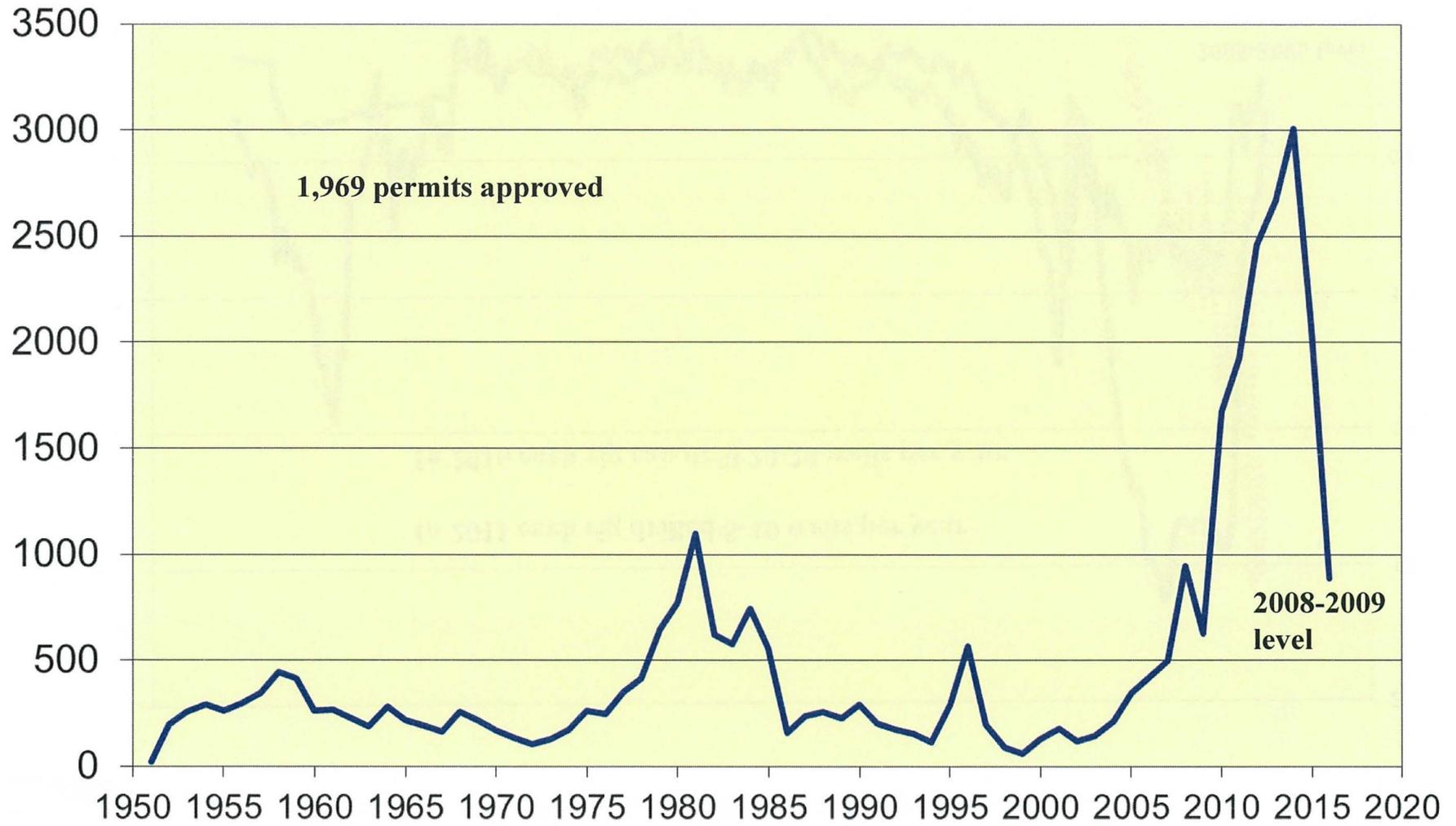


North Dakota Industrial Commission Cases Heard



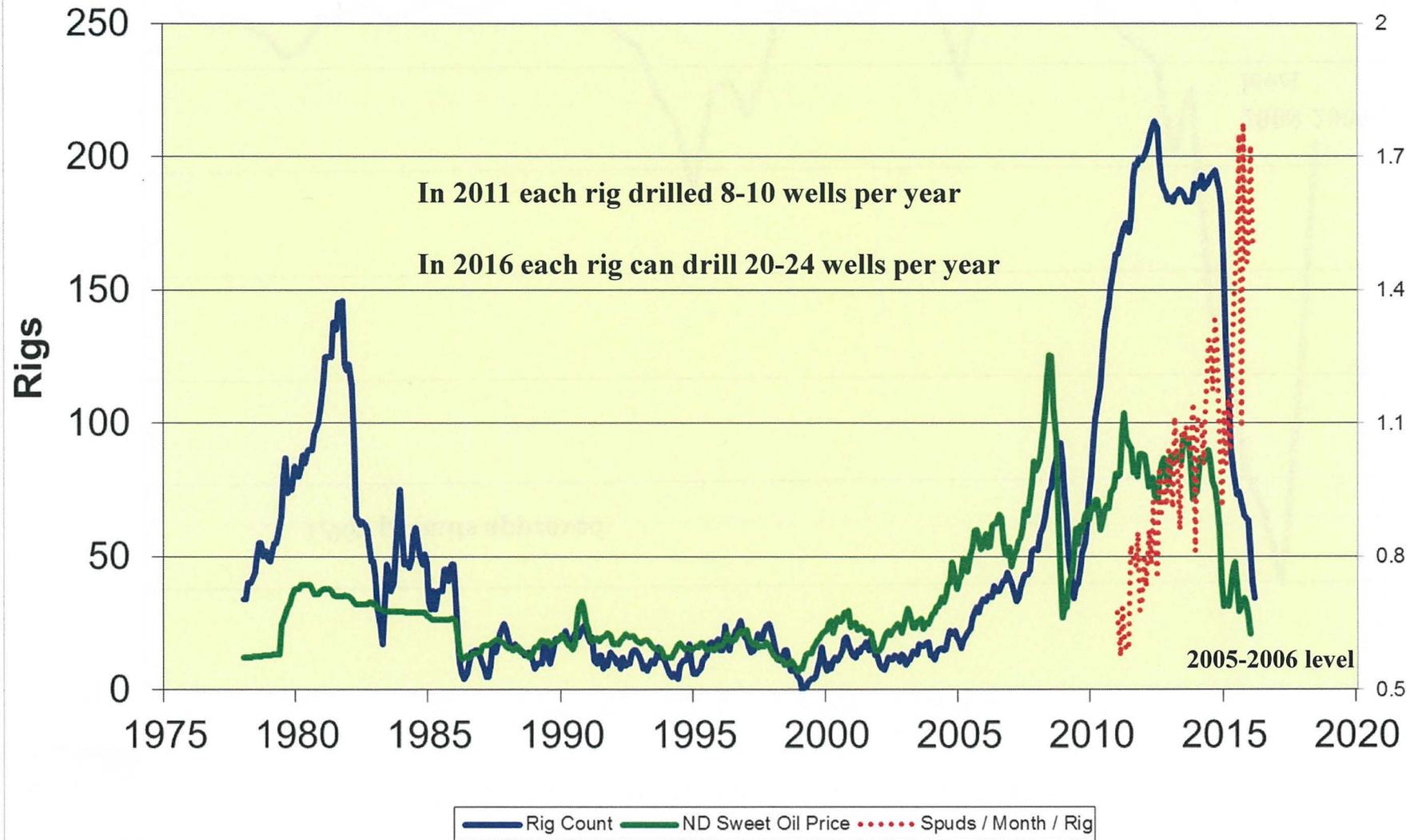


North Dakota New Well Permits Issued

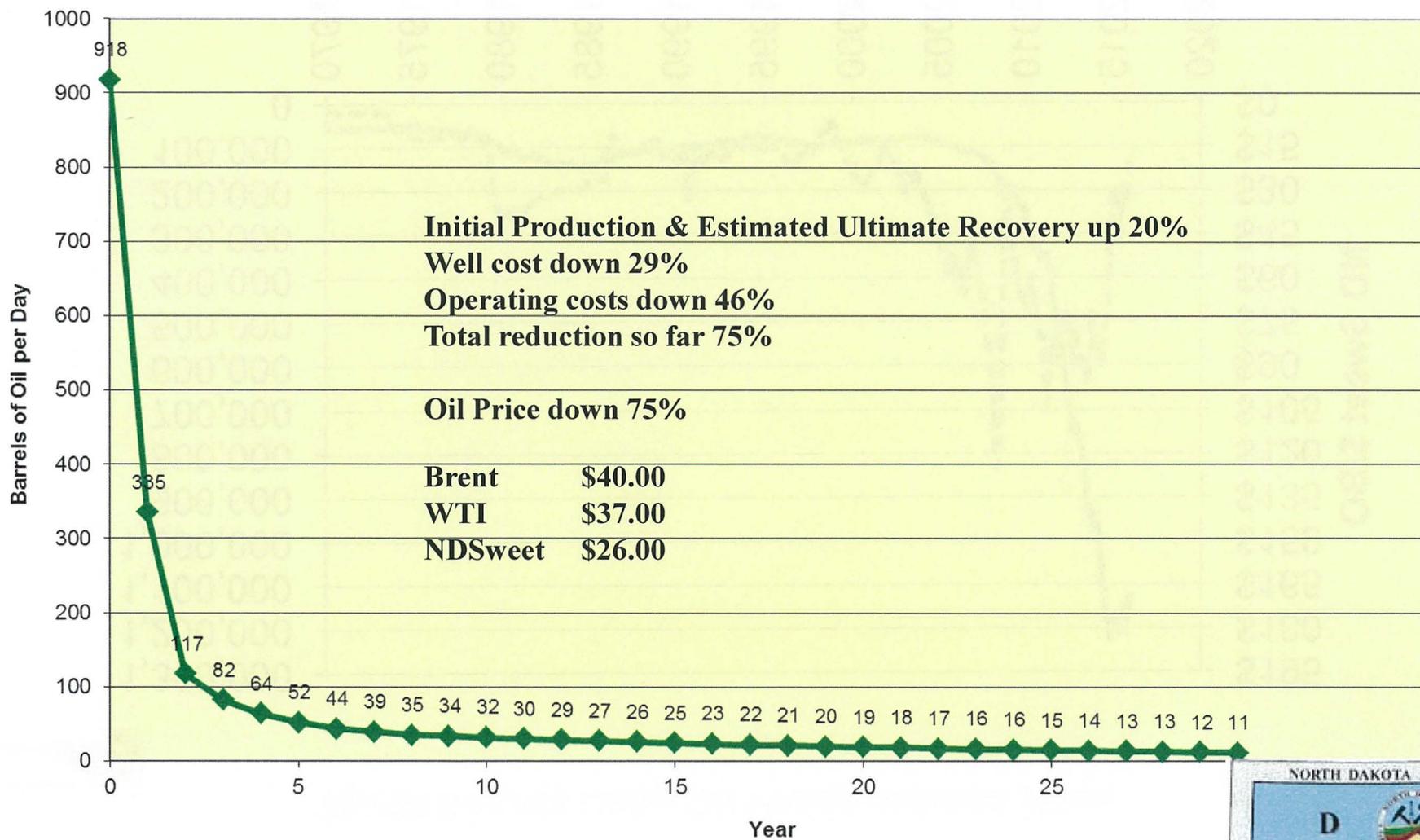




North Dakota Average Monthly Rig Count



Typical Bakken Well Production



Initial Production & Estimated Ultimate Recovery up 20%

Well cost down 29%

Operating costs down 46%

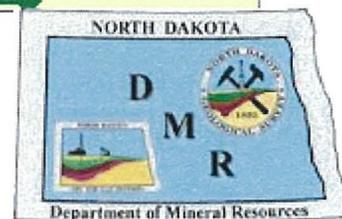
Total reduction so far 75%

Oil Price down 75%

Brent \$40.00

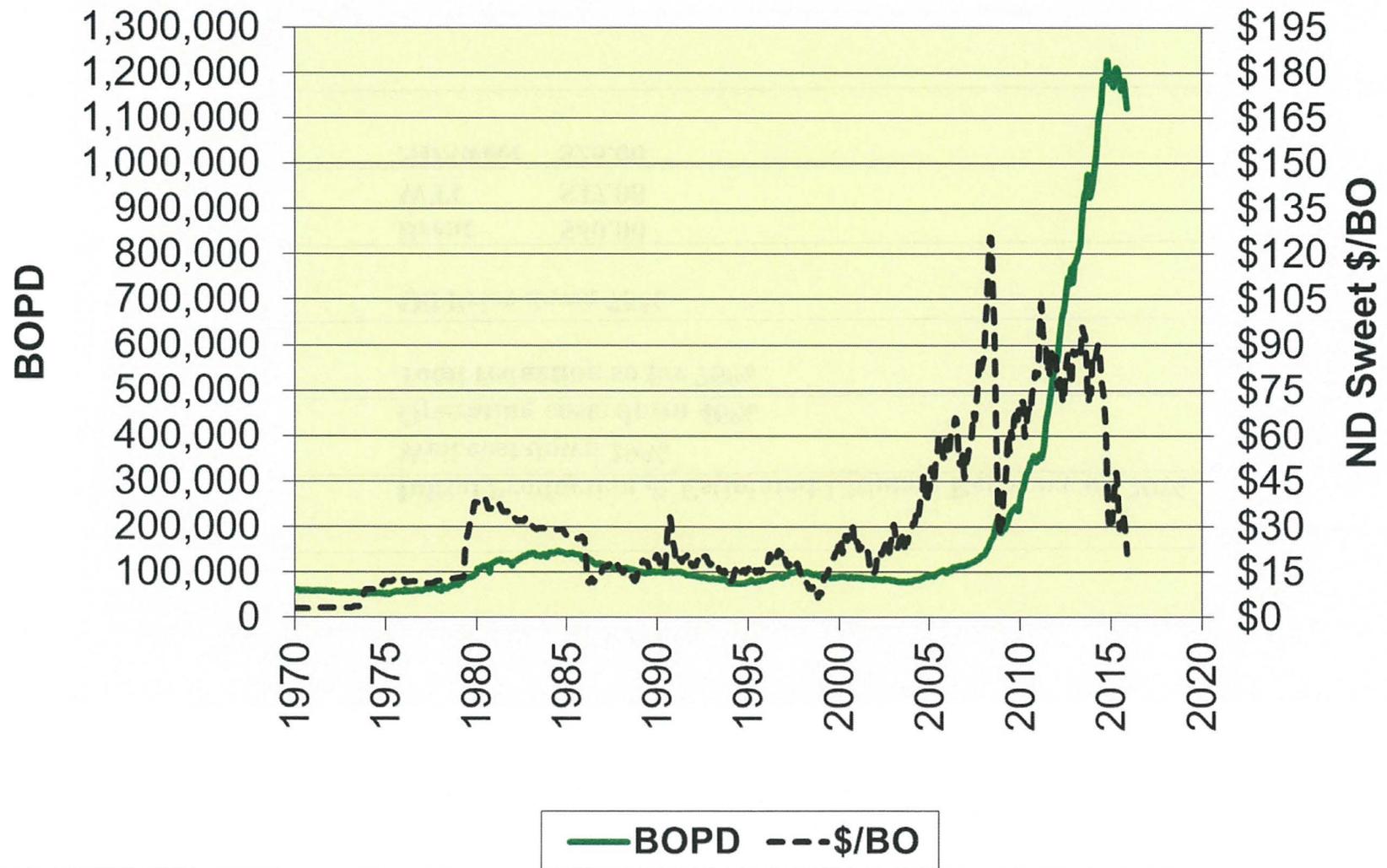
WTI \$37.00

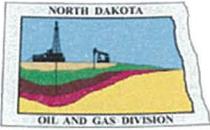
NDSweet \$26.00



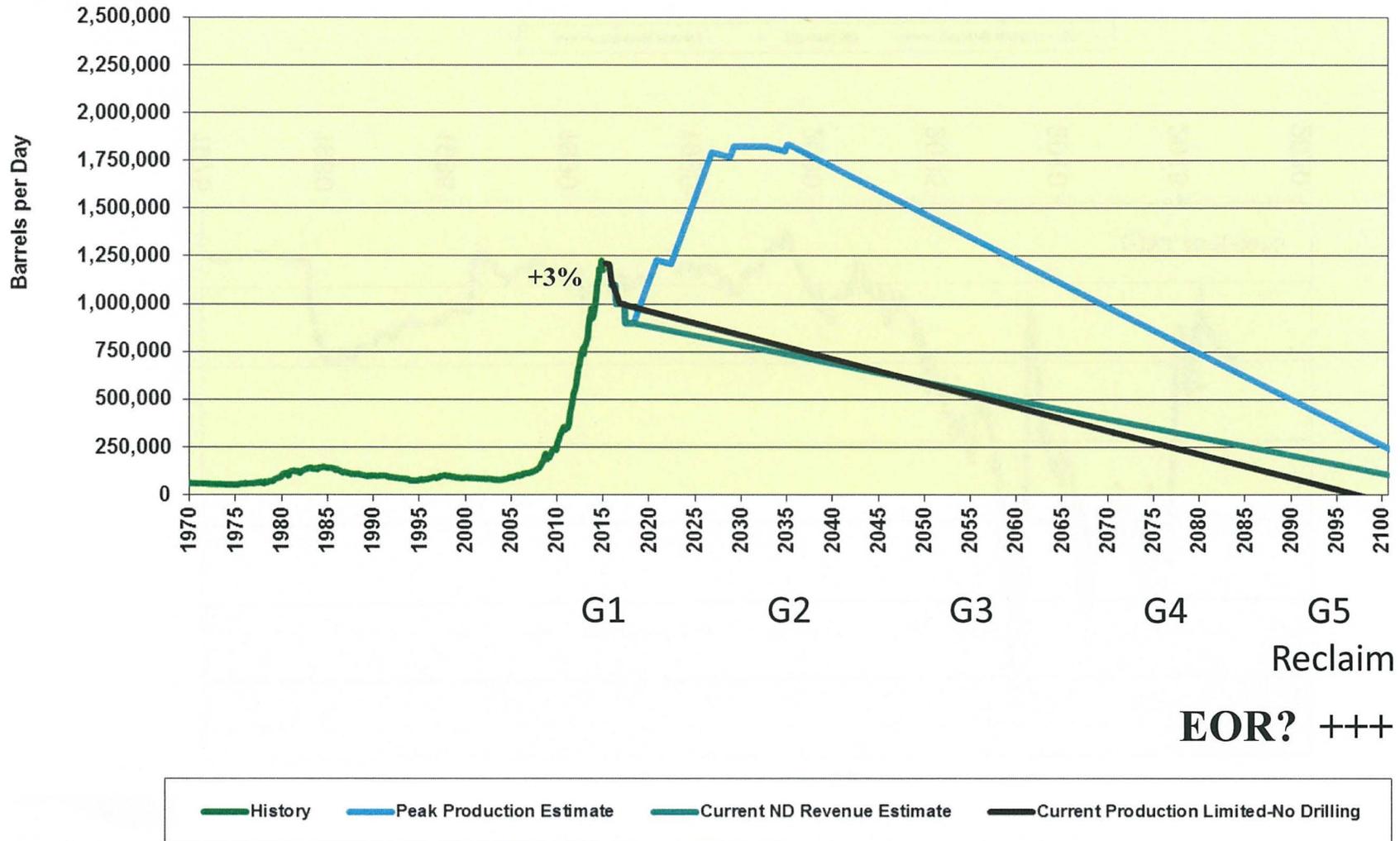


North Dakota Daily Oil Produced and Price

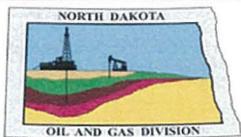




North Dakota Oil Production



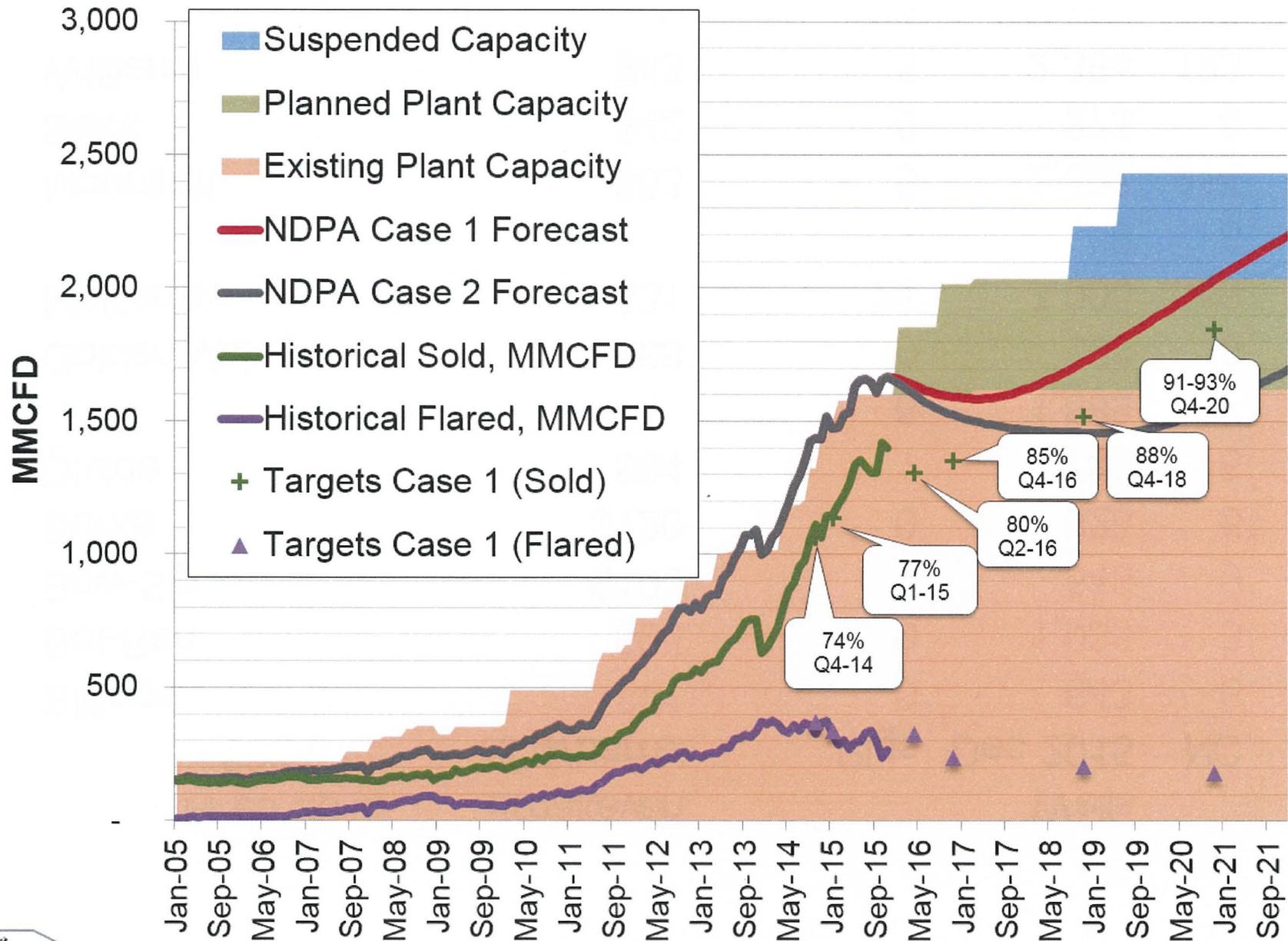
EOR? +++



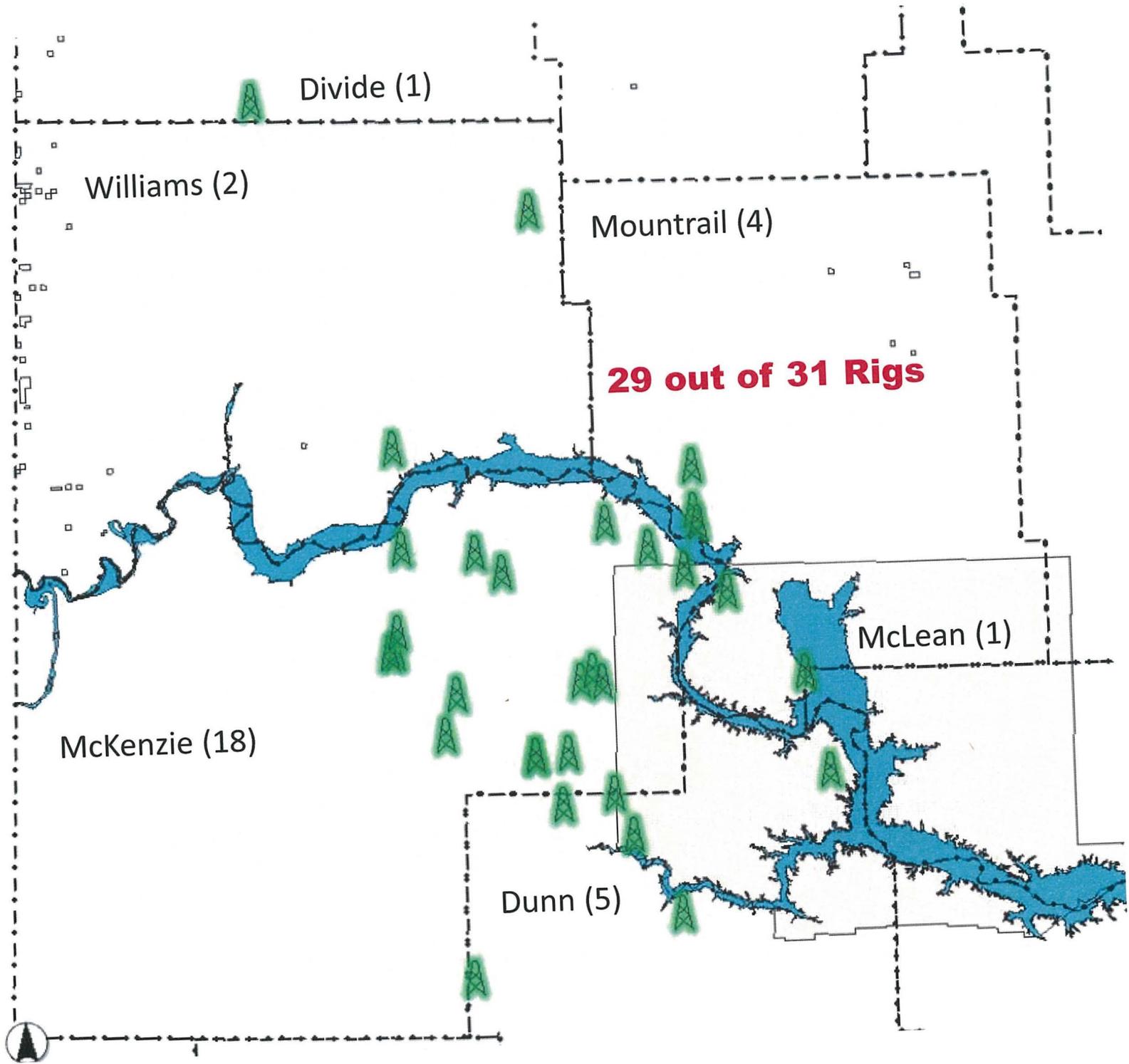
North Dakota Oil Production and Price



Solving the Flaring Challenge



	4Q 2015			
Jan-Feb 2016	Breakeven		Wells	
\$28	ND\$/barrel	Rigs	Dec 2015	NC
Billings	\$41	0	643	6
Bot-Ren	\$95	0	1,033	3
Bow-Slp	\$100	0	543	0
Burke	\$120	0	628	5
Divide	\$94	1	782	6
Dunn	\$22	6	1,889	135
Golden Valley	\$68	0	103	0
McKenzie	\$31	21	3,900	369
McLean	\$25	1	59	6
Mountrail	\$53	5	2,592	214
Stark	\$42	0	273	8
Williams	\$43	5	2,384	193
Statewide	\$40	39	14,862	945



General Guidelines for Not Completed - Waiver of Wells

Policy Goal:

The North Dakota Industrial Commission (NDIC) is charged with "fostering, ... encouraging, and ... promoting the development, production, and utilization of the *state's* natural resources of oil and gas in the state in such a manner as will prevent waste." The Commission is promulgating this Policy to prevent waste.

North Dakota Century Code (NDCC) § 38-08-04 (1) (1) and North Dakota Administrative Code (NDAC) § 43-02-03-55 (1) define what constitutes abandonment of a well and the operator's obligation to plug such a well and reclaim its site.

NDAC § 43-02-03-55 (2) was drafted to give the operator of an abandoned well sufficient time either to restore production or plug and reclaim the well.

This Policy does nothing to change the existing text or application of NDAC § 43-02-03-55 (2) to a well which has previously produced oil or gas.

NDAC § 43-02-03-55 (3) and this policy are drafted to eliminate the waste which would otherwise occur by application of NDAC § 43-02-03-55 (2) to horizontal Bakken wells for which completions have been deferred.

Not Completed – Waiver (NCW) Status may only be given to wells that have been drilled but whose casing has not yet been perforated (i.e. the well is incapable of producing oil or gas because completion operations have not yet been performed).

As of 12/31/15 there were 945 Not Completed wells

The estimated price point for completion is \$50-60 / barrel WTI

General Guidelines for Inactive Well - Waiver

Policy Goal:

The North Dakota Industrial Commission (NDIC) is charged with "fostering, ... encouraging, and ... promoting the development, production, and utilization of the *state's* natural resources of oil and gas in the state in such a manner as will prevent waste." The Commission is promulgating this Policy to prevent waste.

North Dakota Century Code (NDCC) § 38-08-04 (1) (l) and North Dakota Administrative Code (NDAC) § 43-02-03-55 (1) define what constitutes abandonment of a well and the operator's obligation to plug such a well and reclaim its site.

NDAC § 43-02-03-55 (3) was drafted to give the operator of an abandoned well sufficient time either to restore production or plug and reclaim the well.

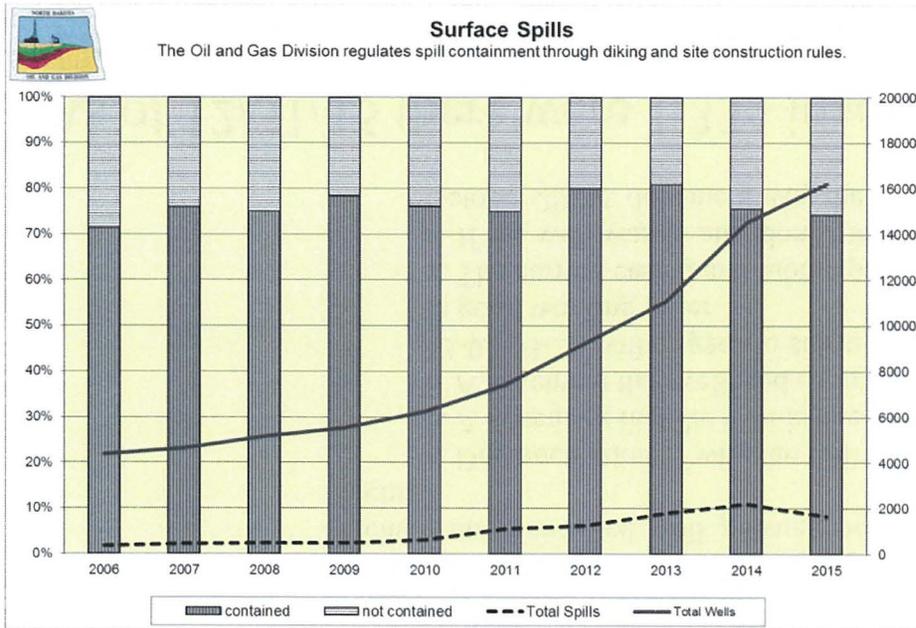
Inactive Well – Waiver (IAW) Status may only be given to wells that have met the following criteria.

1. Proposed IAW Approval Procedure

1. The operator must submit a Sundry Notice – Form 4 intent to request a waiver to plug and reclaim an abandoned well pursuant to NDAC § 43-02-03-55 Part (3). The request must include:
 - a. Documentation of why the well is currently in an inactive or abandoned status.
 - b. A statement that the well is uneconomic to produce at current crude oil price.
 - c. A statement that wellhead equipment complies with NDAC § 43-02-03-28 and 43-02-03-29 with regard to subsurface pressure control and well and lease equipment is in good working order.
 - d. The current casing and tubing pressure.
 - e. If the well was in abandoned status prior to January 1, 2016 (last production prior to October 2014), document why the well was not returned to production at that time.

As of 12/31/15 there were 1,334 inactive wells

The estimated price point for return to production is >\$40-45 per barrel WTI



Spills versus wells – Good

Spills versus volume – OK

Uncontained spills need work

25% pipeline

16% equipment failure

10% fire

9% root cause not reported

8% human error

7% valve-piping leak

6% treater leak

5% stuffing box

5% treater pop off

4% tank overflow

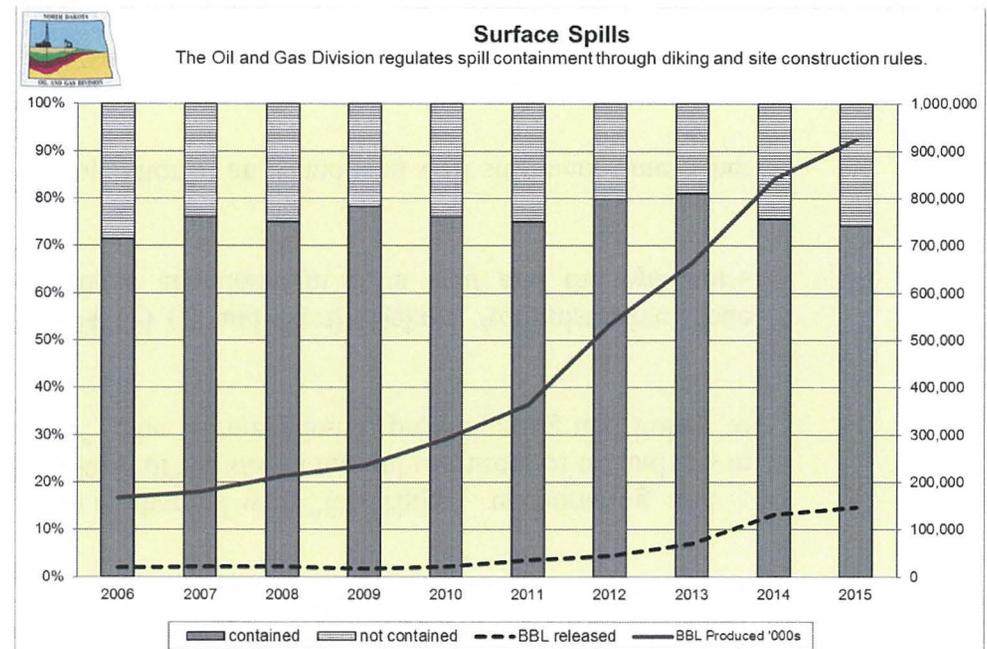
2% tank leak

1% blow out

1% vessel leak

½% pump leak

½% truck overflow



Endangered Species

6 endangered



4 threatened

1 proposed

2 candidate

4 potential

Federal Reserve

Strong \$



Raising interest rates

Federal Regulation

BLM (6)



Hydraulic Fracturing

Onshore 3, 4, & 5

Venting/Flaring

Sage Grouse

EPA (5)



Chemical Disclosure

Waters of US

Methane Emissions

Waste Rules Lawsuit

Clean Power Plan

BIA / Tribe

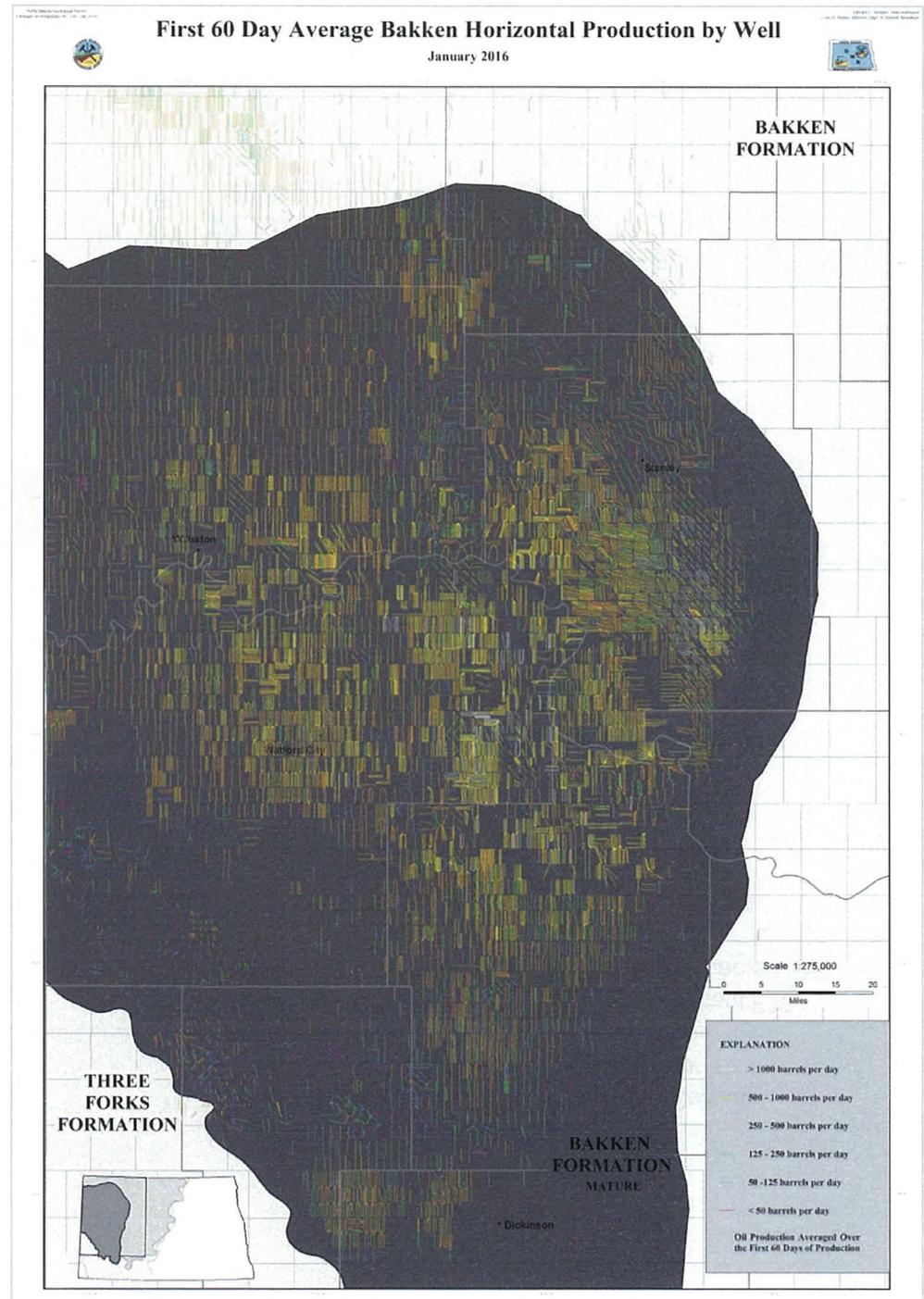


ROW rule

Tax Agreement

TERO

Regulations



Permanent Staff Model

- 21 Petroleum Engineer - Field Inspectors Current

- 4** Petroleum Engineer - Field Inspectors Needed
 - 45 hours per week
 - 5 hours office time
 - 20 hours Spills, Pluggings, other Engineering
 - 15,867 producing wells 0 visits per year
 - 1,073 injection wells 0 visits per year
 - 0 hours for well inspections
 - 20 hours for rig inspection

- 11 Engineering Technician - Field Inspectors Current
 - 1 Geophysical/coal exploration - Field Inspector
 - 3 Engineering Technician - Pipeline Inspectors
 - 2 Engineering Technician - Field Inspector - vacant FTE
 - 3 Engineering Technician - Pipeline Inspector - vacant FTE

- 27** Engineering Technician - Field Inspectors Needed
 - 45 hours per week
 - 5 hours office time
 - 20 hours Spills, Oil Conditioning, Flaring
 - 15,867 producing wells 4 visits per year
 - 1,073 injection wells 12 visits per year
 - 20 hours for well inspections
 - 0 hours for rig inspection

	Rigs	Petroleum Engineer - Field Inspectors	6/30/2017 Wells	Petroleum Engineer - Field Inspectors or Engineering Technician - Field Inspectors
Min	20	3	16,767	26
	30	5	17,113	27
	40	6	17,458	27
	60	9	18,150	29
	80	12	18,841	30
	100	15	19,532	31
	120	18	20,223	32
	140	21	20,914	33
	160	24	21,606	34
	180	27	22,297	35
Max	200	30	22,988	36

	2015			2016-2017			
	FTE	Temp	Activity		FTE	Temp	
Pipeline	0			+4	4		
Underground injection	1		105%		1		
Treating Plants	1		110%		1		
Well logs, cores, samples, cement tops, and directional surveys	6		100%		6		
Oil and Gas permitting	5	2.0	45%	-2	3	-2	0.0
Information Technology	5	0.7	102%		5		0.7
Accounting & payroll	3		106%		3		
Reclamation	2		105%		2		
Petroleum Engineering (NCW, IAW, TA, Sundries)	2		167%	+1	3		
Production auditing	3		155%		3	+2	2.0
Oil and Gas measurement	3	1.0	155%	+1	4	+1	2.0
Hearing dockets and orders	7	0.5	88%		7	-0.5	0.0
Reception and filing	7	0.5	97%		7	-0.5	0.0
Human Resources	1		106%		1		
Safety-Facilities-Motorpool	1		106%		1		
Bonding	1		125%		1		
Geology surface	4		100%		4		
Geology subsurface	2		100%		2		
Geology petroleum	2		100%		2		
Geology inquiries, georeviews, and publications	5		110%		5		
Core Library	3	5.8	100%		3		5.8
Paleontology	3		110%		3		

2017-2019

Permanent Staff Model

<p>21 Petroleum Engineer - Field Inspectors Current</p> <p>6 Petroleum Engineer - Field Inspectors Needed 45 hours per week 5 hours office time 20 hours Spills, Pluggings, other Engineering 17,163 producing wells 0 visits per year 1,159 injection wells 0 visits per year 0 hours for well inspections 20 hours for rig inspection</p>	<p>11 Engineering Technician - Field Inspectors Current 1-7 Engineering Technician - Field Inspectors needed 1 Geophysical/coal exploration - Field Inspector 6 Engineering Technician - Pipeline Inspectors</p> <p>29 Engineering Technician - Field Inspectors Needed 45 hours per week 5 hours office time 20 hours Spills, Oil Conditioning, Flaring 17,163 producing wells 4 visits per year 1,159 injection wells 12 visits per year 20 hours for well inspections 0 hours for rig inspection</p>
--	---

	Rigs	Petroleum Engineer - Field Inspectors	6/30/2019 Wells	Petroleum Engineer - Field Inspectors or Engineering Technician - Field Inspectors
Min	20	3	17,631	28
	30	5	17,977	28
	40	6	18,322	29
	60	9	19,014	30
	80	12	19,705	31
	100	15	20,396	32
	120	18	21,087	33
	140	21	21,778	34
	160	24	22,470	35
	180	27	23,161	36
Max	200	30	23,852	37

	2016-2017			2017-2019		
	FTE	PTT	Activity Growth	FTE	PTT	
Pipeline	4		100%	4		
Underground injection	1		105%	1		
Treating Plants	1		105%	1		
Well logs, cores, samples, cement tops, and directional surveys	6		100%	6		
Oil and Gas permitting	3	0.0	133%	3	+1	1.0
Information Technology	5	0.7	105%	5	+0.5	1.2
Accounting & payroll	3		98%	3		
Reclamation	2		108%	2		
Petroleum Engineering (NCW, IAW, TA, Sundries)	3		61%	-1	2	
Production auditing	3	2.0	115%	3		2.0
Oil and Gas measurement	4	2.0	115%	+1	5	2.0
Hearing dockets and orders	7		100%	7		
Reception and filing	7		105%	7		
Human Resources	1		98%	1		
Safety-Facilities-Motorpool	1		98%	1		
Bonding	1		108%	1		
Geology surface	4		100%	4		
Geology subsurface	2		100%	2		
Geology petroleum	2		100%	2		
Geology inquiries, georeviews, and publications	5		105%	5		
Core Library	3	5.8	100%	3		5.8
Paleontology	3		100%	3		

2015 – 2017 Budget Reduction (-)4.05% Allocation \$1,416,130

Salaries and benefits: \$572,485

5 contingent Petroleum Engineer Field Inspection FTE for drilling rig inspections
1 Engineering Technician Field Inspection FTE for well & facility inspections

Operating: \$641,145

Travel \$384,578

IT Equipment, Software, and Services \$112,807

Professional Services \$68,500

Office Equipment and Repairs \$22,730

Supplies \$22,200

Professional Development \$14,030

Lab, Safety, Other Equipment \$16,300

Grants: \$202,500

Lignite Research Grants