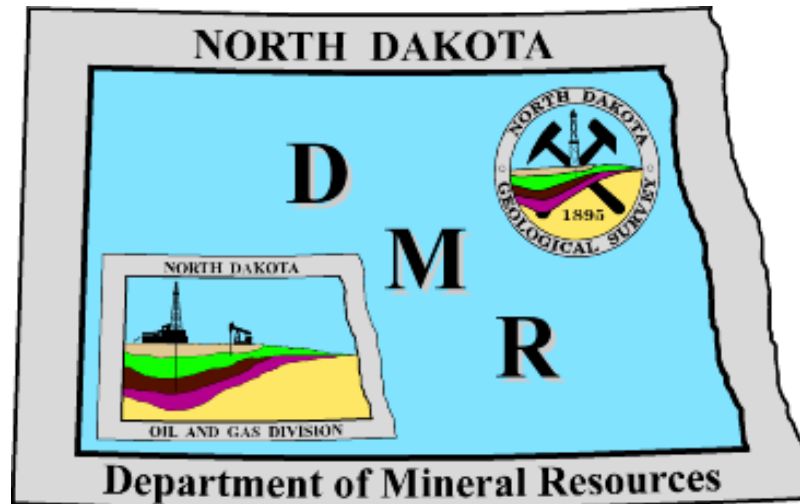


North Dakota Department of Mineral Resources

Government Finance Interim Committee 07/27/2015

11:00 a.m. Presentation by Mr. Lynn Helms, Director, Department of Mineral Resources, regarding the status of oil and gas development in the state and projected state drilling activities and the effect on state and local infrastructure



<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
12,659 active

2,944 conventional

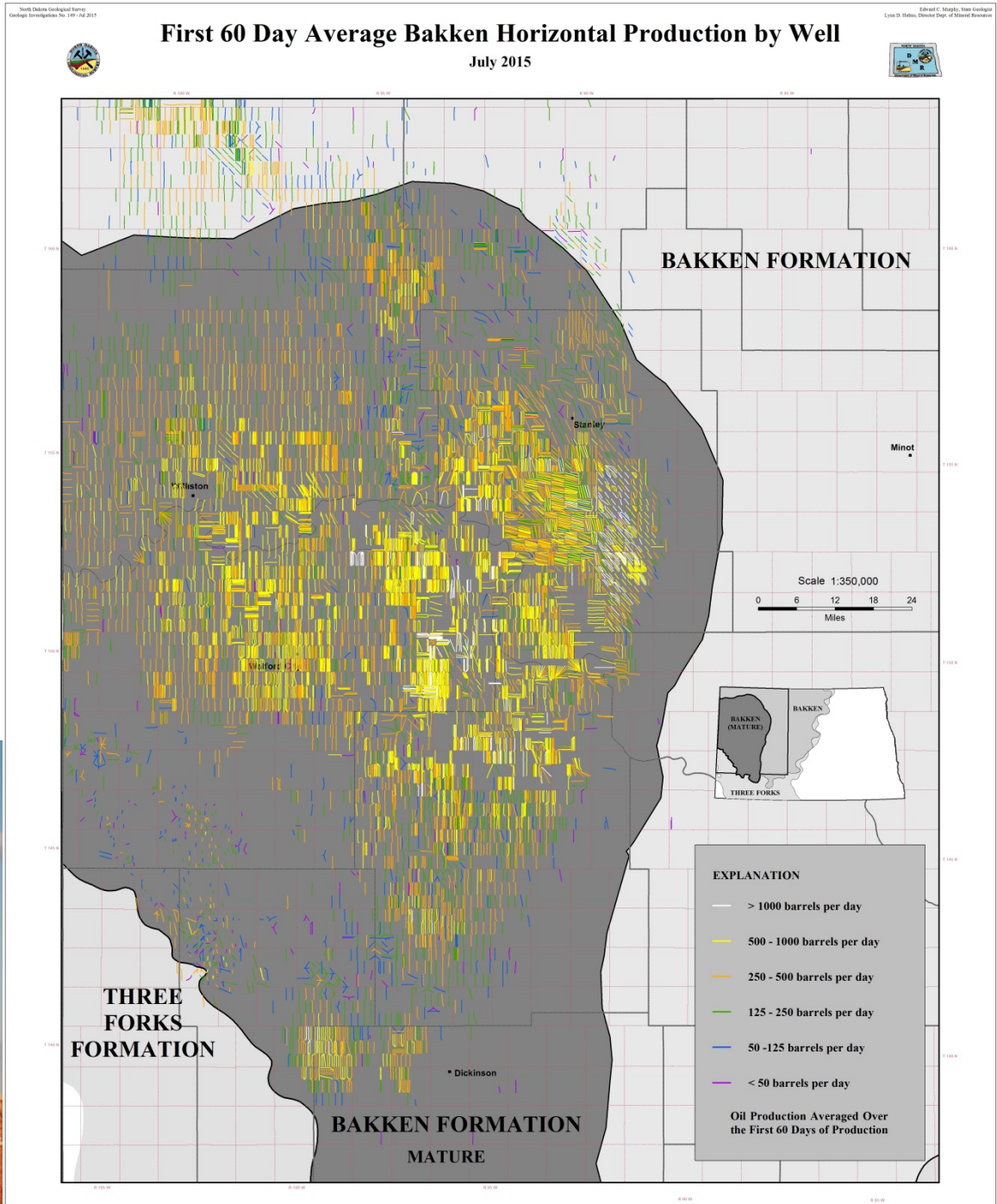
9,715 Bakken/Three Forks

925 waiting on completion

1,947 permitted

9,749 increased density approved

25,280 total

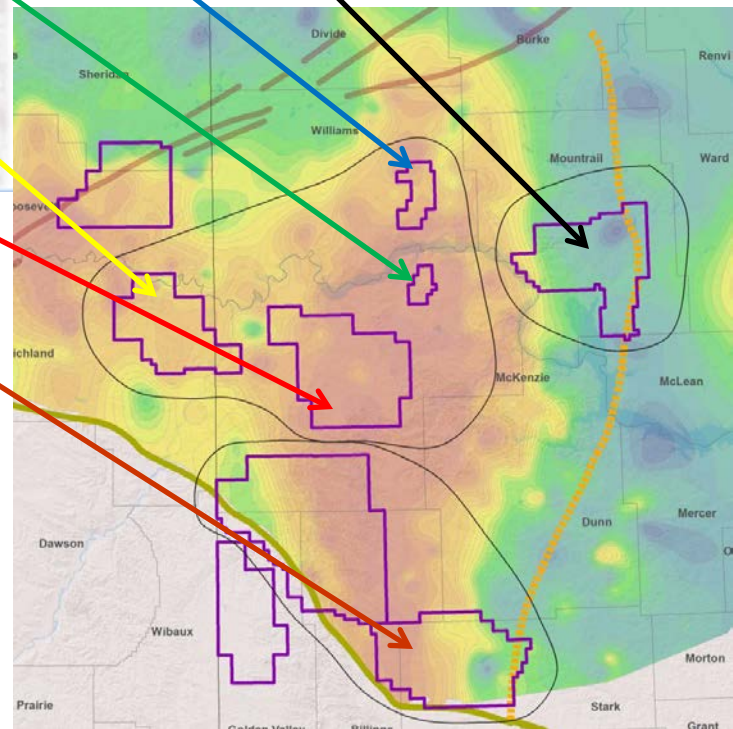
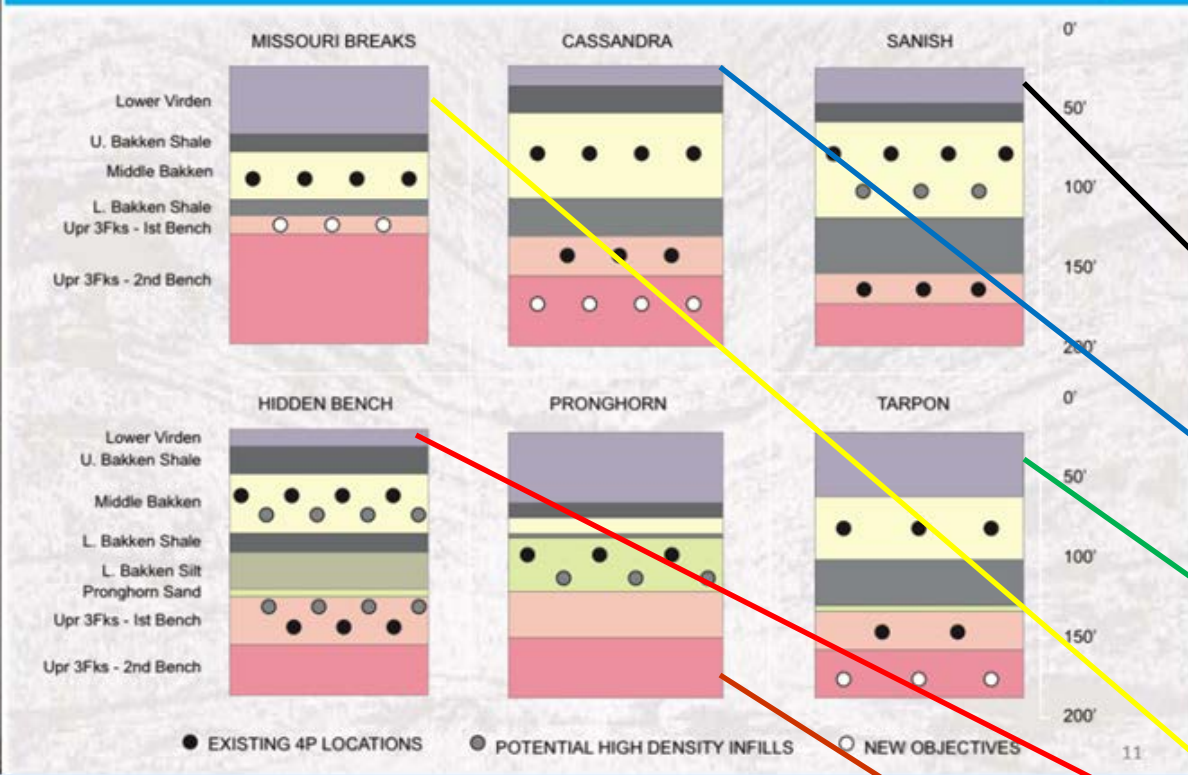


Phase 3 “Harvest” 6 – 32 wells per spacing unit



Vern Whitten Photography 6 wells producing - drilling 7-12 - and 13-18 coming soon

Williston Basin Primary and Prospective Drilling Plan by Area

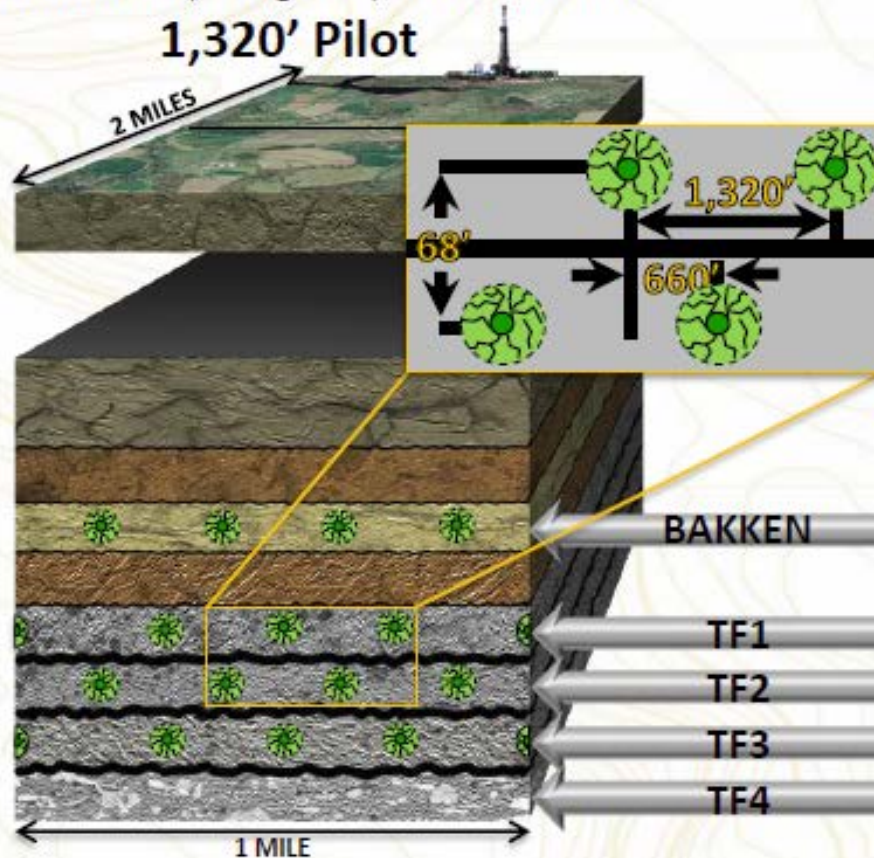


Well density and timing
are the big questions

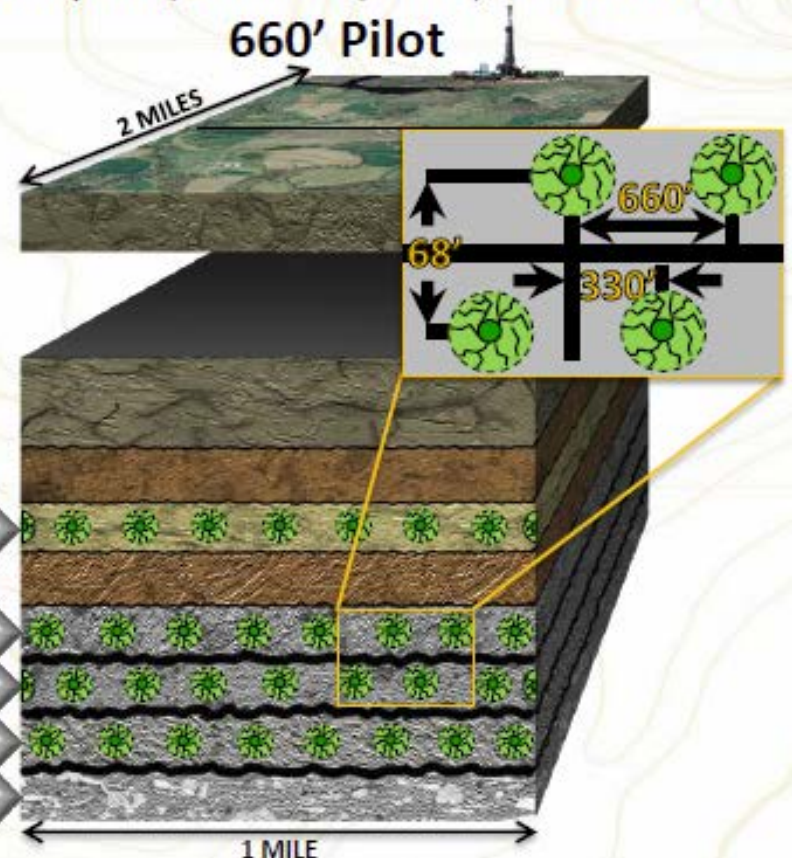
Well density and timing are the big questions

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

Hawkinson, Tangsrud, and Rollefstad



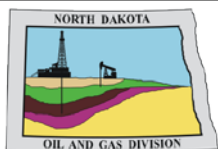
Wahpeton, Lawrence, Mack, and Hartman



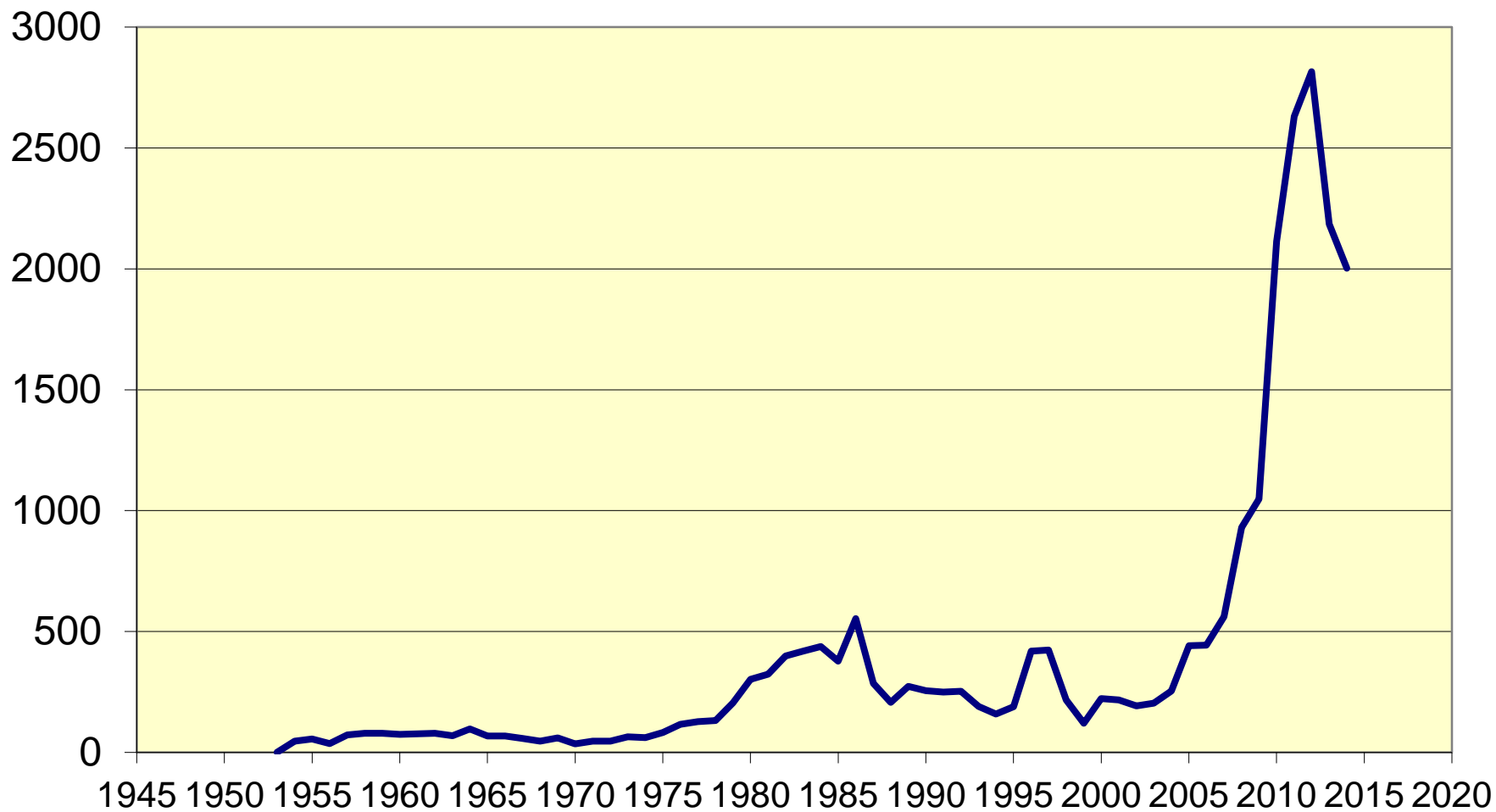
- 3 project areas
- 1,320 ft. same-zone spacing
- 34 new wells (gross)

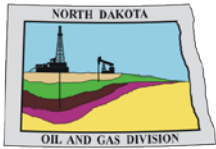
- 4 project areas
- 660 ft. same-zone spacing
- 31 new wells (gross)

Source: Continental Resources

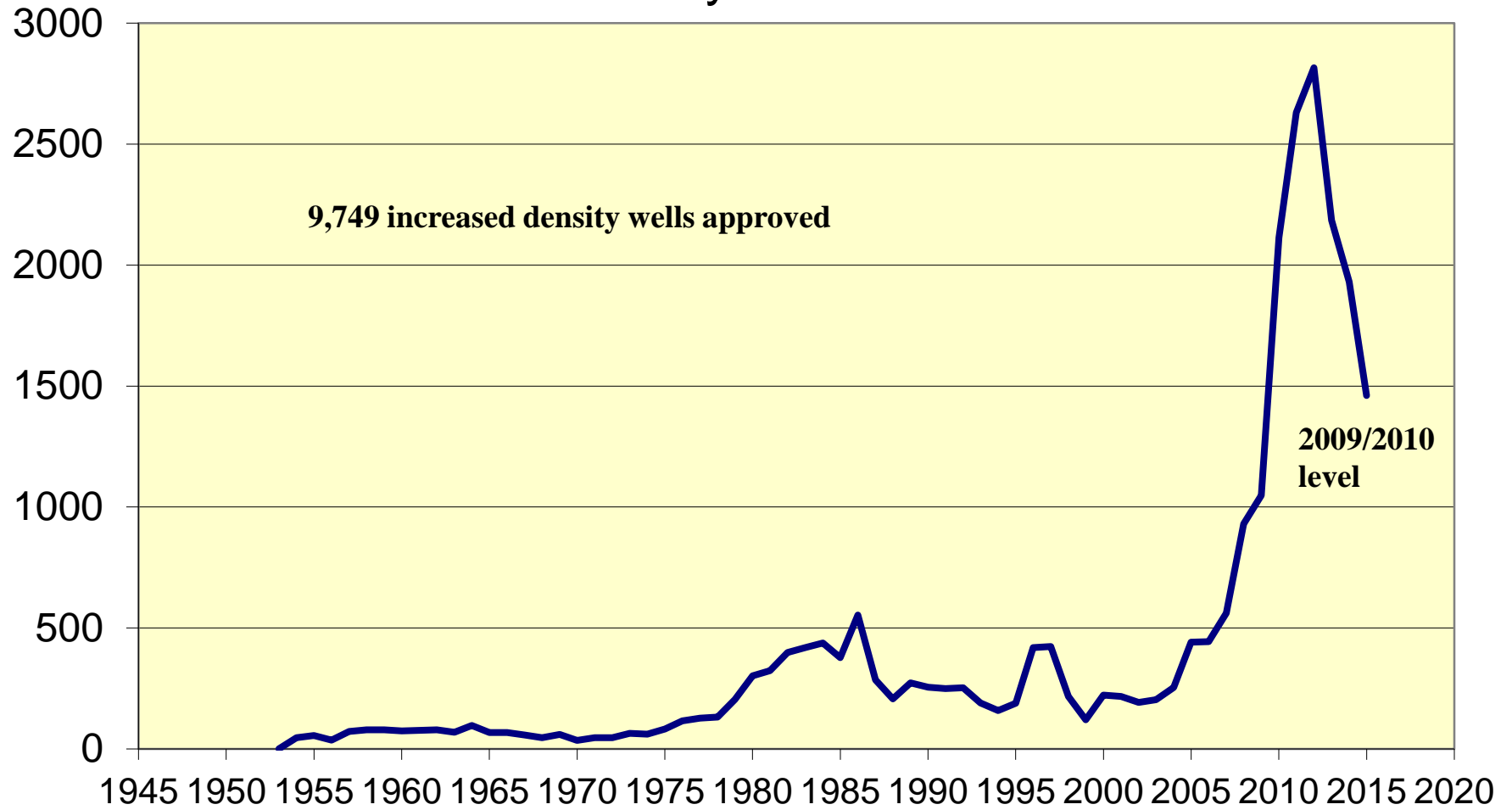


North Dakota Industrial Commission Cases Heard October 2014



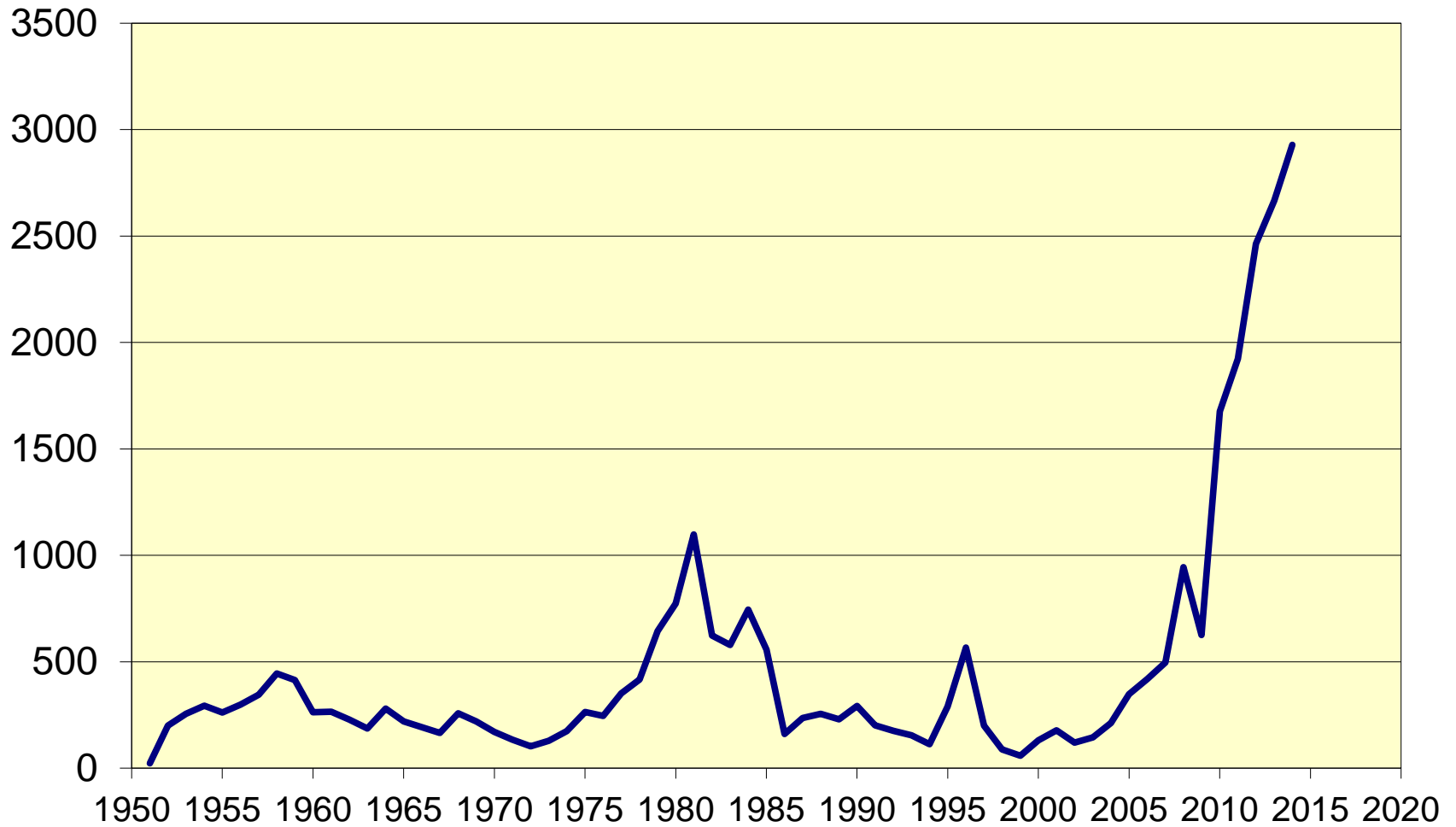


North Dakota Industrial Commission Cases Heard July 2015



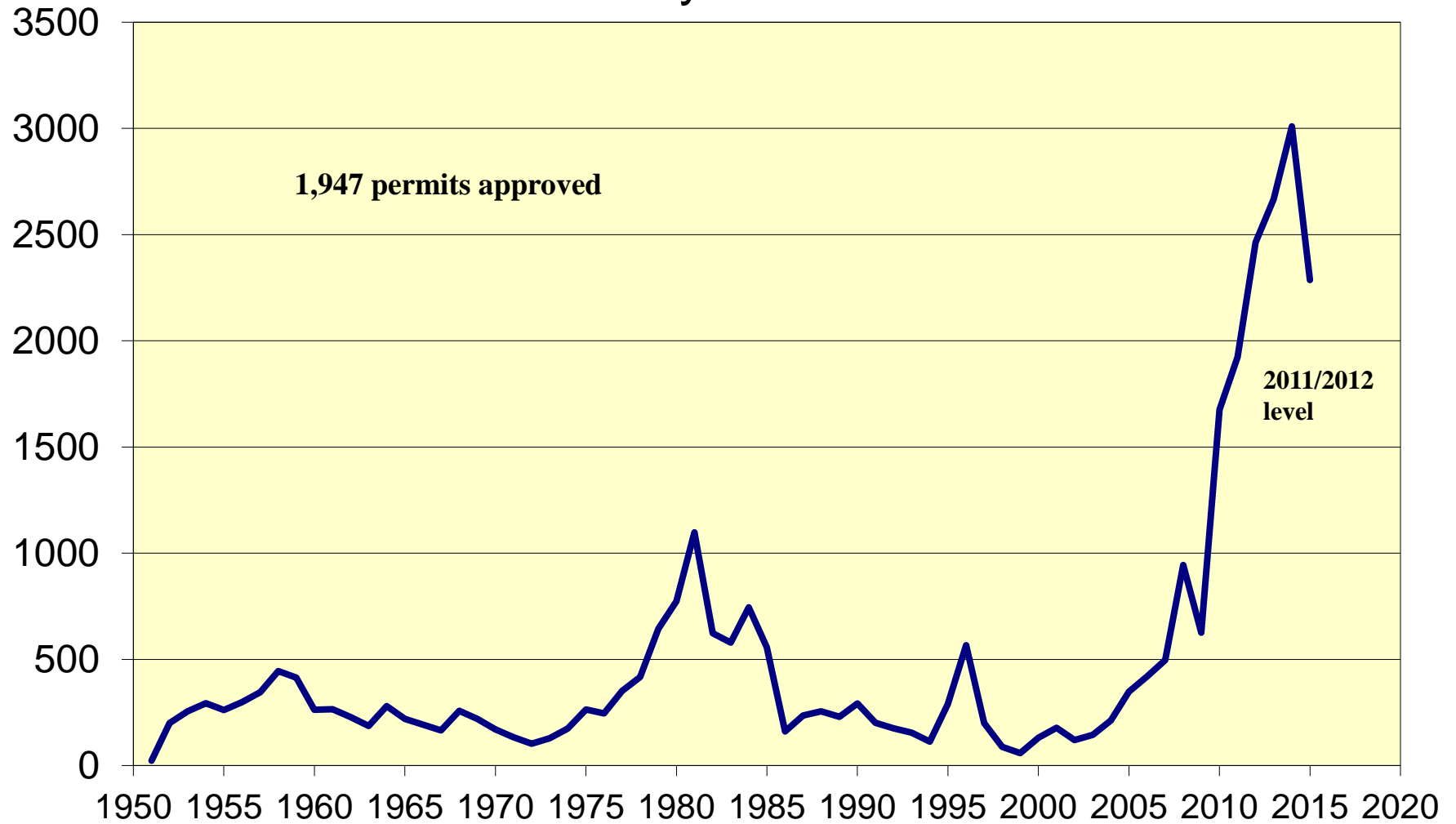


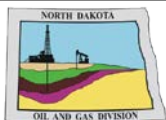
North Dakota New Well Permits Issued October 2014



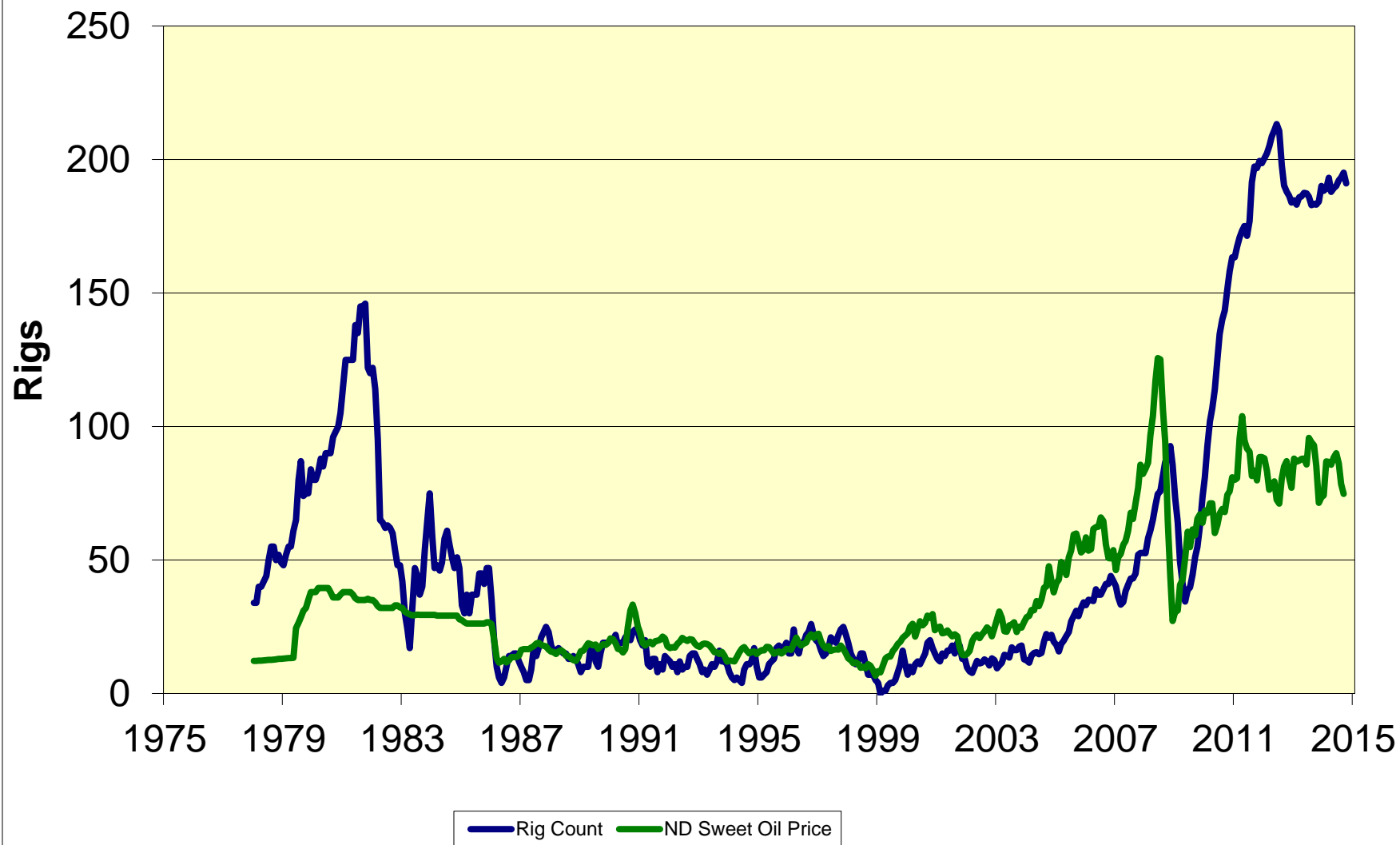


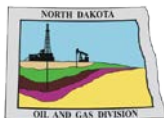
North Dakota New Well Permits Issued July 2015





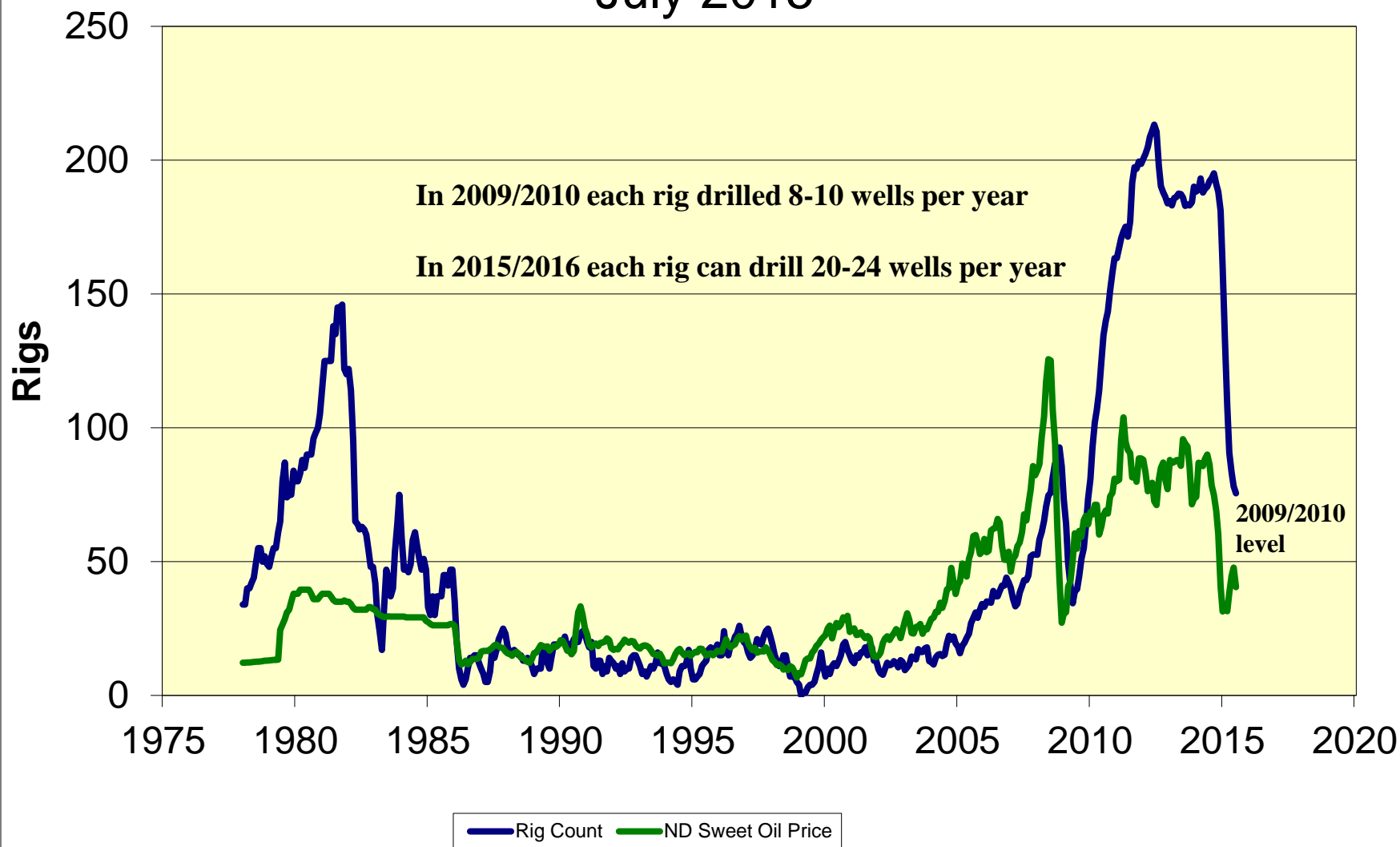
North Dakota Average Monthly Rig Count October 2014



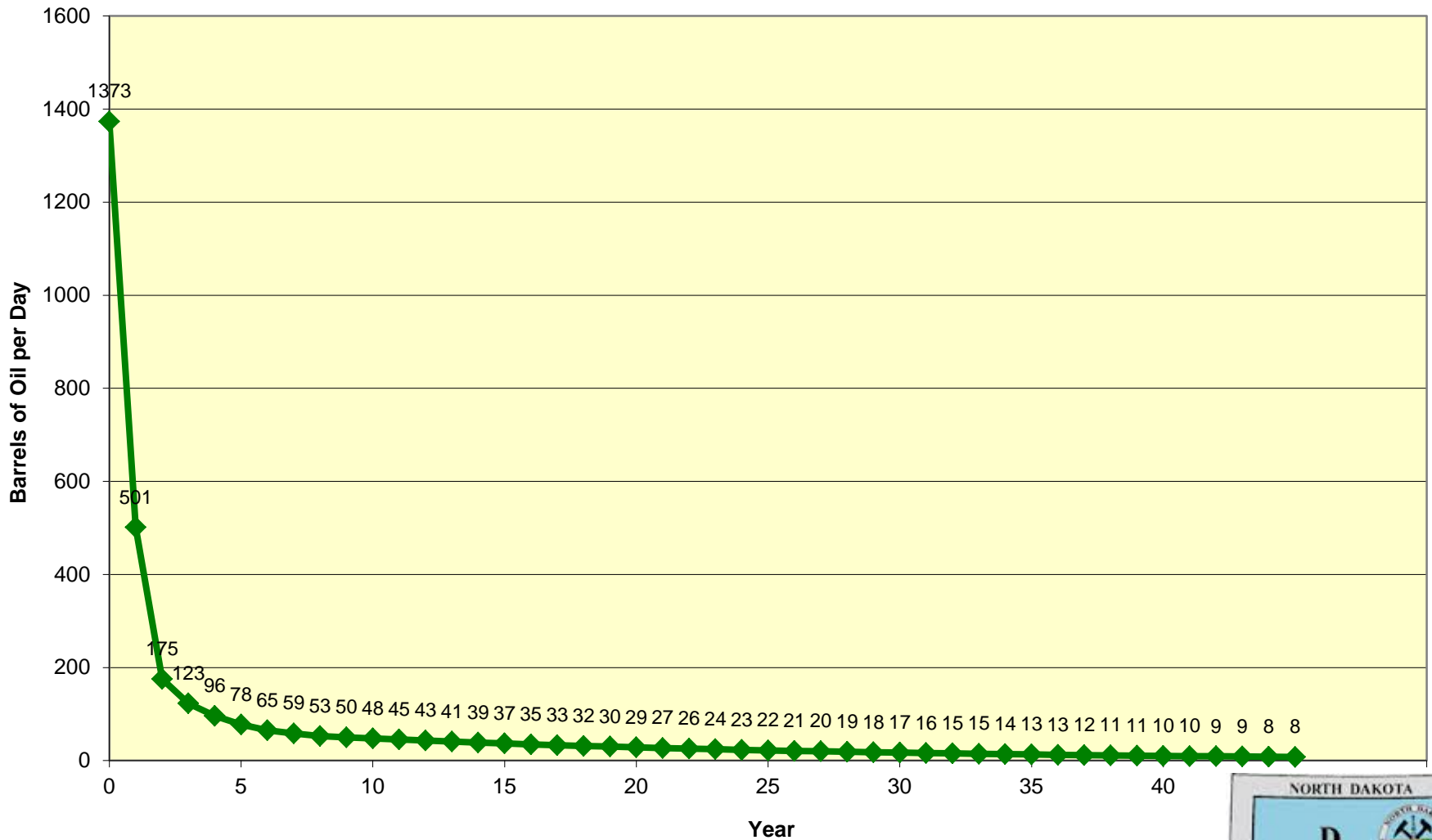


North Dakota Average Monthly Rig Count

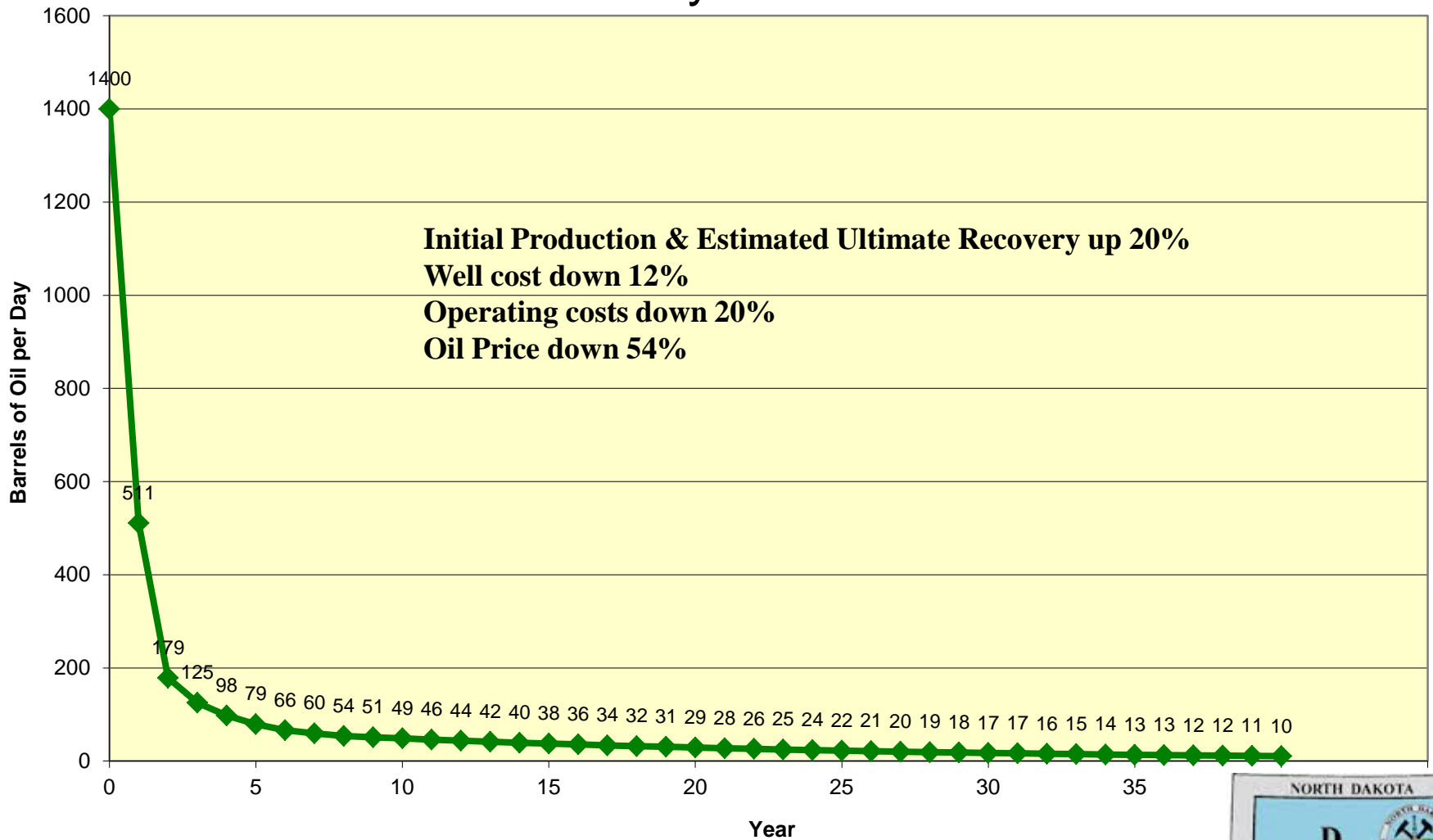
July 2015



Typical Bakken Well Production October 2014

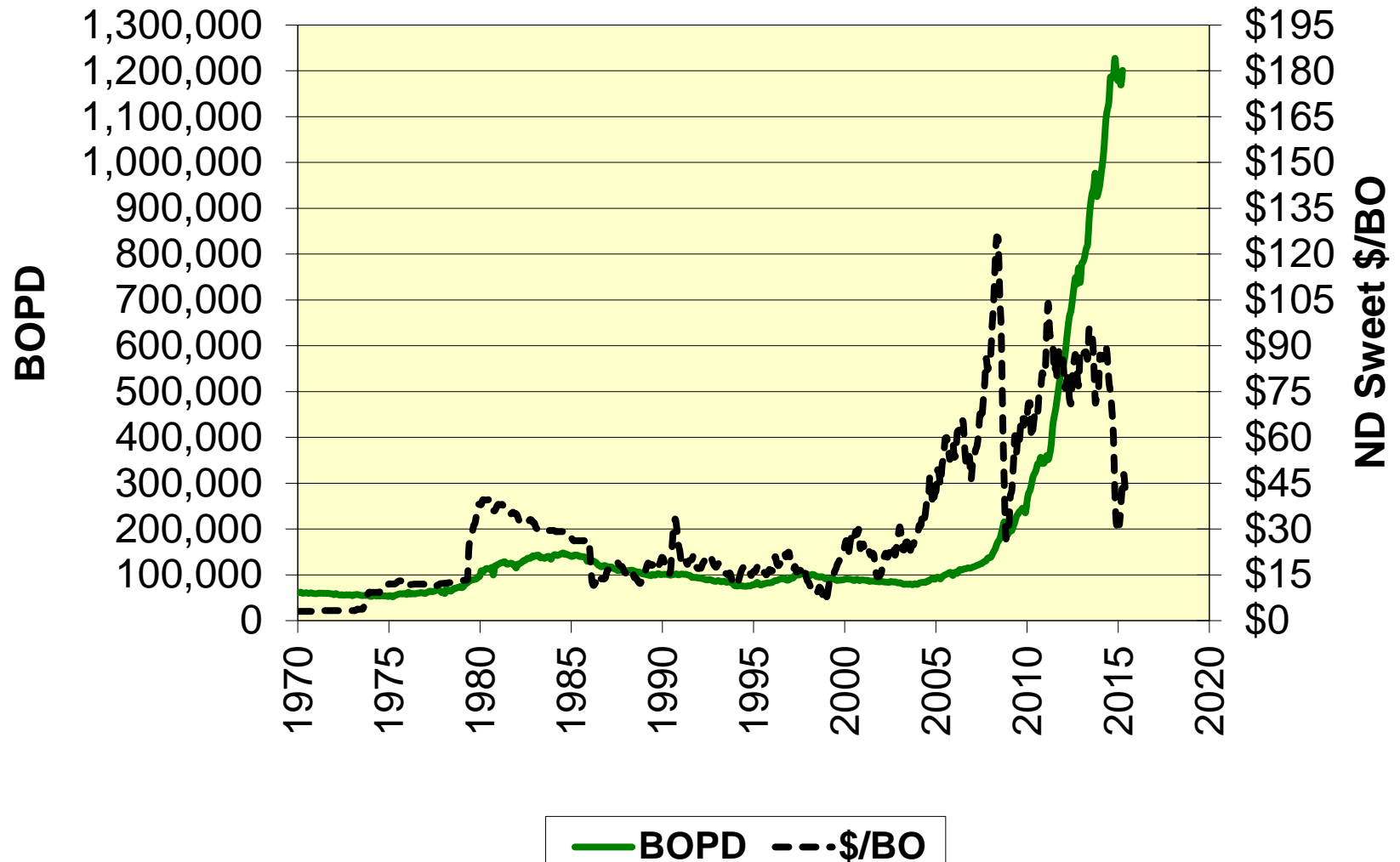


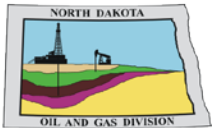
Typical Bakken Well Production July 2015



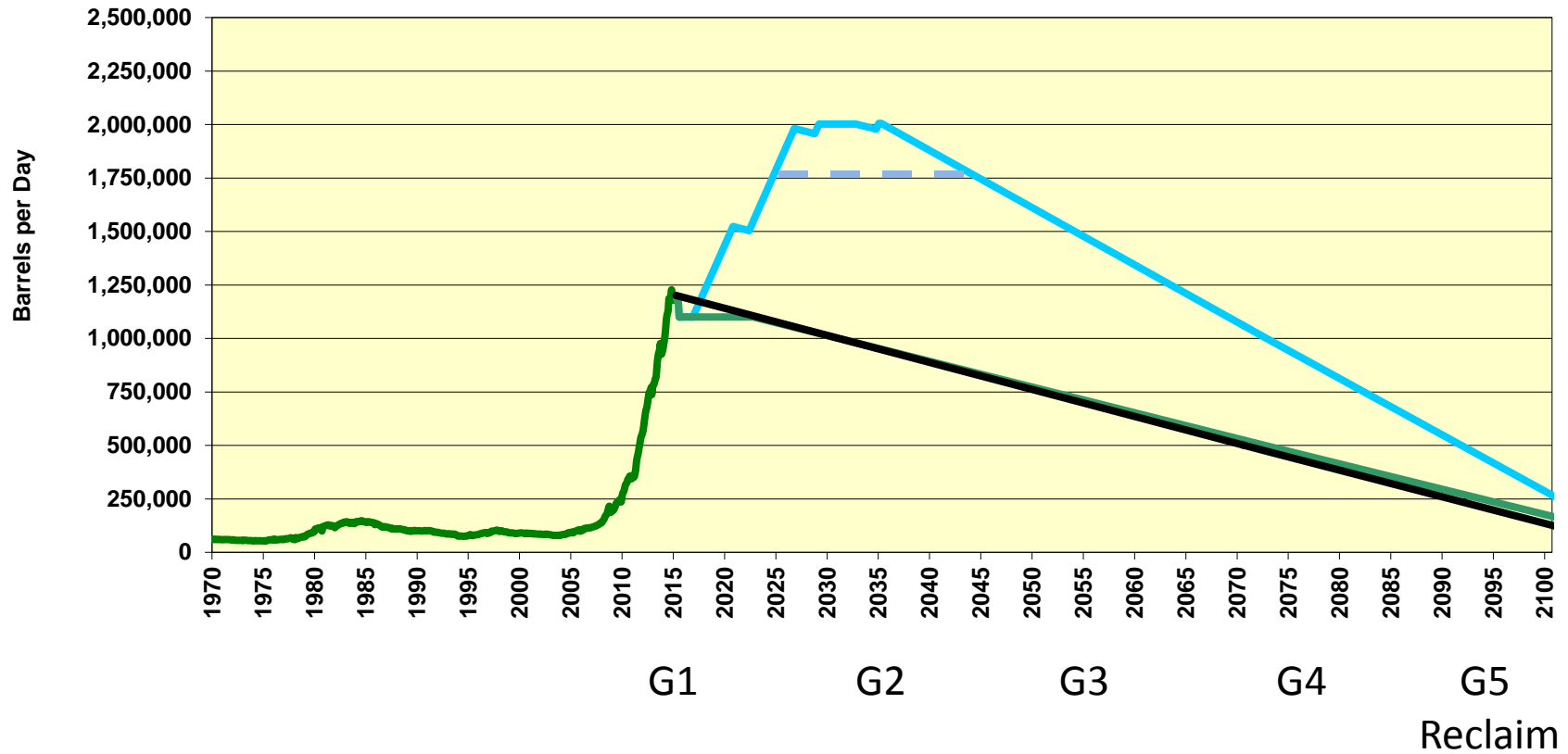


North Dakota Daily Oil Produced and Price





North Dakota Oil Production

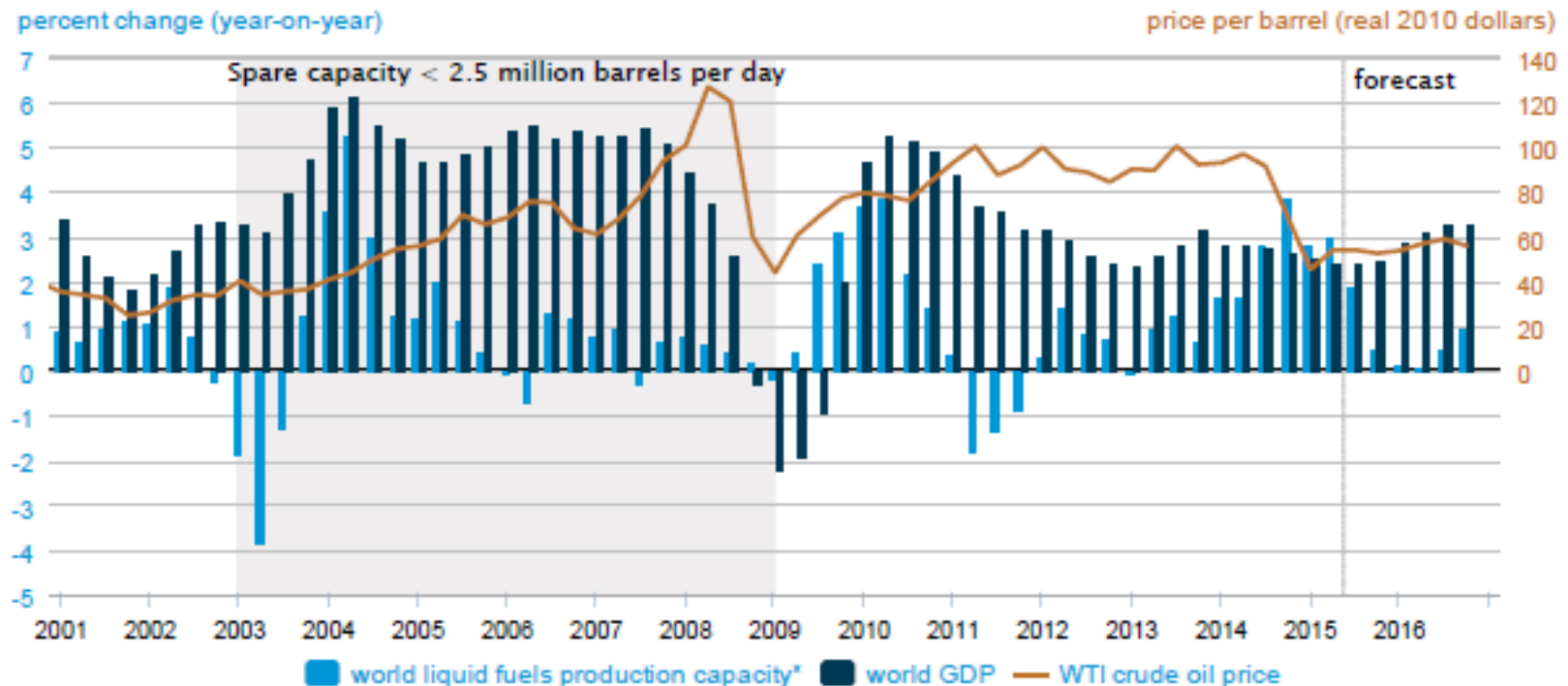


EOR? +++

History Peak Production Estimate Current ND Revenue Estimate Current Production Limited-No Drilling

Changes in world liquid fuels production capacity and GDP, price of WTI crude oil

interactive 



*World capacity = OPEC capacity plus non-OPEC production
 Source: U.S. Energy Information Administration, Thomson Reuters
 Updated: Monthly | Last Updated: 07/07/2015

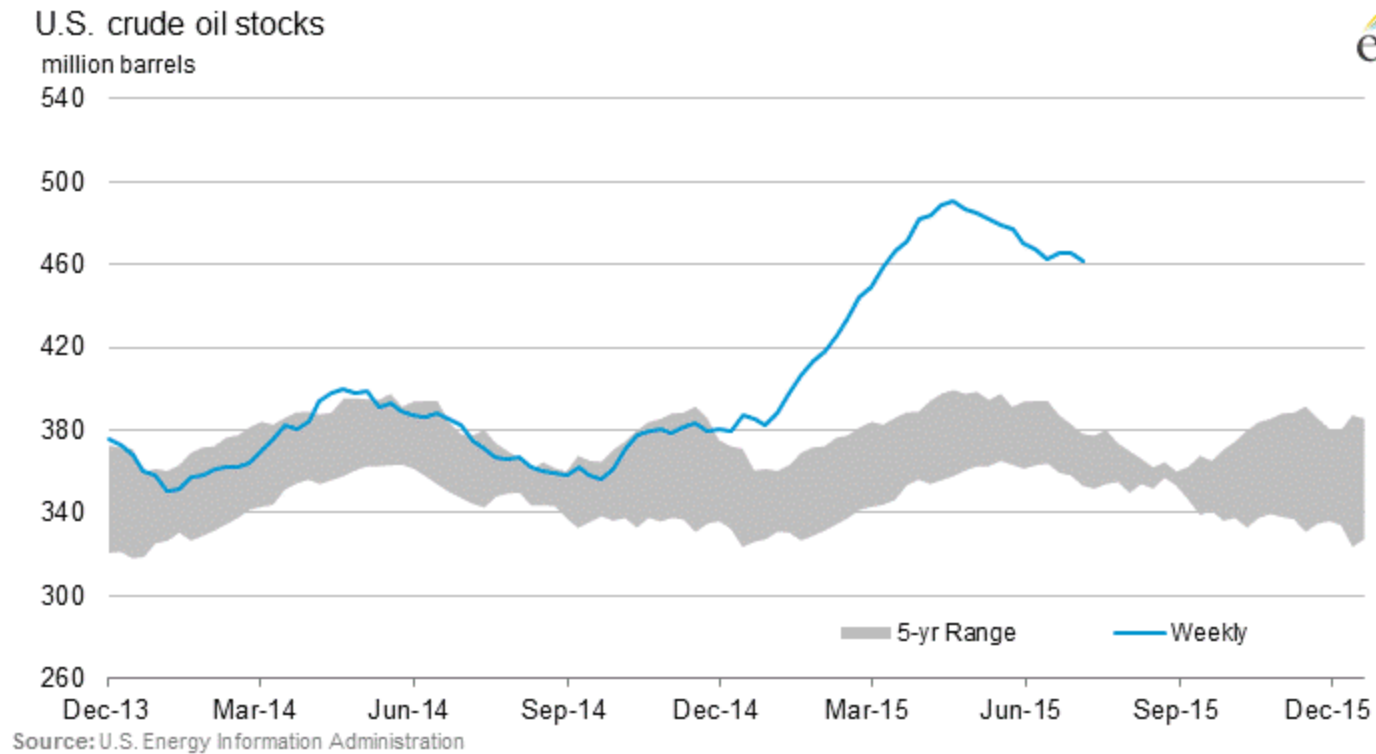
 [Download Data in CSV](#)

Brent 10/14 – Brent 07/15 (-)\$42.35

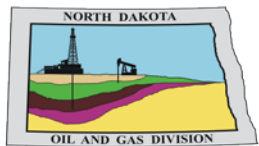
In this chart, WTI price levels are graphed with world GDP growth rates (as an indicator of global oil demand growth) and quarterly changes in world capacity, defined as OPEC capacity plus non-OPEC production (as an indicator of global oil supply growth). From 2005 to 2008, economic growth remained strong while oil production capacity grew slowly and even declined in some quarters. The tight market conditions put upward pressure on oil prices.

Storage East Coast 11 of 20=55%
Permian 82 of 120=68%
Rockies 22 of 40=55%
Total US 461 of 735=63%

Cushing 57 of 70=81%
Gulf Coast 232 of 395=59%
West Coast 55 of 100=54%
Normal 360 of 735=49%



Brent - WTI (-)\$6.62



North Dakota Oil Production and Price



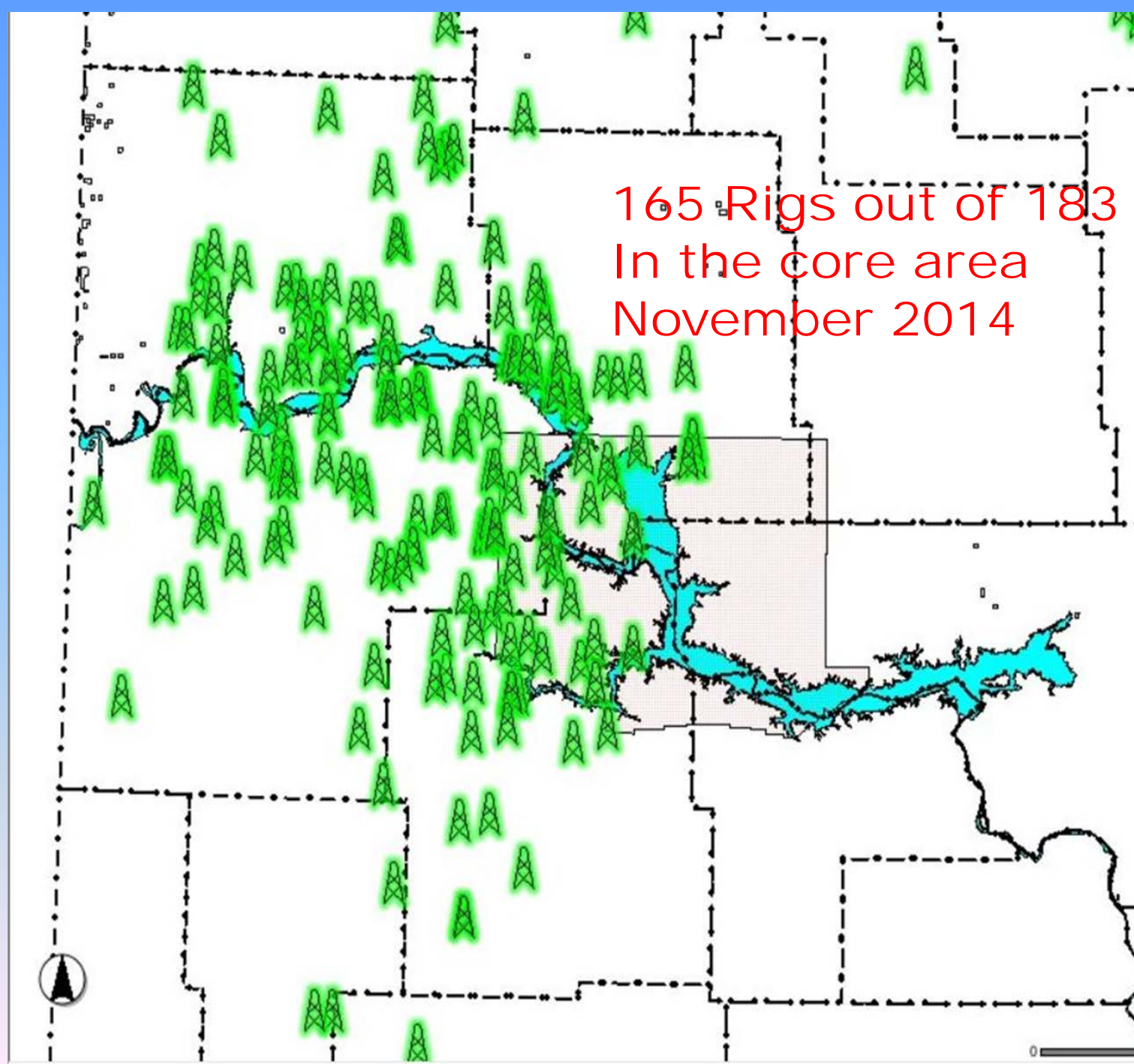
WTI - NDSweet (-)\$11.96

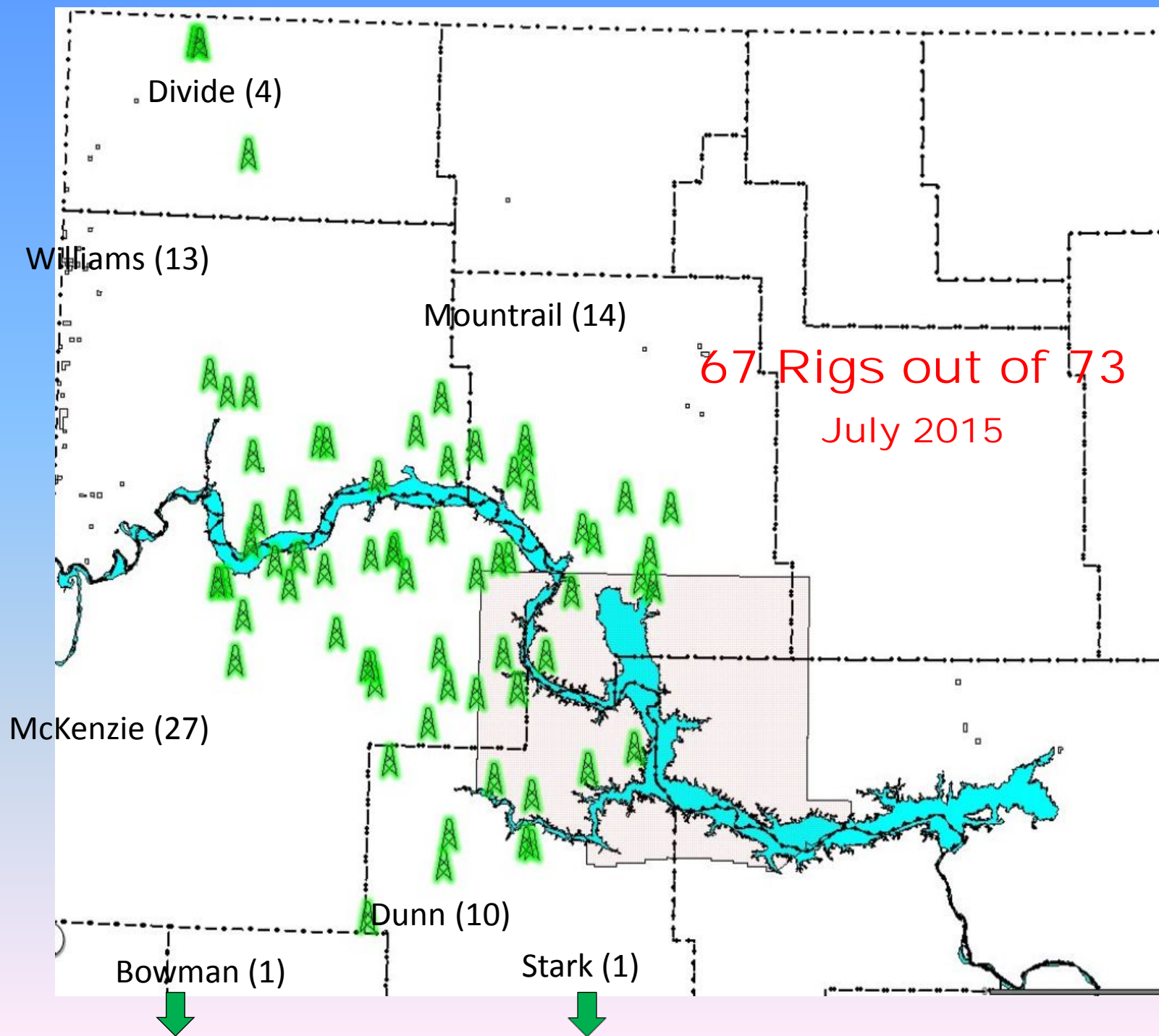


May 2015

	Breakeven			Wells	
	\$/barrel	Rigs	Current	P90	P50
Billings	\$29	0	642	1,250	2,000
Bot-Ren	\$70	0	1,029	3,000	3,900
Bow-Slp	\$75	1	611	700	1,200
Burke	\$75	0	631	1,200	2,600
Divide	\$62	3	766	1,400	2,600
Dunn	\$24	10	1,765	2,000	8,800
Golden Valley	\$39	0	105	200	300
McKenzie	\$26	27	3,612	4,000	13,600
McLean	\$25	0	59	300	800
Mountrail	\$41	13	2,477	3,000	8,800
Stark	\$38	1	271	1,250	2,400
Williams	\$34	13	2,234	3,000	10,000
Statewide	\$30	68	14,235	21,300	57,000

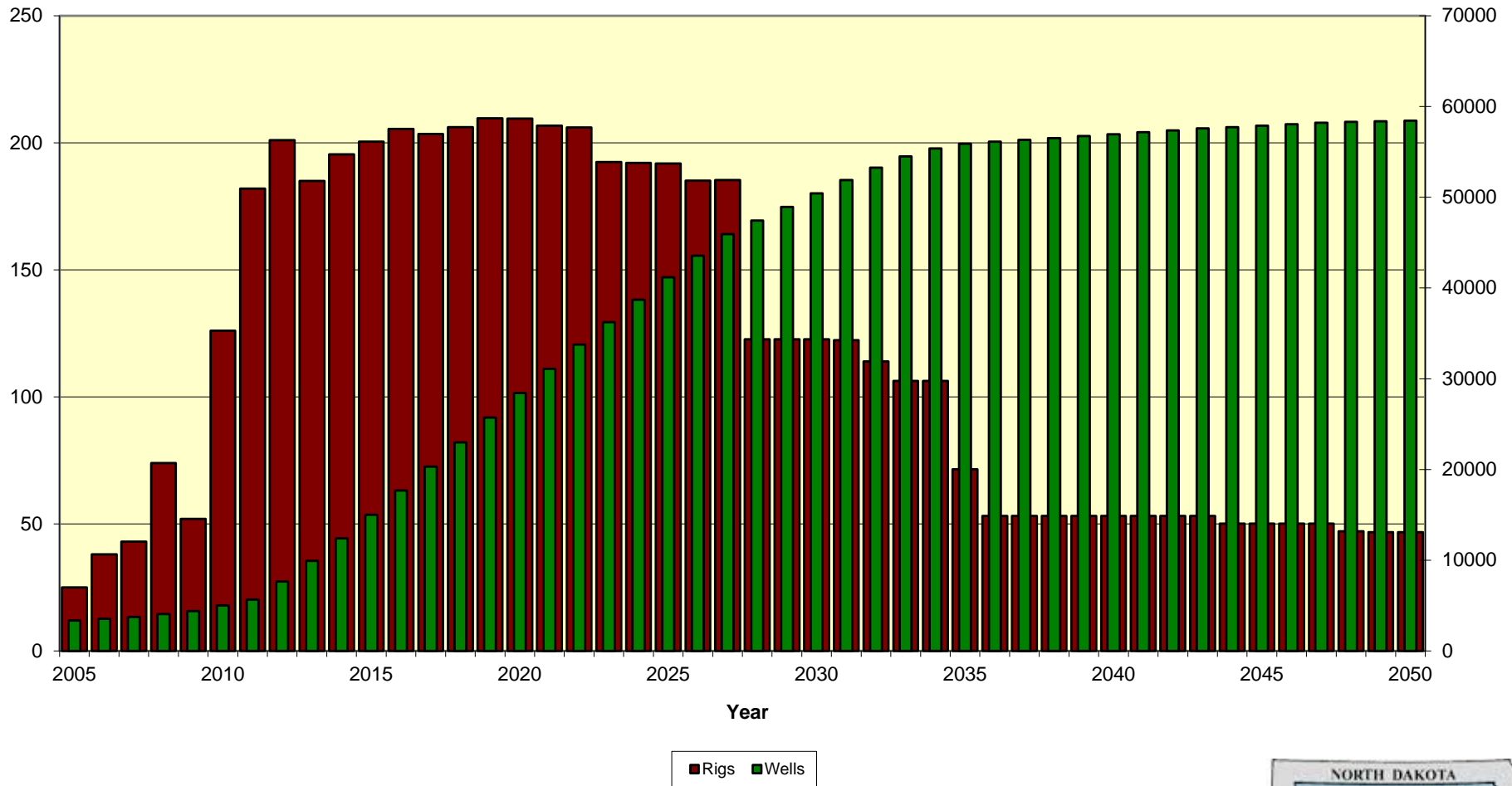
165 Rigs out of 183
In the core area
November 2014





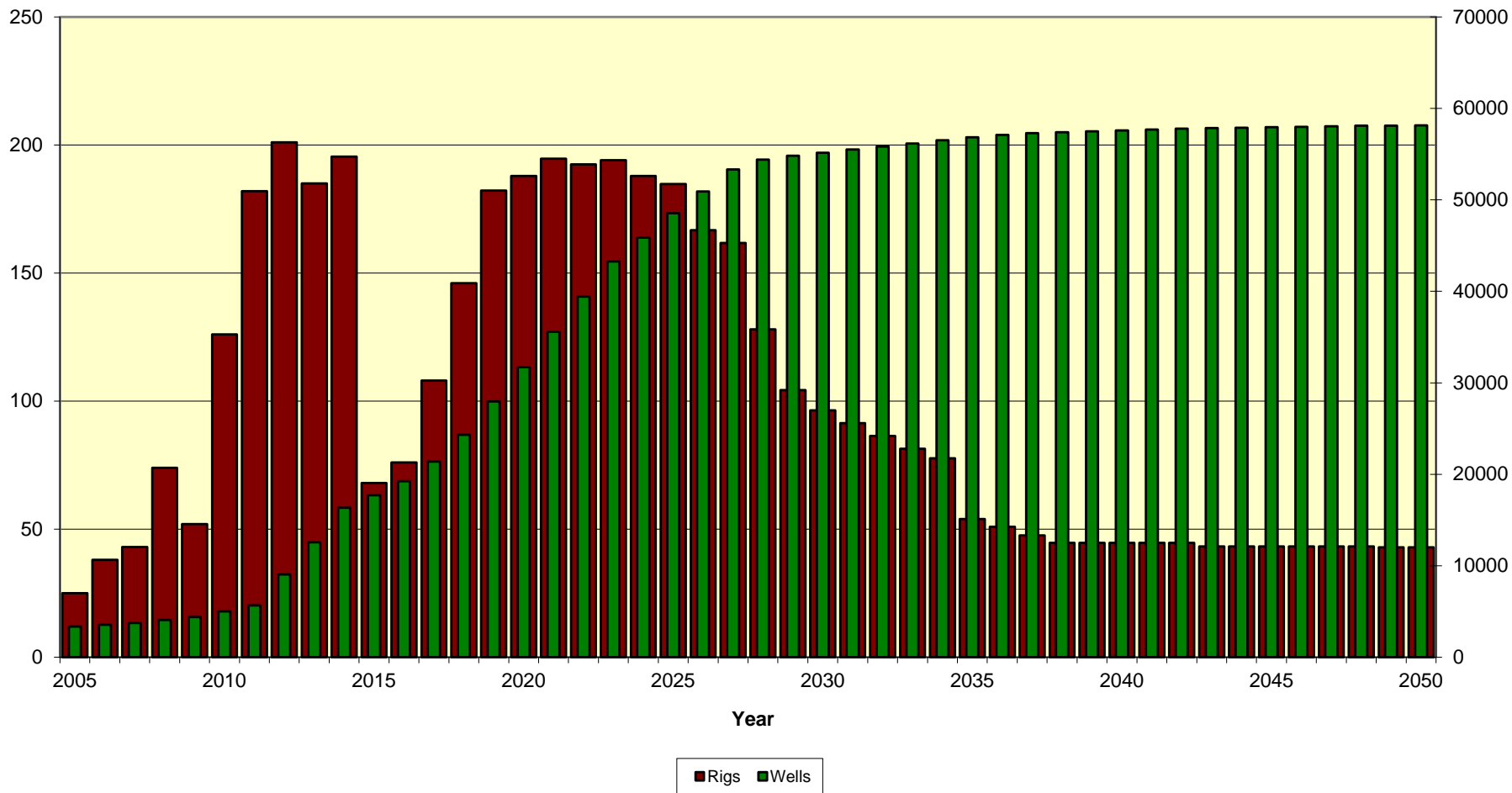
October 2014

North Dakota Rigs and Wells

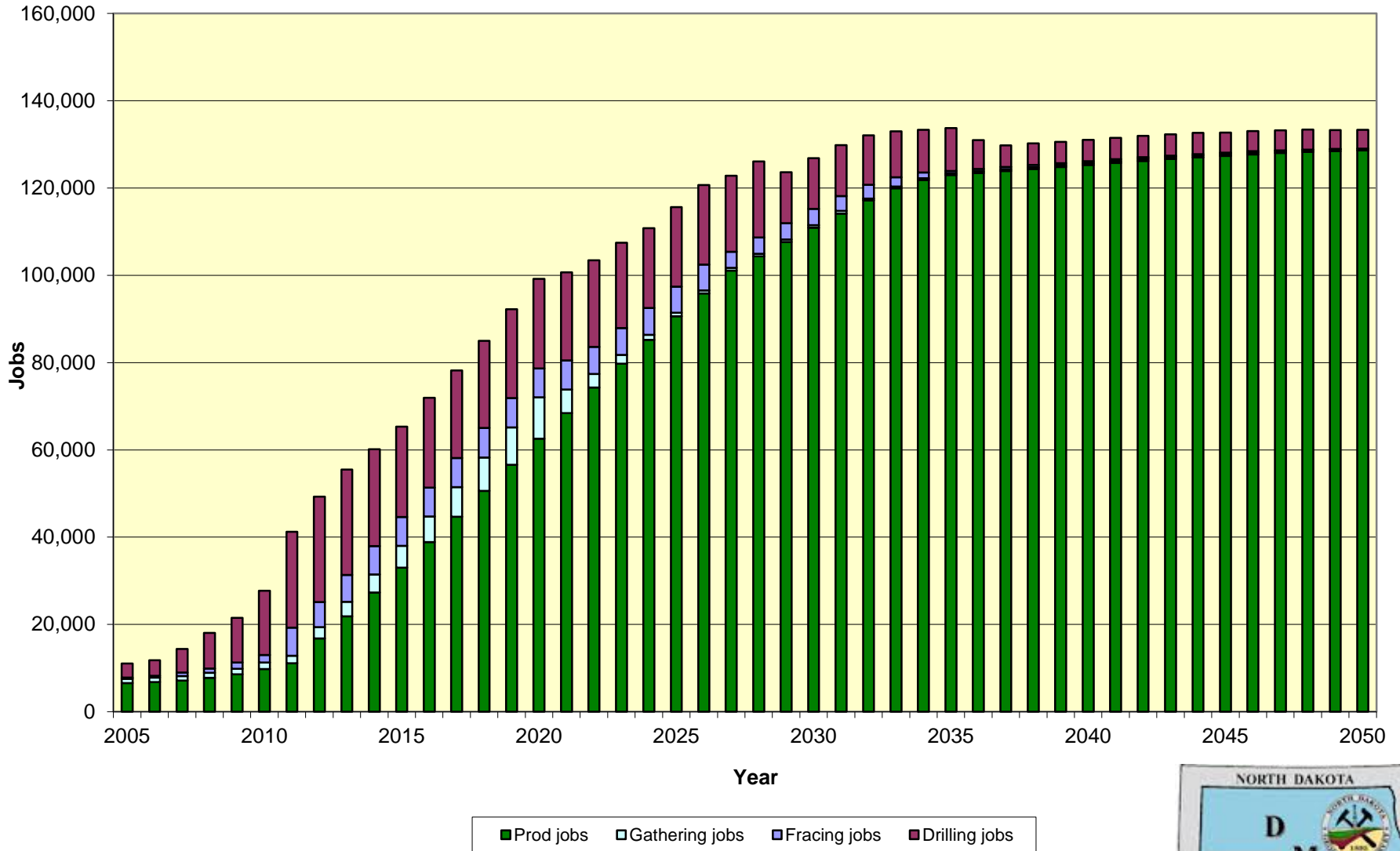


July 2015

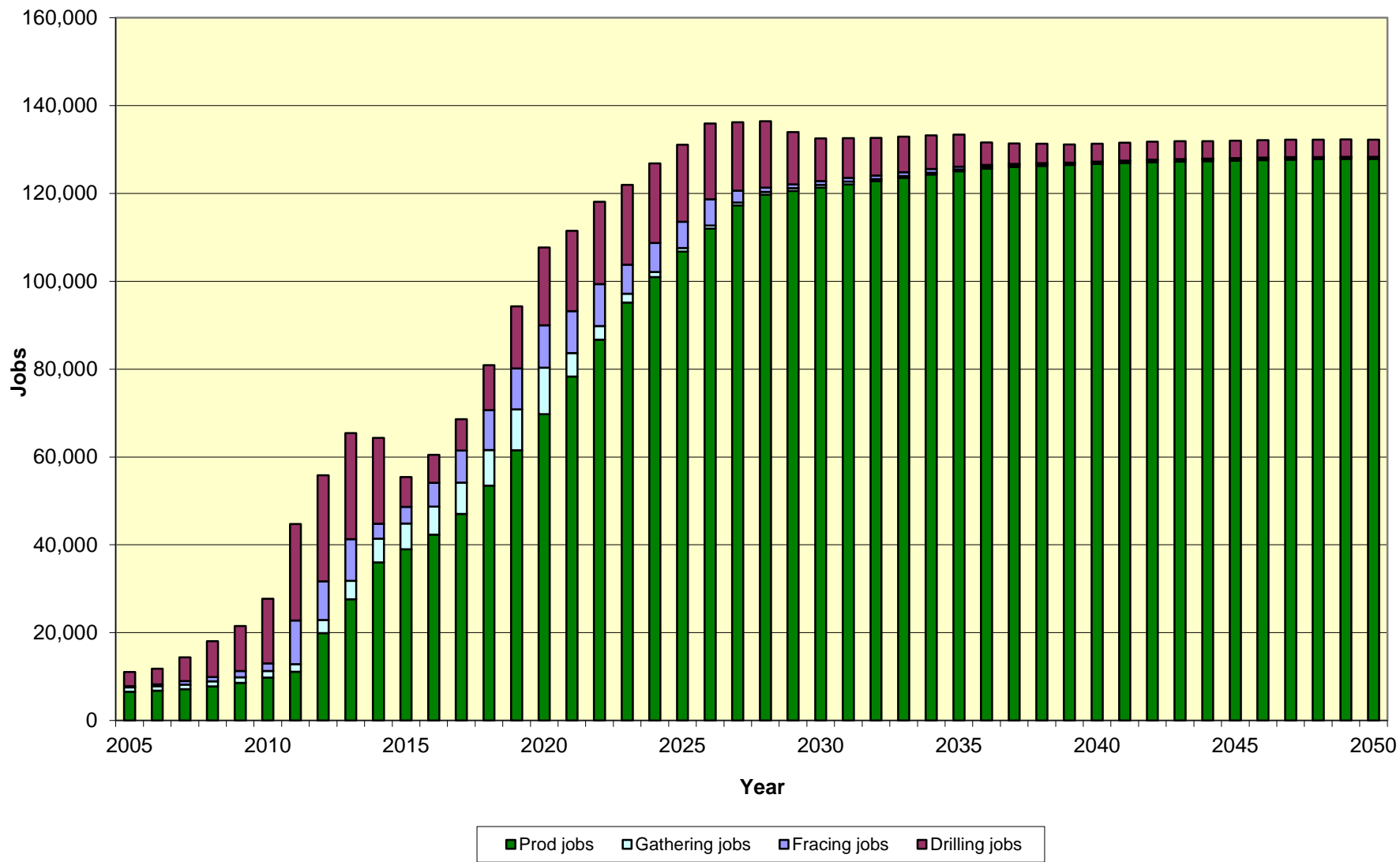
North Dakota Rigs and Wells



North Dakota Oil Industry Jobs October 2014



North Dakota Oil Industry Jobs

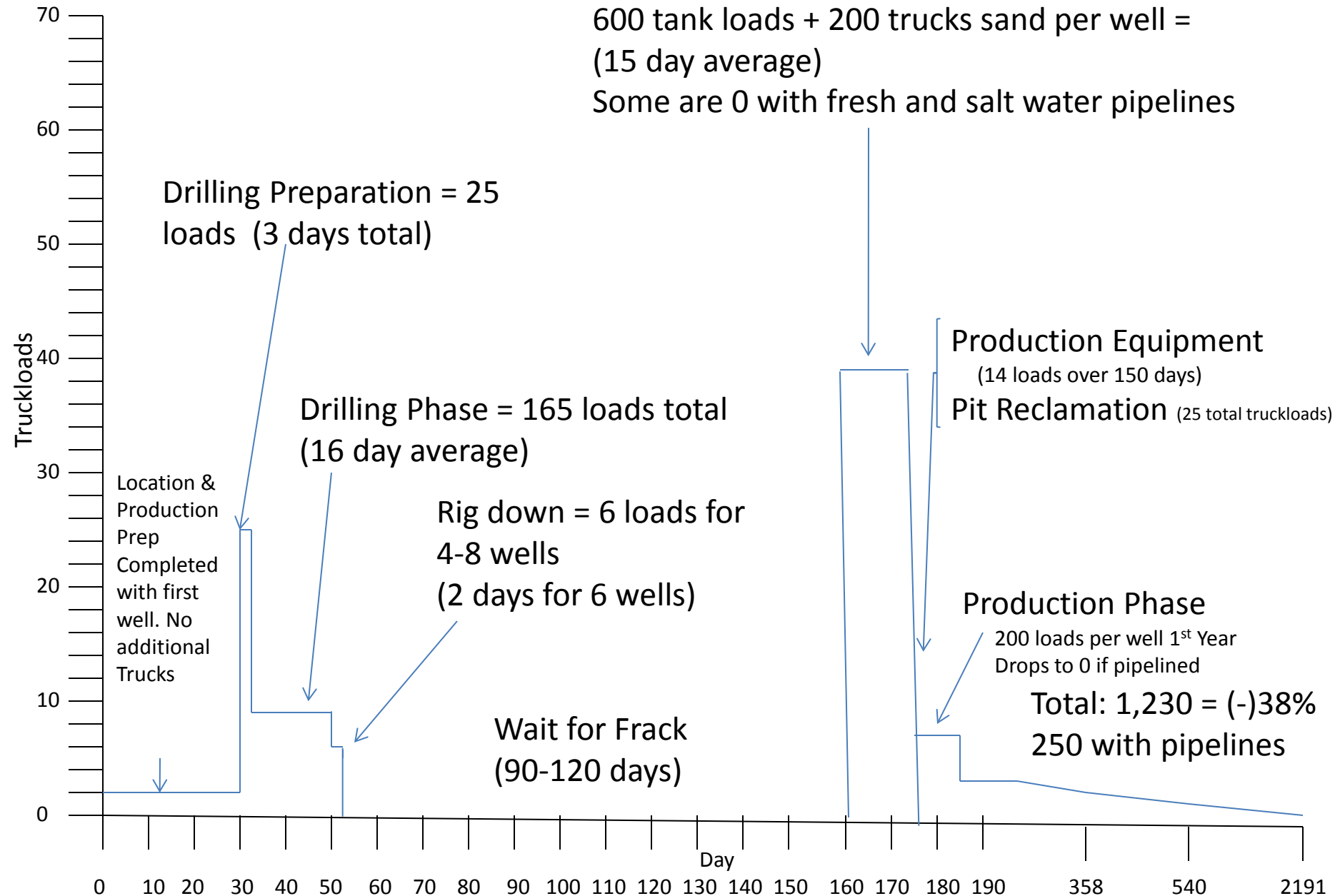


Bakken Wells – Truckload Timeline


Fracturing Phase – (800 loads)

600 tank loads + 200 trucks sand per well =
(15 day average)

Some are 0 with fresh and salt water pipelines



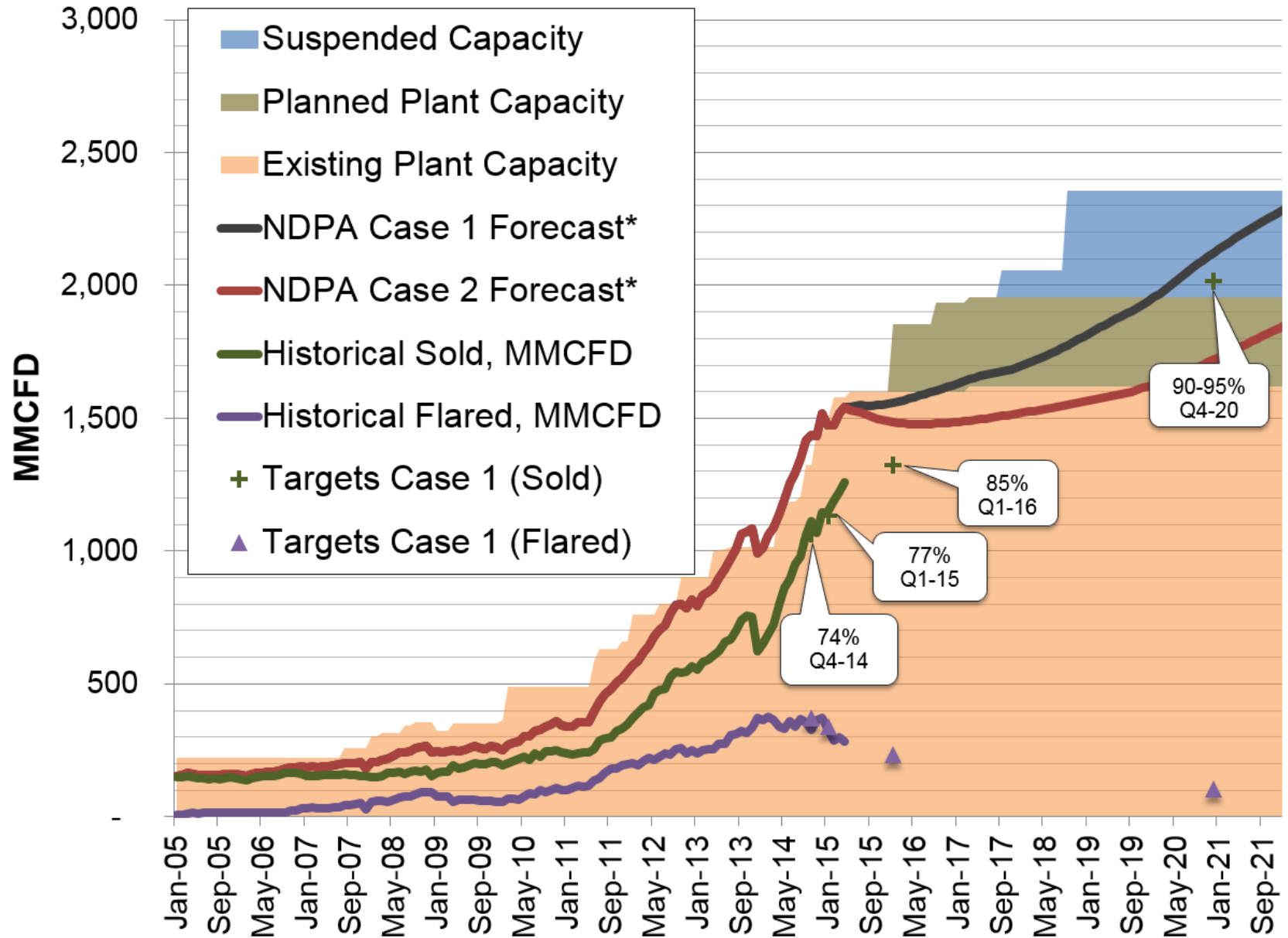
Western North Dakota Housing

District Field Office Housing Survey						
<u>Dickinson</u>	2006	2012	2013	2014	April 2015	
Housing Cost (existing)	\$75,000	\$150,000	\$150,000-300,000	\$175,000-450,000	\$175,000-450,000	
New Construction	\$170,000	\$177,000	\$225,000 on up	\$245,000 +	\$225,000 on up	
Apt Rental/month	\$600.00	\$3,000.00	\$2,600	\$2,700.00	\$1800 to \$3000	
Hotel rates/night	\$69.00	\$189.00	\$160.00	\$160.00	\$110-\$170	
An employee in Dickinson experienced a 90% in increase in rent this past fall (from \$950 to \$1800/month). A search for more affordable housing found nothing available. Because of housing assistance, we retained the employee as they did not have to move out of state. One employee left \$1,600 1 bedroom and moved into downtown 2bdr 1940s complex for \$1200. (Housing available but not yet affordable).						
One employee lives in a camper, and the last new hire from Dickinson owns a home. Apt. rates are for 3br apartments unless otherwise noted.						
<u>Williston</u>	2006	2012	2013	2014	2015	
Housing Cost	\$78,000	\$155,000	\$225,000 - \$275,000	\$275,000	\$225,000 - \$275,000	
New Construction	\$150,000	\$256,000	\$300,000	\$300,000	\$305,000	
Apt Rental (old existing)	\$450	\$1,100	\$1,500	\$1,500	\$1,600	
Apt Rental (new)	\$600	\$2,450	\$3,000	\$3,000	\$2,850-\$3,500	
Hotel rates	\$65	\$165	Govt rate to \$200		\$65-\$269	
Anecdotal: One recent hire was able to obtain housing that was typically reserved for hospital employees for \$1200 per month plus utilities. Estimates for new housing amount to approximately \$200 per square foot. The Williston Economic Development Commission stopped estimating rents due to the volatility of the market. Another recent hire pays \$1000 for a bedroom and bath in the basement of a home in Williston. Two employees in Williston that are receiving housing assistance are living in the lowest cost best rate they could find. Both are in a one bedroom, one bath apartment and paying heat and electricity. Without the housing allowance they could not afford the \$1200-\$1800/month rates.						
<u>Minot</u>	2006	2012	2013	2014	2015	
Housing Cost	\$127,000	\$176,000	\$185,000	\$185,000	\$200,000	
New Construction	\$149,860	\$207,680	\$220,000	\$220,000	\$350,000	
Apt Rental	\$670	\$965	\$1,100	\$1,100.00	\$2,150	
Hotel Rates	\$70	\$118	\$106	Govt rate to \$91	Govt rate to \$60-\$114	
An employee in Minot was living in a \$700/month basement sleeping room with a shared bathroom and no cooking facilities. He was evicted due to the sale of the property. Because of the housing assistance he was able move into the lowest cost one bedroom apartment he could find - \$1200/month in an older existing 49 unit complex						

Construction will expand housing stock by 15 – 25 percent from 2010 to 2025. This number is higher than the projected increase in demand for housing. When do we expect to catch up:
Hotels 2013-2015 - Apartments 2016-2017 - Single family 2017-2019

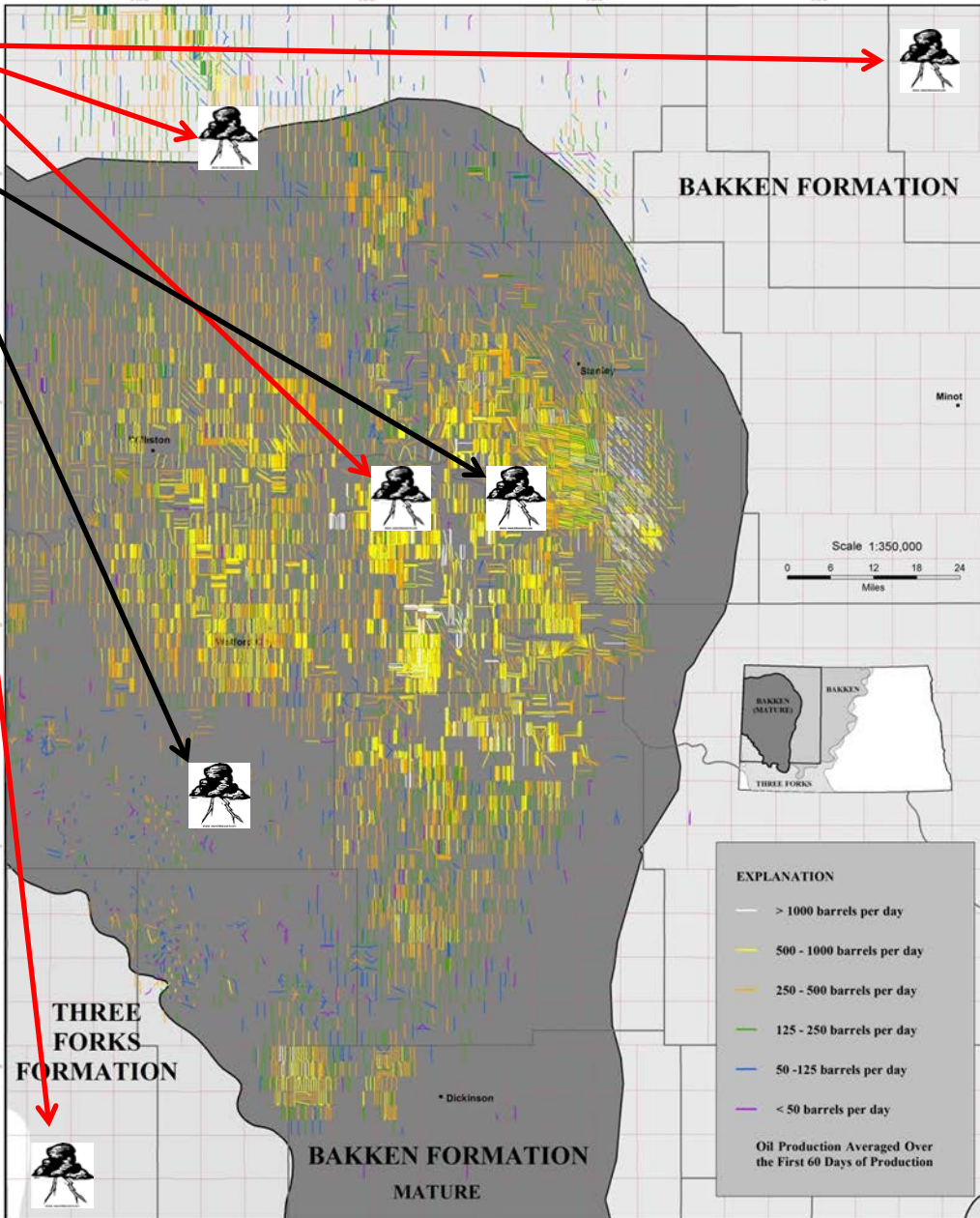


Natural Gas



First 60 Day Average Bakken Horizontal Production by Well

July 2015



Endangered Species

Federal Regulation