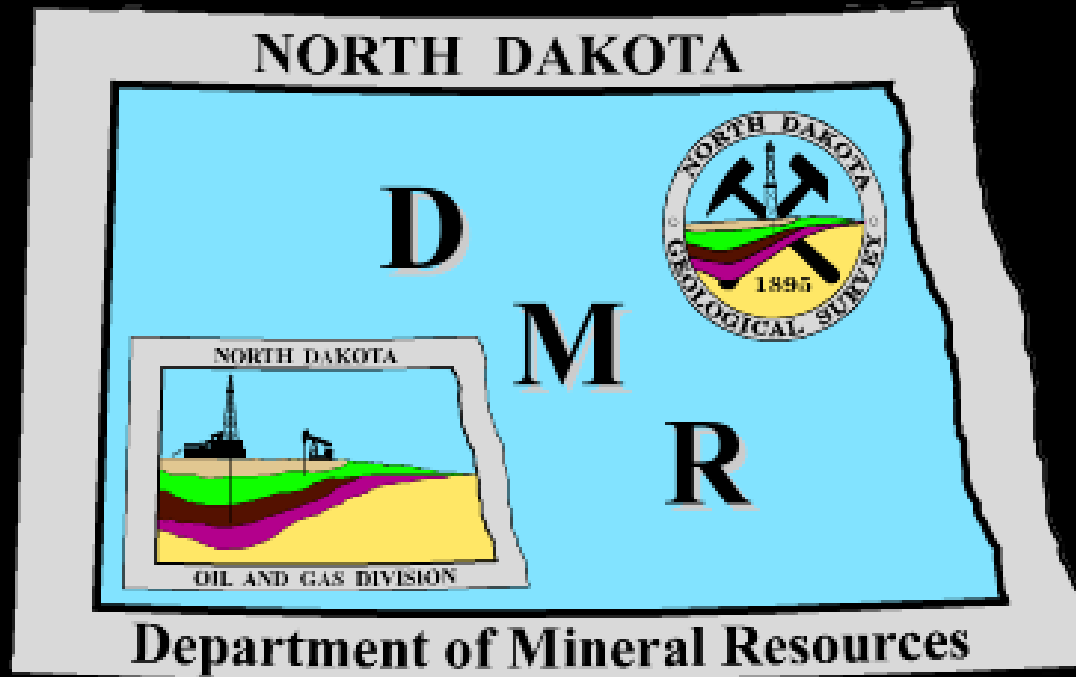


North Dakota Department of Mineral Resources



<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
12,864 active

2,751 conventional

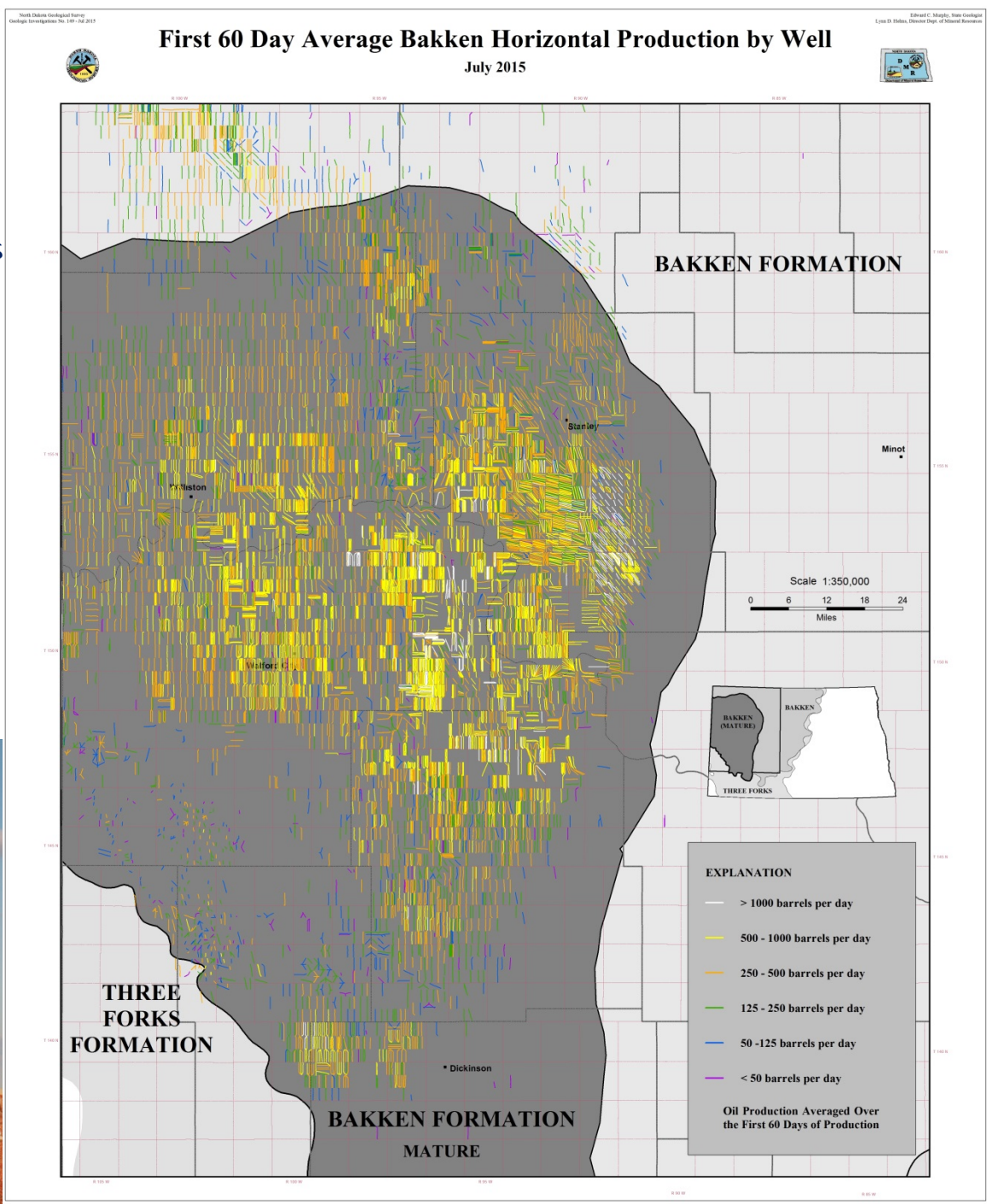
10,113 Bakken/Three Forks

848 waiting on completion

1,999 permitted

10,068 increased density approved

25,779 total



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

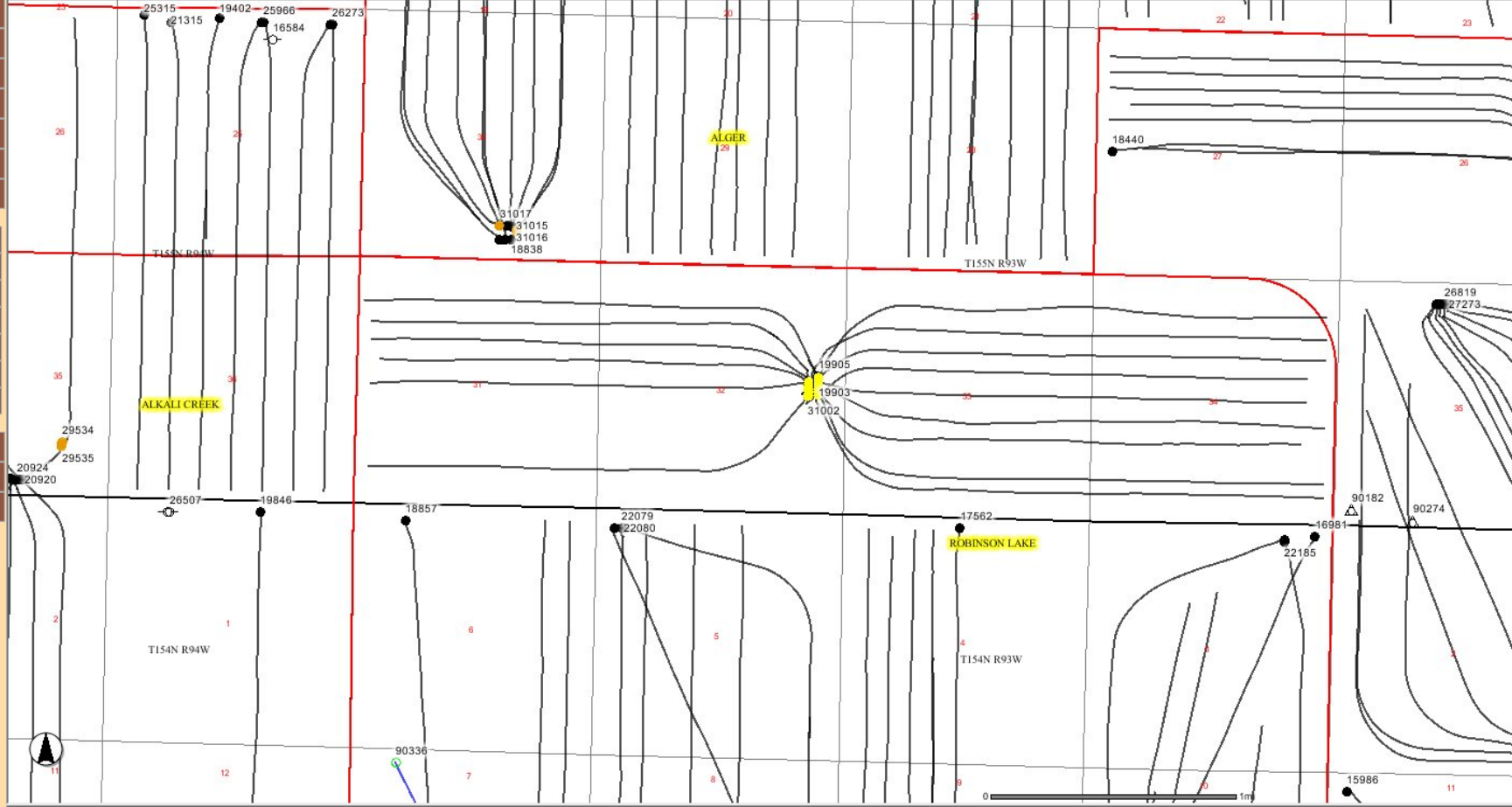


Vern Whitten Photography 6 wells producing - drilling 7-12 - and 13-18 coming soon



Oil and Gas Subscription: 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

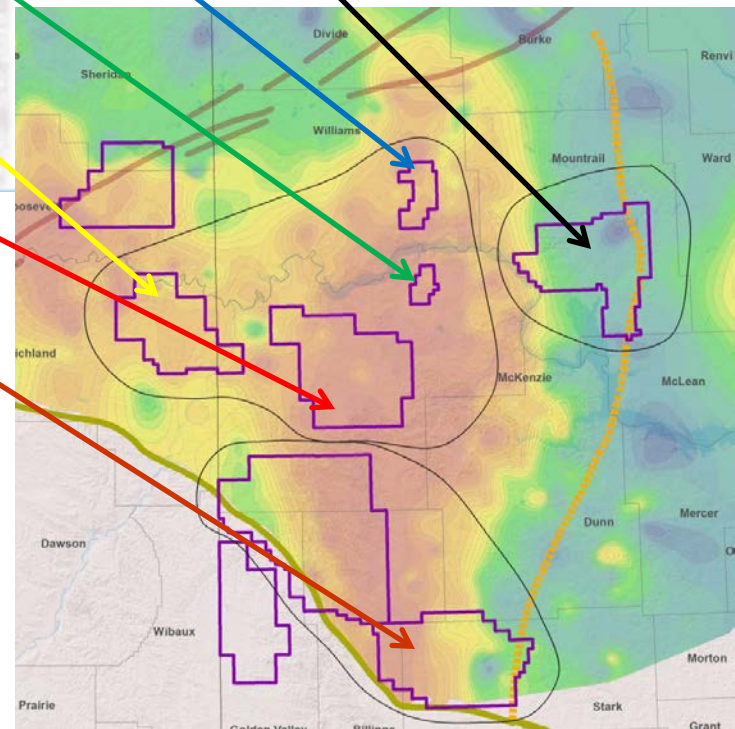
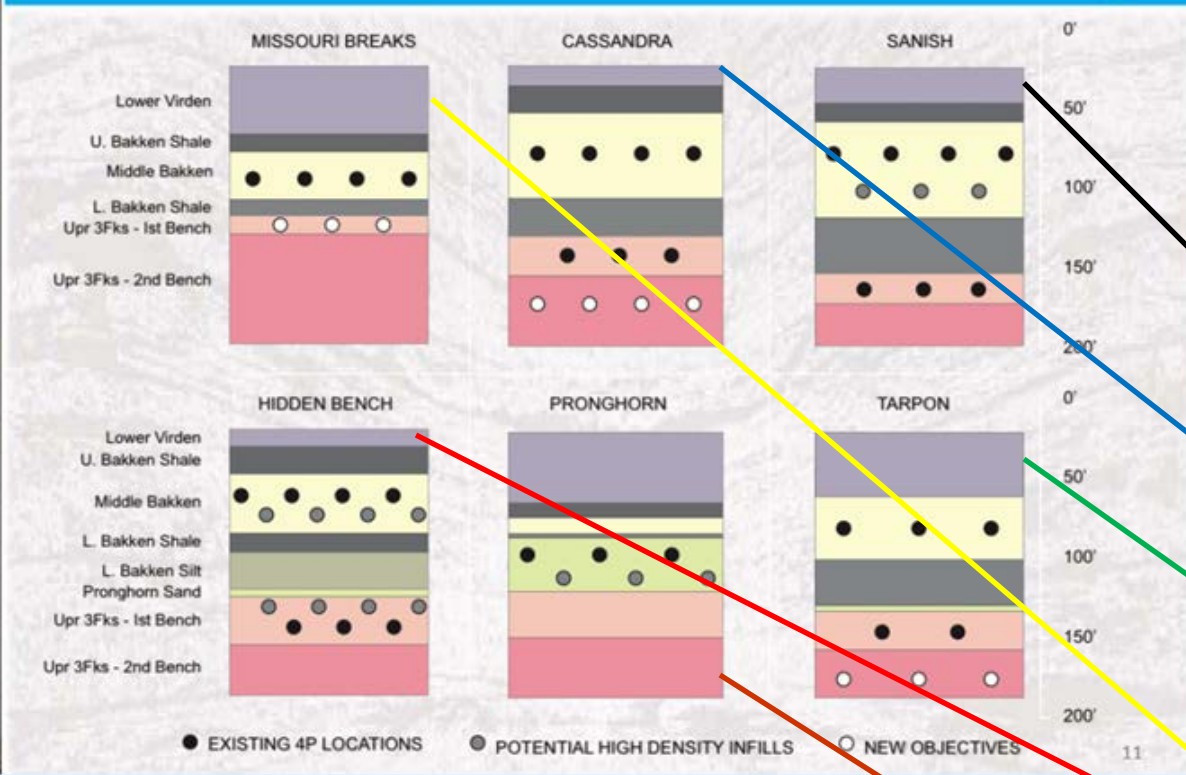


16	25788	33-061-02607-00-00	HESS BAKKEN INVESTMENTS II, LLC	EN-CVANCARA A-155-93-3231H-6	20099	Thu, 10 Oct 2013 00:00:00	ROBINSON LAKE	SENE	32	155	93	2440	N	802	E	48.20484738	102.65854526	OG	A	OG
17	28576	33-061-03139-00-00	HESS BAKKEN INVESTMENTS II, LLC	EN-FRETHEIM A- 155-93-3334H-4	21542	Thu, 28 Aug 2014 00:00:00	ROBINSON LAKE	SENE	32	155	93	2589	N	802	E	48.20443894	102.65854244	OG	A	OG
18	28574	33-061-03137-00-00	HESS BAKKEN INVESTMENTS II, LLC	EN-FRETHEIM A- 155-93-3334H-6	21340	Sun, 31 Aug 2014 00:00:00	ROBINSON LAKE	NESE	32	155	93	2636	S	802	E	48.20429453	102.65854144	OG	A	OG

[Zoom to these records](#)

Zoom In

Williston Basin Primary and Prospective Drilling Plan by Area

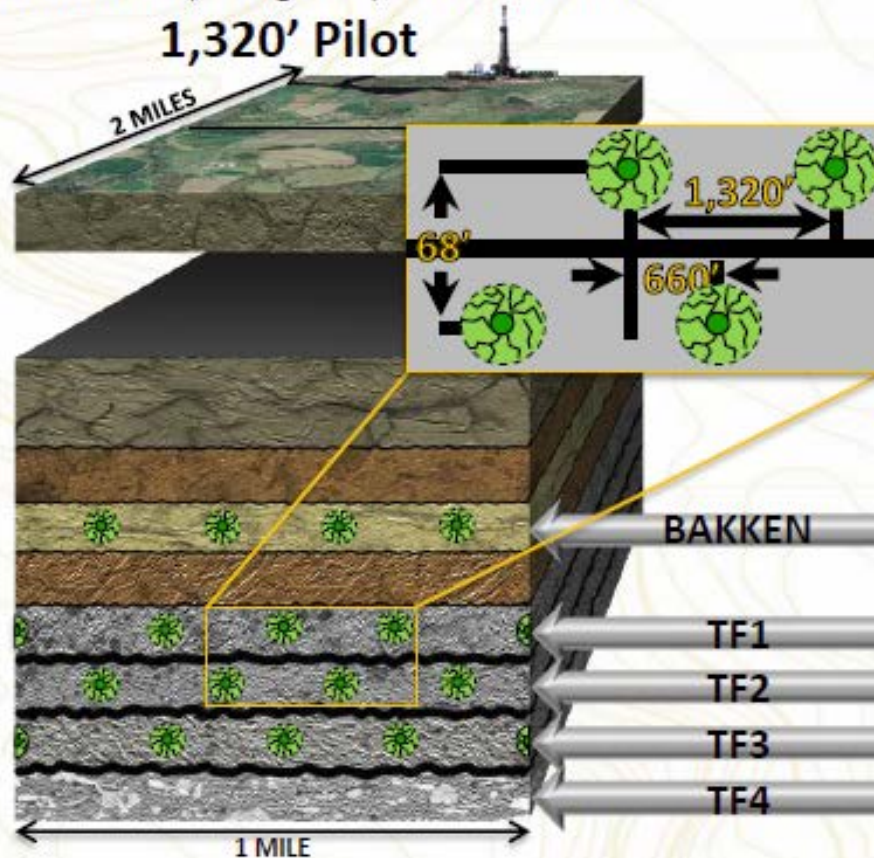


Well density and timing
are the big questions

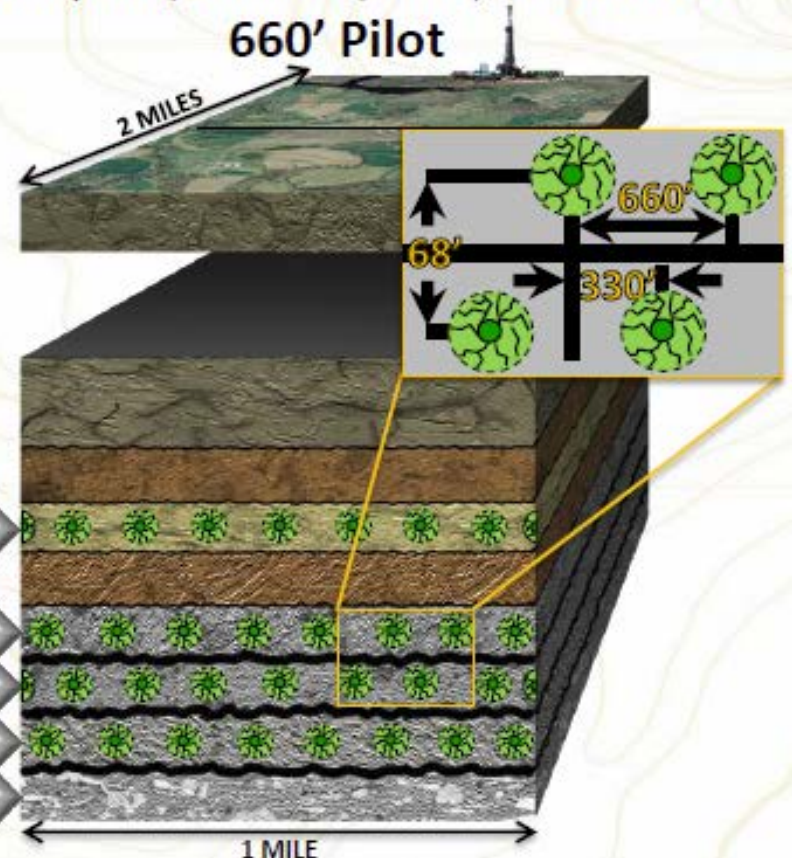
Well density and timing are the big questions

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

Hawkinson, Tangsrud, and Rollefstad



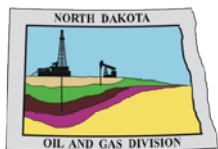
Wahpeton, Lawrence, Mack, and Hartman



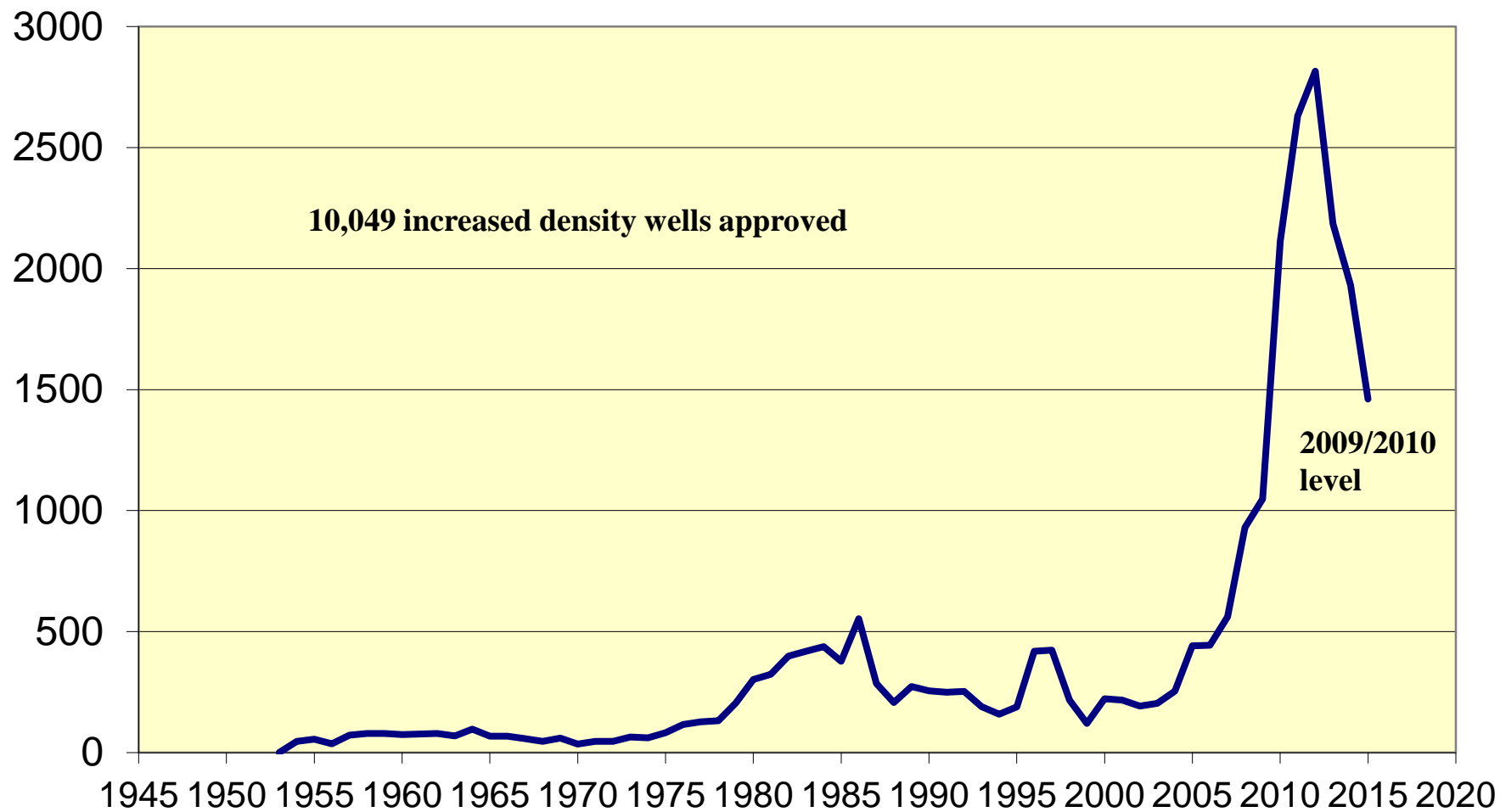
- 3 project areas
- 1,320 ft. same-zone spacing
- 34 new wells (gross)

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

Source: Continental Resources

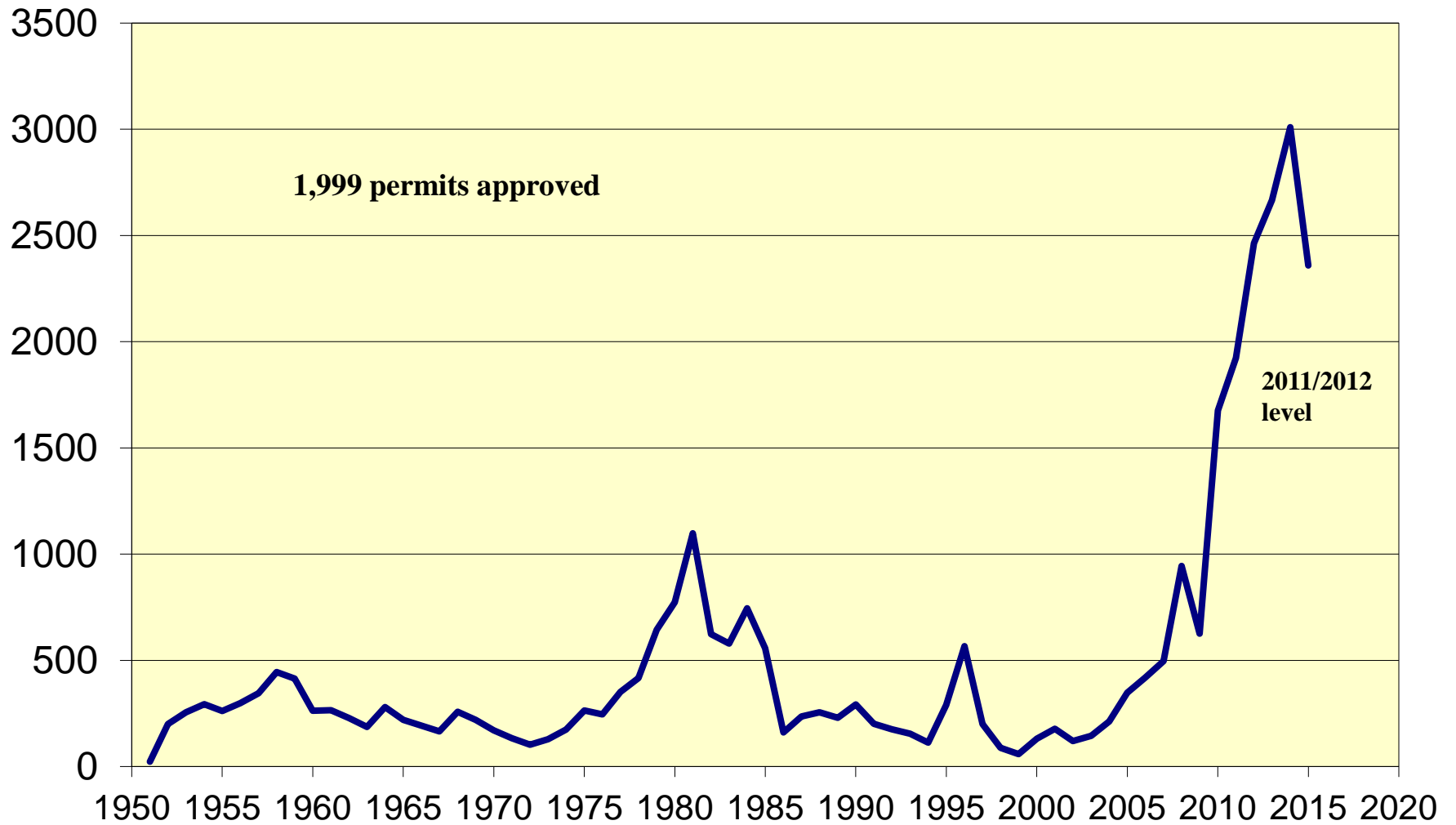


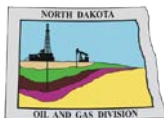
North Dakota Industrial Commission Cases Heard



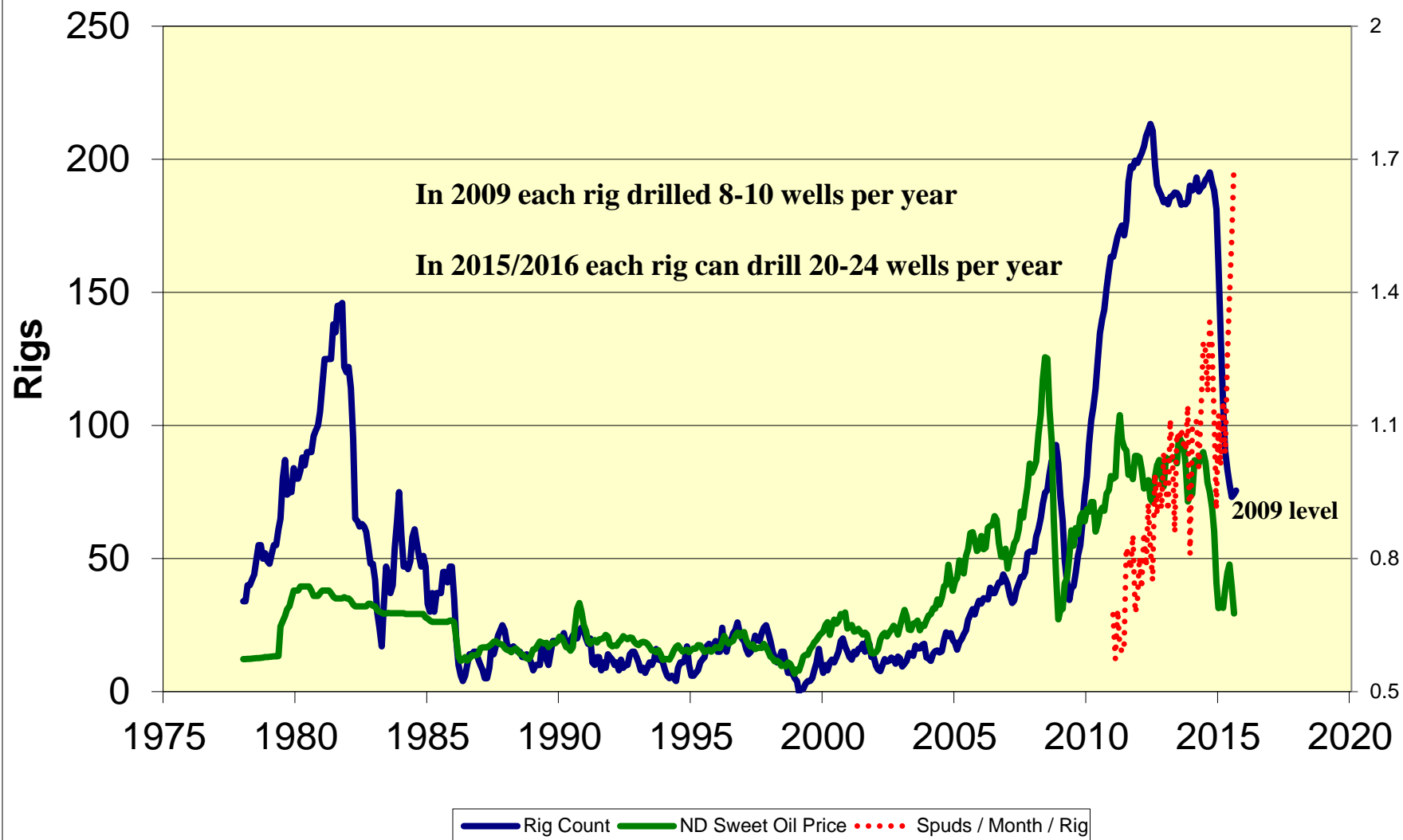


North Dakota New Well Permits Issued

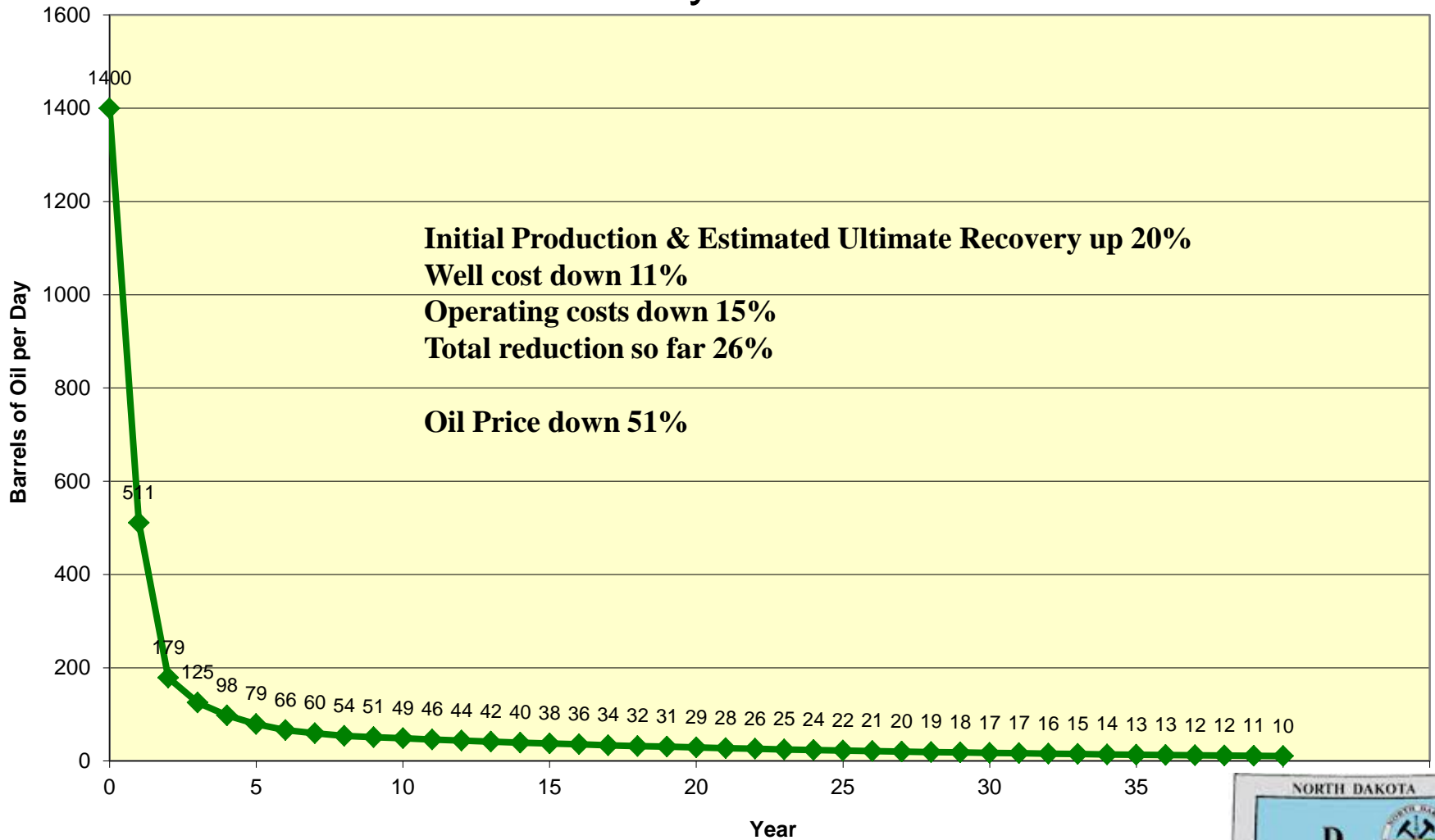




North Dakota Average Monthly Rig Count

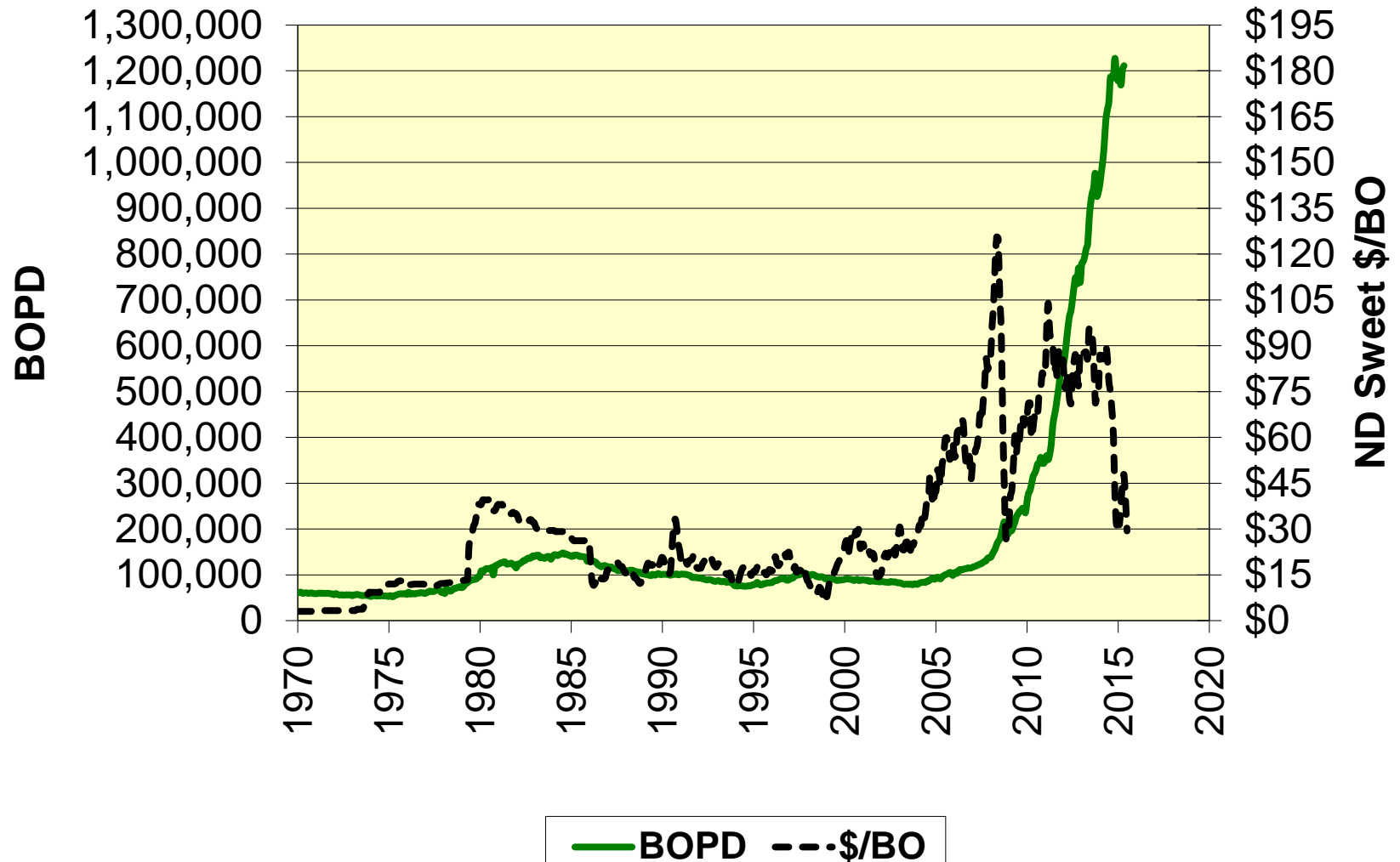


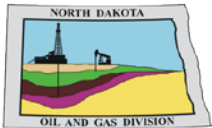
Typical Bakken Well Production July 2015



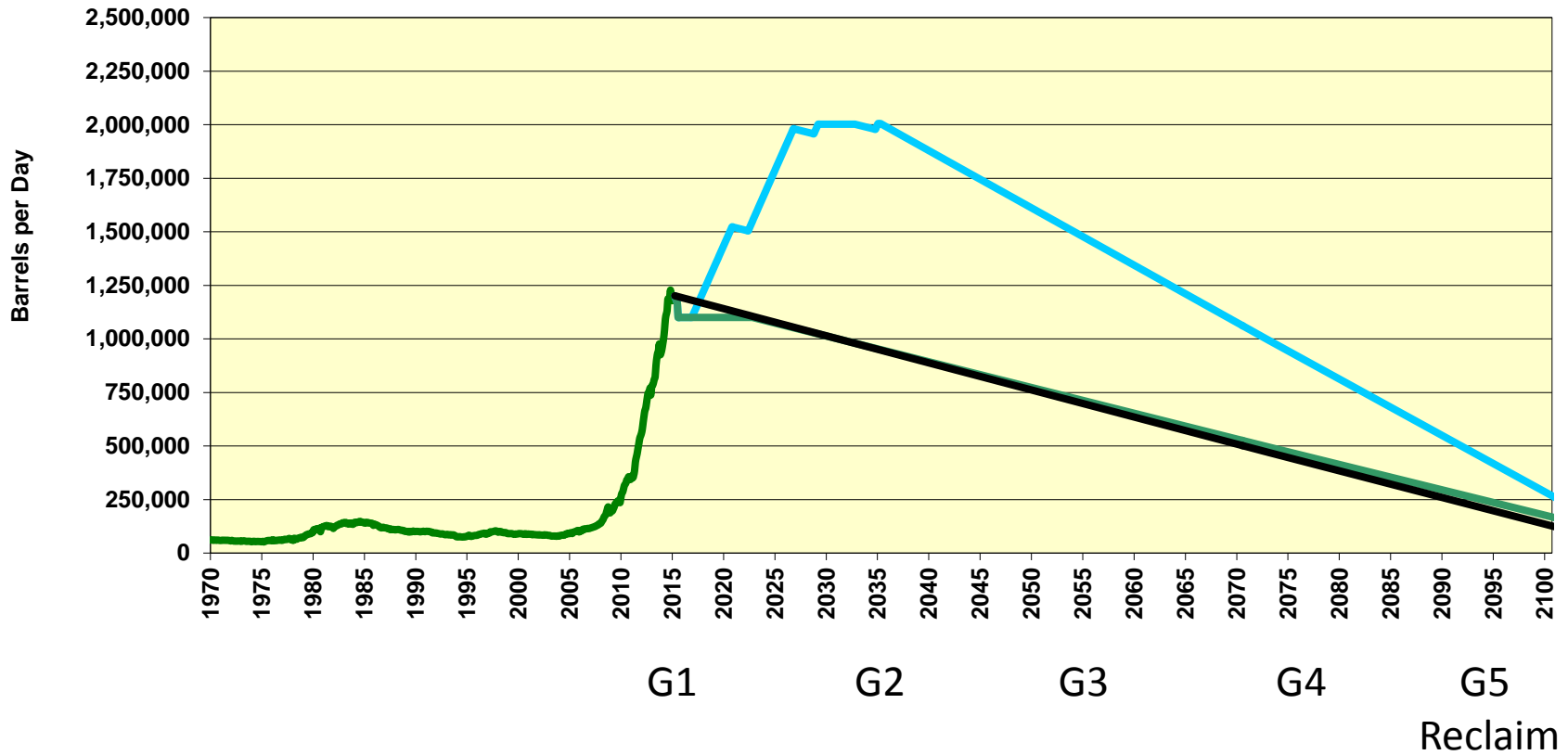


North Dakota Daily Oil Produced and Price





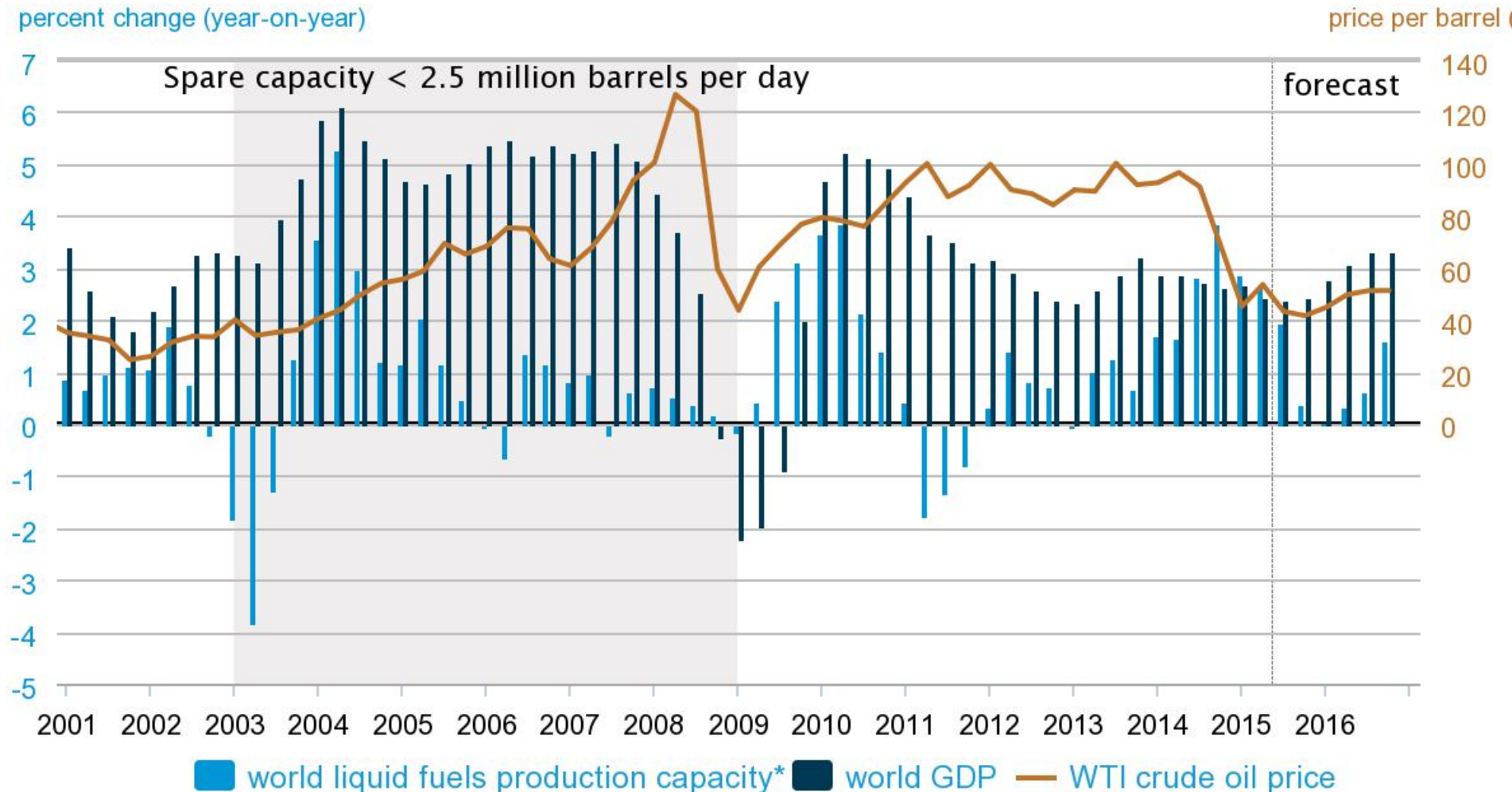
North Dakota Oil Production



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



*World capacity = OPEC capacity plus non-OPEC production

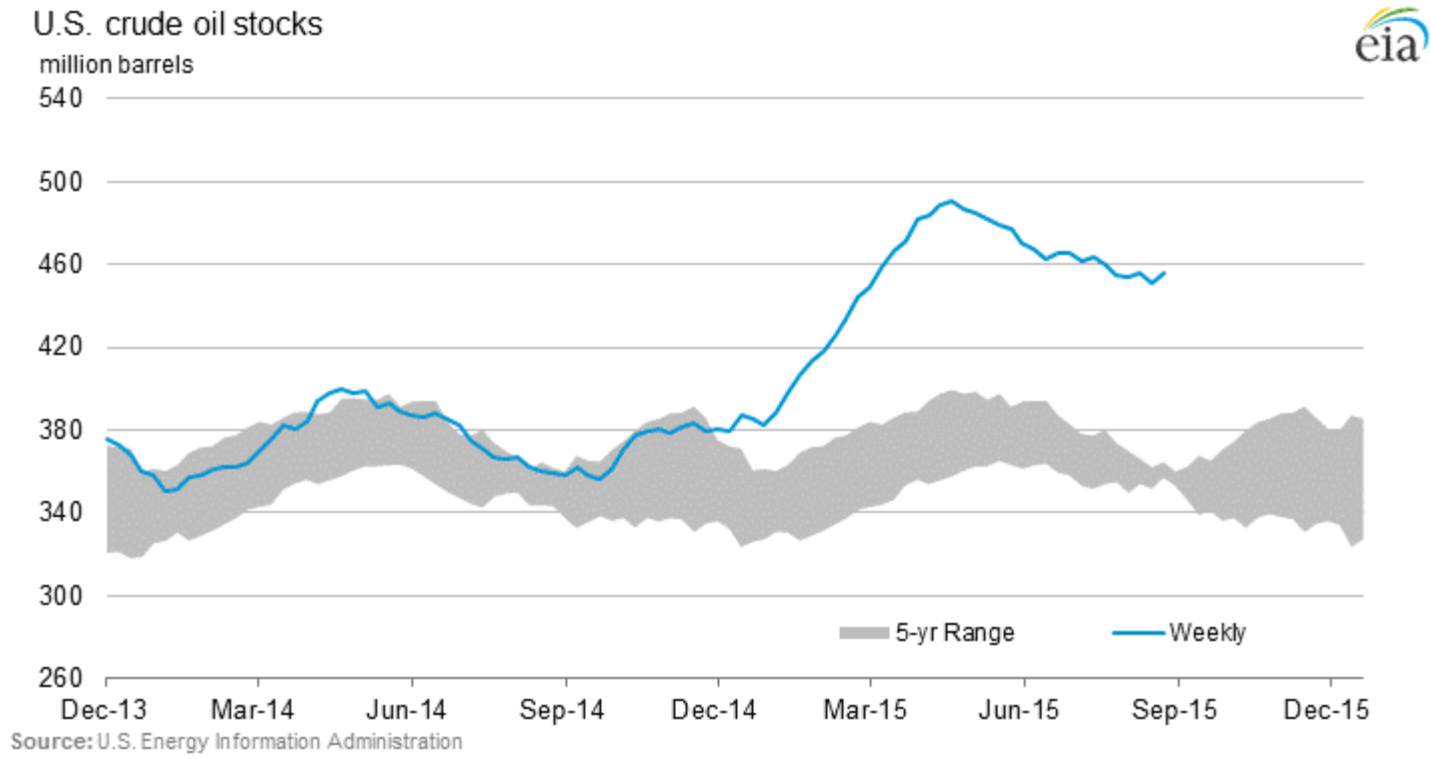
Source: U.S. Energy Information Administration, Thomson Reuters

Updated: Monthly | Last Updated: 08/11/2015

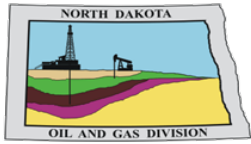
Brent Q3 2014 \$97.00 > today \$47.60

Storage East Coast 16 of 20=80%
 Permian 83 of 120=69%
 Rockies 22 of 40=55%
 Total US 455 of 735=62%

Cushing 57 of 70=81%
 Gulf Coast 225 of 395=57%
 West Coast 52 of 100=52%
 Normal 360 of 735=49%



$$\text{Brent } \$47.60 - \text{WTI } \$44.25 = (-)\$3.35$$



North Dakota Oil Production and Price

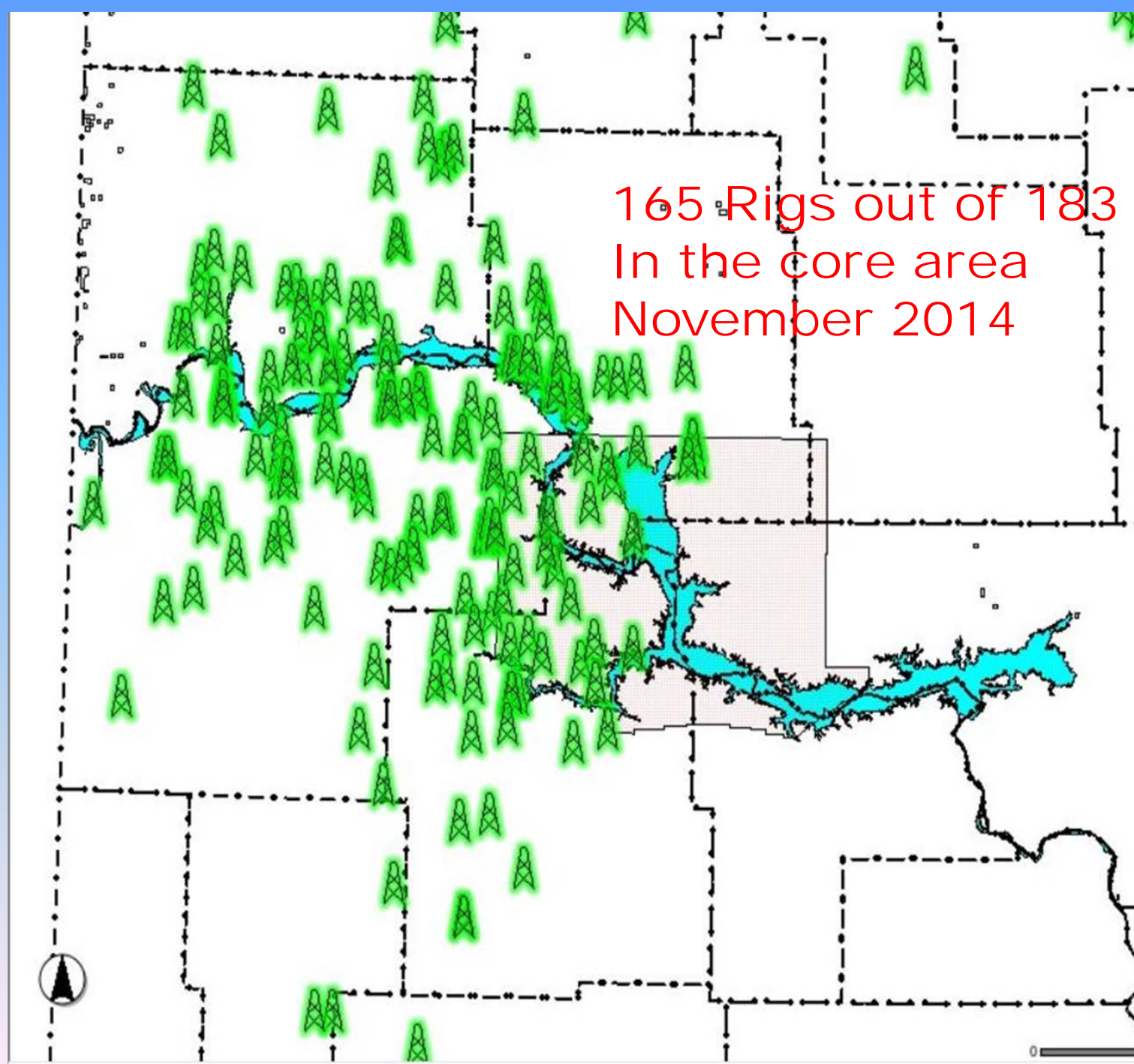


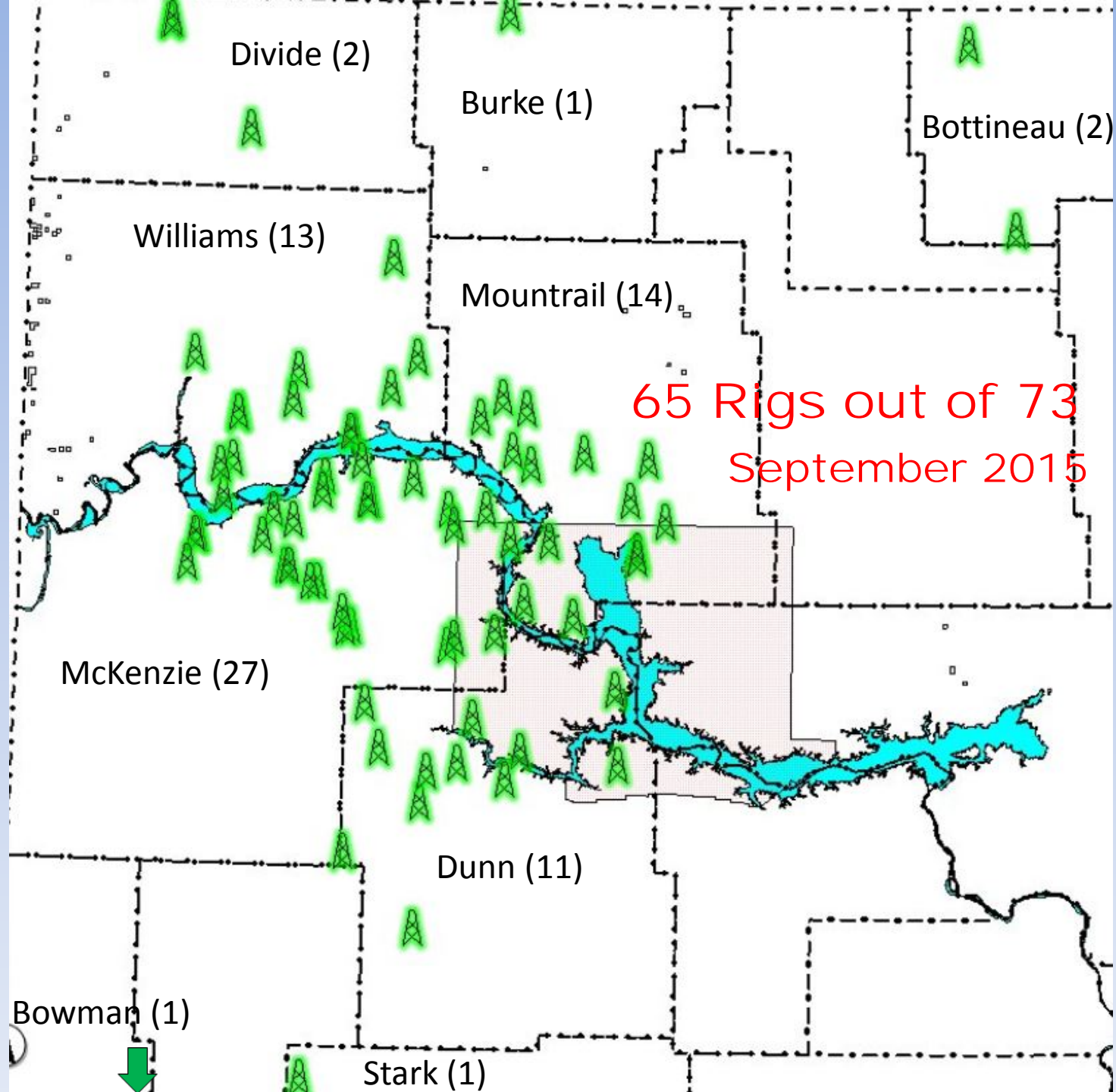
WTI \$44.25 – ND Sweet \$29.75 = (-)\$14.50



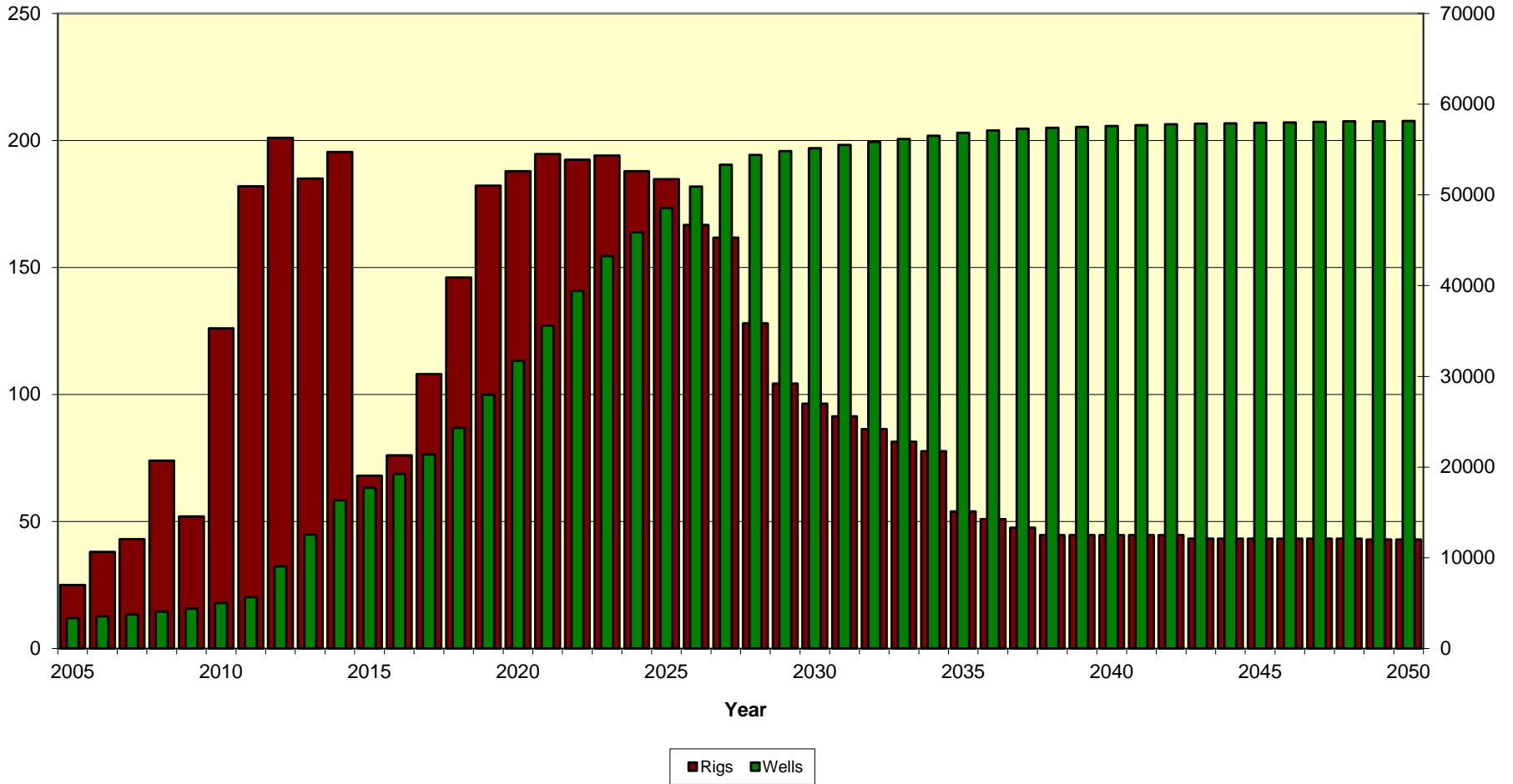
storm www.fotosearch.com

165 Rigs out of 183
In the core area
November 2014

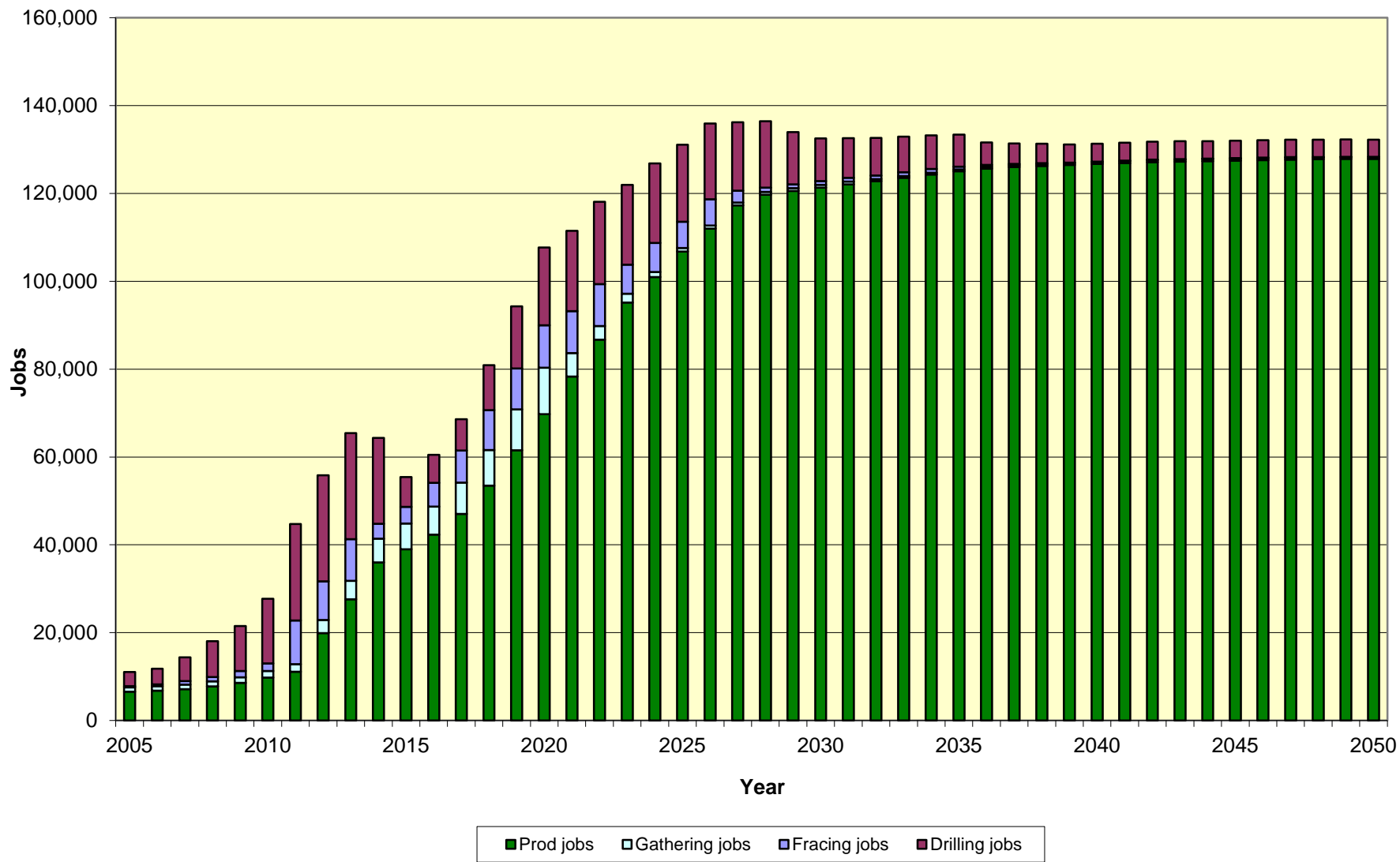




North Dakota Rigs and Wells



North Dakota Oil Industry Jobs

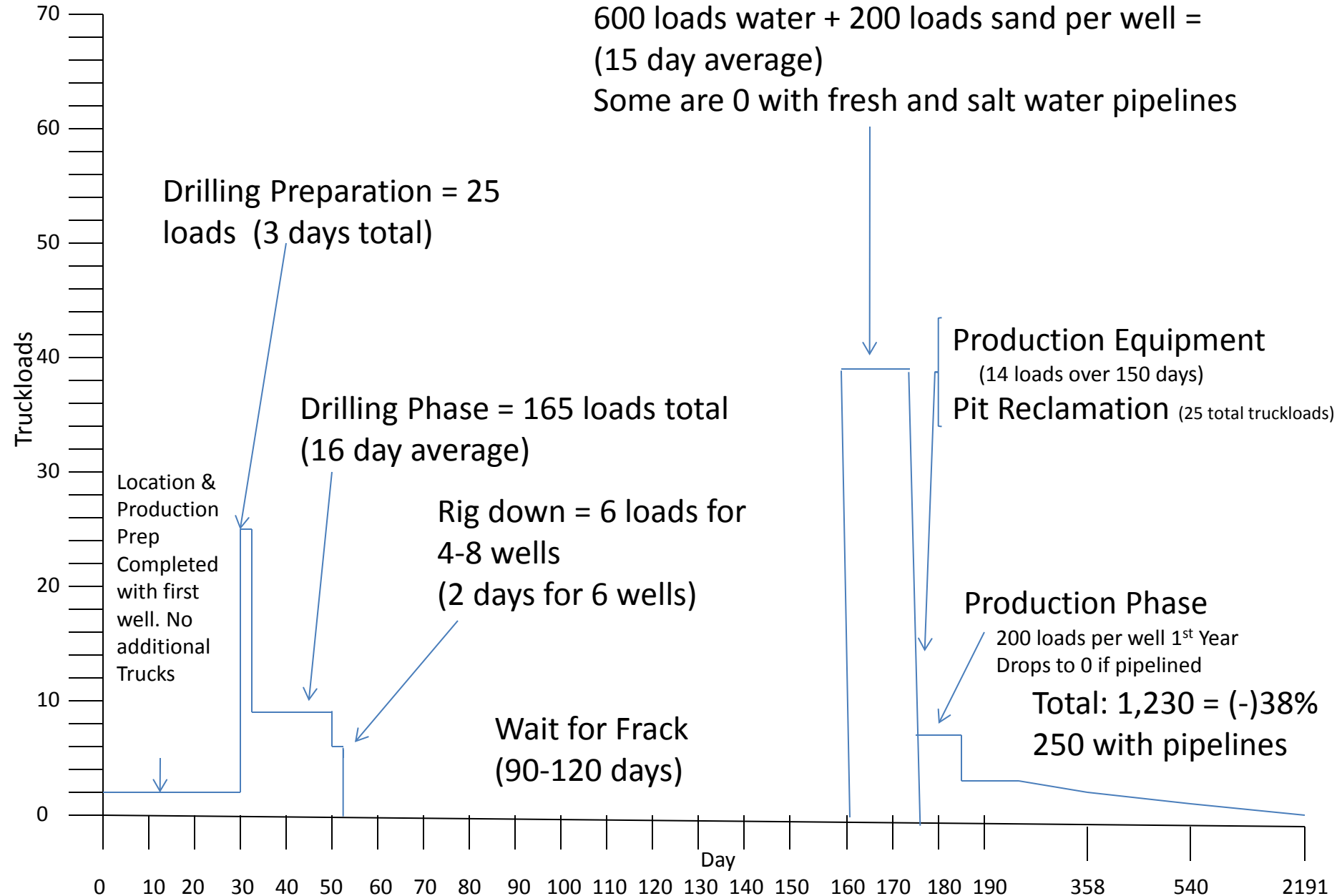


Bakken Wells – Truckload Timeline


Fracturing Phase – (800 loads)

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

Some are 0 with fresh and salt water pipelines



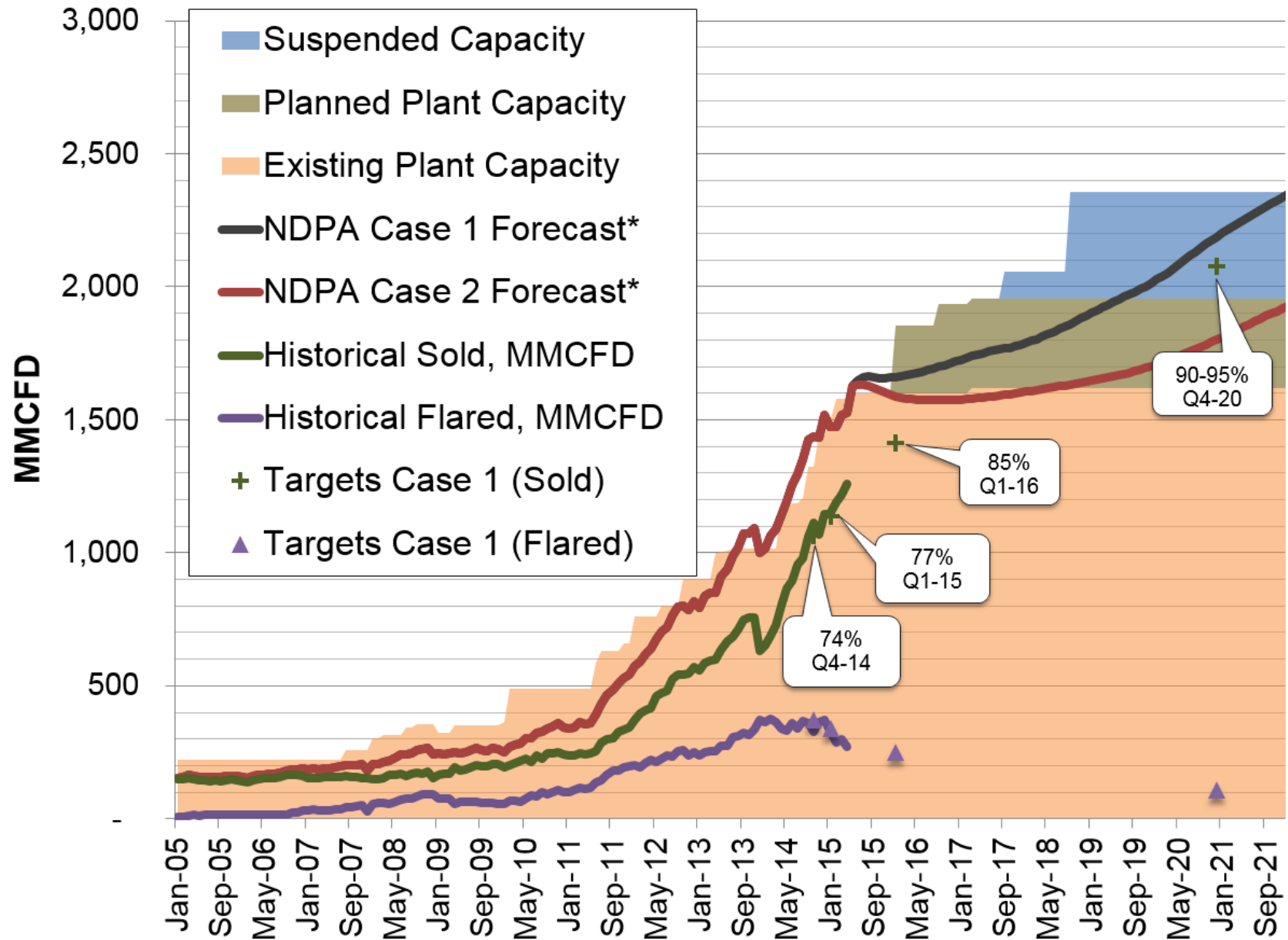
Western North Dakota Housing

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



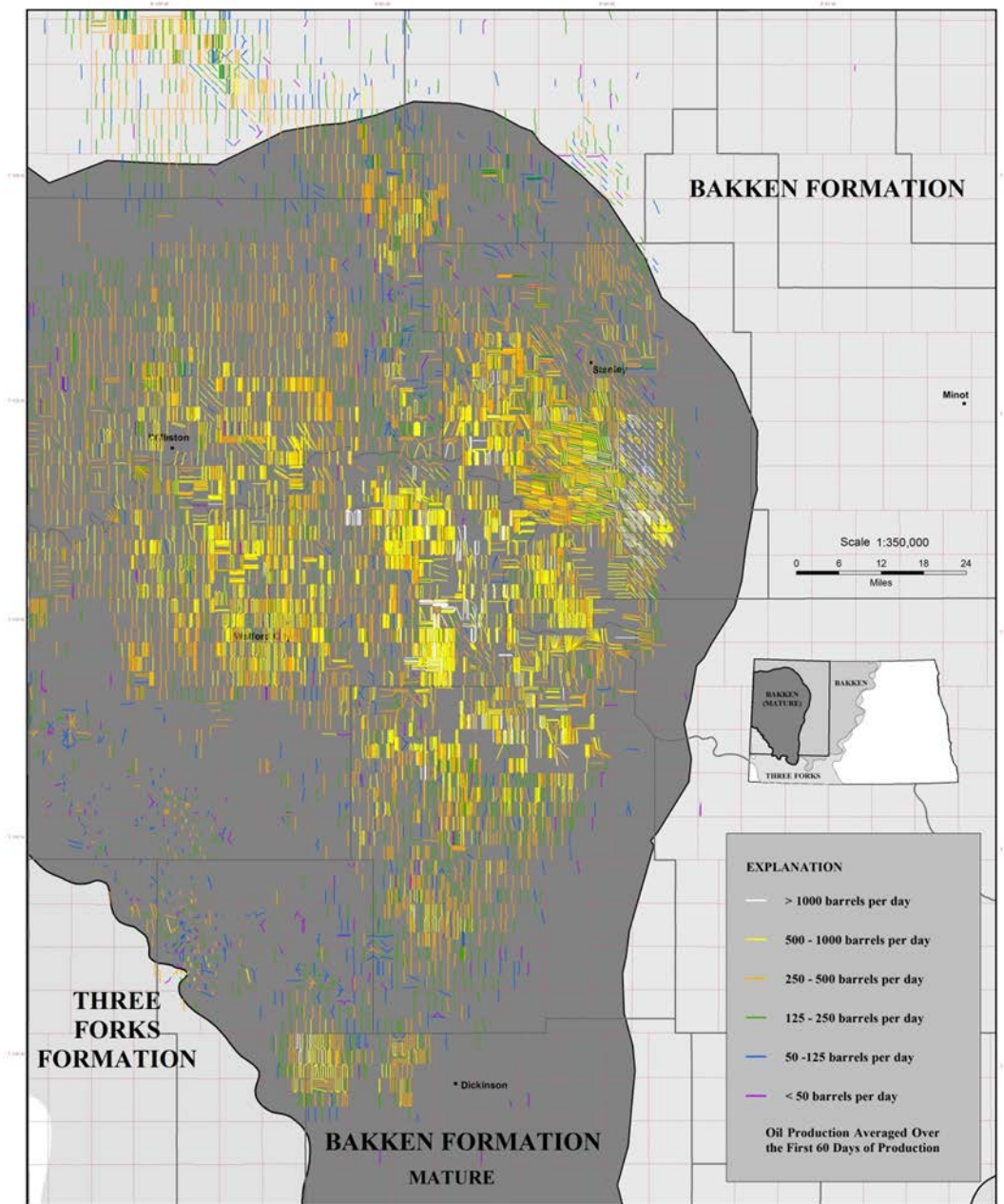
Solving the Flaring Challenge





First 60 Day Average Bakken Horizontal Production by Well

July 2015



Endangered Species

6 endangered

4 threatened

1 proposed

2 candidate



Federal Regulation

3 BLM

3 EPA



Oil & Gas Pipeline Jurisdiction:

House Bill 1333₍₂₀₁₃₎:

Requires GIS shape files to be submitted. (Aug. 1, 2011 or newer)

Requires confidential installation dataset to be submitted.

Allows owner or tenant to request pipeline locations within bounds of real property.

Allows Tax Dept. access to information.

House Bill 1358 ₍₂₀₁₅₎:

Requires engineering construction design drawings, list of independent inspectors, plan for leak detection (after August 1, 2015).

Requires independent inspectors certificate of testing after 60 days.

Commission may now require a bond.

Surface owner may now share GIS information.

Appropriates money for reclamation program & pipeline technology study.

Requires rule making for feasible, cost-effective and necessary improvements to pipeline safety and integrity.

43-02-03-29. WELL AND LEASE EQUIPMENT. Wellhead and lease equipment with a working pressure at least equivalent to the calculated or known pressure to which the equipment may be subjected shall be installed and maintained. Equipment on producing wells shall be installed to facilitate gas-oil ratio tests, and static bottom hole or other pressure tests. Valves shall be installed and maintained in good working order to permit pressure readings to be obtained on both casing and tubing.

All newly constructed underground gathering pipelines must be devoid of leaks and constructed of materials resistant to external corrosion and to the effects of transported fluids. All such pipelines installed in a trench must be installed in a manner that minimizes interference with agriculture, road and utility construction, the introduction of secondary stresses, the possibility of damage to the pipe, and tracer wire shall be buried with any nonconductive pipe installed. When a trench for an oil and gas underground gathering pipeline is backfilled, it must be backfilled in a manner that provides firm support under the pipe and prevents damage to the pipe and pipe coating from equipment or from the backfill material.

N.D. Oil and Gas Division Gathering Lines Home Page

[General Information](#)

[Submit Gathering Line Data](#)

[Request Information About Gathering Lines On Your Land](#)

[Report a Gathering Line Incident](#)

5 requests for location

Zero incidents reported

SB 2271

Pipeline Reclamation Problems?

- DEEP RUTS/UNEVEN GROUND
- IMPROPER VEGETATION RESEEDING
- POOLING WATER
- SLUMPING
- SOIL EROSION
- TOPSOIL REPLACEMENT

WE CAN HELP

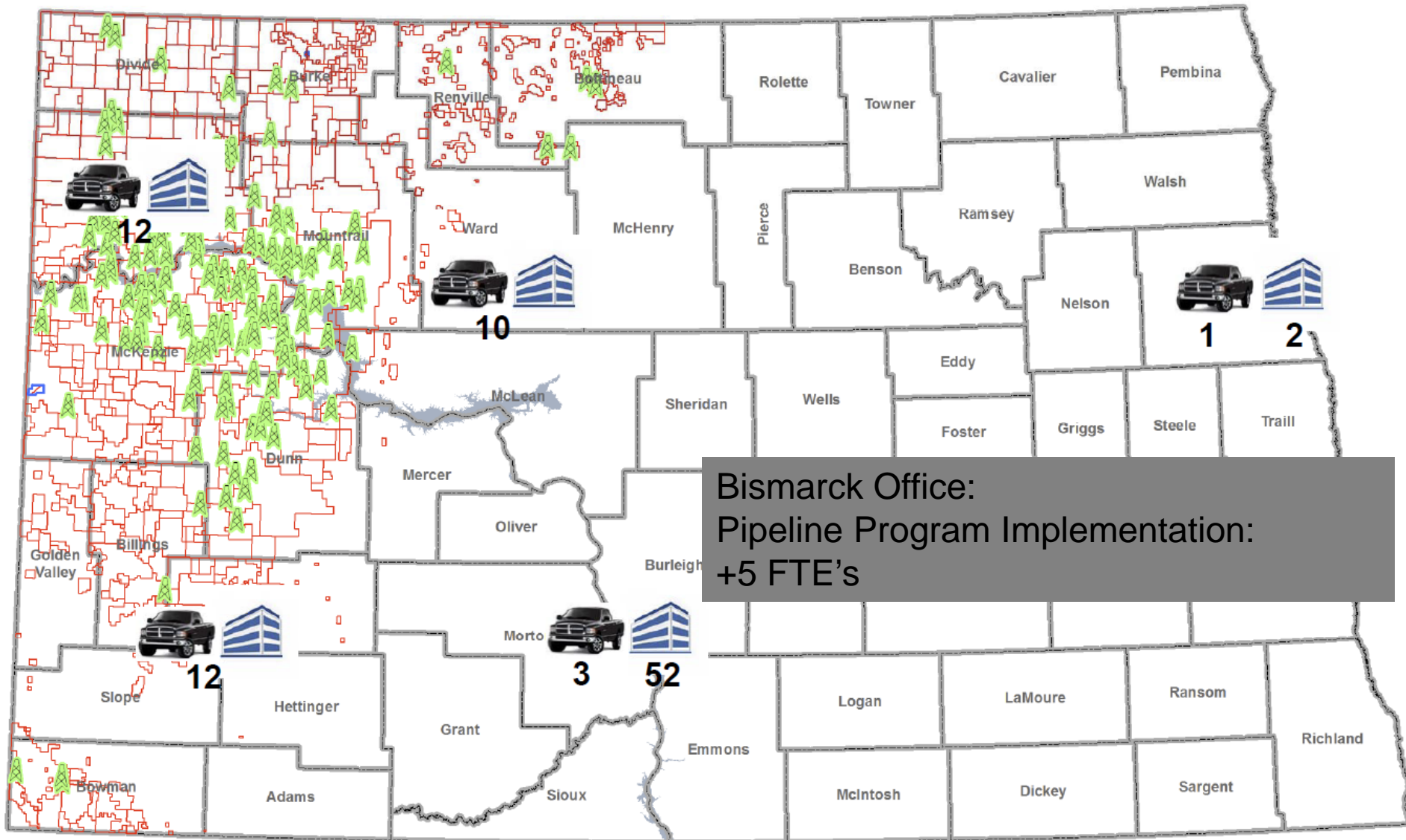
The North Dakota Department of Agriculture's new program can assist in resolving land surface issues and concerns with pipeline restoration and reclamation.

For assistance, contact us at 1-800-242-7535 or visit us online at www.nd.gov/ndda.



AGRICULTURE COMMISSIONER DOUG GOEHRING

Inspection & Enforcement



Each District Office Receives:

+1 ET Field Inspection & +1 ET Pipelines Field Inspection

Funding in House Bill 1358

SECTION 6-

38-08-04.5. Abandoned oil and gas well plugging and site reclamation fund

e. Reclamation and restoration of land and water resources impacted by oil and gas development, including related pipelines and facilities that were abandoned or were left in an inadequate reclamation status before August 1, 1983, and for which there is not any continuing reclamation responsibility under state law.

Land and water degraded by any willful act of the current or any former surface owner are not eligible for reclamation or restoration. The commission may expend up to one million five hundred thousand dollars per biennium from the fund in the following priority:

- (1) For the restoration of eligible land and water that are degraded by the adverse effects of oil and gas development including related pipelines and facilities.
- (2) For the development of publicly owned land adversely affected by oil and gas development including related pipelines and facilities.
- (3) For administrative expenses and cost in developing an abandoned site reclamation plan and the program.
- (4) Demonstration projects for the development of reclamation and water quality control program methods and techniques for oil and gas development, including related pipelines and facilities.

Funding in House Bill 1358

SECTION 8-

\$1,500,000 for the purpose of funding a special project through the energy and environmental research center (EERC) at the university of North Dakota during the biennium beginning July 1, 2015, and ending June 30, 2017. The special project must focus on conducting an analysis of crude oil and produced water pipelines including the construction standards, depths, pressures, monitoring systems, maintenance, types of materials used in the pipeline including backfill, and an analysis of the ratio of spills and leaks occurring in this state in comparison to other large oil and gas-producing states with substantial volumes of produced water.

The NDIC shall contract with the EERC to compile the information and the center shall work with the department of mineral resources to analyze the existing regulations on construction and monitoring of crude oil and produced water pipelines, determine the feasibility and cost effectiveness of requiring leak detection and monitoring technology on new and existing pipeline systems, and provide a report with recommendations to the industrial commission and the energy development and transmission committee by December 1, 2015. The industrial commission shall adopt the necessary administrative rules necessary to improve produced water and crude oil pipeline safety and integrity. In addition, the industrial commission shall contract for a pilot project to evaluate a pipeline leak detection and monitoring system.

Funding in House Bill 1358

SECTION 9- \$500,000, or so much of the sum as may be necessary, for the purpose of conducting a pilot program involving the oil and gas research council in conjunction with research facilities in this state to determine the best techniques for remediating salt and any other contamination from the soil surrounding waste pits reclaimed by trenching between 1951 and 1984 in the north central portion of this state, for the biennium beginning July 1, 2015, and ending June 30, 2017.



The Final Pieces

SECTION 4. A surface owner may request a review of the temporarily abandoned status of a well that has been on temporarily abandoned status for at least seven years. The commission shall require notice and hearing to review the temporarily abandoned status. After notice and hearing, the surface owner may request a review of the temporarily abandoned status every two years.

SECTION 5. To provide for the confidentiality of well data reported to the commission if requested in writing by those reporting the data for a period not to exceed six months. However, the commission may release:

- a. Volumes injected into a saltwater injection well.
- b. Information from the spill report on a well on a site at which more than ten barrels of fluid, not contained on the well site, was released for which an oilfield environmental incident report is required by law.

Gas Capture

Wells waiting on completion has helped drive the success of Gas Capture.

Order signed July 1, 2014 and implemented October 1, 2014.

- Statewide 82%

- Statewide Bakken 83%

- Non-FBIR Bakken 83%

- FBIR Bakken 84%

- Trust FBIR Bakken 84%

- Fee FBIR 85%

Next Target: January 2016, 85% capture.

October 2020: 90-95% capture.

Oil Conditioning

- Signed December 9th, 2014; effective April 1, 2015.
- Goal: to produce a consistent product that does not exceed a vapor pressure of 13.7 pounds per square inch (psi).
- Achievable: IC prescribed temperatures and pressures, or through quarterly field testing.
- Result: a safer, stable, crude oil.
- Oil Conditioning [FAQ](#)

County by County Outlook

	6/30/2015					
9/9/2015	Breakeven	9/9/2015			Wells	
\$42 / barrel	ND\$/barrel	Rigs	June 2015	NC	P90	P50
Billings	\$28	0	643	5	1,300	2,000
Bot-Ren	\$85	1	1,028	6	3,000	4,000
Bow-Slp	\$85	1	606	2	900	1,200
Burke	\$82	1	633	4	1,300	3,000
Divide	\$81	4	770	43	1,500	3,000
Dunn	\$24	13	1,797	91	2,000	9,000
Golden Valley	\$64	0	104	0	200	300
McKenzie	\$27	25	3,682	326	6,000	15,000
McLean	\$25	0	59	2	300	800
Mountrail	\$43	14	2,502	183	3,000	9,000
Stark	\$41	1	320	2	1,500	2,700
Williams	\$38	15	2,256	182	4,000	10,000
Statewide	\$34	75	14,384	846	25,000	60,000

			2015			
ND Revenue Forecast	Breakeven		Wells	Frac	Wells	
\$40-\$50 / barrel	ND\$/barrel	Rigs	Active	Crews	NC	BOPD
Billings	\$28	0	508	0	5	16,082
Bot-Ren	\$85	1	772	0	6	8,531
Bow-Slp	\$85	1	559	0	2	21,208
Burke	\$82	1	532	0	4	14,820
Divide	\$81	4	718	1	43	40,398
Dunn	\$24	13	1,687	9	91	199,220
Golden Valley	\$64	0	93	0	0	2,308
McKenzie	\$27	25	3,248	19	326	437,478
McLean	\$25	0	42	0	2	2,778
Mountrail	\$43	14	2,360	7	183	249,184
Stark	\$41	1	235	0	2	16,282
Williams	\$38	15	2,068	14	182	202,589
Statewide	\$34	75	12,864	51	846	1,210,878

			2016				
		Semi	Wells	Frac	Wells	MMGal	
	Rigs	Loads	Active	Crews	NC	Water	BOPD
Billings	1	2,125	532	1	1	113.6	13,905
Bot-Ren	1	2,125	797	1	1	29.6	7,270
Bow-Slp	1	2,125	580	0	1	10.0	18,167
Burke	1	2,125	555	1	1	109.0	12,764
Divide	1	2,125	756	1	25	178.8	35,111
Dunn	10	21,250	1,907	7	75	1,024.4	185,790
Golden Valley	0	0	93	0	0	0.0	1,904
McKenzie	22	46,750	3,898	20	125	3,025.8	433,125
McLean	0	0	42	0	2	0.0	2,292
Mountrail	11	23,375	2,667	10	100	1,431.4	232,354
Stark	0	0	235	0	2	0.0	13,432
Williams	12	25,500	2,395	10	100	1,521.7	193,548
Statewide	60	127,500	14,459	50	433	7,444	1,149,662

			2017				
		Semi	Wells	Frac	Wells	MMGal	
	Rigs	Loads	Active	Crews	NC	Water	BOPD
Billings	1	2,125	555	1	2	133.9	11,967
Bot-Ren	1	2,125	820	1	2	33.5	6,170
Bow-Slp	1	2,125	604	0	1	14.0	15,607
Burke	1	2,125	579	1	1	139.7	10,986
Divide	1	2,125	795	1	10	227.0	30,460
Dunn	15	31,875	2,302	12	40	2,299.1	185,025
Golden Valley	0	0	93	0	0	0.0	1,571
McKenzie	25	53,125	4,583	21	40	3,987.1	420,125
McLean	1	2,125	68	1	0	151.3	3,061
Mountrail	14	29,750	3,033	11	70	2,130.3	217,995
Stark	1	2,125	261	1	0	151.3	12,308
Williams	14	29,750	2,771	12	60	2,188.5	184,747
Statewide	75	159,375	16,466	62	226	11,456	1,100,023

			2015			
	Breakeven		Wells	Frac	Wells	
\$50-\$60 / barrel	NDS\$/barrel	Rigs	Active	Crews	NC	BOPD
Billings	\$28	0	508	0	5	16,082
Bot-Ren	\$85	1	772	0	6	8,531
Bow-Slp	\$85	1	559	0	2	21,208
Burke	\$82	1	532	0	4	14,820
Divide	\$81	4	718	1	43	40,398
Dunn	\$24	13	1,687	9	91	199,220
Golden Valley	\$64	0	93	0	0	2,308
McKenzie	\$27	25	3,248	19	326	437,478
McLean	\$25	0	42	0	2	2,778
Mountrail	\$43	14	2,360	7	183	249,184
Stark	\$41	1	235	0	2	16,282
Williams	\$38	15	2,068	14	182	202,589
Statewide	\$34	75	12,864	51	846	1,210,878

			2016				
		Semi	Wells	Frac	Wells	MMGal	
	Rigs	Loads	Active	Crews	NC	Water	BOPD
Billings	1	2,125	528	1	5	95.0	13,801
Bot-Ren	1	2,125	795	1	3	27.2	7,251
Bow-Slp	1	2,125	580	0	1	10.0	18,167
Burke	1	2,125	554	1	2	104.3	12,741
Divide	2	4,250	762	1	40	204.0	35,362
Dunn	12	25,500	1,933	8	90	1,144.6	188,303
Golden Valley	0	0	93	0	0	0.0	1,904
McKenzie	25	53,125	3,784	17	300	2,495.9	420,480
McLean	2	4,250	83	1	2	190.0	4,518
Mountrail	15	31,875	2,674	10	175	1,462.1	232,929
Stark	0	0	235	0	2	0.0	13,432
Williams	15	31,875	2,381	10	175	1,457.5	192,432
Statewide	75	159,375	14,403	49	795	7,190	1,141,321

			2017				
		Semi	Wells	Frac	Wells	MMGal	
	Rigs	Loads	Active	Crews	NC	Water	BOPD
Billings	2	4,250	577	2	2	282.9	12,433
Bot-Ren	1	2,125	819	1	2	34.6	6,161
Bow-Slp	1	2,125	603	0	1	13.3	15,576
Burke	1	2,125	578	1	1	138.5	10,963
Divide	2	4,250	837	2	10	440.0	32,069
Dunn	15	31,875	2,325	12	40	2,281.7	186,857
Golden Valley	0	0	93	0	0	0.0	1,571
McKenzie	25	53,125	4,614	26	40	4,831.1	422,985
McLean	1	2,125	108	1	0	144.3	4,843
Mountrail	15	31,875	3,121	14	70	2,601.8	224,290
Stark	2	4,250	283	1	0	277.1	13,326
Williams	15	31,875	2,848	15	50	2,718.2	189,895
Statewide	80	170,000	16,806	74	216	13,763	1,120,970

			2015			
	Breakeven		Wells	Frac	Wells	
\$30-\$40 / barrel	ND\$/barrel	Rigs	Active	Crews	NC	BOPD
Billings	\$28	0	508	0	5	16,082
Bot-Ren	\$85	1	772	0	6	8,531
Bow-Slp	\$85	1	559	0	2	21,208
Burke	\$82	1	532	0	4	14,820
Divide	\$81	4	718	1	43	40,398
Dunn	\$24	13	1,687	9	91	199,220
Golden Valley	\$64	0	93	0	0	2,308
McKenzie	\$27	25	3,248	19	326	437,478
McLean	\$25	0	42	0	2	2,778
Mountrail	\$43	14	2,360	7	183	249,184
Stark	\$41	1	235	0	2	16,282
Williams	\$38	15	2,068	14	182	202,589
Statewide	\$34	75	12,864	51	846	1,210,878

			2016				
		Semi	Wells	Frac	Wells	MMGal	
	Rigs	Loads	Active	Crews	NC	Water	BOPD
Billings	1	2,125	528	1	5	95.0	13,801
Bot-Ren	1	1,063	782	0	6	11.9	7,131
Bow-Slp	1	1,063	569	0	2	4.7	17,816
Burke	1	1,063	542	0	4	47.5	12,461
Divide	1	2,125	741	1	40	109.0	34,415
Dunn	10	21,250	1,892	6	90	954.6	184,328
Golden Valley	0	0	93	0	0	0.0	1,904
McKenzie	20	42,500	3,657	13	325	1,904.5	406,367
McLean	1	2,125	62	1	2	95.0	3,405
Mountrail	10	21,250	2,567	6	180	963.9	223,609
Stark	0	0	235	0	2	0.0	13,432
Williams	10	21,250	2,274	6	180	959.2	183,785
Statewide	55	115,813	13,944	35	836	5,145	1,102,454

			2017				
		Semi	Wells	Frac	Wells	MMGal	
	Rigs	Loads	Active	Crews	NC	Water	BOPD
Billings	1	2,125	552	1	5	139.7	11,903
Bot-Ren	0	0	782	0	6	0.0	5,883
Bow-Slp	0	0	569	0	2	0.0	14,698
Burke	0	0	542	0	4	0.0	10,280
Divide	0	0	741	0	40	0.0	28,392
Dunn	10	21,250	2,132	8	90	1,396.9	171,361
Golden Valley	0	0	93	0	0	0.0	1,571
McKenzie	20	42,500	4,137	15	325	2,793.9	379,257
McLean	1	2,125	86	1	2	139.7	3,889
Mountrail	10	21,250	2,807	8	180	1,396.9	201,725
Stark	0	0	235	0	2	0.0	11,082
Williams	8	17,000	2,466	6	180	1,117.5	164,424
Statewide	50	106,250	15,144	38	836	6,985	1,004,465

			2015			
	Breakeven		Wells	Frac	Wells	
\$60-\$70 / barrel	ND\$/barrel	Rigs	Active	Crews	NC	BOPD
Billings	\$28	0	508	0	5	16,082
Bot-Ren	\$85	1	772	0	6	8,531
Bow-Slp	\$85	1	559	0	2	21,208
Burke	\$82	1	532	0	4	14,820
Divide	\$81	4	718	1	43	40,398
Dunn	\$24	13	1,687	9	91	199,220
Golden Valley	\$64	0	93	0	0	2,308
McKenzie	\$27	25	3,248	19	326	437,478
McLean	\$25	0	42	0	2	2,778
Mountrail	\$43	14	2,360	7	183	249,184
Stark	\$41	1	235	0	2	16,282
Williams	\$38	15	2,068	14	182	202,589
Statewide	\$34	75	12,864	51	846	1,210,878

			2016				
		Semi	Wells	Frac	Wells	MMGal	
	Rigs	Loads	Active	Crews	NC	Water	BOPD
Billings	1	2,125	531	1	2	109.0	13,879
Bot-Ren	1	2,125	796	1	2	28.4	7,260
Bow-Slp	1	2,125	580	0	1	10.0	18,167
Burke	1	2,125	555	1	1	109.0	12,764
Divide	2	4,250	782	2	20	297.1	36,290
Dunn	12	25,500	1,983	9	40	1,377.4	193,174
Golden Valley	0	0	93	0	0	0.0	1,904
McKenzie	25	53,125	4,034	25	50	3,660.0	448,260
McLean	2	4,250	85	1	0	199.3	4,627
Mountrail	15	31,875	2,799	14	50	2,044.2	243,818
Stark	0	0	237	0	0	9.3	13,547
Williams	15	31,875	2,506	14	50	2,039.5	202,535
Statewide	75	159,375	14,982	67	216	9,883	1,196,225

			2017				
		Semi	Wells	Frac	Wells	MMGal	
	Rigs	Loads	Active	Crews	NC	Water	BOPD
Billings	2	4,250	577	1	2	265.4	12,433
Bot-Ren	1	2,125	819	1	2	33.2	6,161
Bow-Slp	1	2,125	603	0	1	13.3	15,576
Burke	1	2,125	578	1	1	132.7	10,963
Divide	2	4,250	837	2	10	323.6	32,069
Dunn	15	31,875	2,325	11	40	1,990.6	186,857
Golden Valley	0	0	93	0	0	0.0	1,571
McKenzie	25	53,125	4,614	18	40	3,375.9	422,985
McLean	1	2,125	108	1	0	132.7	4,843
Mountrail	15	31,875	3,141	11	50	1,990.6	225,727
Stark	2	4,250	283	1	0	265.4	13,326
Williams	20	42,500	2,962	14	50	2,654.2	197,496
Statewide	85	180,625	16,940	60	196	11,178	1,130,009

			2015			
	Breakeven		Wells	Frac	Wells	
\$70-\$80 / barrel	ND\$/barrel	Rigs	Active	Crews	NC	BOPD
Billings	\$28	0	508	0	5	16,082
Bot-Ren	\$85	1	772	0	6	8,531
Bow-Slp	\$85	1	559	0	2	21,208
Burke	\$82	1	532	0	4	14,820
Divide	\$81	4	718	1	43	40,398
Dunn	\$24	13	1,687	9	91	199,220
Golden Valley	\$64	0	93	0	0	2,308
McKenzie	\$27	25	3,248	19	326	437,478
McLean	\$25	0	42	0	2	2,778
Mountrail	\$43	14	2,360	7	183	249,184
Stark	\$41	1	235	0	2	16,282
Williams	\$38	15	2,068	14	182	202,589
Statewide	\$34	75	12,864	51	846	1,210,878

			2016				
		Semi	Wells	Frac	Wells	MMGal	
	Rigs	Loads	Active	Crews	NC	Water	BOPD
Billings	2	4,250	552	1	2	204.0	14,412
Bot-Ren	1	2,125	796	1	2	28.4	7,260
Bow-Slp	1	2,125	580	0	1	10.0	18,167
Burke	1	2,125	555	1	1	109.0	12,764
Divide	4	8,500	823	3	20	487.1	38,184
Dunn	12	25,500	1,983	9	40	1,377.4	193,174
Golden Valley	0	0	93	0	0	0.0	1,904
McKenzie	25	53,125	4,034	25	50	3,660.0	448,260
McLean	2	4,250	85	1	0	199.3	4,627
Mountrail	20	42,500	2,901	17	50	2,519.1	252,703
Stark	2	4,250	278	1	0	199.3	15,879
Williams	20	42,500	2,608	17	50	2,514.5	210,779
Statewide	90	191,250	15,288	76	216	11,308	1,218,113

			2017				
		Semi	Wells	Frac	Wells	MMGal	
	Rigs	Loads	Active	Crews	NC	Water	BOPD
Billings	5	10,625	666	4	2	663.5	14,346
Bot-Ren	1	2,125	819	1	2	33.2	6,161
Bow-Slp	1	2,125	603	0	1	13.3	15,576
Burke	1	2,125	578	1	1	132.7	10,963
Divide	4	8,500	924	3	10	589.0	35,377
Dunn	25	53,125	2,553	18	40	3,317.7	205,183
Golden Valley	1	2,125	116	1	0	132.7	1,956
McKenzie	35	74,375	4,842	25	40	4,703.0	443,887
McLean	2	4,250	130	1	0	265.4	5,870
Mountrail	25	53,125	3,471	18	50	3,317.7	249,443
Stark	5	10,625	392	4	0	663.5	18,476
Williams	25	53,125	3,178	18	50	3,317.7	211,898
Statewide	130	276,250	18,272	93	196	17,150	1,219,137

			2015			
	Breakeven		Wells	Frac	Wells	
\$20-\$30 / barrel	ND\$/barrel	Rigs	Active	Crews	NC	BOPD
Billings	\$28	0	508	0	5	16,082
Bot-Ren	\$85	1	772	12	6	8,531
Bow-Slp	\$85	1	559	0	2	21,208
Burke	\$82	1	532	0	4	14,820
Divide	\$81	4	718	1	43	40,398
Dunn	\$24	13	1,687	9	91	199,220
Golden Valley	\$64	0	93	0	0	2,308
McKenzie	\$27	25	3,248	19	326	437,478
McLean	\$25	0	42	0	2	2,778
Mountrail	\$43	14	2,360	7	183	249,184
Stark	\$41	1	235	0	2	16,282
Williams	\$38	15	2,068	14	182	202,589
Statewide	\$34	75	12,864	63	846	1,210,878

			2016				
		Semi	Wells	Frac	Wells	MMGal	
	Rigs	Loads	Active	Crews	NC	Water	BOPD
Billings	0	0	508	0	5	0.0	13,268
Bot-Ren	1	1,063	782	0	6	11.9	7,131
Bow-Slp	1	1,063	569	0	2	4.7	17,816
Burke	1	1,063	542	0	4	47.5	12,461
Divide	1	2,125	741	1	40	109.0	34,415
Dunn	10	21,250	1,892	6	90	954.6	184,328
Golden Valley	0	0	93	0	0	0.0	1,904
McKenzie	16	34,000	3,575	10	325	1,524.5	397,300
McLean	1	2,125	62	1	2	95.0	3,405
Mountrail	0	0	2,363	0	180	14.0	205,838
Stark	0	0	235	0	2	0.0	13,432
Williams	0	0	2,070	0	180	9.3	167,297
Statewide	30	62,688	13,434	19	836	2,770	1,058,596

			2017				
		Semi	Wells	Frac	Wells	MMGal	
	Rigs	Loads	Active	Crews	NC	Water	BOPD
Billings	0	0	508	0	5	0.0	10,946
Bot-Ren	0	0	782	0	6	0.0	5,883
Bow-Slp	0	0	569	0	2	0.0	14,698
Burke	0	0	542	0	4	0.0	10,280
Divide	0	0	741	0	40	0.0	28,392
Dunn	10	21,250	2,132	8	90	1,396.9	171,361
Golden Valley	0	0	93	0	0	0.0	1,571
McKenzie	19	40,375	4,031	14	325	2,654.2	369,576
McLean	1	2,125	86	1	2	139.7	3,889
Mountrail	0	0	2,363	0	180	0.0	169,817
Stark	0	0	235	0	2	0.0	11,082
Williams	0	0	2,070	0	180	0.0	138,020
Statewide	30	63,750	14,154	23	836	4,191	935,516

			2015			
	Breakeven		Wells	Frac	Wells	
\$80+ / barrel	ND\$/barrel	Rigs	Active	Crews	NC	BOPD
Billings	\$28	0	508	0	5	16,082
Bot-Ren	\$85	1	772	0	6	8,531
Bow-Slp	\$85	1	559	0	2	21,208
Burke	\$82	1	532	0	4	14,820
Divide	\$81	4	718	1	43	40,398
Dunn	\$24	13	1,687	9	91	199,220
Golden Valley	\$64	0	93	0	0	2,308
McKenzie	\$27	25	3,248	19	326	437,478
McLean	\$25	0	42	0	2	2,778
Mountrail	\$43	14	2,360	7	183	249,184
Stark	\$41	1	235	0	2	16,282
Williams	\$38	15	2,068	14	182	202,589
Statewide	\$34	75	12,864	51	846	1,210,878

			2016				
		Semi	Wells	Frac	Wells	MMGal	
	Rigs	Loads	Active	Crews	NC	Water	BOPD
Billings	5	10,625	613	3	2	488.9	16,010
Bot-Ren	2	4,250	817	1	2	52.2	7,446
Bow-Slp	1	2,125	580	0	1	10.0	18,167
Burke	2	4,250	576	1	1	204.0	13,233
Divide	4	8,500	823	3	20	487.1	38,184
Dunn	12	25,500	1,983	9	40	1,377.4	193,174
Golden Valley	0	0	93	0	0	0.0	1,904
McKenzie	30	63,750	4,136	28	50	4,134.9	459,594
McLean	2	4,250	85	1	0	199.3	4,627
Mountrail	20	42,500	2,901	17	50	2,519.1	252,703
Stark	2	4,250	278	1	0	199.3	15,879
Williams	20	42,500	2,608	17	50	2,514.5	210,779
Statewide	100	212,500	15,492	83	216	12,187	1,231,701

			2017				
		Semi	Wells	Frac	Wells	MMGal	
	Rigs	Loads	Active	Crews	NC	Water	BOPD
Billings	5	10,625	721	3	2	628.6	15,536
Bot-Ren	2	4,250	860	1	2	62.9	6,468
Bow-Slp	2	4,250	624	0	1	25.1	16,103
Burke	2	4,250	619	1	1	251.4	11,736
Divide	5	10,625	941	4	10	686.8	36,021
Dunn	30	63,750	2,631	20	40	3,771.7	211,452
Golden Valley	1	2,125	115	1	0	125.7	1,936
McKenzie	40	85,000	5,010	27	40	5,087.2	459,288
McLean	4	8,500	171	3	0	502.9	7,706
Mountrail	25	53,125	3,441	17	50	3,143.1	247,287
Stark	4	8,500	364	3	0	502.9	17,174
Williams	30	63,750	3,256	20	50	3,771.7	217,099
Statewide	150	318,750	18,752	101	196	18,560	1,247,807