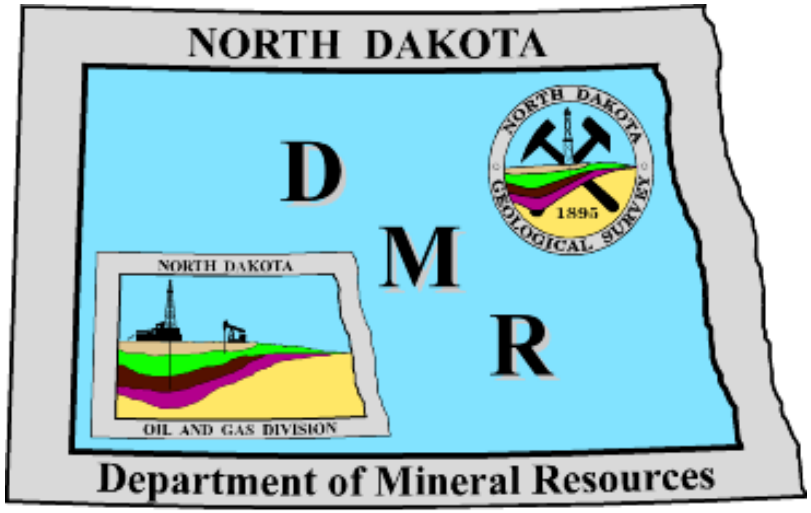
North Dakota Department of Mineral Resources

Interim Energy Development and Transmission Committee

7/29/2015

Presentation by Mrs. Alison Ritter, Public Information Officer
Department of Mineral Resources
Activity Update



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

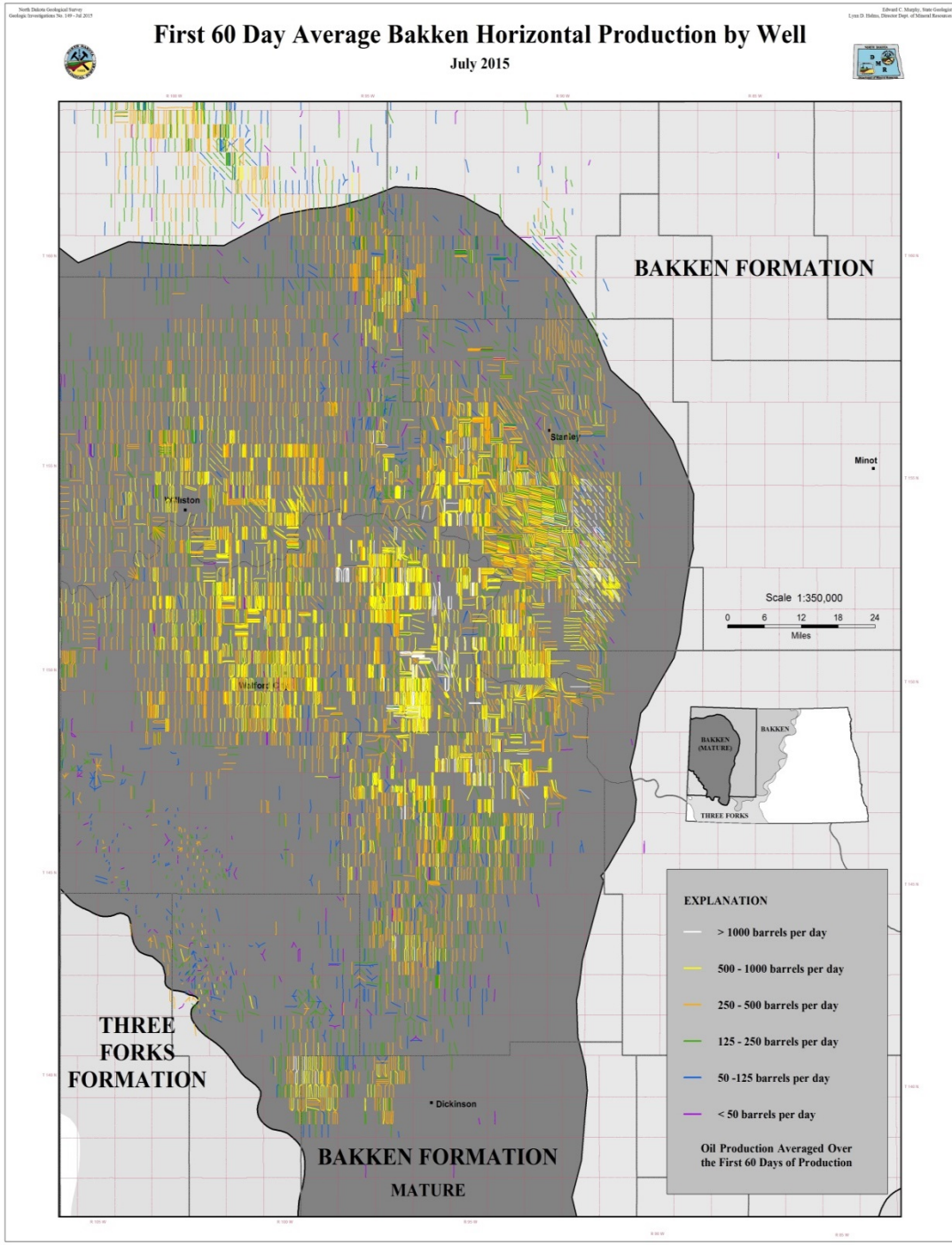
2,944 conventional

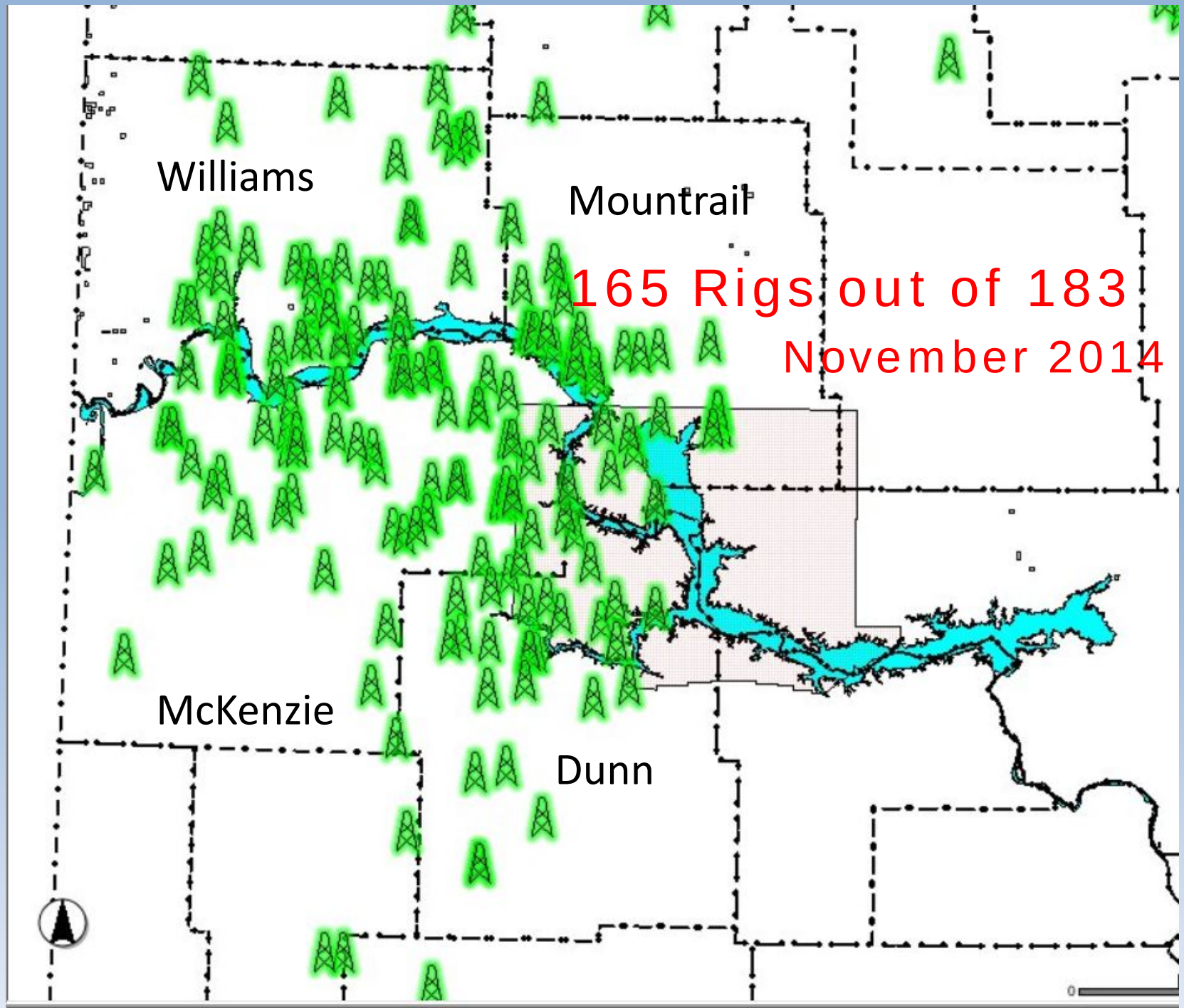
9,715 Bakken/Three Forks wells

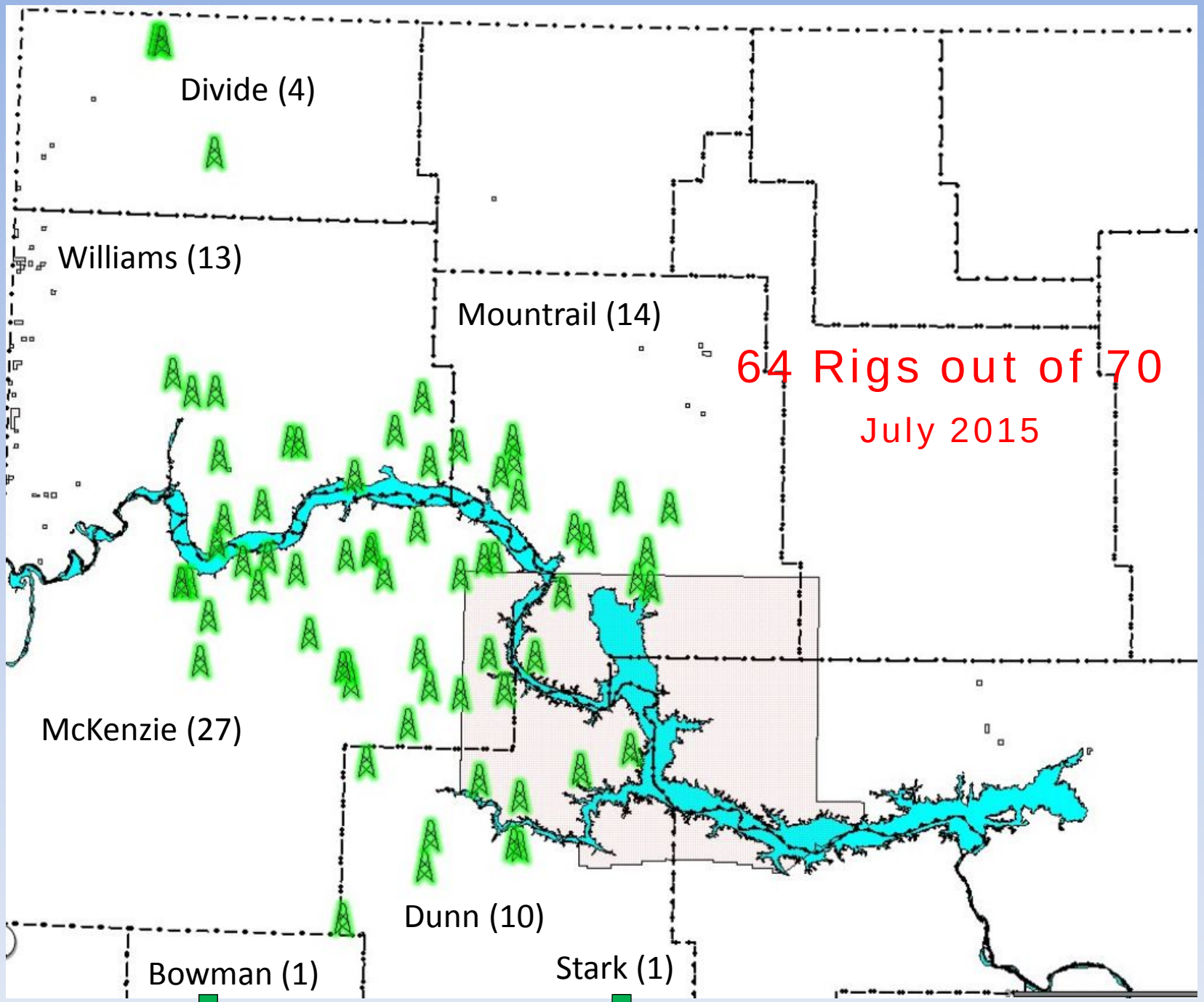
925 waiting on completion

1,947 permitted

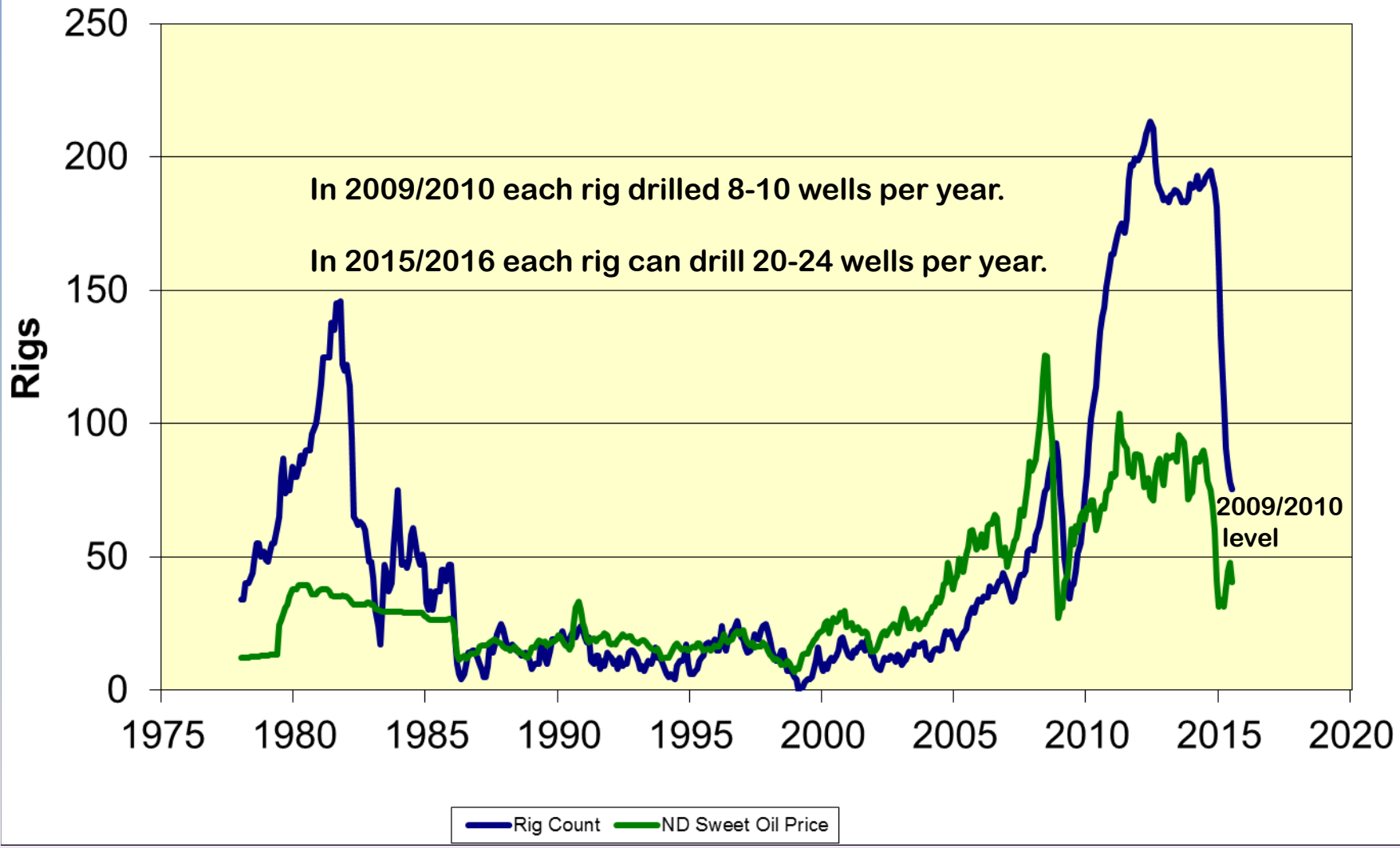
9,749 increased density approved



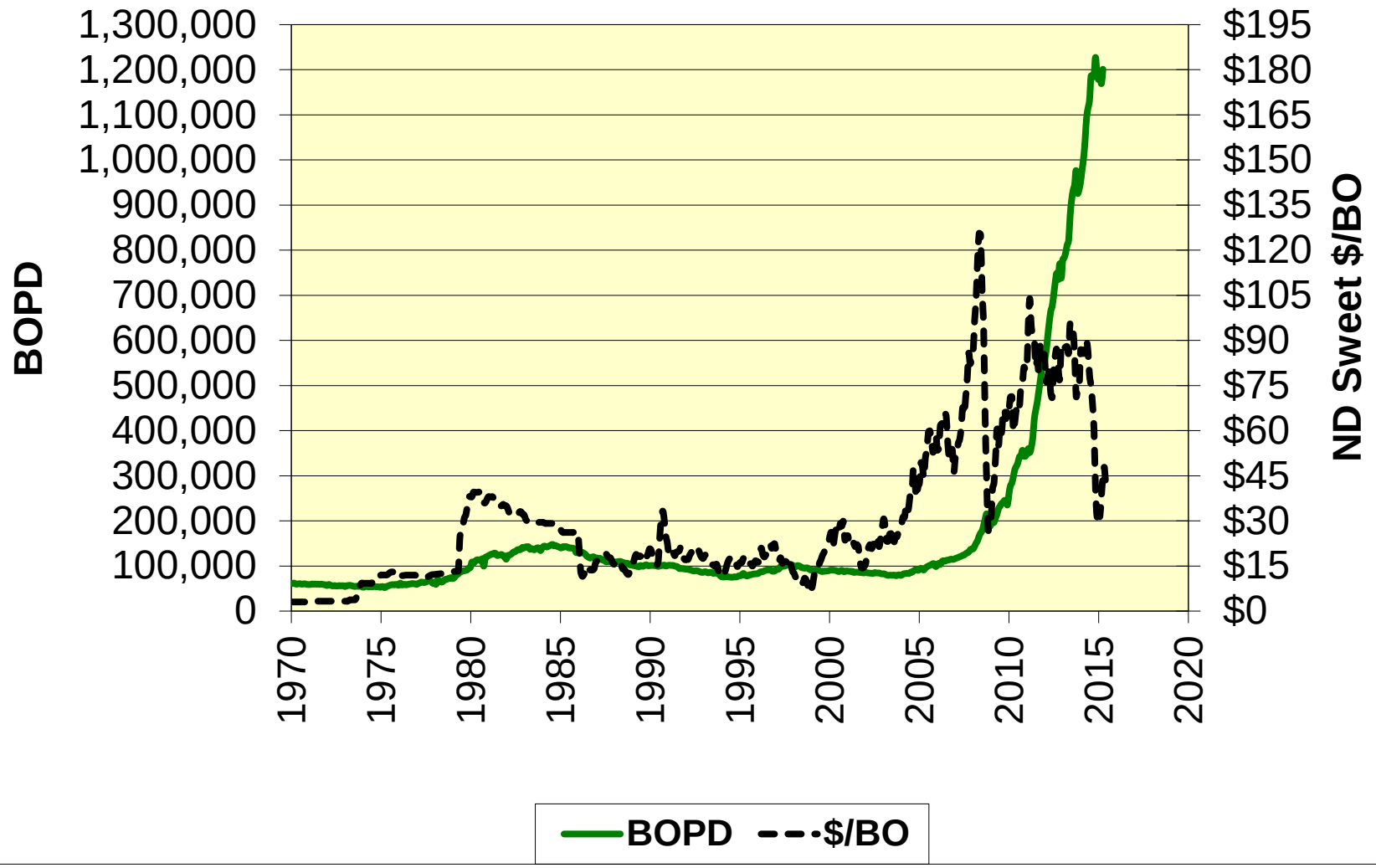

Williams
Mountrail
165 Rigs out of 183
November 2014
McKenzie
Dunn

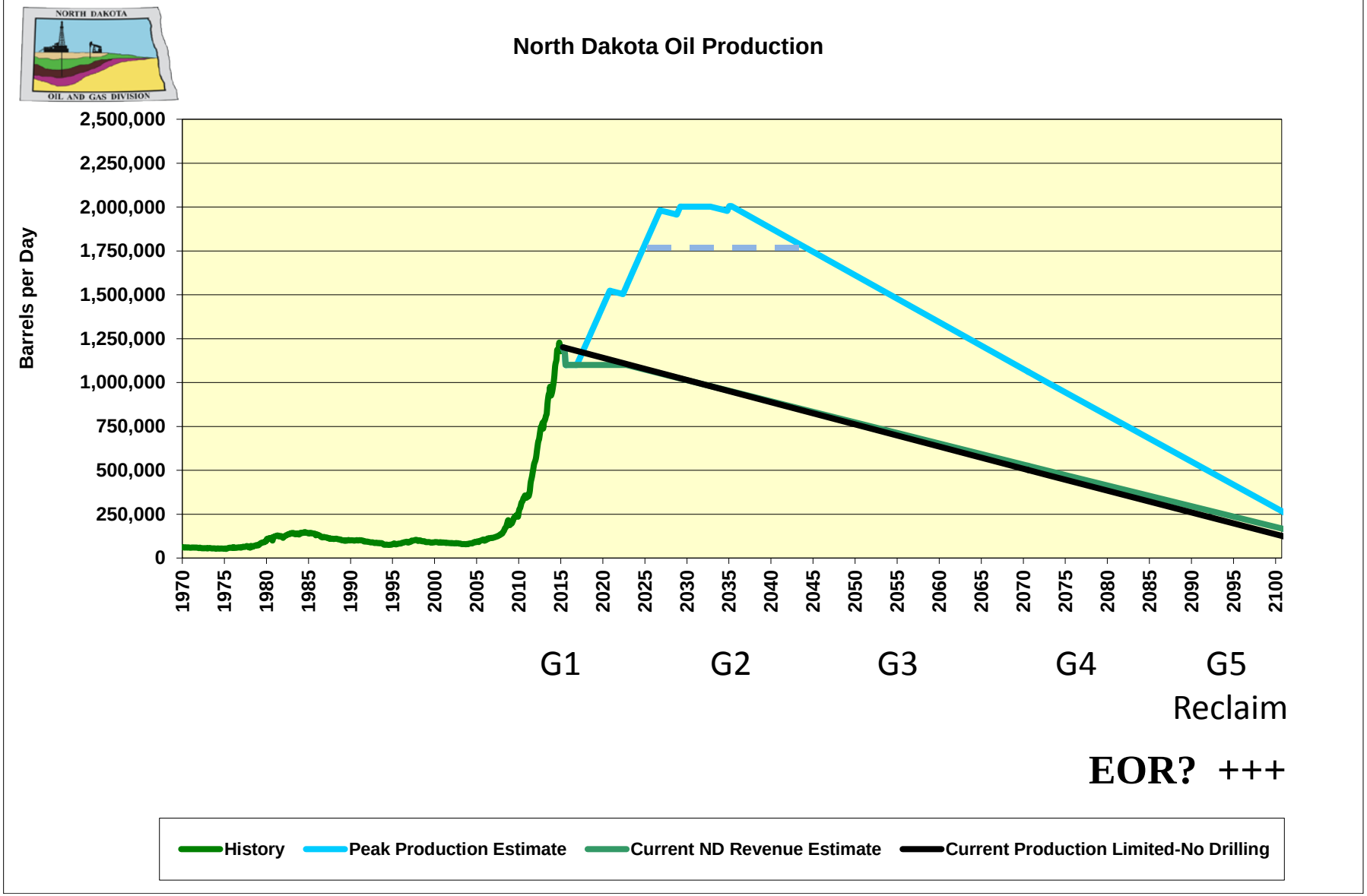

Divide (4)
Williams (13)
Mountrail (14)
64 Rigs out of 70
July 2015
McKenzie (27)
Dunn (10)
Bowman (1)
Stark (1)

North Dakota Average Monthly Rig Count



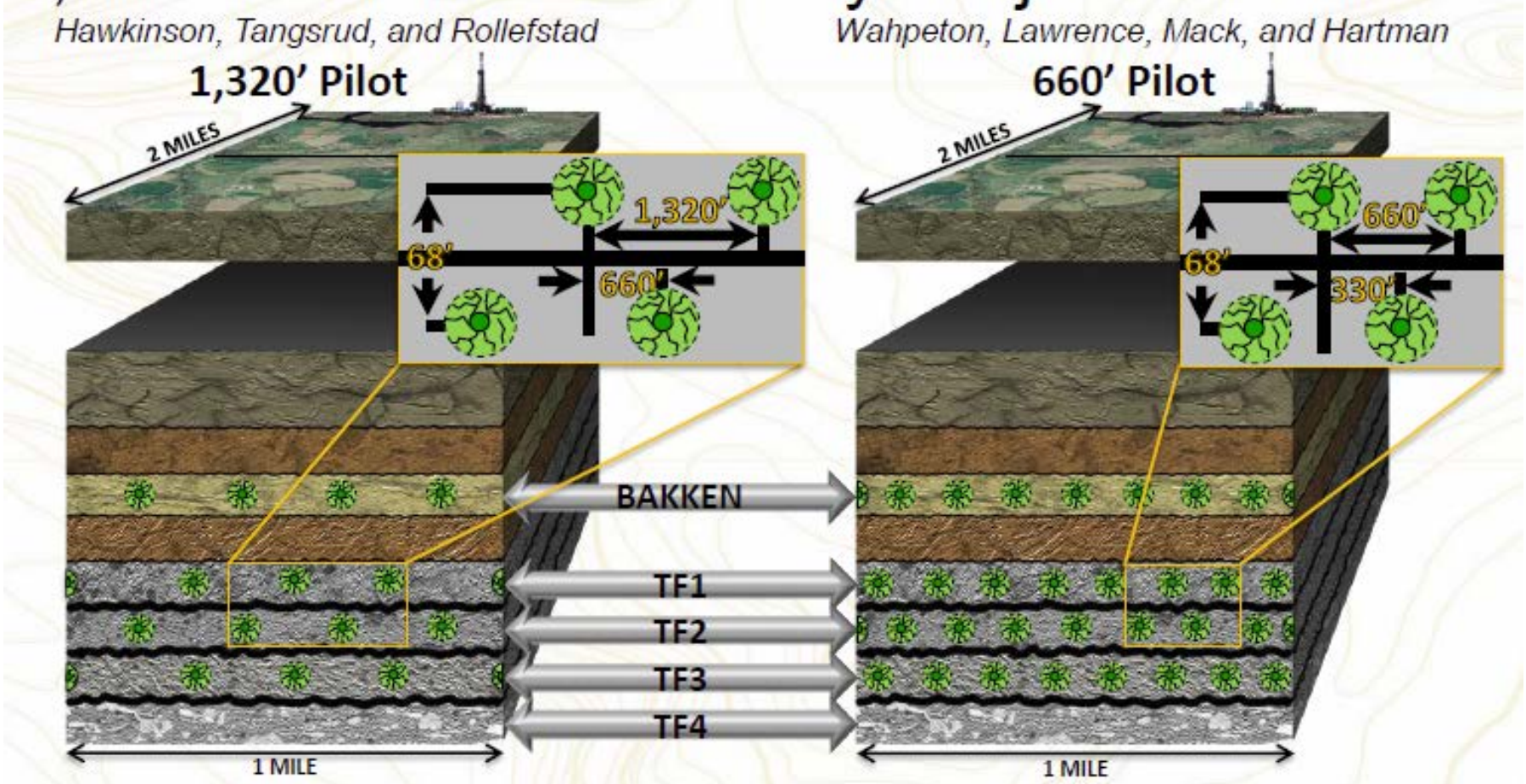
North Dakota Daily Oil Produced and Price




NORTH DAKOTA
OIL AND GAS DIVISION
North Dakota Oil Production
Barrels per Day
2,500,000
2,250,000
2,000,000
1,750,000
1,500,000
1,250,000
1,000,000
750,000
500,000
250,000
0
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
2085
2090
2095
2100
G1
G2
G3
G4
G5
Reclaim
EOR? +++
History
Peak Production Estimate
Current ND Revenue Estimate
Current Production Limited-No Drilling

Well density is the big question

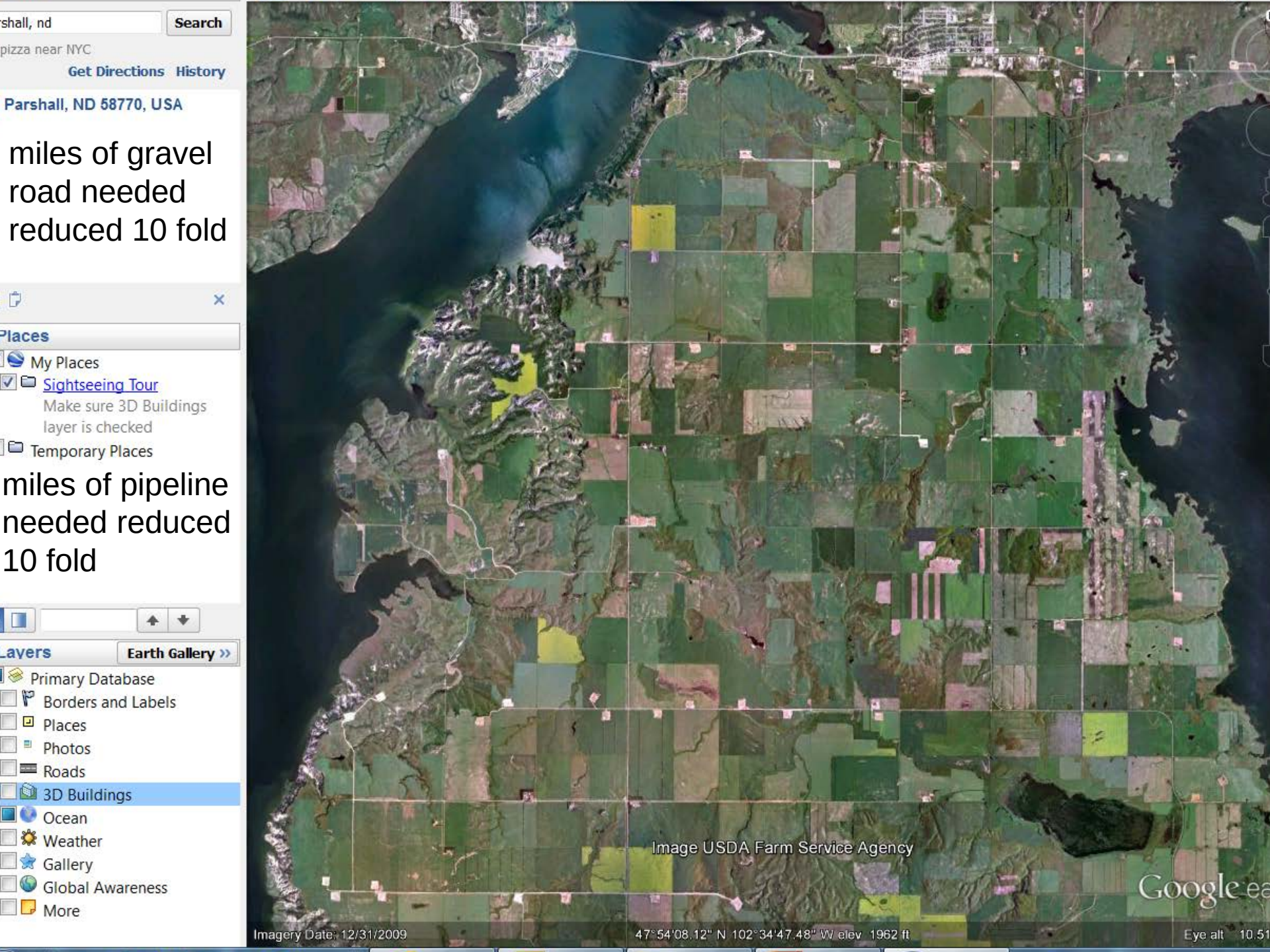
1,320’ & 660’ Pilot Density Projects: 2013-14



- 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


rshall, nd
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pizza near NYC
Get Directions History
Parshall, ND 58770, USA
miles of gravel road needed reduced 10 fold
Places
My Places
Sightseeing Tour
Make sure 3D Buildings layer is checked
Temporary Places
miles of pipeline needed reduced 10 fold
Layers
Earth Gallery »
Primary Database
Borders and Labels
Places
Photos
Roads
3D Buildings
Ocean
Weather
Gallery
Global Awareness
More
Image USDA Farm Service Agency
Google ea
Imagery Date: 12/31/2009
47°54'08.12" N 102°34'47.48" W elev 1962 ft
Eye alt 10.51

Western North Dakota Gathering Pipelines

Estimate 12,700 miles pre August 2011
+ 4,900 miles August 2011-December 2013
+ 2,650 miles per year 2014-2020
= 36,000 miles

8,500 miles within OGD database

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.

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.

HB 1358 Objectives

- Phase I ***($899k)***
  - 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
  - Provide a report with recommendations to the NDIC and the EDTC by December 1
- Phase II ***($601k + cost share)***
  - Pilot project to evaluate a pipeline leak detection and monitoring system

$1.5M in State funding covers both phases

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Energy & Environmental Research Center®
Putting Research into Practice

Pipeline Study – Current Status

- **Phase I -- Gathering Pipeline Study**
  - Technical work began on April 27
    - Scope+schedule defined to address the legislative mandate
    - Initial fact finding work completed
    - Industry stakeholder meeting held June 2
    - In-depth site visits conducted to assess current industry practices
    - Industry practices survey administered with industry stakeholders
    - Reached out to non-industry stakeholders including DMR, PSC, NDPA, Ag.Commissioner (pipeline ombudsmen) and Northwest Landowners Group
  - Contract with NDIC executed in full on July 1
- **Phase II – Pilot Demonstration**
  - Stakeholders made aware that EERC will be seeking industry partners to execute the pilot demonstration

EERC-Developed Scope to Execute HB1358

Phase I – Study

- Project Management
  - ~~Stakeholder Recruitment~~
  - Stakeholders meetings
  - ~~Tour gathering line sites~~
- ~~Understanding Infrastructure~~
  - ~~Process Description~~
  - ~~Construction Standards~~
  - ~~Pipeline Materials~~
  - ~~Monitoring systems~~
  - ~~Maintenance~~
  - ~~Reclamation~~
  - ~~Abandonment~~
- ~~Analyze options for fluids storage~~
  - ~~Issues/Risks/Opportunities~~
  - ~~Summarize Regulations~~
  - ~~Investigate Secondary Containment Options and Costs~~
- ~~Leak/Spill Statistical Analysis~~
  - ~~Survey of Spills/Leaks History~~
  - ~~Review of Failure Analyses~~
  - ~~Comparison of ND to Other States~~

Crossed-out items have been completed

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EERC-Developed Scope to Execute HB1358

Phase I – Study (Cont'd)

- Techno-Economic Analysis of Leak Detection & Monitoring
- Make Recommendations
  - Construction Concerns
  - Inspection Concerns
  - Monitoring Concerns
  - Material Preferences Concerns
  - Summary of Situational Peculiarities
- Final Report
  - Draft Report
  - Stakeholder review of draft
  - NDIC review of draft (DMR)
  - Final report to NDIC and EDTC
- Continuing Support & Outreach After Report
  - Continuing testimony to EDTC
  - Landowner education

Task in progress

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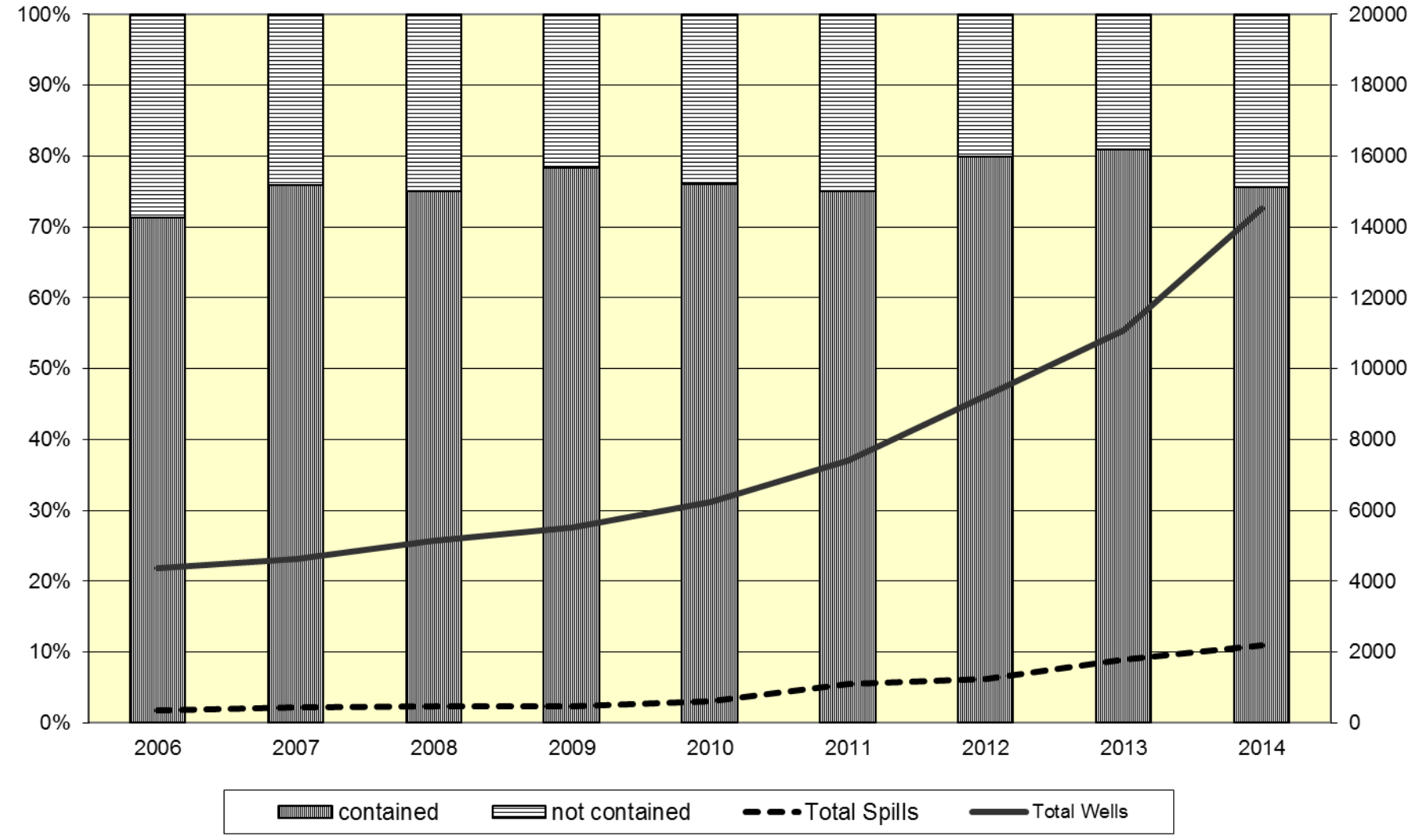
Surface Spills

The Oil and Gas Division regulates spill containment through diking and site construction rules.



Gas Capture

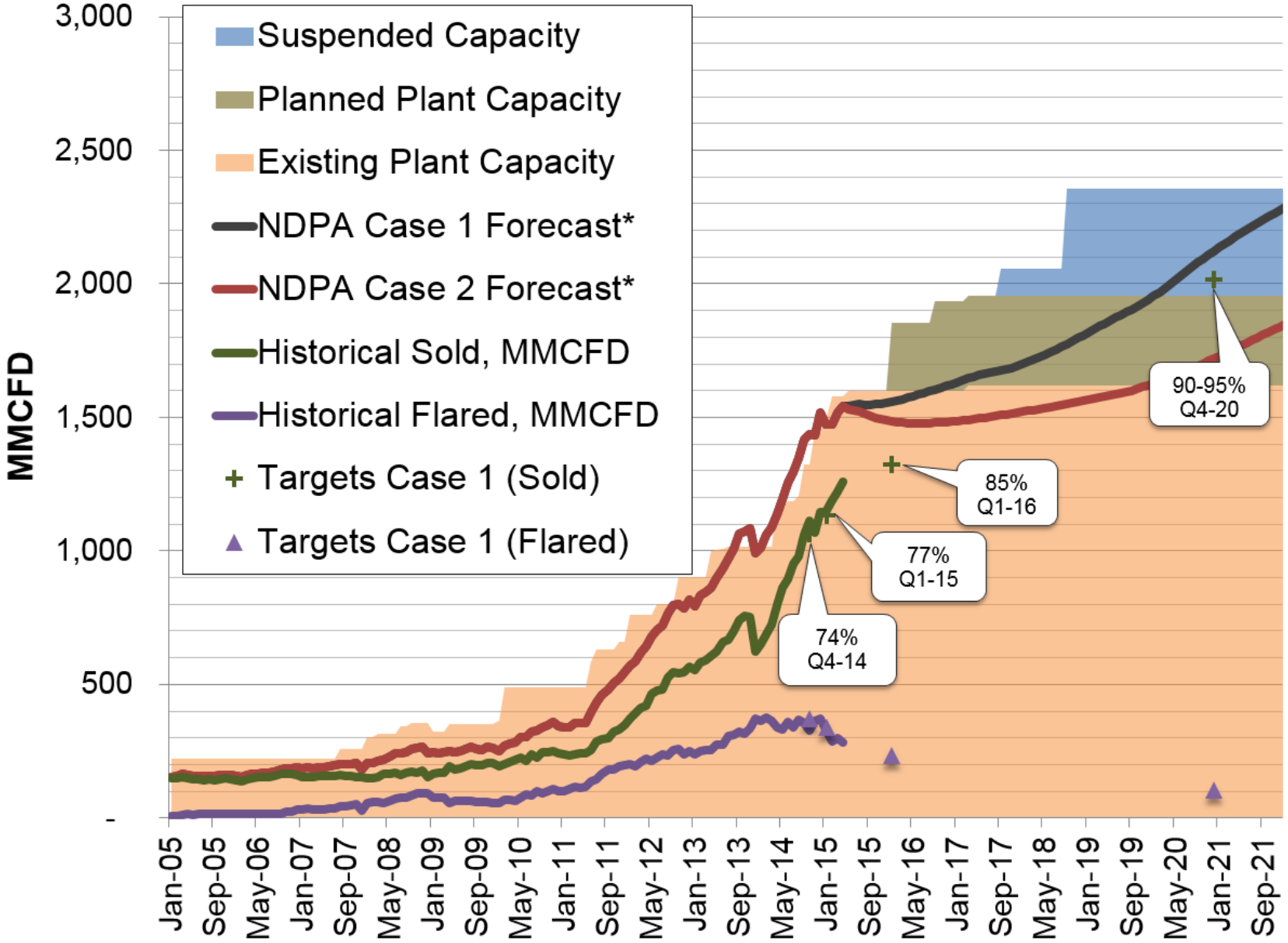
Continued need for Pipelines:

- Statewide 82%
- Statewide Bakken 83%
- Non-FBIR Bakken 82%
- FBIR Bakken 88%
  - Trust FBIR Bakken 87%
  - Fee FBIR 89%

Next Target: January 2016: 85% capture.

October 2020: 90-95% capture.

Solving the Flaring Challenge



Endangered Species

Federal Regulation