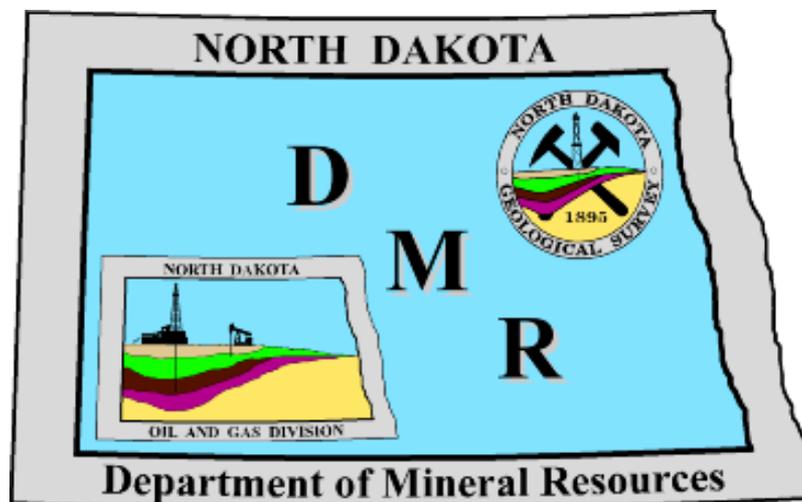


North Dakota Department of Mineral Resources

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



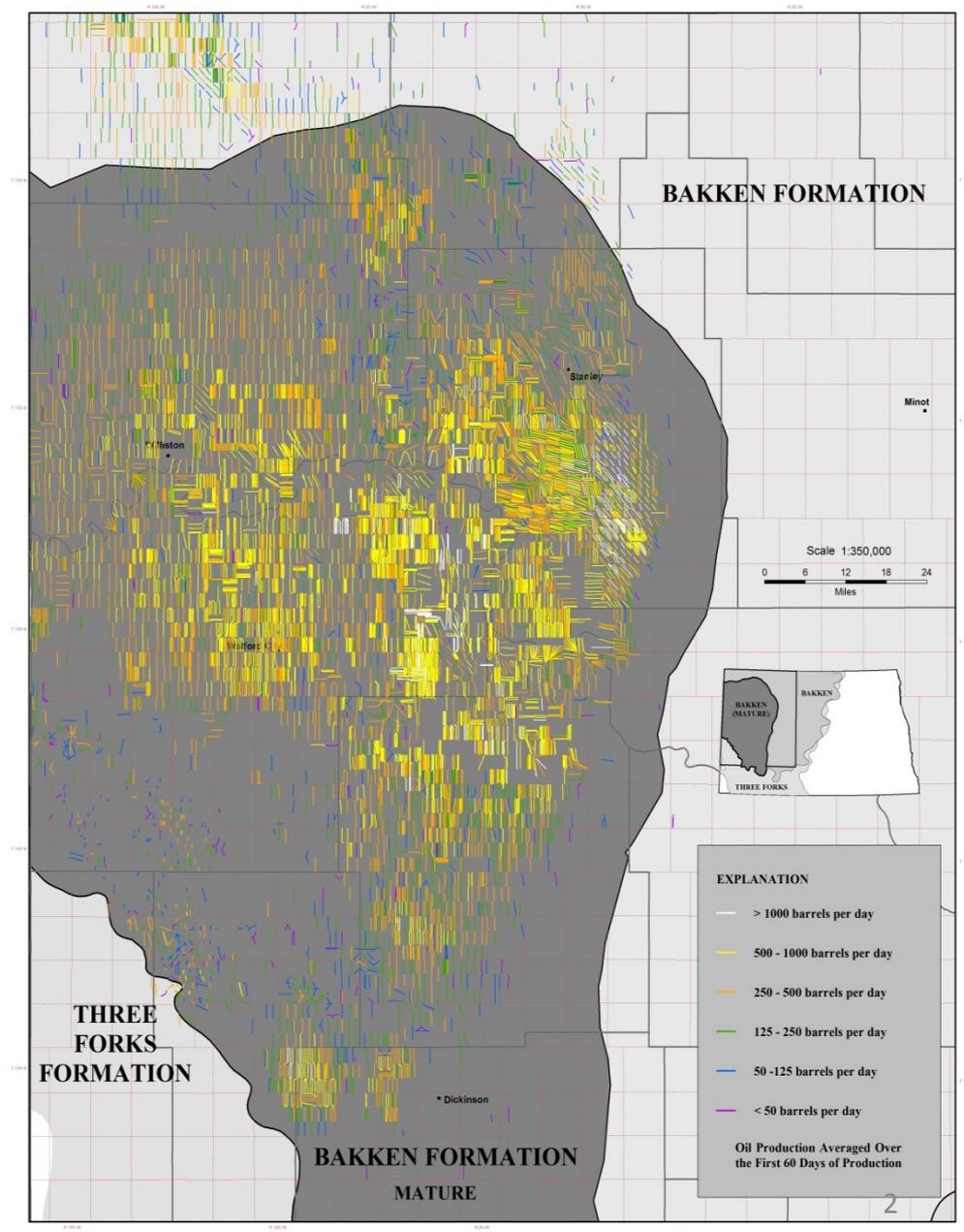
North Dakota Geological Survey
Geologic Survey Report No. 149-1-2013

First 60 Day Average Bakken Horizontal Production by Well

July 2015



Edward C. Stebbins, State Geologist
Lisa D. Hales, Director Dept. of Mineral Resources



Williams

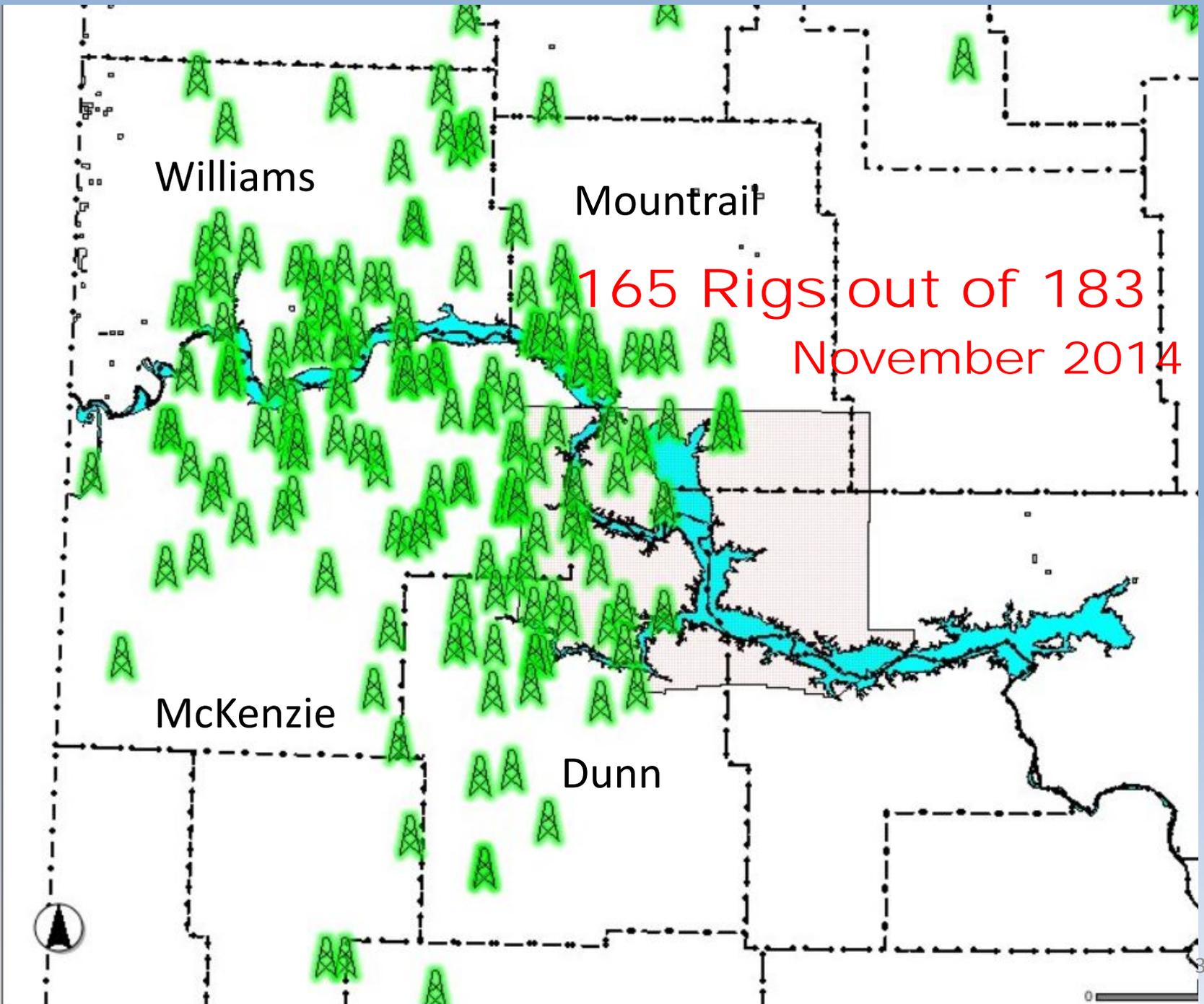
Mountrail

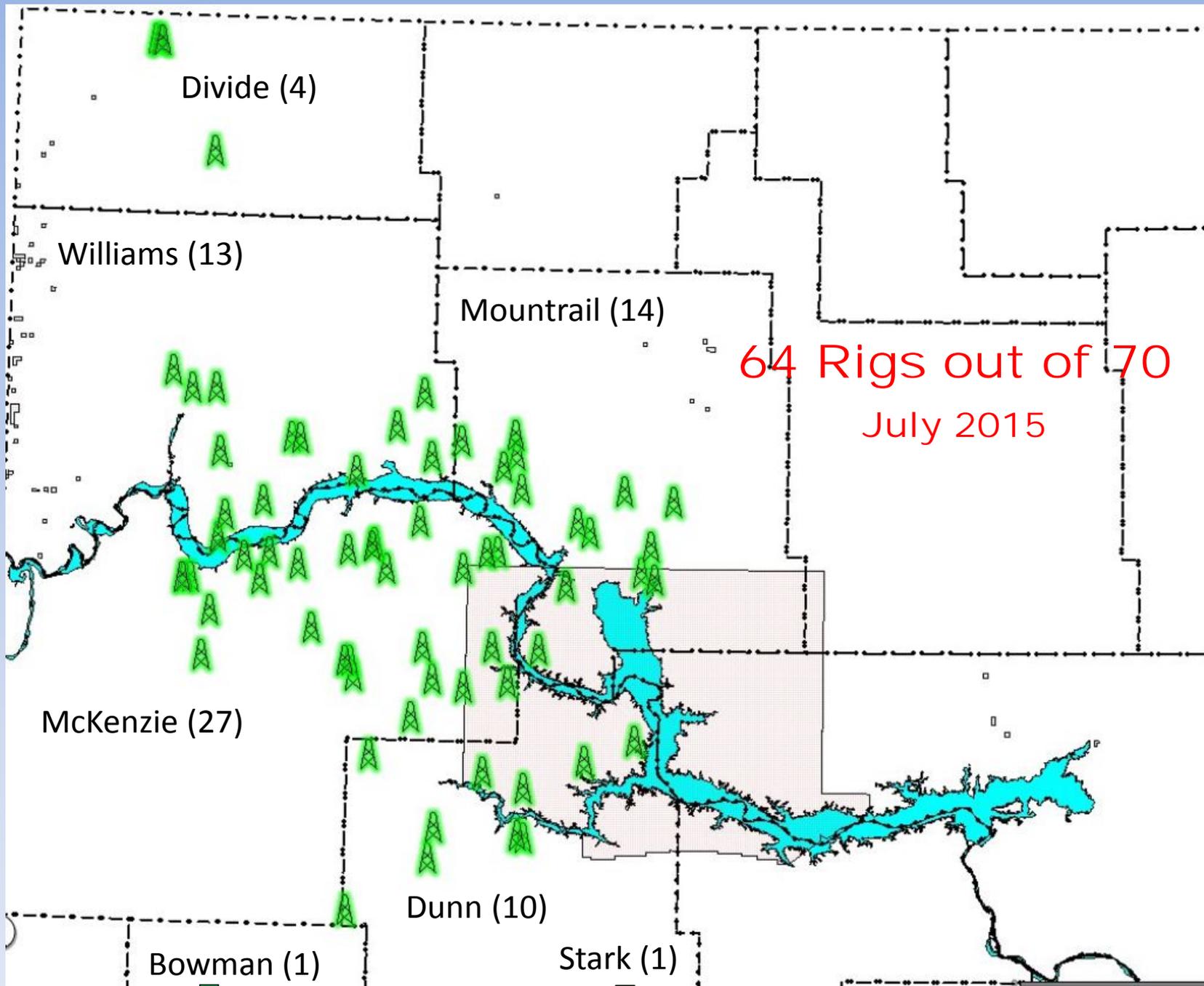
165 Rigs out of 183

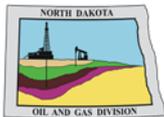
November 2014

McKenzie

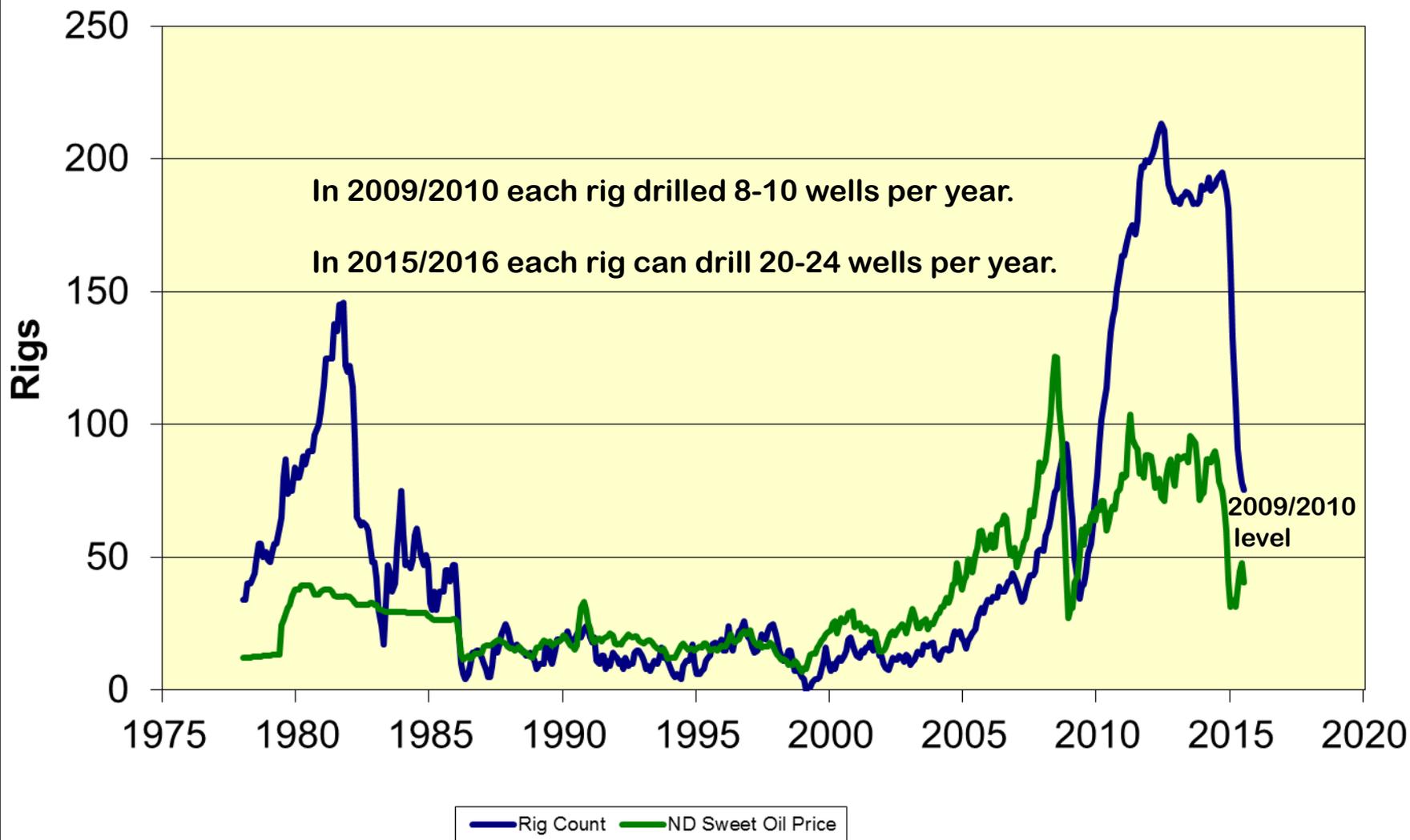
Dunn





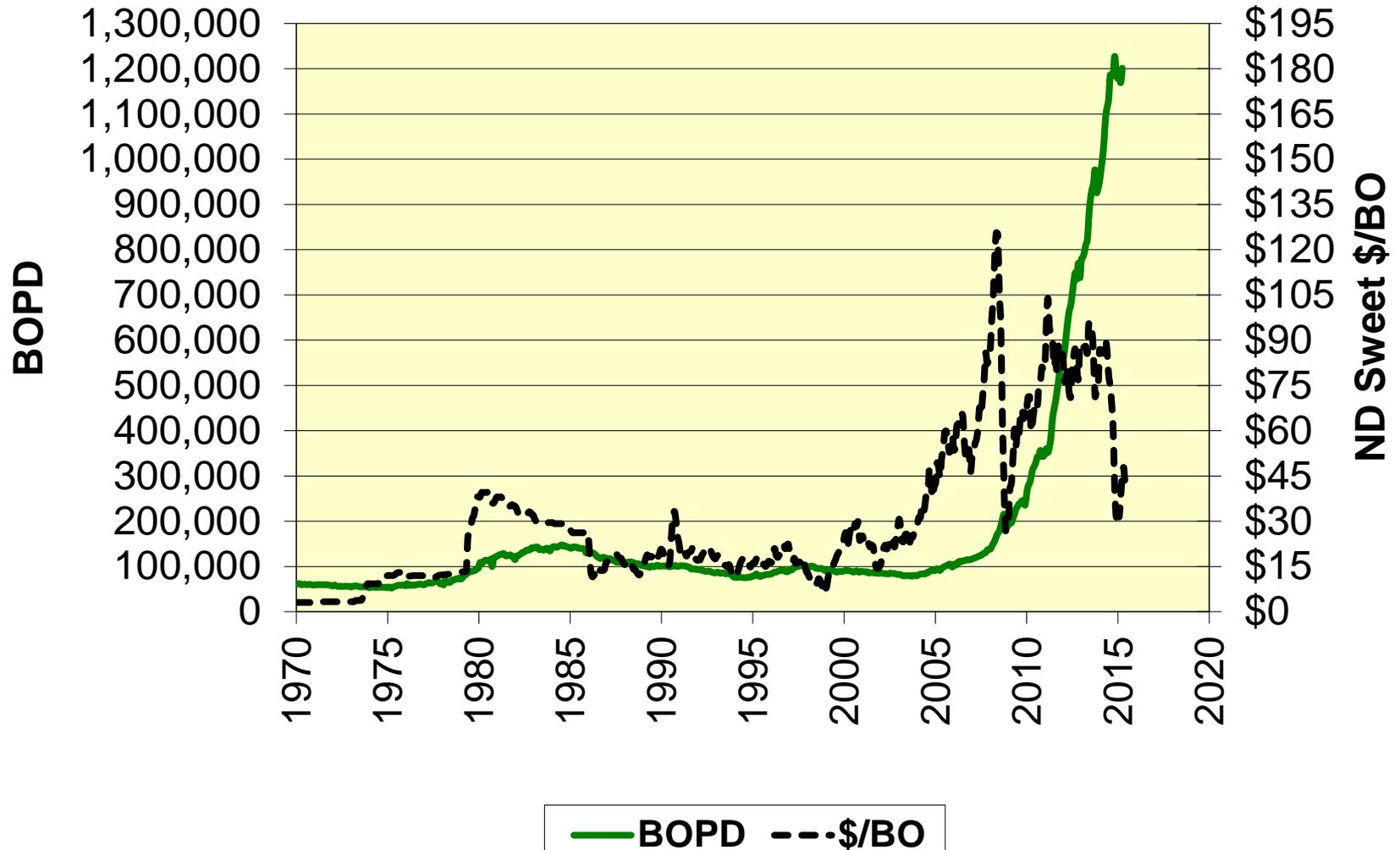


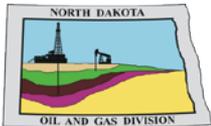
North Dakota Average Monthly Rig Count



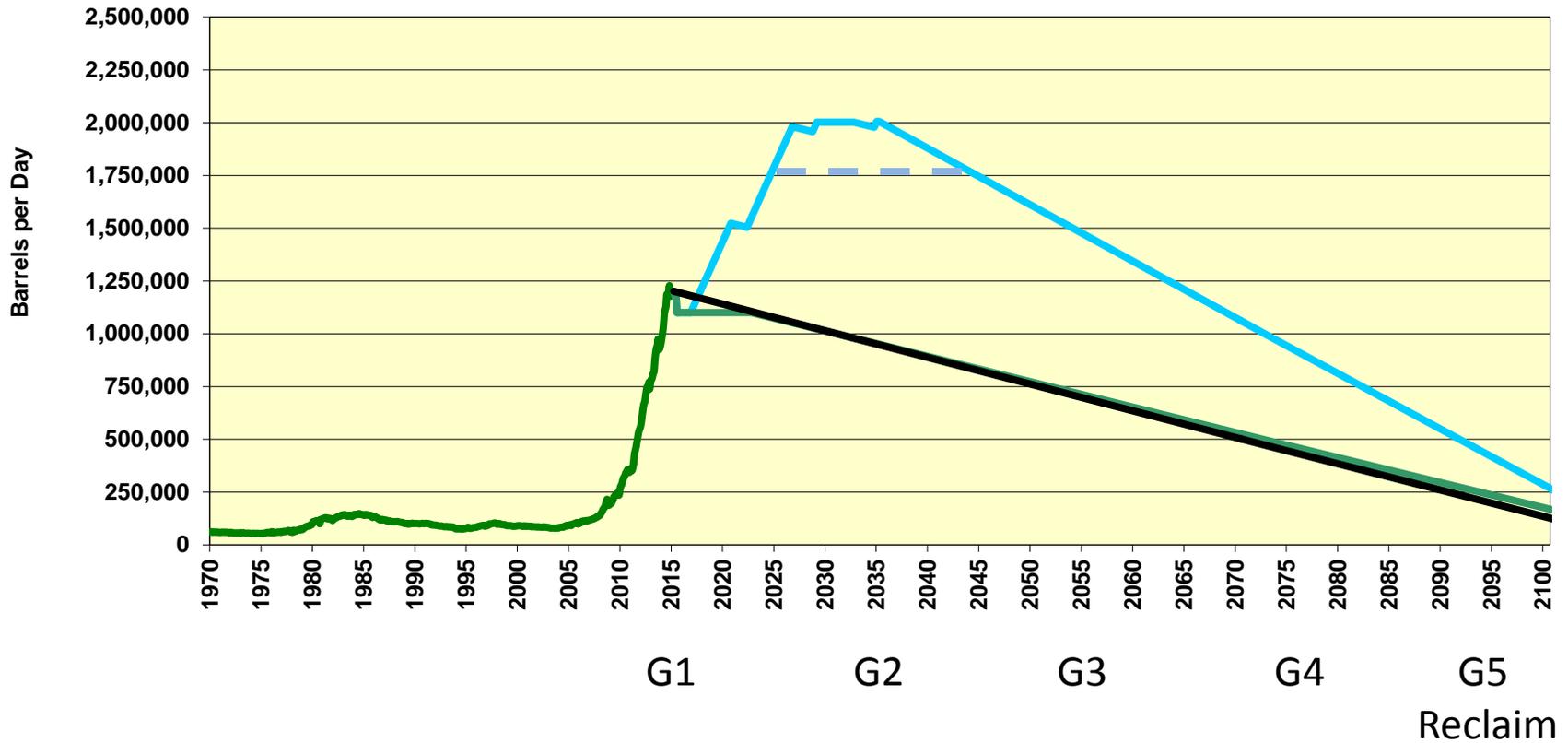


North Dakota Daily Oil Produced and Price





North Dakota Oil Production



EOR? +++

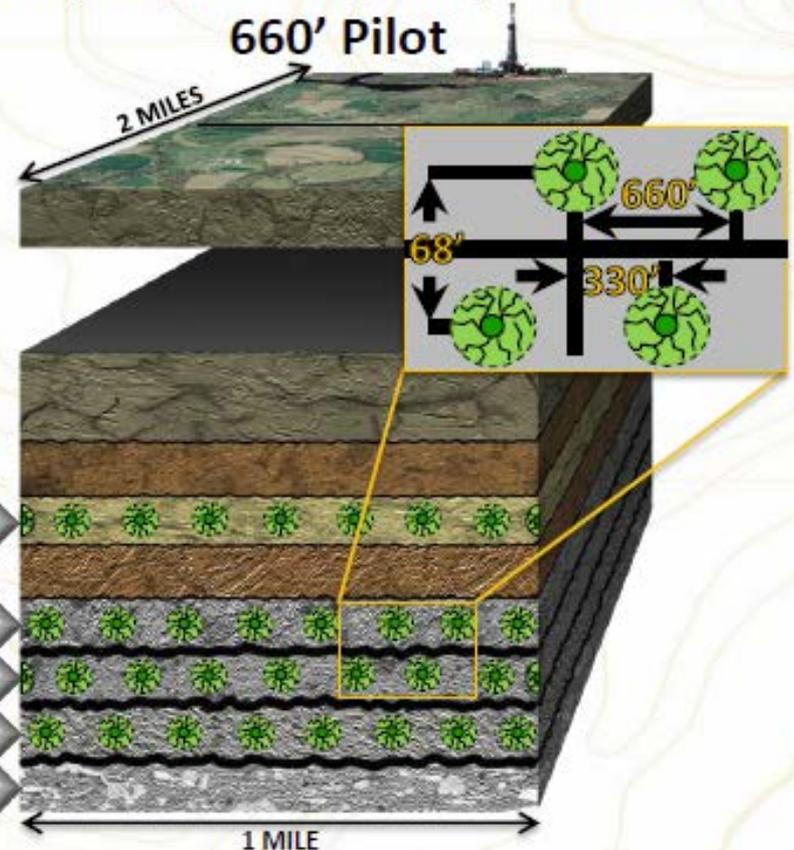
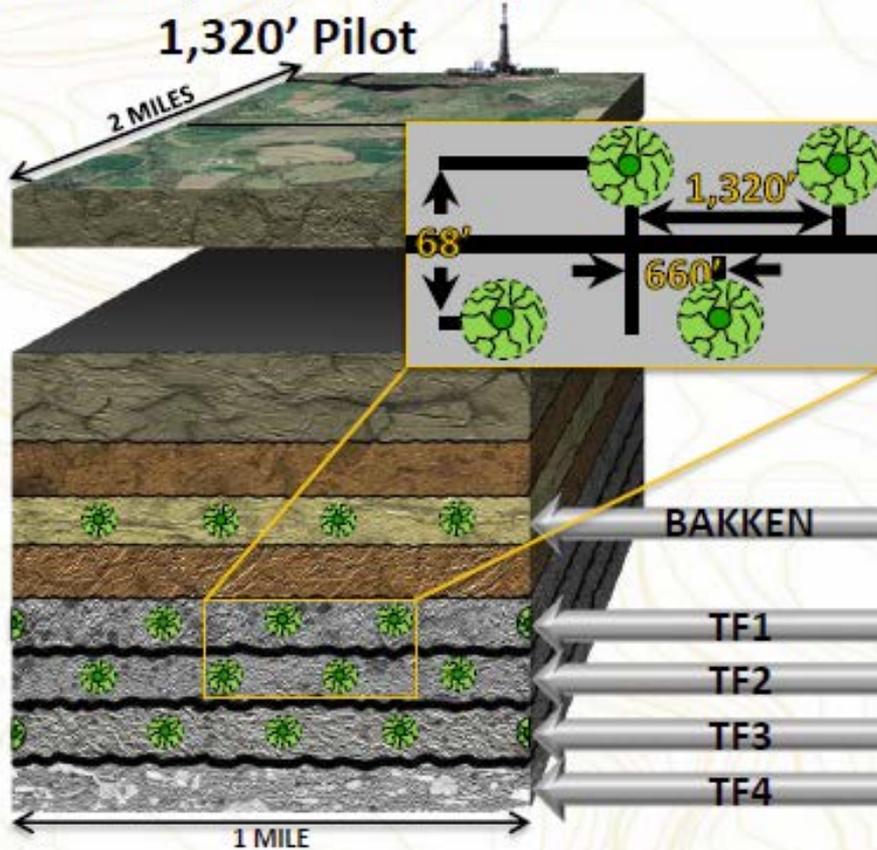


Well density is the big question

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)

Parshall, ND

pizza near NYC

[Get Directions](#) [History](#)

Parshall, ND 58770, USA

miles of gravel
road needed
reduced 10 fold

Places

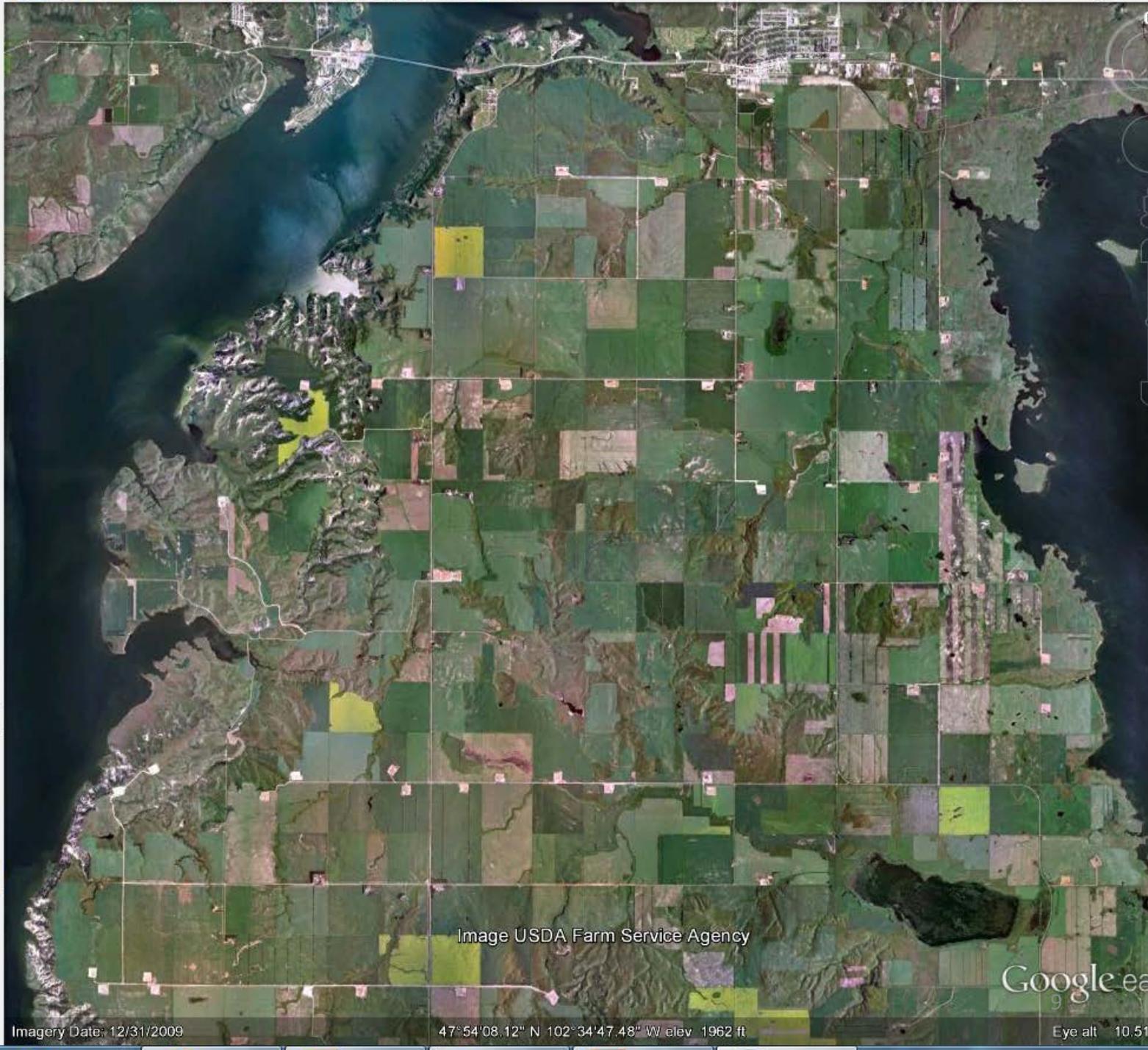
- My Places
- [Sightseeing Tour](#)
Make sure 3D Buildings layer is checked
- Temporary Places

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



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

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

EERC-Developed Scope to Execute HB1358

Phase I – Study (Cont'd)

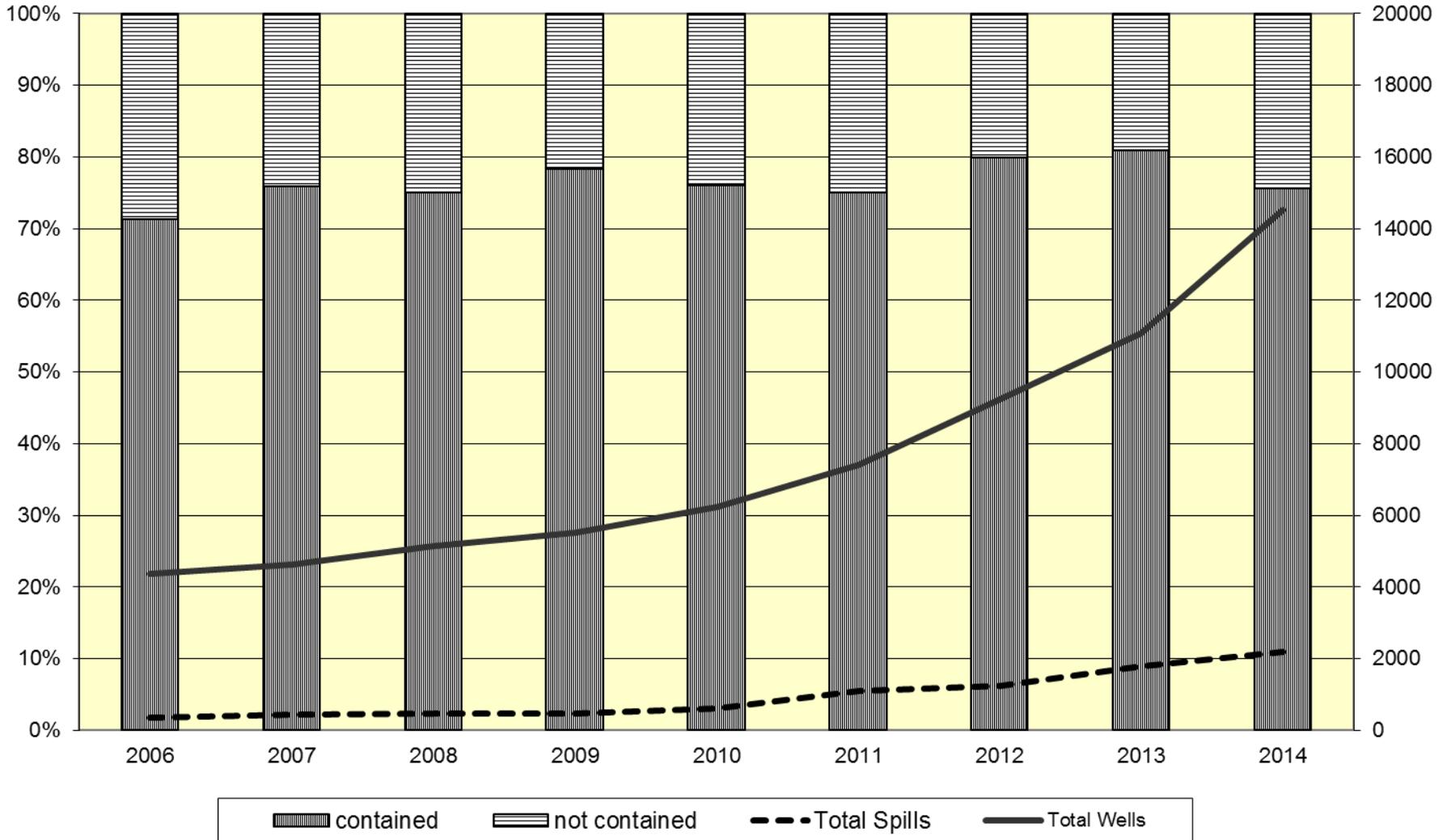
- **Techno-Economic Analysis of Leak Detection & Monitoring**
- **Make Recommendations**
 - Construction Concerns
 - Inspection Concerns
 - Monitoring Concerns
 - Material Preferences Concerns
 - Summary of Situational Peculiarities
- **Final Report**
 - Draft Report
 - Stakeholder review of draft
 - 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



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%

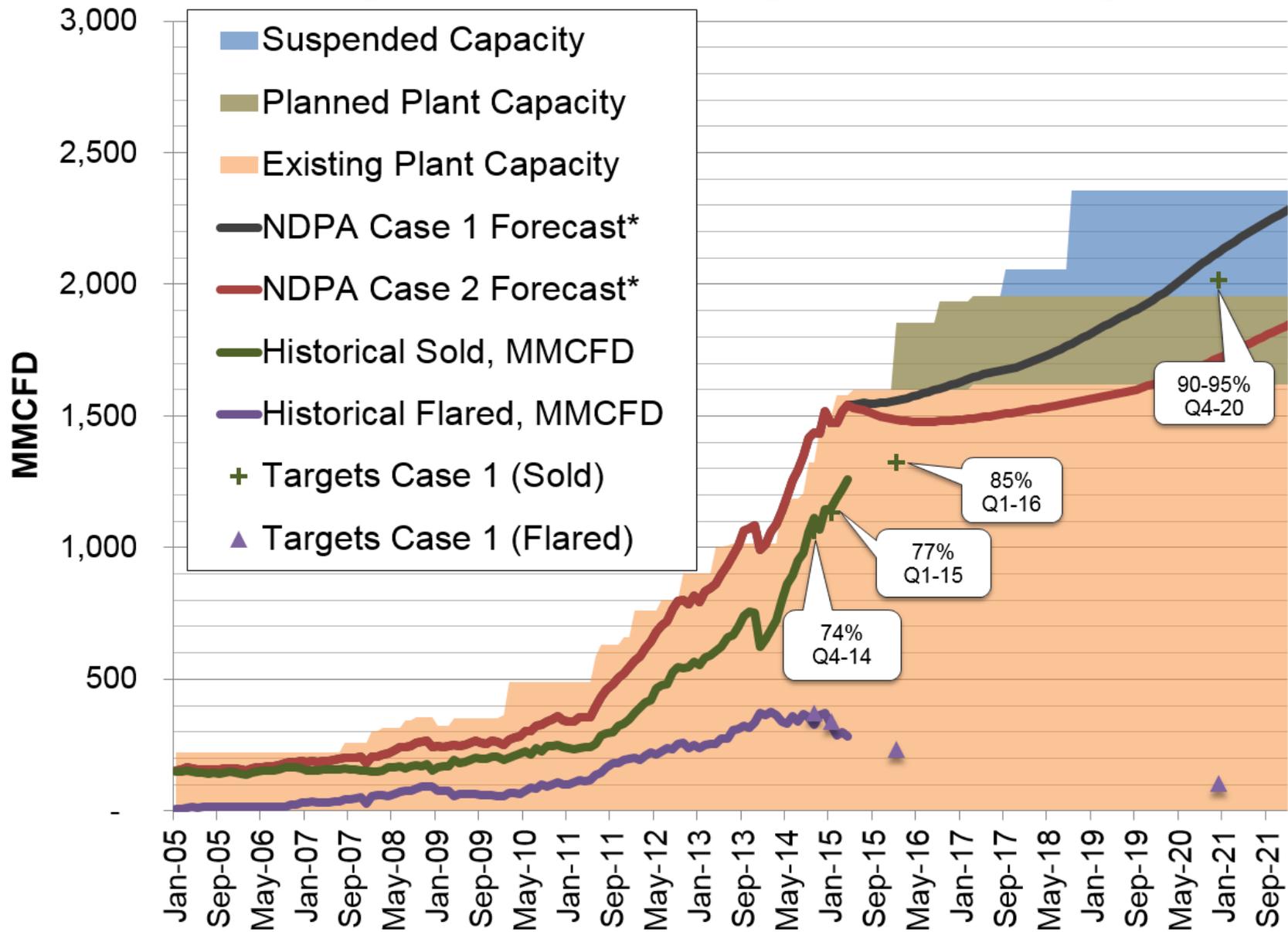
Trust FBIR Bakken 87%

Fee FBIR 89%

Next Target: January 2016: 85% capture.

October 2020: 90-95% capture.

Solving the Flaring Challenge



First 60 Day Average Bakken Horizontal Production by Well

July 2015



Endangered Species

Federal Regulation

