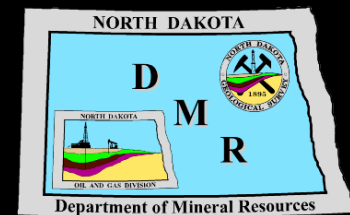


# ***DEVELOPMENT OF THE BAKKEN RESOURCE***

*North Dakota 9-1-1  
Association Meeting*

*Bismarck, ND–March 6, 2014*

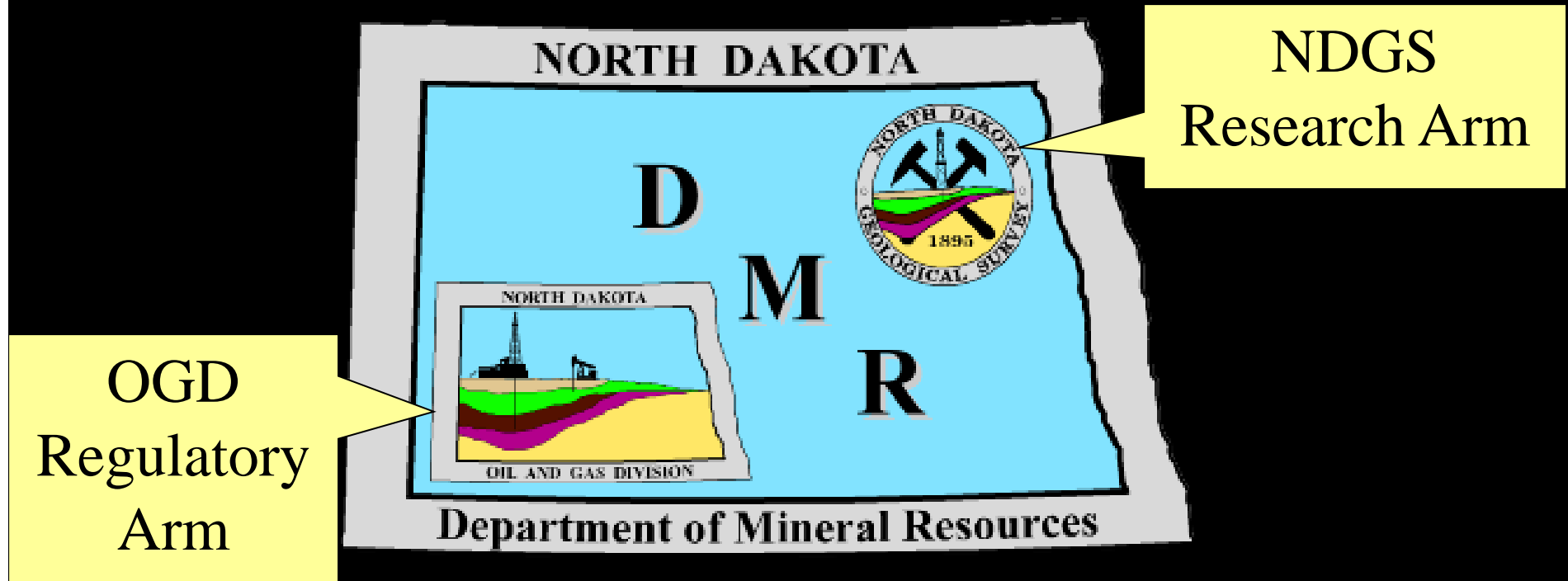


# North Dakota Development

- **Resource Play**
- **Administrative Rules**
  - **Application for Permit to Drill**
  - **Sign on Well or Facility**
  - **Safety Regulation**
  - **Multi-well Locations—small footprint**
  - **Energy Corridors—industry & residents**
- **Bakken Results**

*Bruce E. Hicks  
Assistant Director  
NDIC-DMR-OGD  
Bismarck, ND*

# North Dakota Department of Mineral Resources



<https://www.dmr.nd.gov/oilgas/>

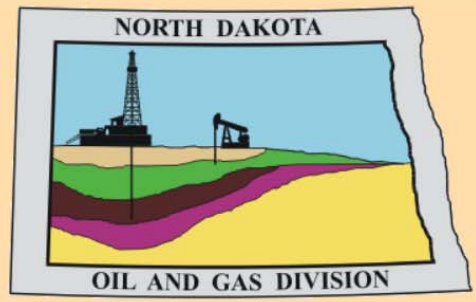
<https://www.dmr.nd.gov/ndgs/>

***600 East Boulevard Ave. - Dept 405***

***Bismarck, ND 58505-0840***

***(701) 328-8020      (701) 328-8000***

- Services
- Rules & Regulations
- Forms
- Hearing Dockets
- Active Drilling Rigs
- Daily Activity Reports
- Confidential Well List
- General Statistics
- Seismic
- Well Search
- Report a Spill/Incident
- GIS Map Server
- Publications
- Surface Mineral Owner
- Basic Services
- Premium Services
- Electronic Filing
- Related Links
- FAQ & Web Help
- Contact Us
- Employee Directory
- Email Addresses



Welcome to the North Dakota Industrial Commission, Department of Mineral Resources and Gas Division, home page.

**Director's Cut - 01/14/2014 and Recent Presentations**

The Director's Cut is an update on current activity in the North Dakota oil patch from the Director of the Department of Mineral Resources and Gas Division.  
( [View past Director's Cuts](#) | [Webinars](#) )

View the [latest press releases](#) from the Oil and Gas Division

[North Dakota Industrial Commission Draft Permitting Policies](#)

[Commission Approved Rules](#)

[Bakken and Three Forks Information!](#)

[Class VI Primacy Application for the authority to regulate the Geologic Storage of Carbon Dioxide](#)

[Oil and Gas Division Employment Opportunities!](#)

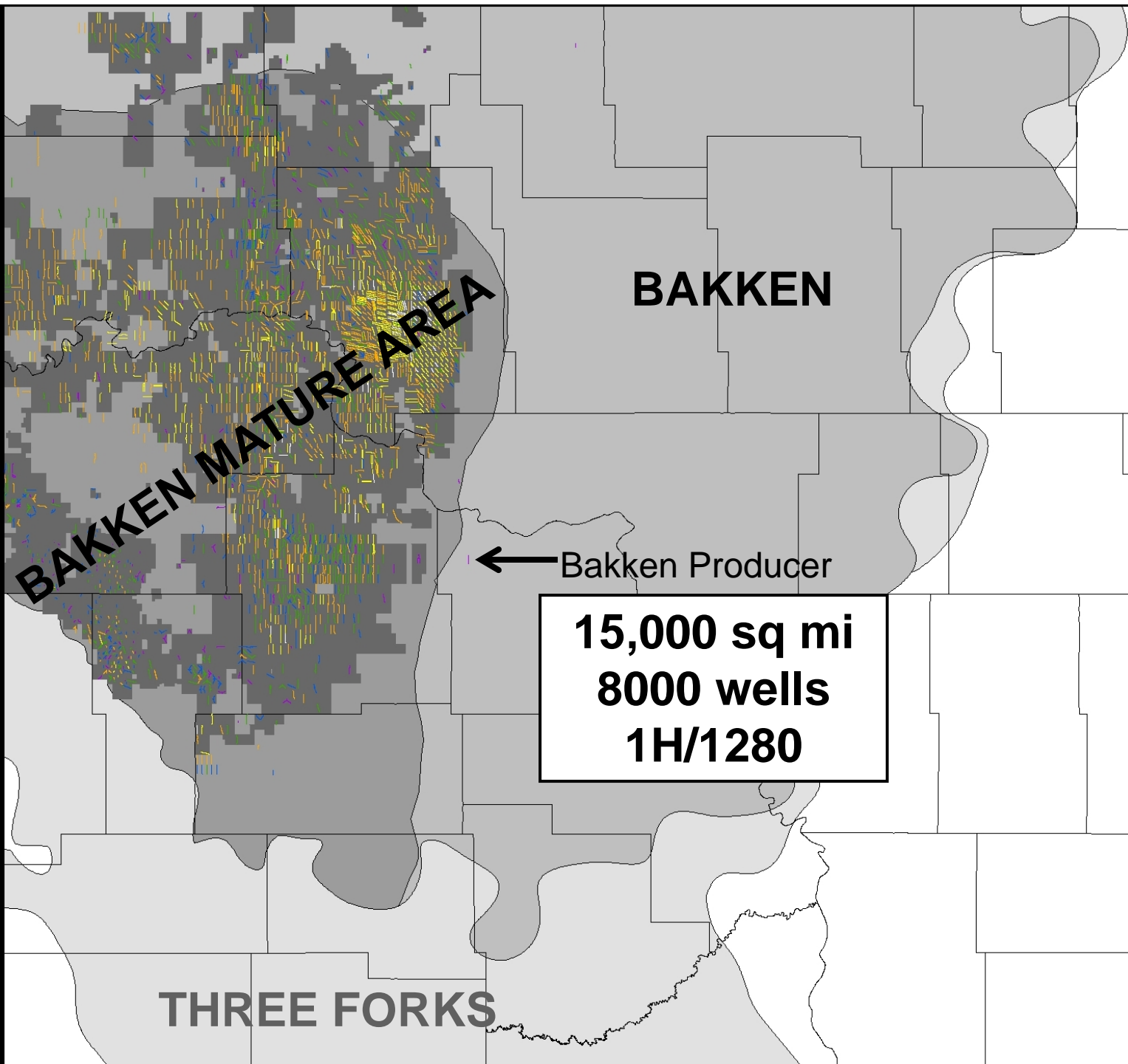
Available on the ND Petroleum Council web site are the [Surface Owner Information Center](#), the [Royalty Owner Information Center](#) and the PowerPoint presentation that were used at the [2012 Williston Basin Petroleum Conference](#).

The Oil and Gas Division regulates the drilling and production of oil and gas in North Dakota. Our mission is to encourage and promote the development, production, and utilization of oil and gas in the state in such a manner as will prevent waste, maximize economic recovery, and

Phone: (701) 328-8020  
Fax: (701) 328-8022  
Mail:

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**BAKKEN MATURE AREA**

**BAKKEN**

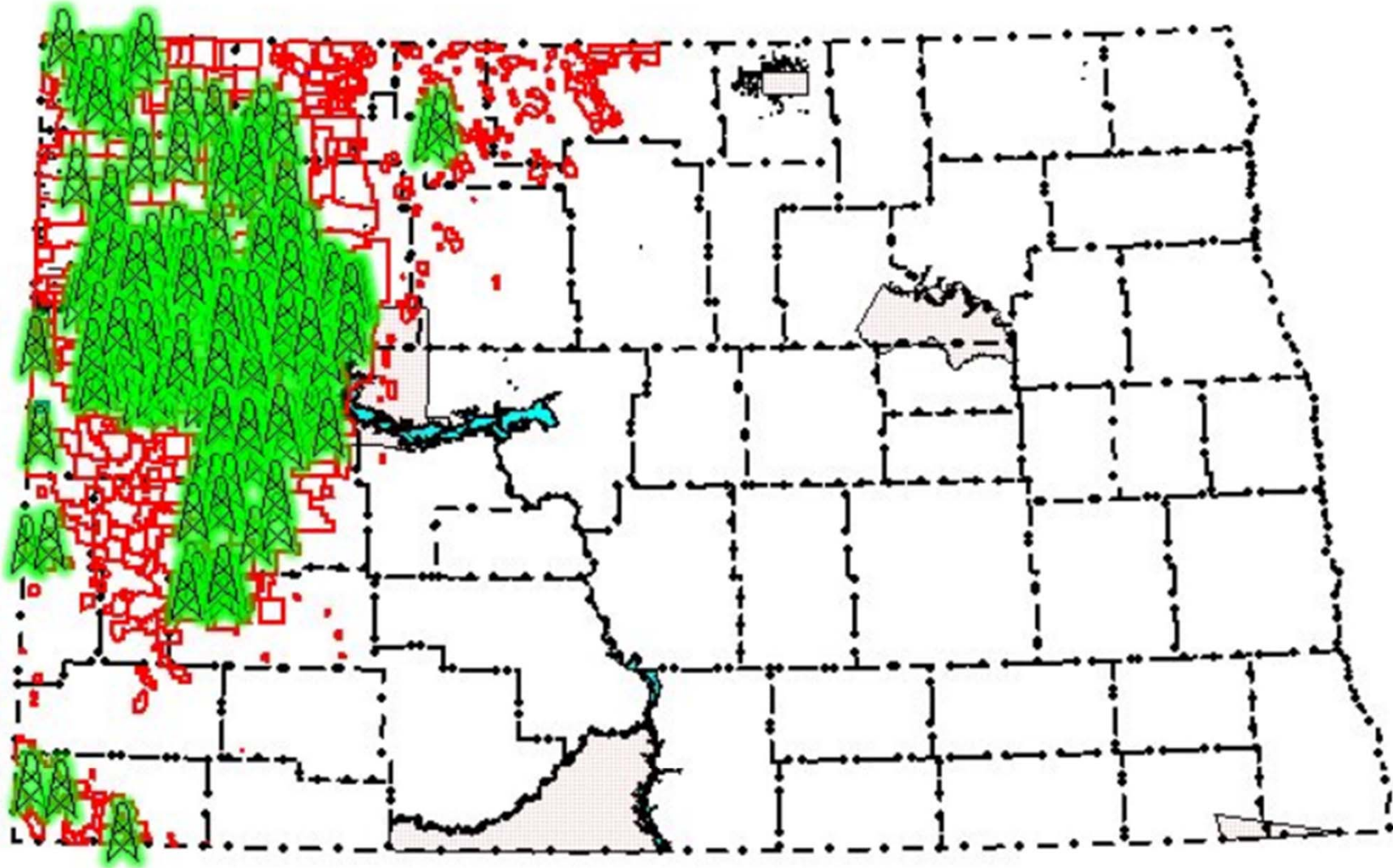
← Bakken Producer

**15,000 sq mi**  
**8000 wells**  
**1H/1280**

**THREE FORKS**



## **NORTH DAKOTA – 192 DRILLING RIGS – MARCH 2014**

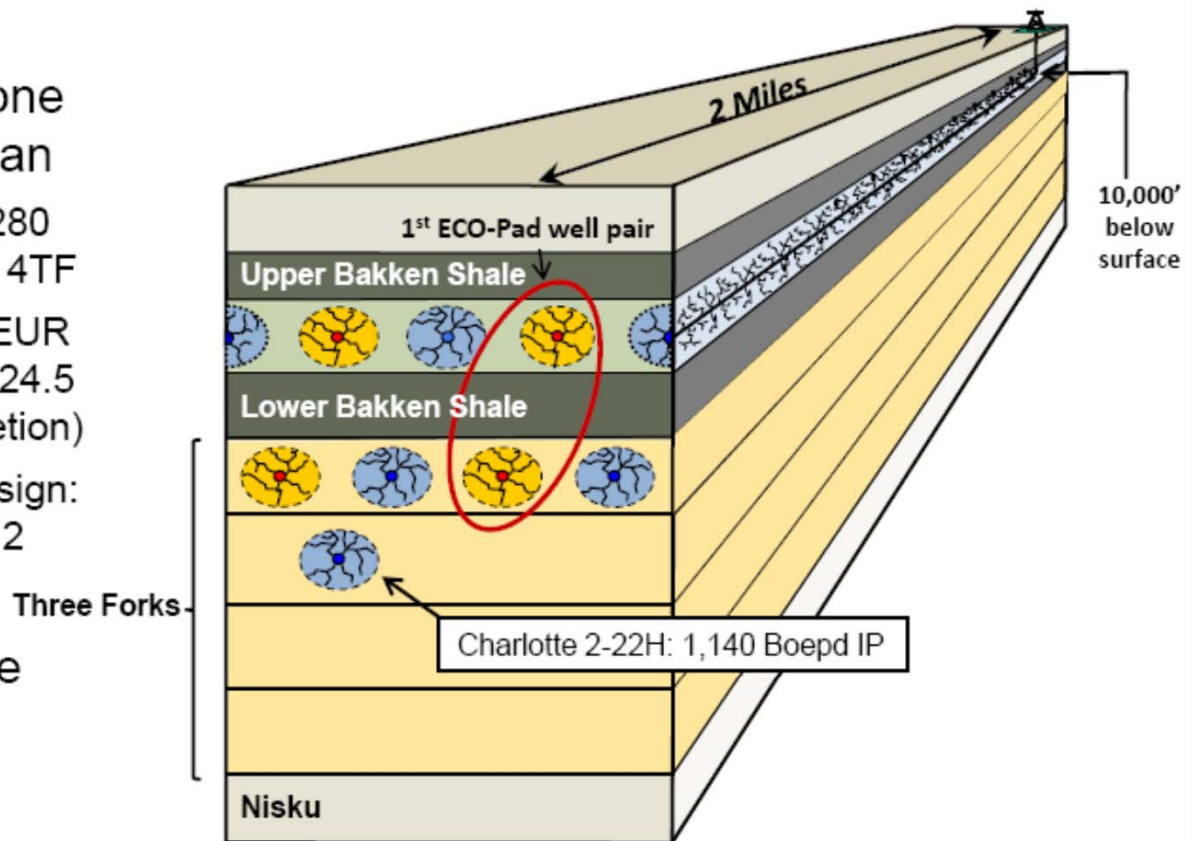


**Current drilling activity is focused  
in Mountrail, Dunn, McKenzie, and Williams Counties.**

# Bakken Development Plan

- Original dual-zone development plan
  - 8 wells per 1,280 acres – 4 MB, 4TF
  - 603,000 Boe EUR per well (avg. 24.5 stages/completion)
  - ECO-Pad® design: 2 wells south, 2 wells north

- Additional Three Forks potential

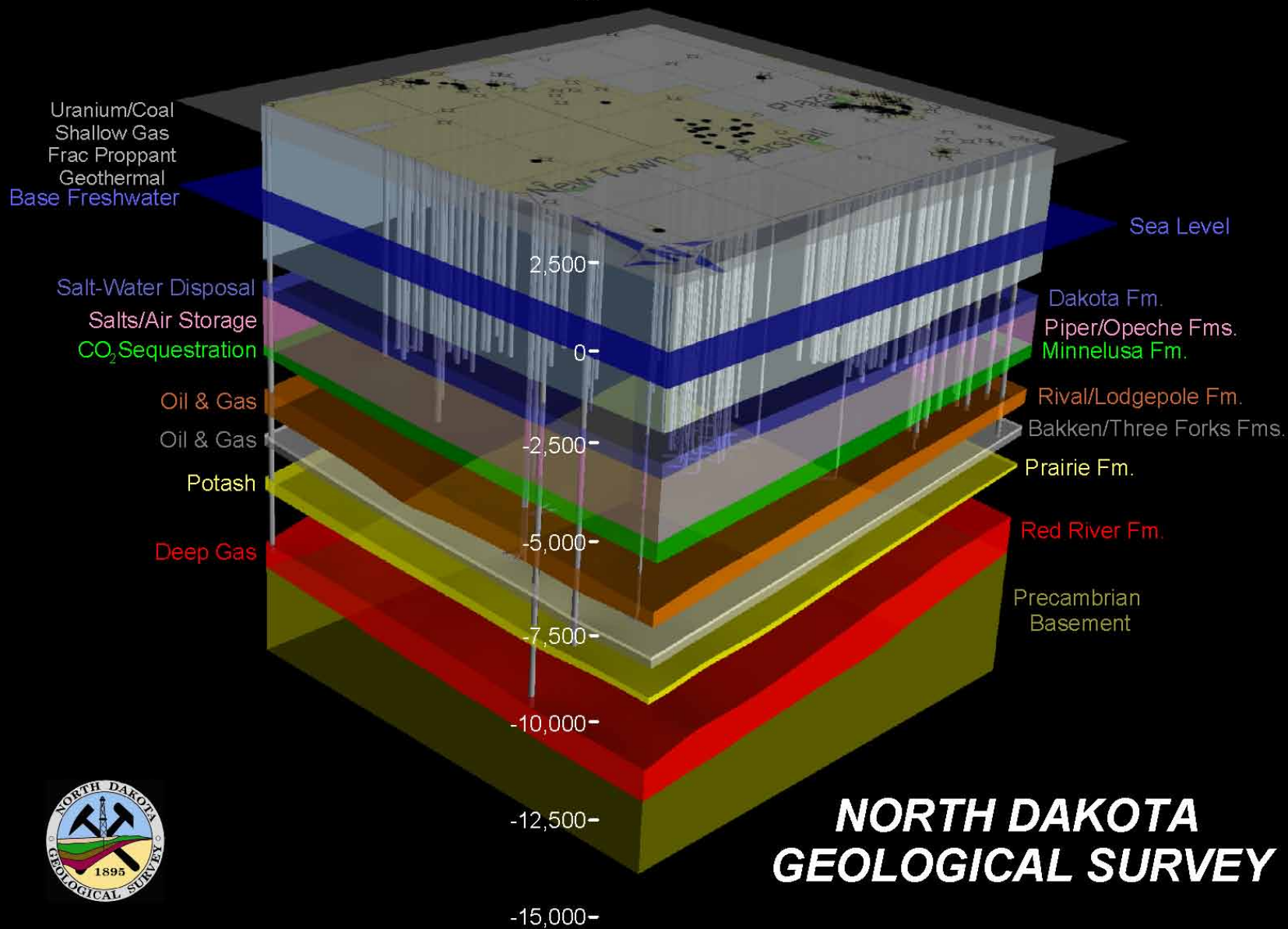


11





# Three-Dimensional Geologic Model of the Parshall Area



**NORTH DAKOTA  
GEOLOGICAL SURVEY**

# North Dakota Development

- Resource Play
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# **ADMINISTRATIVE RULES**

## **Application For Permit To Drill**

**43-02-03-16**

- **confirm the legal street address has been requested for the well site**
- **address of well facility if separate**
- **proposed road access to nearest existing public road**

# North Dakota Development

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# **ADMINISTRATIVE RULES**

## **Sign on Well or Facility**

**43-02-03-17**

- **Wells and associated facilities must have a sign including the legal street address, if available**

# North Dakota Development

- Resource Play
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# **ADMINISTRATIVE RULES**

## **Safety Regulation**

**43-02-03-28**

- **operator must submit legal street address to the Commission upon receiving the legal street address**

# **COMMISSION RECORDS**

## **Address of Surface Location for all wells**

- McKenzie County**
- NWNE 16-149N-99W**
- 245'FNL 1655'FEL of Section 16**
- 47.731725 -103.354281 (NAD83)**
- File No. 26483**

**Commission could provide updated  
cross-reference for loc if caller knows File No.**



# North Dakota Development

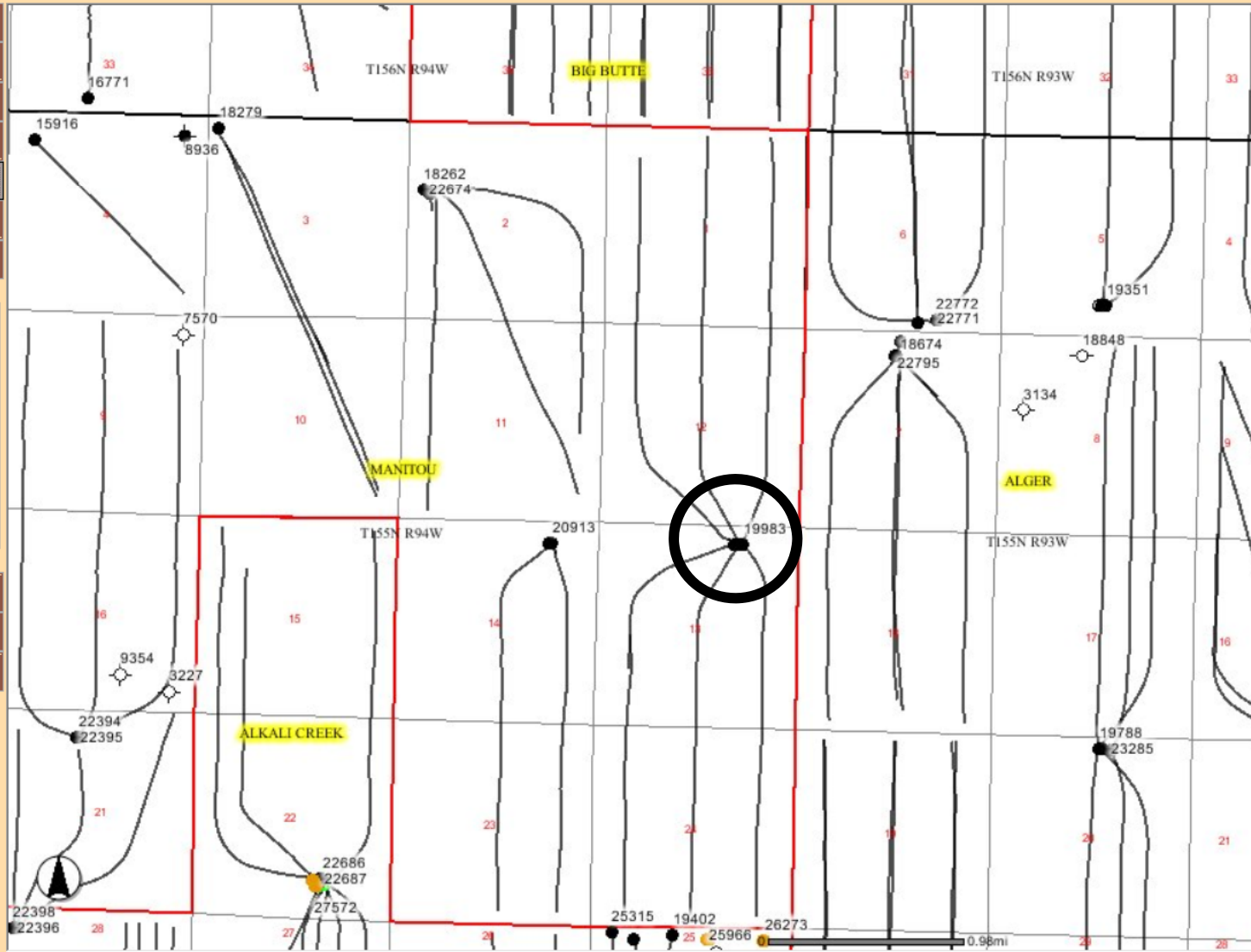
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Vern Whitten Photography

# 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



Download Shapefile

## ND OIL & GAS LAYERS

- Oil and Gas
  - Wells
    - Permit Status Bef
    - Rig Location
    - Directional Survey
    - Directional Legs
    - Horizontal Survey
    - Horizontal Legs
    - Cases Docketed
    - Oil Fields
    - Unit Boundaries
    - Inspector Areas
    - Drilling / Spacing
    - Seismic
    - Gas Plants
  - Other
- Imagery
  - Topo/DRG 250k
  - Topo/DRG 100k
  - NAIP 2009

Refresh Map

Auto Refresh

Help:

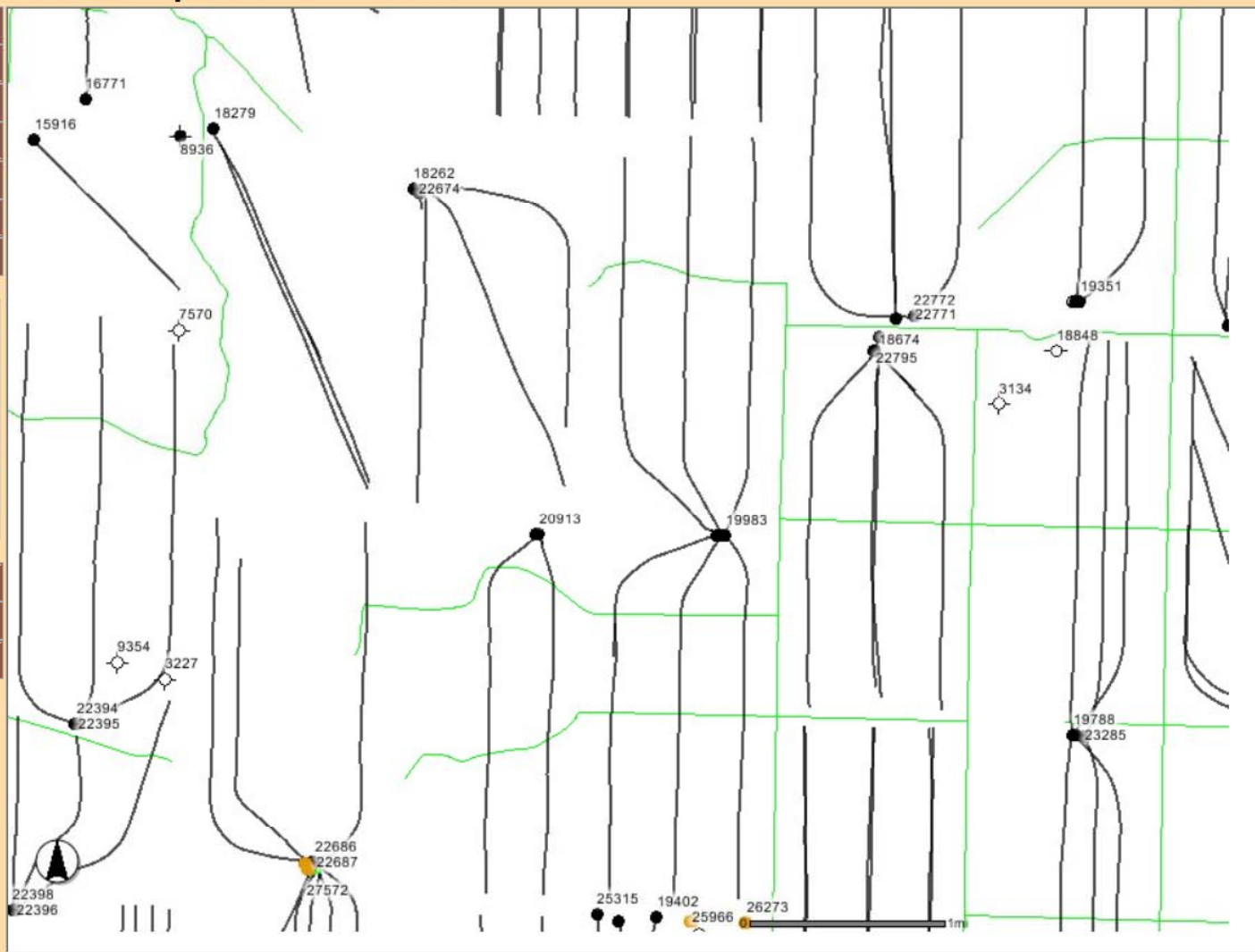
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- An open group, click to close.
- A map layer.
- A hidden group/layer, click to make visible.
- A visible group/layer, click to hide.
- A visible layer, but not at this scale.
- A partially visible group, click to make fully visible.
- An inactive layer, click to make active.
- The active layer.

**Wells**  
Selection cleared.

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**Wells**  
Selection cleared.

Download Shapefile

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    - Rig Location
    - Directional Surveys
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    - Railroads
    - Reservations
    - Corporate Boundary
      - Townships
      - Sections
      - County Boundary
      - City Boundaries
    - Rivers and Roads
      - County Roads
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**Refresh Map**

Auto Refresh

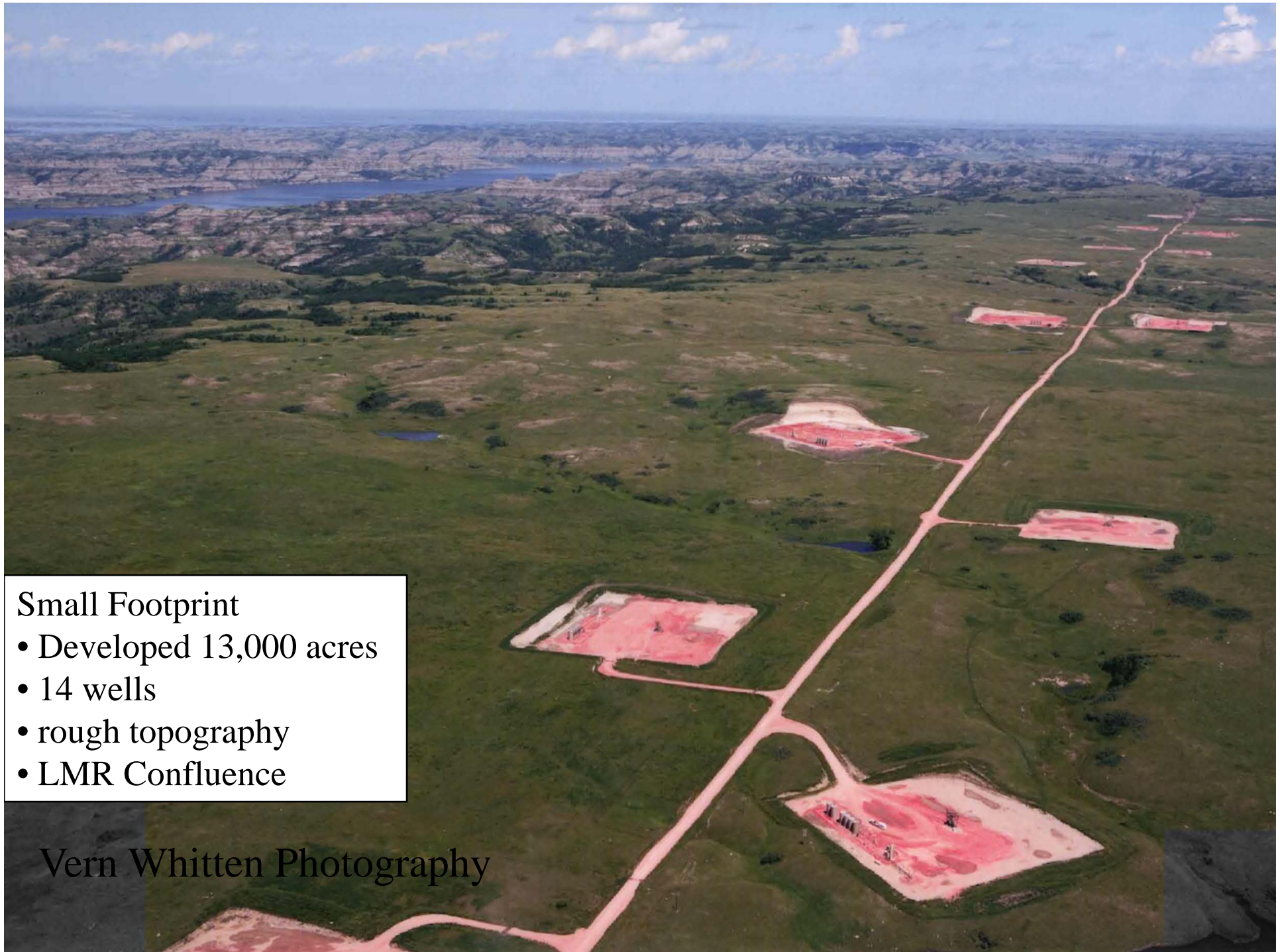
- Help:
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Zoom In

Map Data Last Updated : 3/

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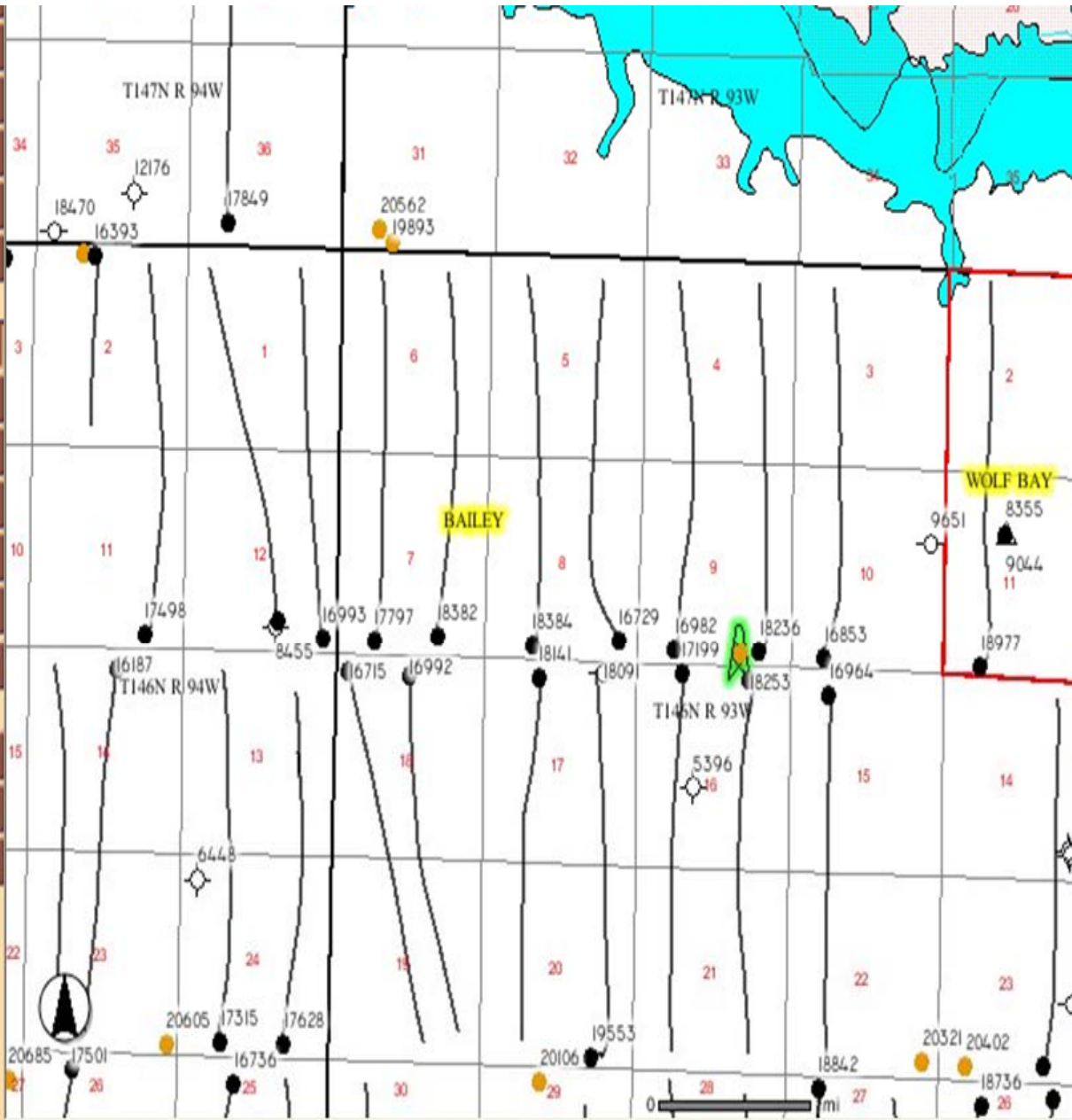
### Small Footprint

- Developed 13,000 acres
- 14 wells
- rough topography
- LMR Confluence

Vern Whitten Photography

View Entire State  
Previous View  
Clear Selection  
Search  
Generate PDF

Zoom In  
Zoom Out  
Pan  
Rect Identify  
Select Object  
Buffer  
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Major Rivers  
Selection cleared.

- Rig Location
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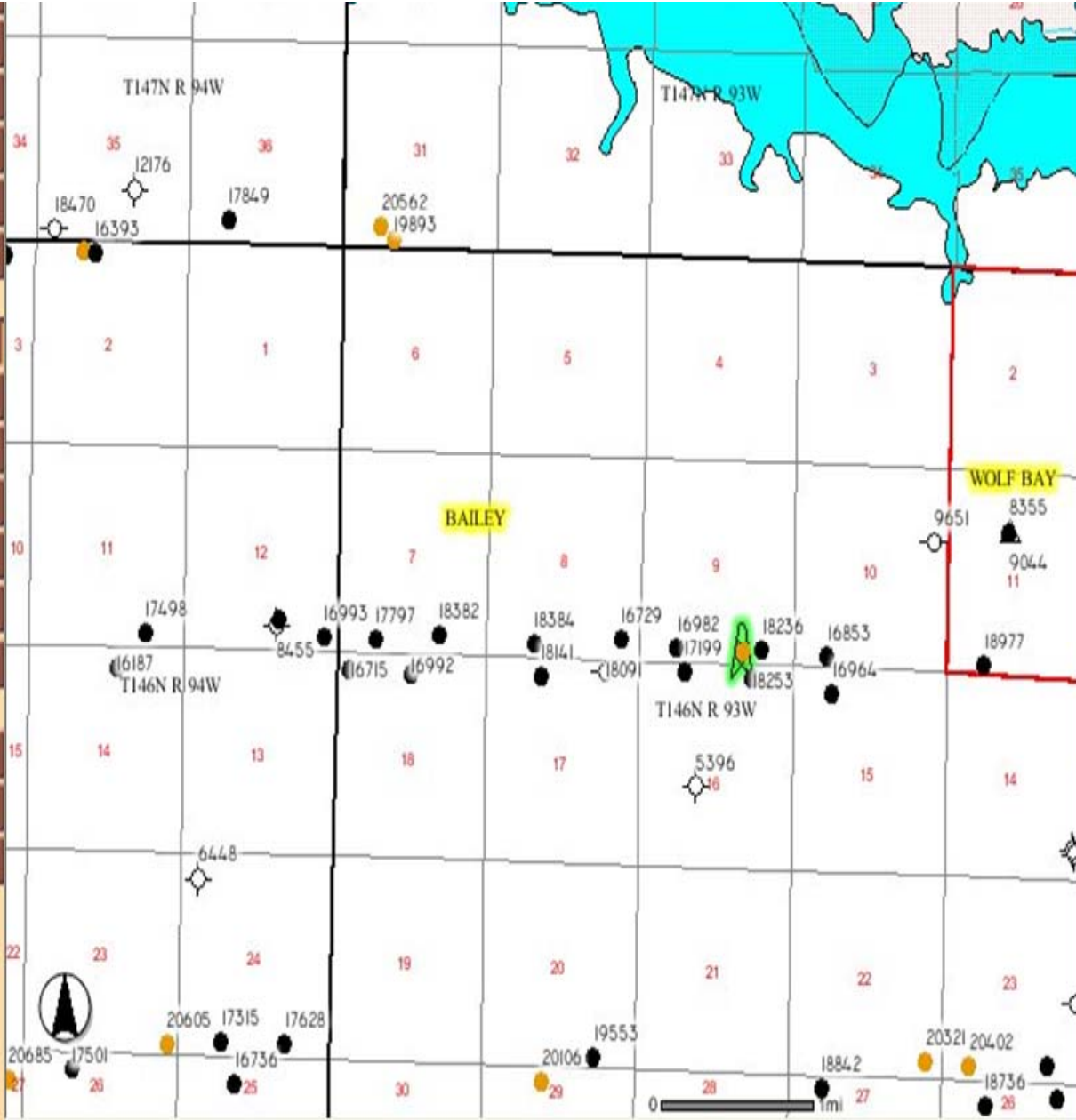
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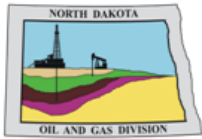
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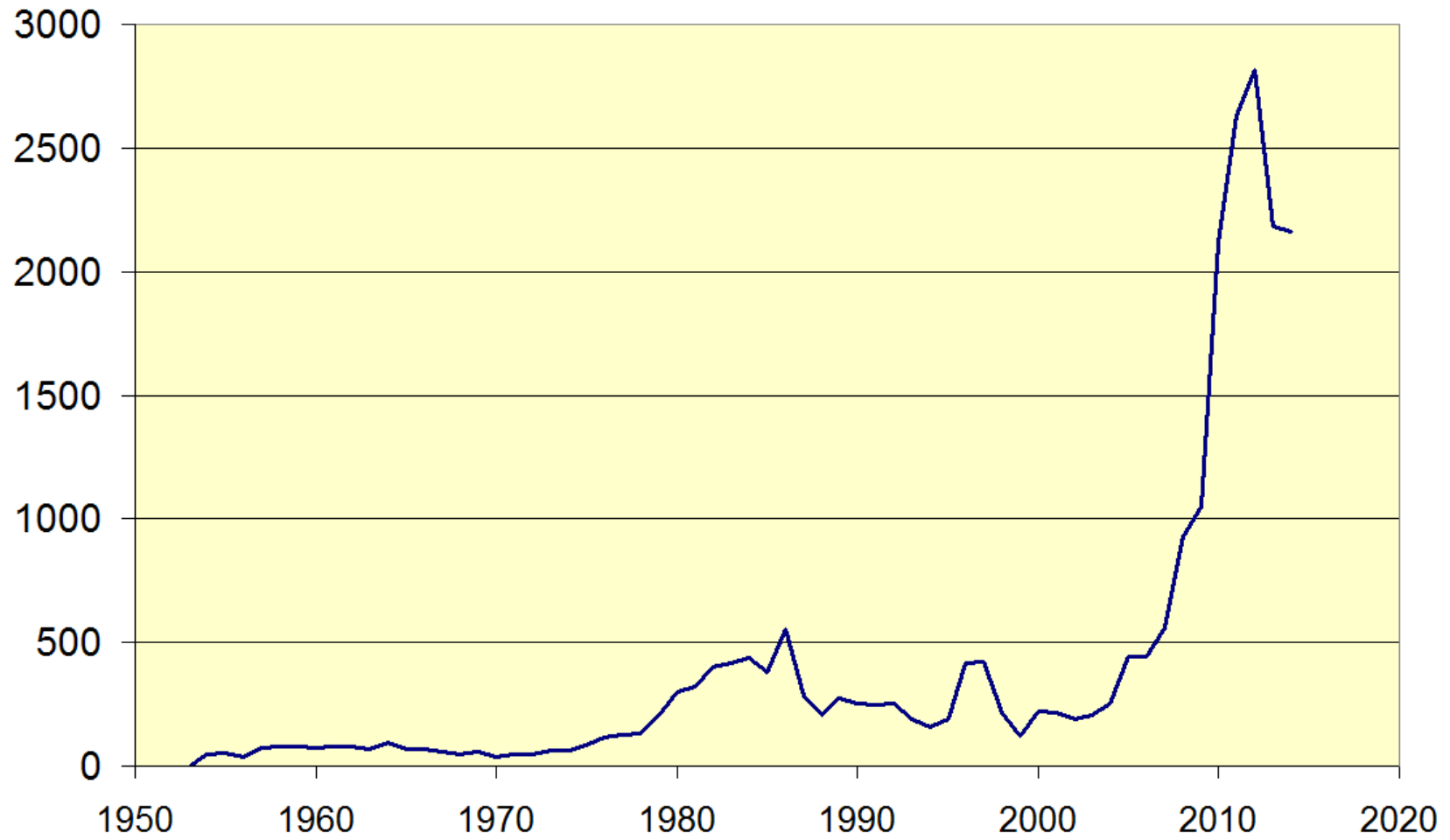


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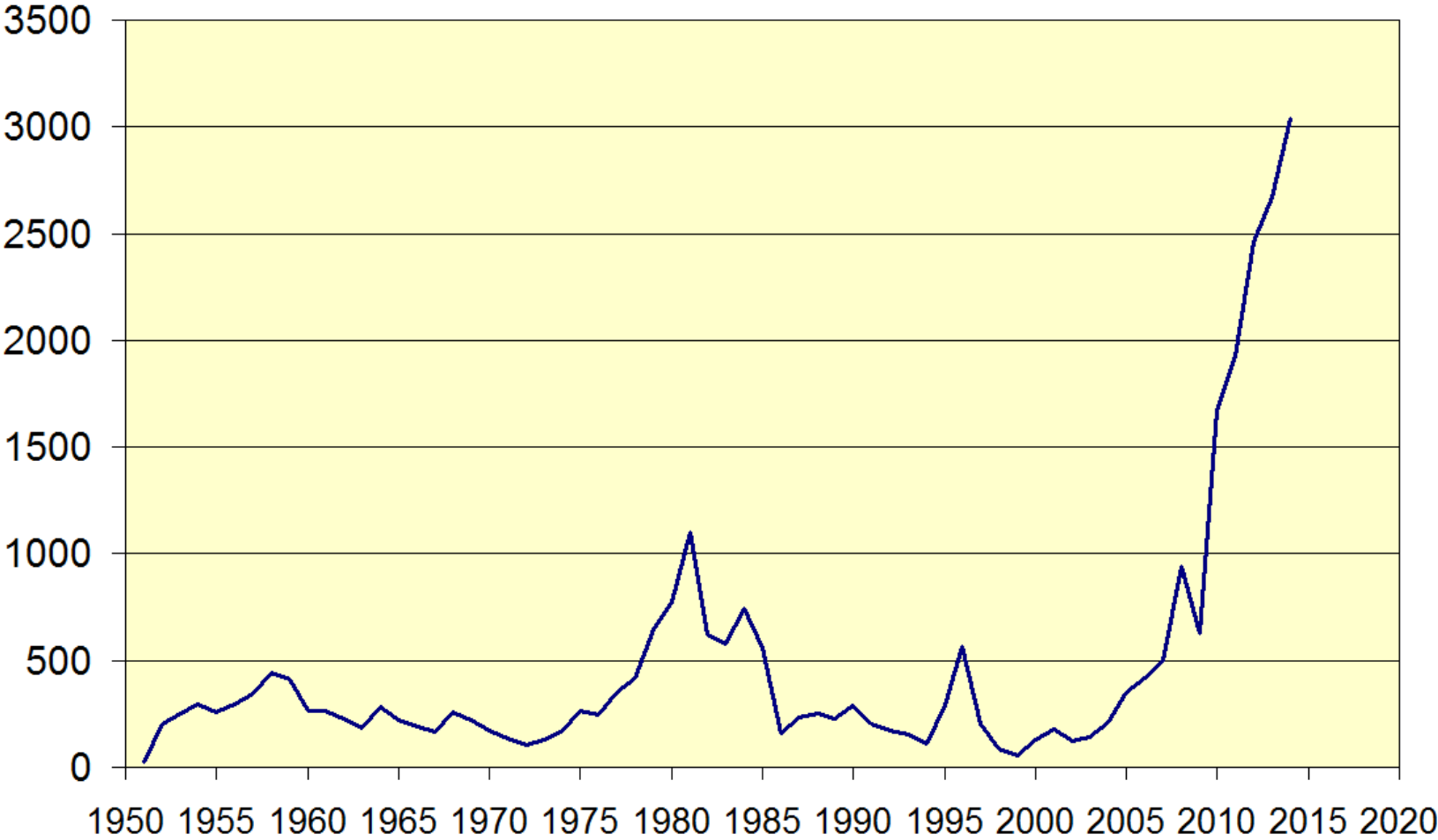


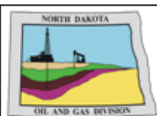
## North Dakota Industrial Commission Cases Heard



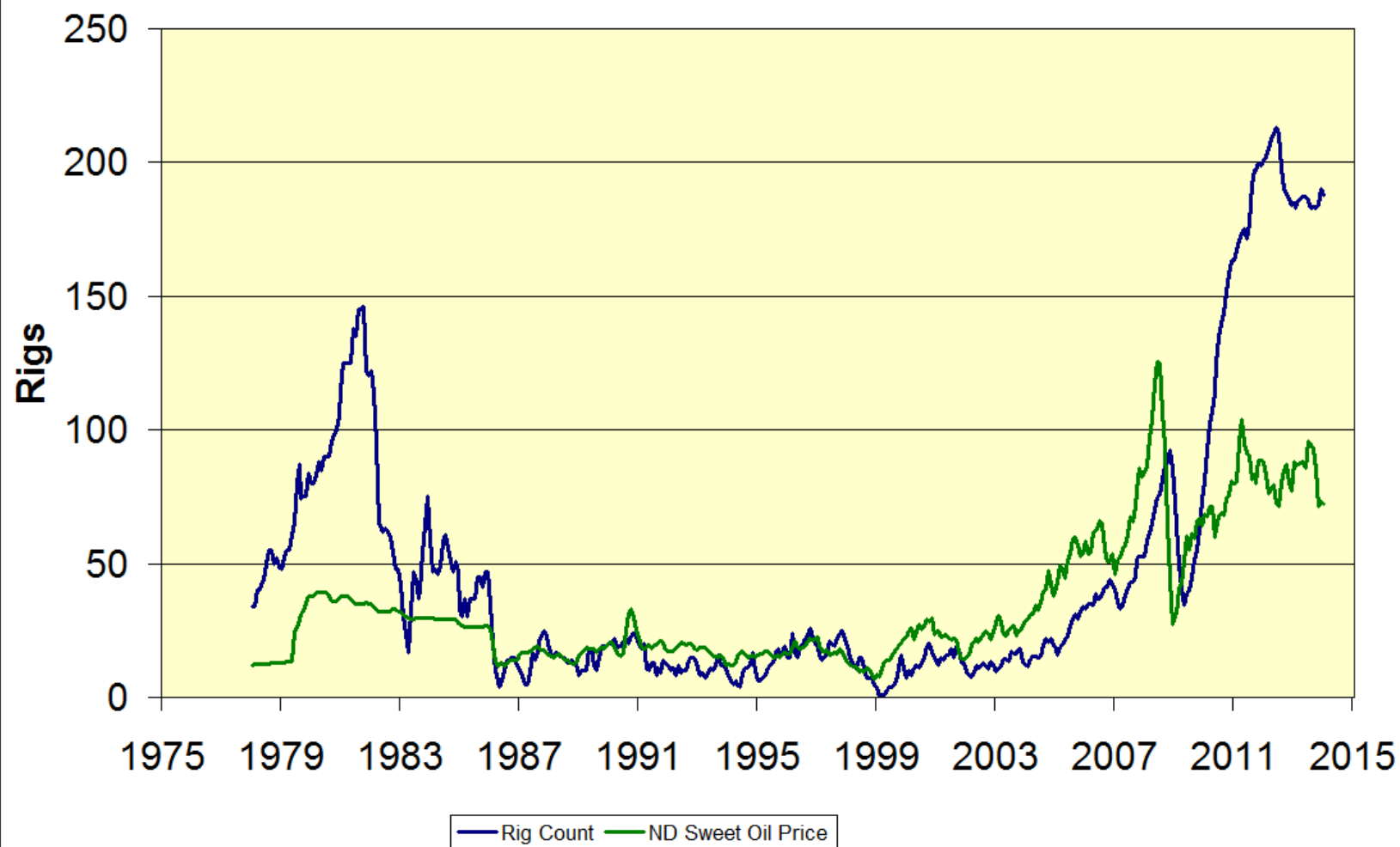


# North Dakota New Well Permits Issued



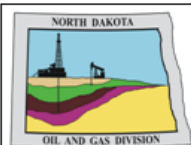


## North Dakota Average Monthly Rig Count

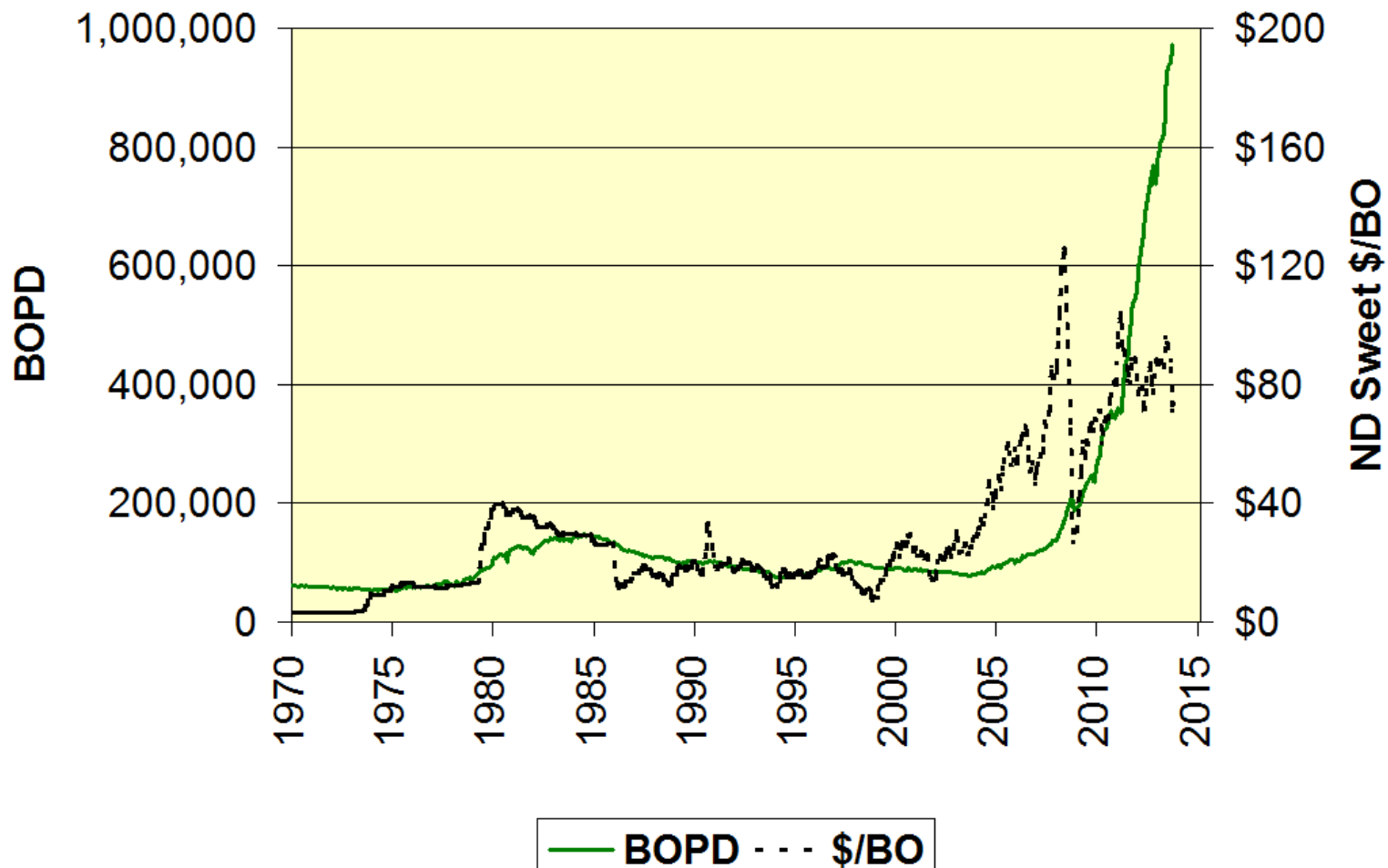


# WELLS

- **10,022 wells currently producing**
  - **6,627 Bakken**
- **1,000 more to secure leases**
- **40,000 additional development wells**
  - **225 rigs – another 15 years**
  - **100 rigs – another 33 years**
- **Bakken Pool – 4 targets**



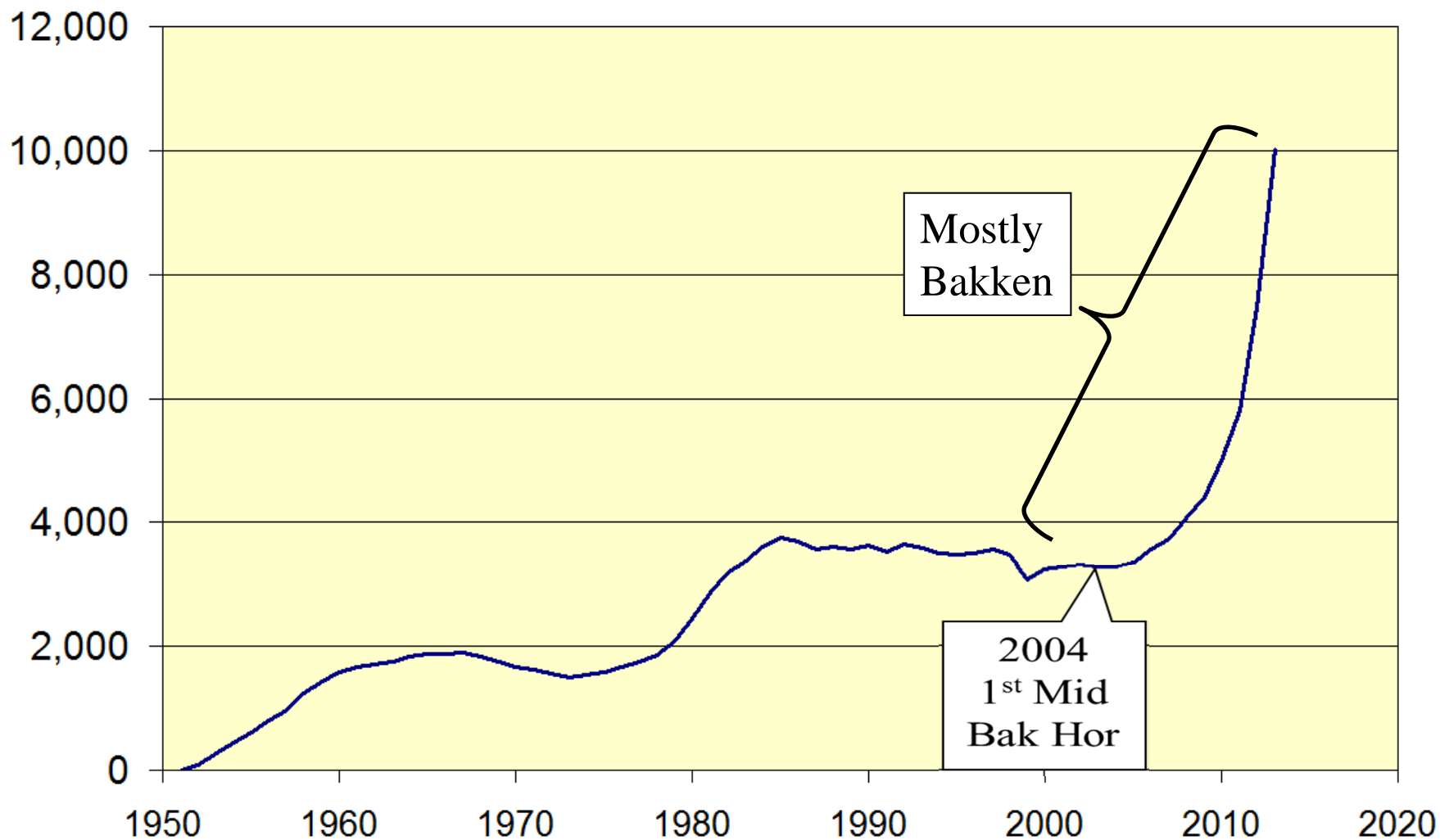
## North Dakota Daily Oil Produced and Price



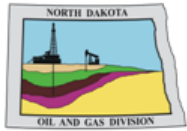
**Production 973,045 bopd (appr 898,700 from Bakken—92%)**



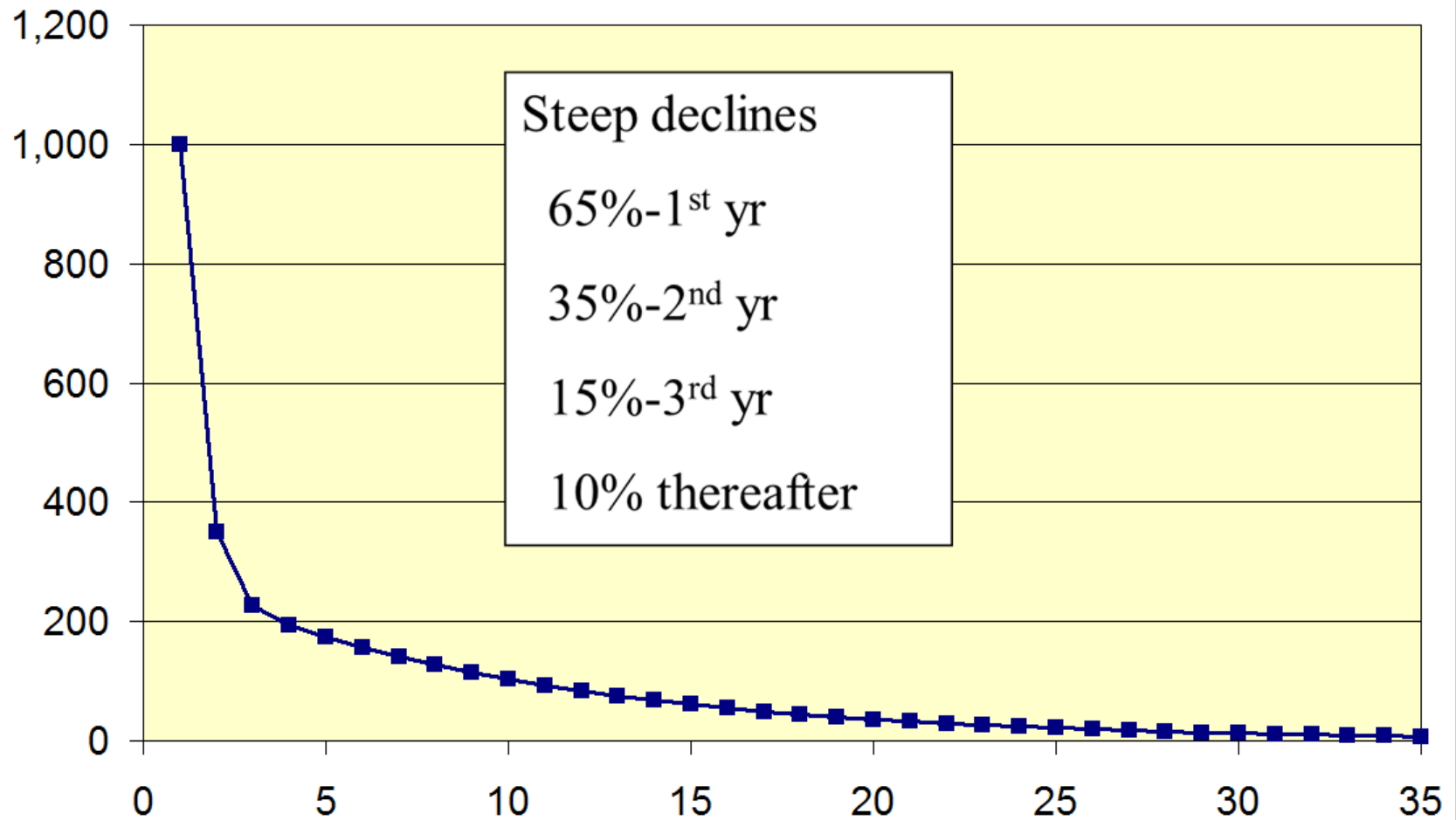
## North Dakota Wells Producing



**10,022 total wells – 6,627 Bakken horizontal (66.1%)**



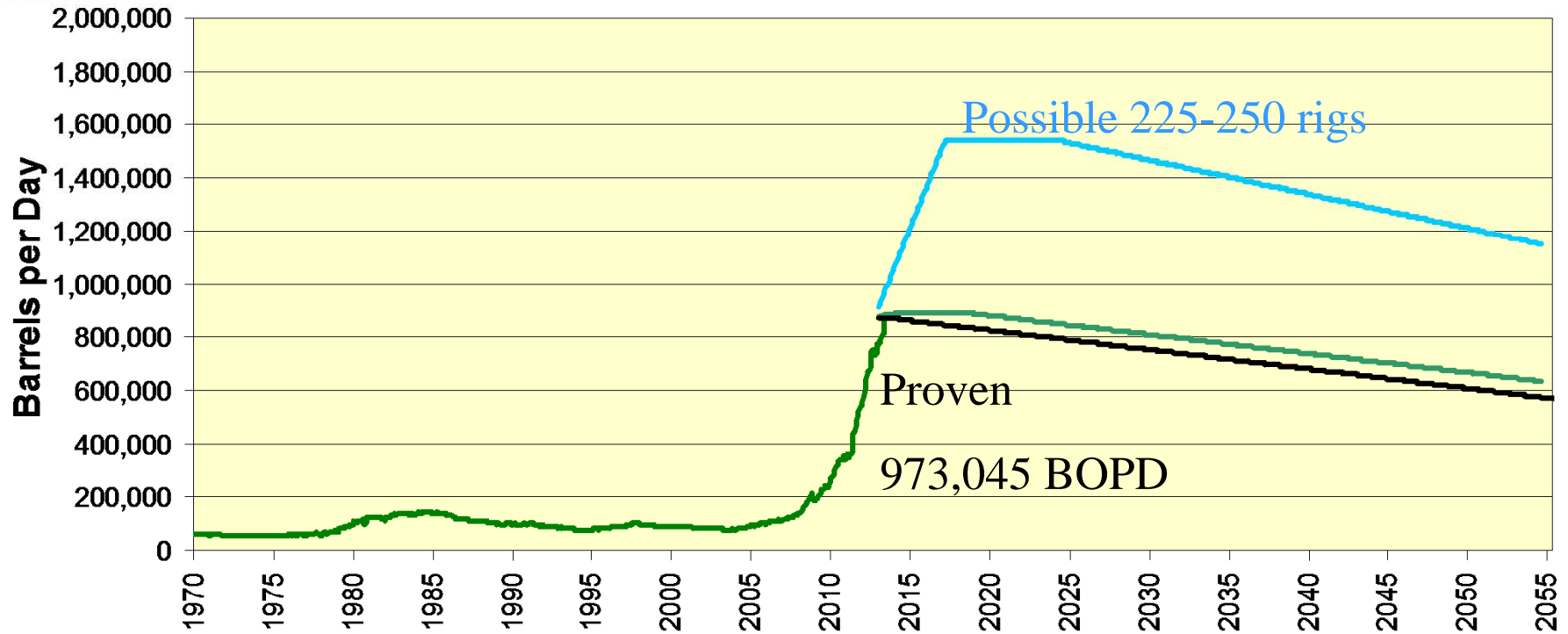
## Typical Bakken/Three Forks Performance







## North Dakota Oil Production



**6,627** Bakken and Three Forks wells drilled and completed  
**40,000** more new wells possible in thermal mature area





## Reclaimed Location

File No. 15092  
Armstrong #1-5 Hanson  
Sec 5-T155N-R102W  
Williams County, ND