

14TH Williston Basin Petroleum Conference and Prospect Expo

Manitoba 2005 Oil Activity Review

Minot, North Dakota

May 7-9, 2006



Manitoba's Oil Activity - 2005

- **Crown Land**
- **Seismic**
- **Drilling**
- **Production**
- **Recent Developments**
- **Petroleum Branch Initiatives**
- **Future Opportunities**

Manitoba Sets Records for 2005...

Crown Land

- **\$6.13 million - annual revenue collected**
- **\$2,368.77/hectare (\$947.51/acre) - bonus paid**
- **68,238 hectares (170,595 acres) - total area of land leased**

Drilling Activity

- **384 - well licenses issued**
- **285 - wells drilled**

What Does the Record Oil Activity Mean for Manitoba?

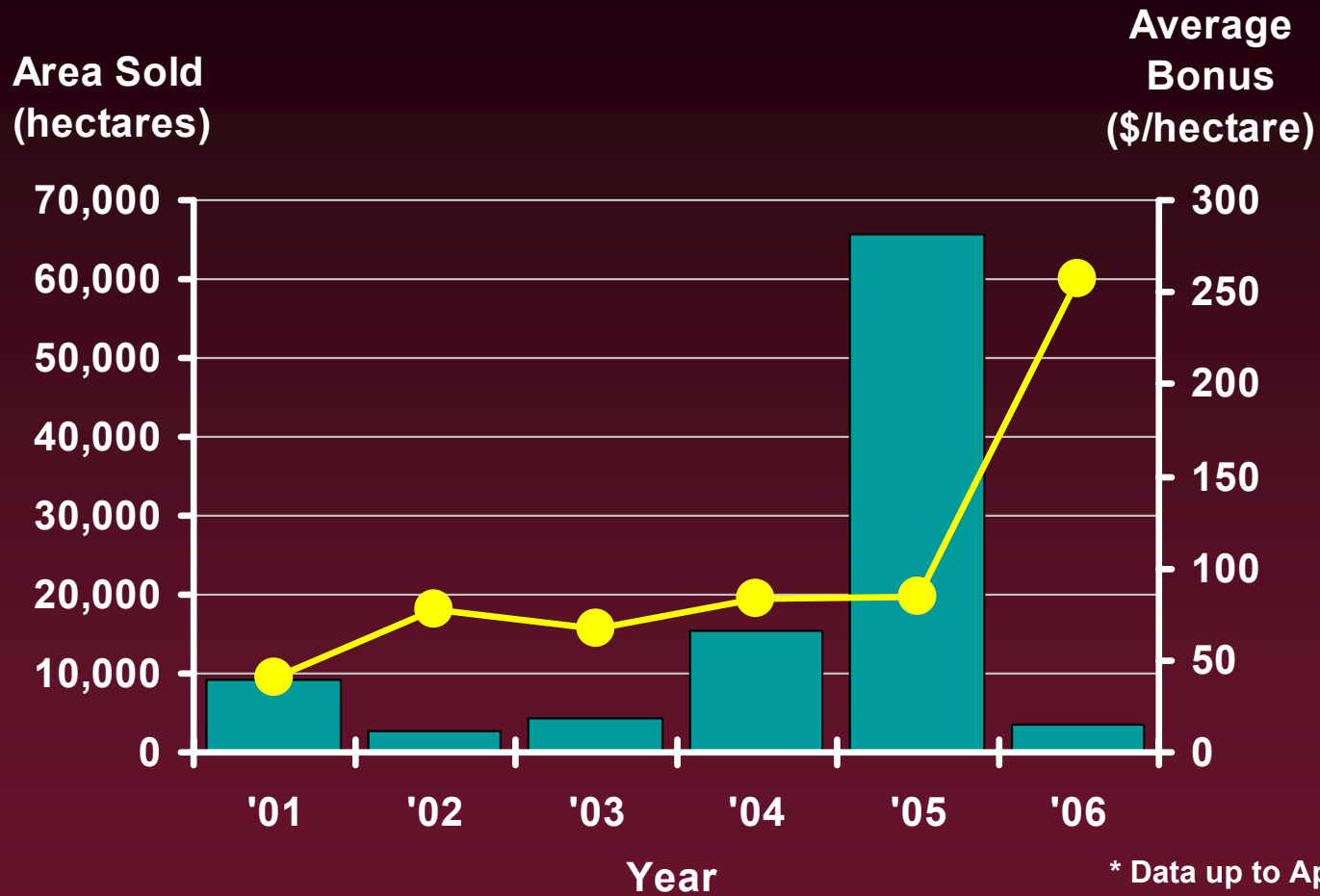
2005

- \$13.6 million – provincial revenue
- \$190 million – industry expenditures
- 14 oil fields & 178 active oil pools
- 1900 producing oil wells
- 0.8 million m³ (5 million bbls) oil produced; estimated \$302 million gross value
- Average daily oil production – 2,150 m³ estimated (13,530 bbls)

**Since
1951**

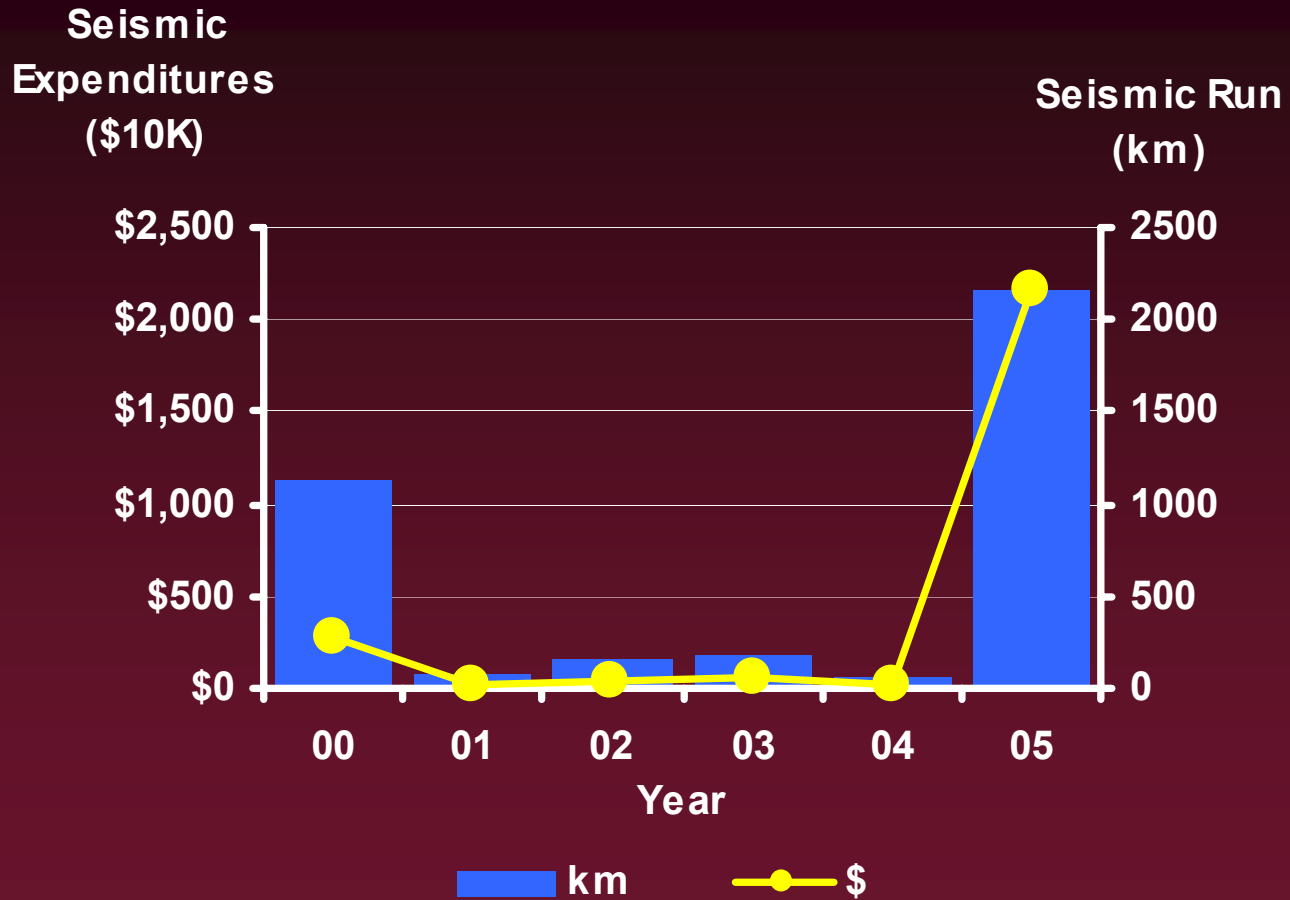
- 5000+ wells drilled; 65 km (40 mi.) of drill core
- Over 37.6 million m³ (237 million bbls) of oil produced

Manitoba Crown Land Sales

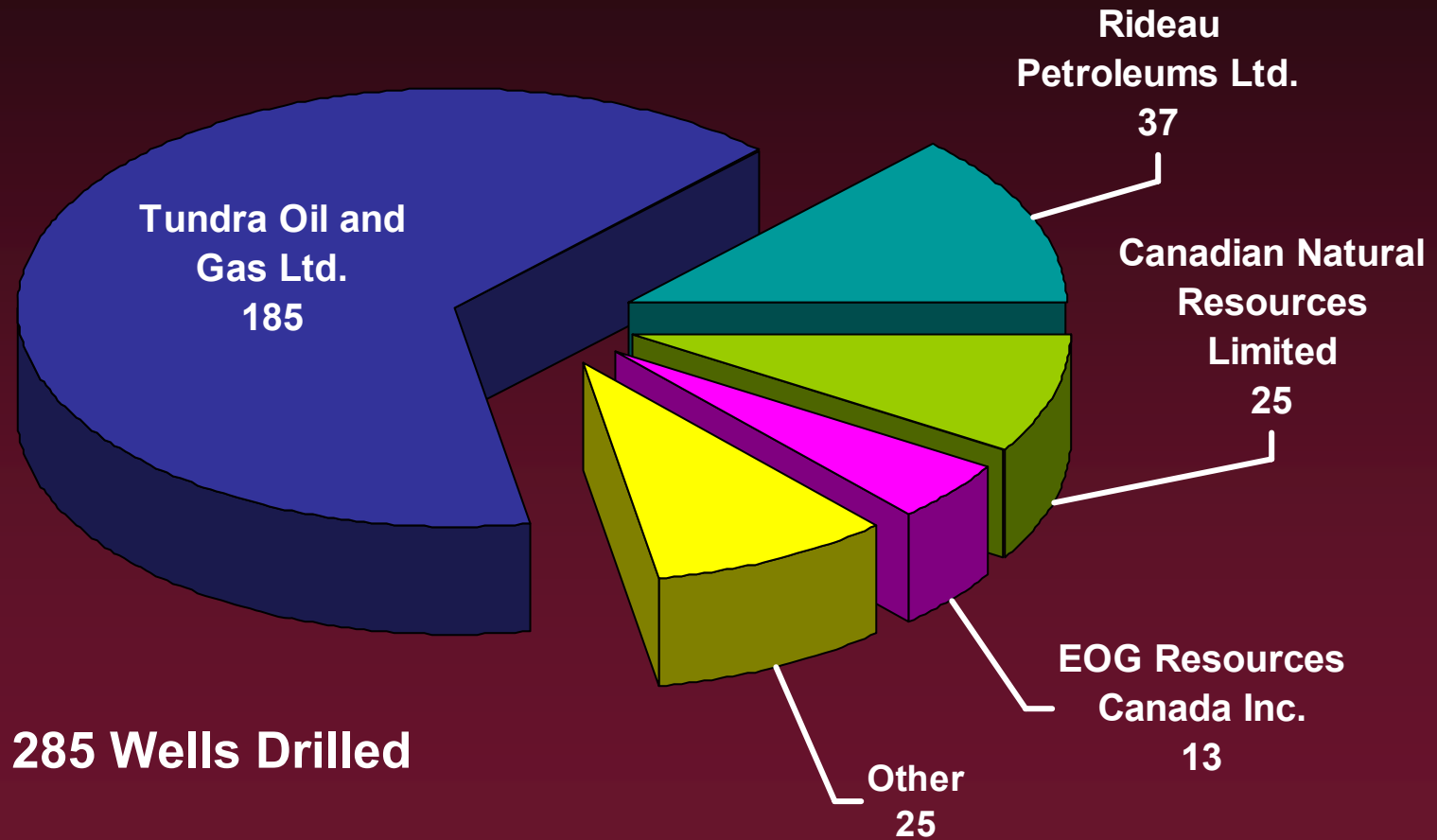


■ Crown Land Sold ● Average Bonus

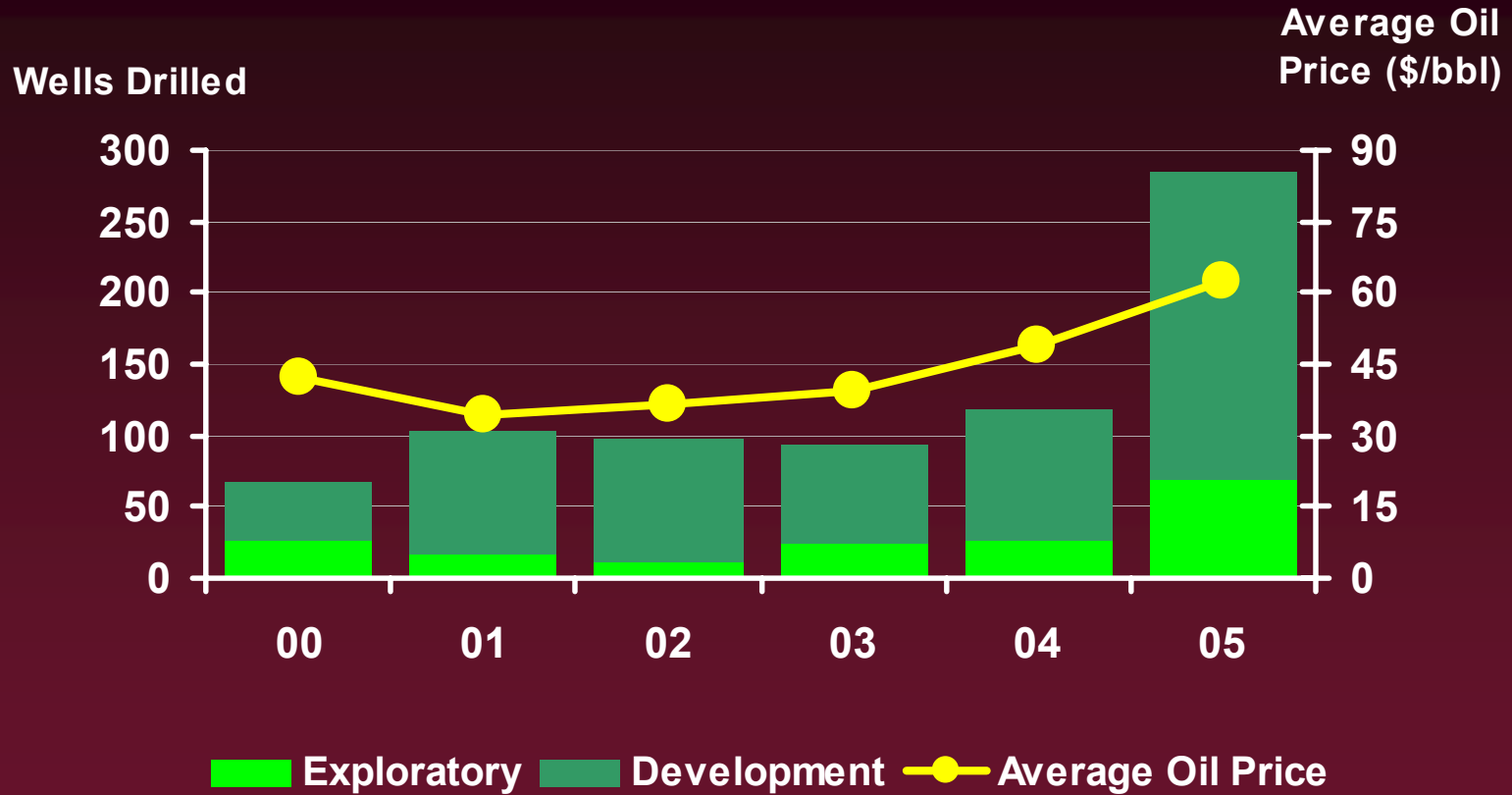
Manitoba Seismic Activity



Manitoba's Top Drillers - 2005



Manitoba Drilling Activity

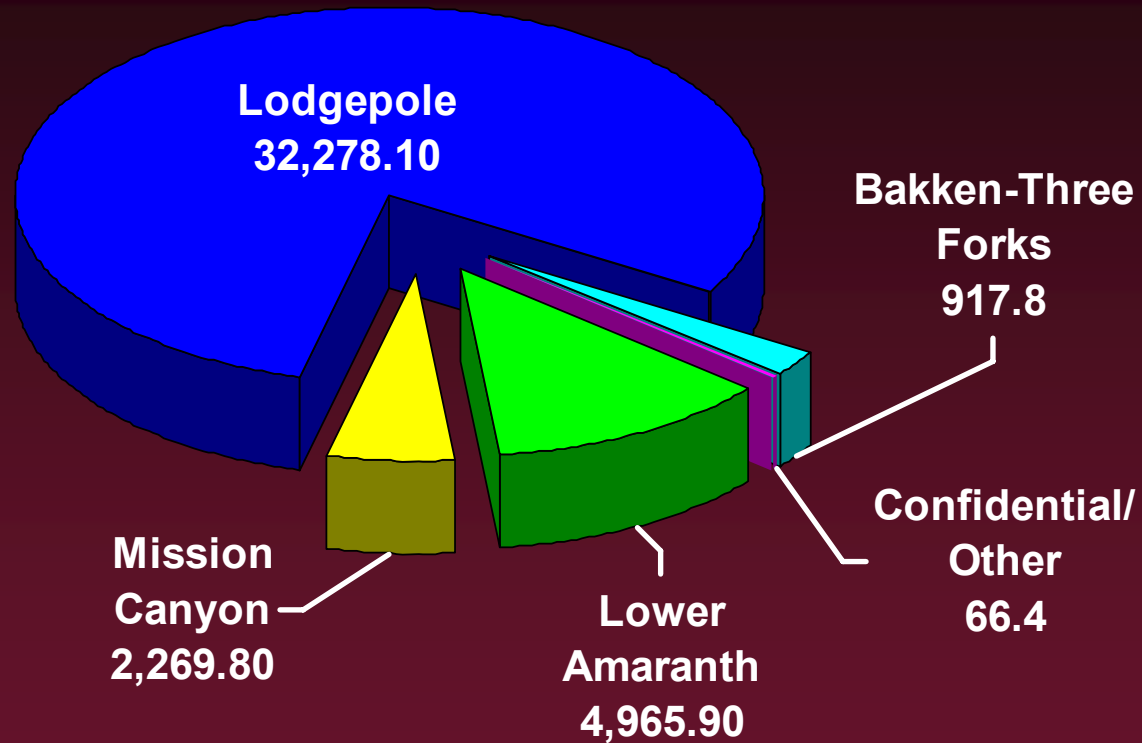


Manitoba Average Daily Oil Production

Average Daily Oil
Production
(m³/d)

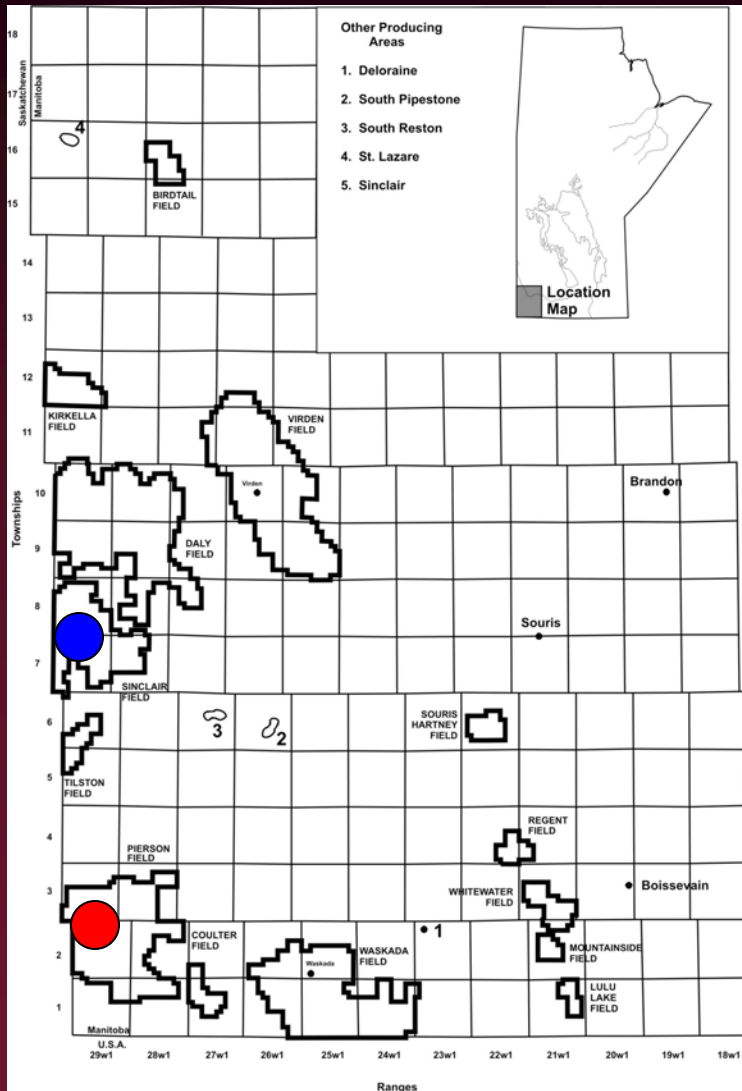


Total Proved Developed Reserves (m³) (December 31, 2003)



Total - 40.5 million m³ (254.9 million bbls)

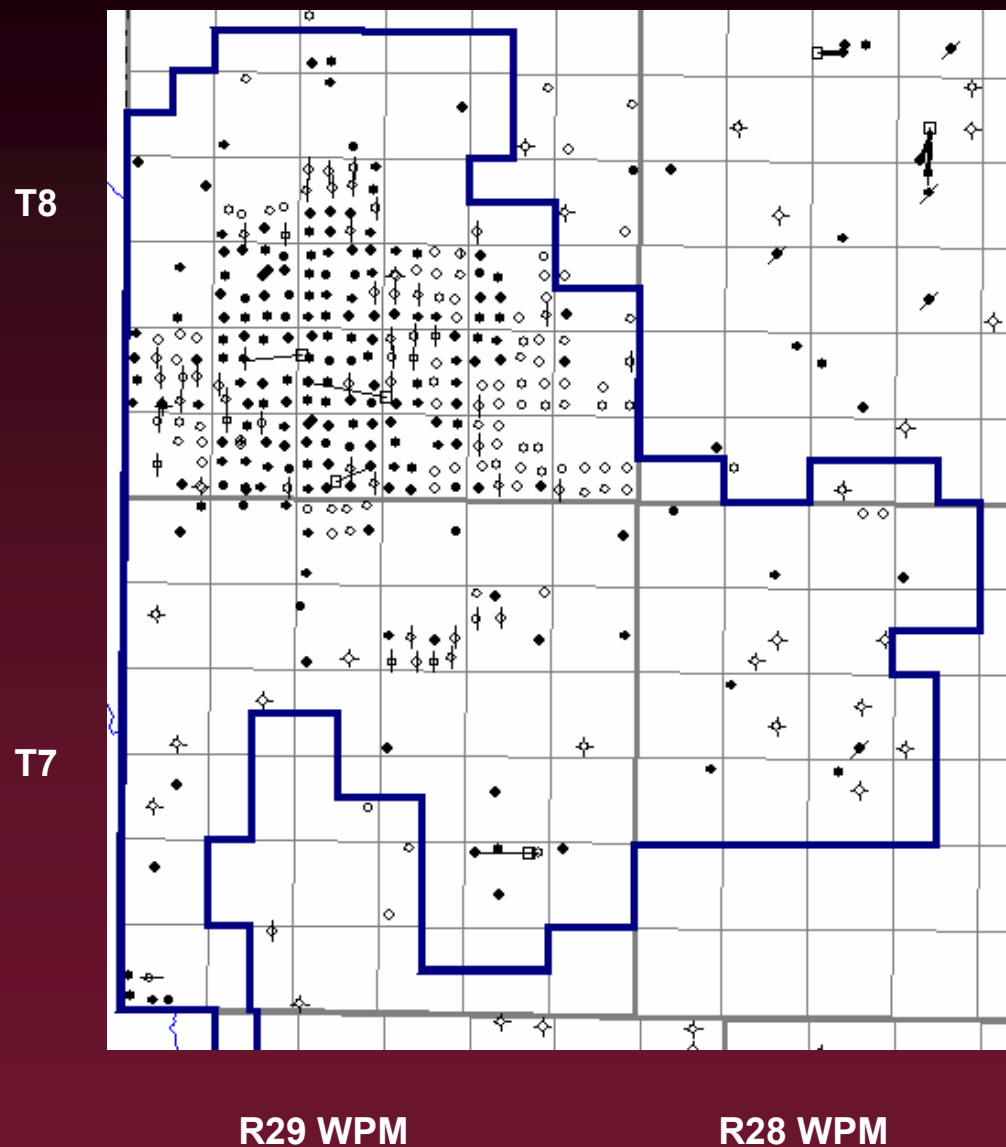
Recent Developments - 2005



● Sinclair Field

● Pierson Field

Sinclair Field



Operators: Various

Discovery Year: 2004

Producing

Formation: Bakken/ Three Forks

Wells drilled: 280

No. of Producing Pools: 9

Production (light sweet crude)

OOIP: 1 million m³/section
(6-7 million bbls/section)

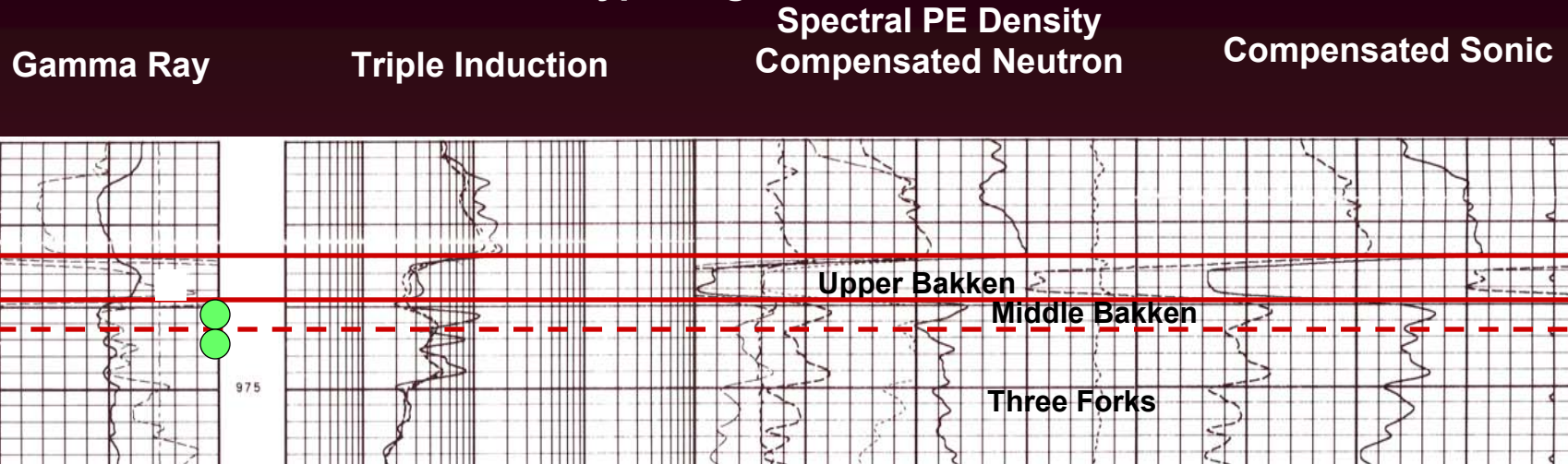
Recovery

Mechanism: solution gas drive

Average water cut: 41%

Sinclair Field - Three Forks / Bakken Formations

Type Log



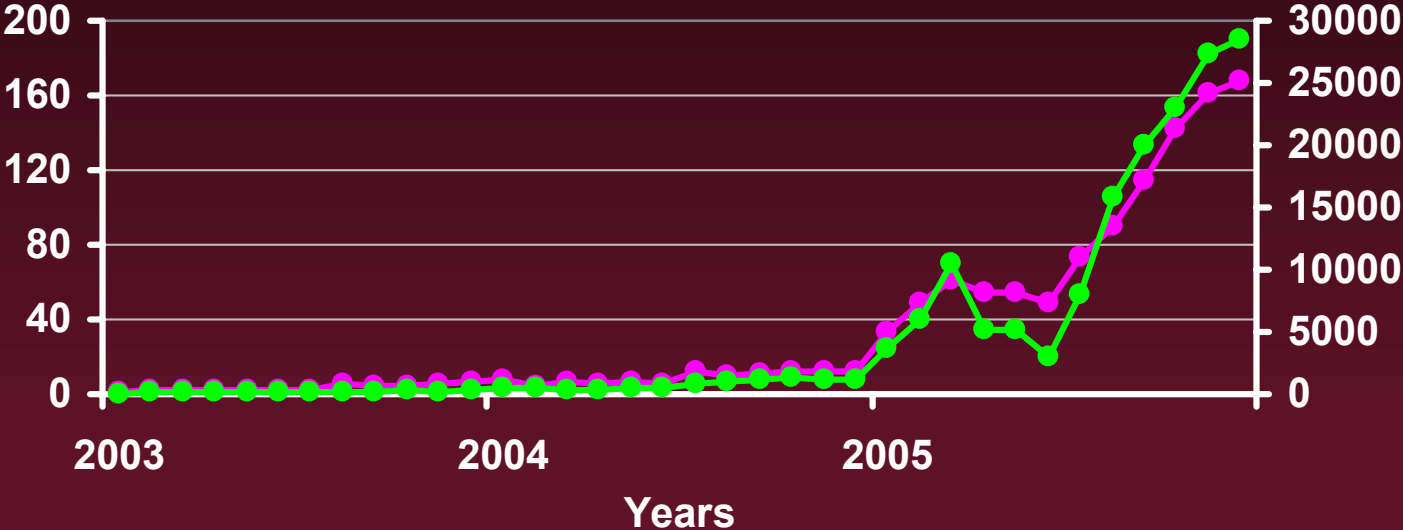
Reservoir

- Interbedded siltstone and sandstone
- Lateral facies variation / upward coarsening depositional cycles (Three Forks)
- 857 m average depth (2,812 ft)
- Cumulative oil production 168,000 m³ (1 million bbls)

Sinclair Field Production History

No. of Wells on Production

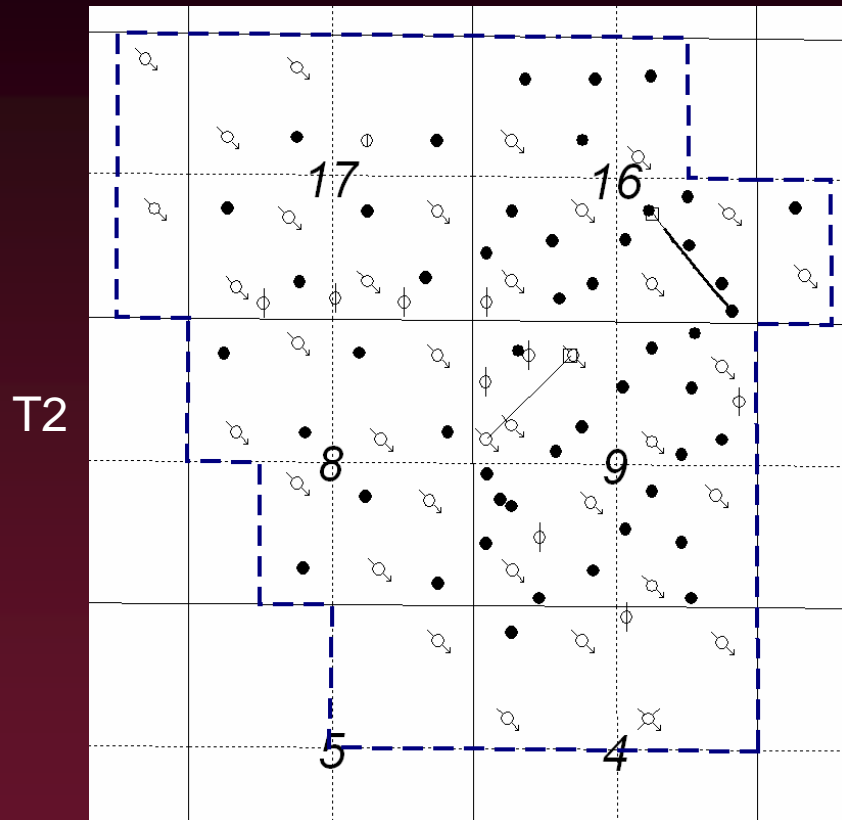
Oil Production (m3/month)



—●— No. of Wells

—●— Total Production

South Pierson Unit No. 1



R29 WPM

Operator: Canadian Natural Resources Ltd.

Discovery Year: 1985

Producing Formations: Lower Amaranth /
Mission Canyon 3b Member

OOIP: 4.1 million m³ (25.8 million bbls)

Cumulative Production: 518,000 m³ (3.2 million bbls)

Recovery Factor: 12.2%

Recovery Mechanism: water flood

Infill (8 hectare/20 acre) Development:

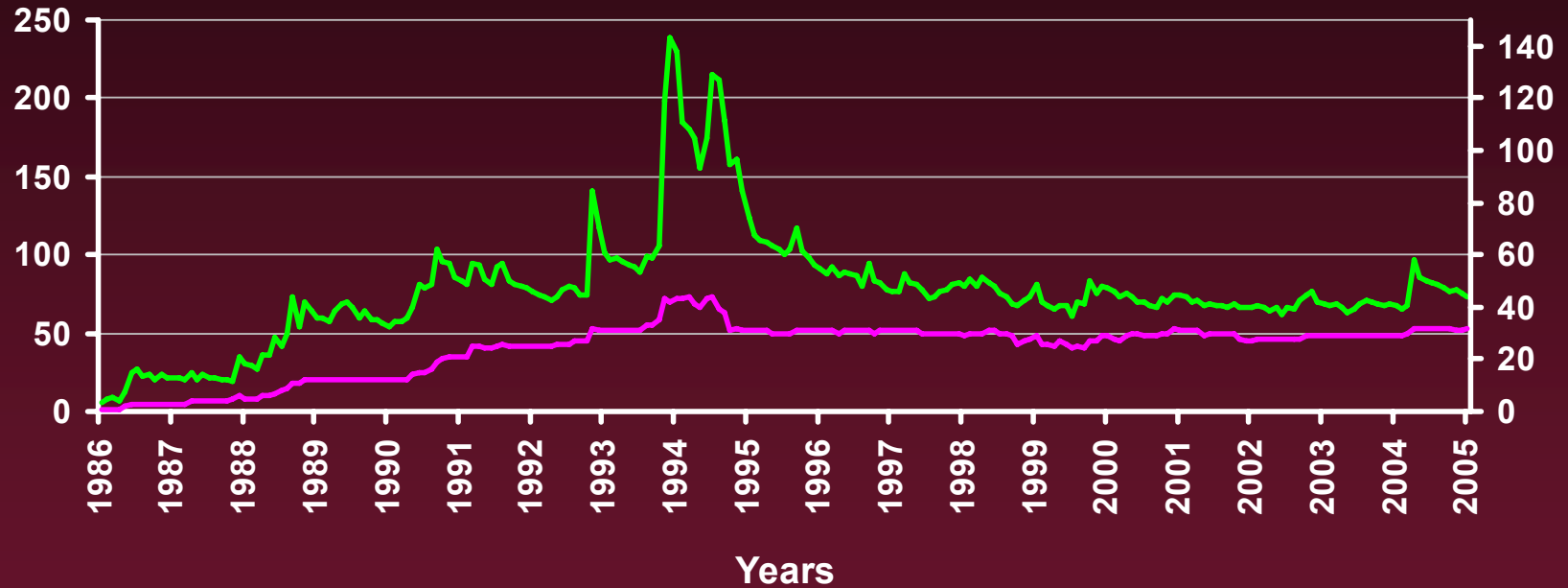
28 infill wells; 42 potential locations

Δ recovery – 376,100 m³ (2.4 million bbls)

South Pierson Unit No. 1 - Production History

Producing Daily
Average Oil (m3)

Well Count



Producing Daily Average Oil (m3)

Well Count

Petroleum Branch Initiatives – 2005

- **Manitoba Drilling Incentive Program**
- **Legislative Amendments**
- **Targeted Geoscience Initiative**

Manitoba Drilling Incentive Program (2004-2009)

Major Changes

- **Incentive Program - extended to January 1, 2009**
- **Newly Drilled Wells - earn minimum 500 m³ Holiday Oil Volume**
- **Horizontal Wells - first additional leg earns 3000 m³ Holiday Oil Volume**
- **Holiday Oil Volume “Top Up” - increased to 3 000 m³**
- **Marginal Well Major Workover Incentive – effective January 1, 2005
(casing repair production limit increased to ≤ 3 m³/operating day)**

Legislative Amendments – Bill 21

Current Status

- Awaiting proclamation

Major Amendments

- Inquiry Mechanism
- Abandonment Fund
- Strengthened Seizure Provisions
- Well Licensing in Environmentally Sensitive Areas
- Special Exploration Permits

Future

- Regulatory amendments and consultation to follow

Williston Basin Architecture and Hydrocarbon Potential Targeted Geoscience Initiative II Project

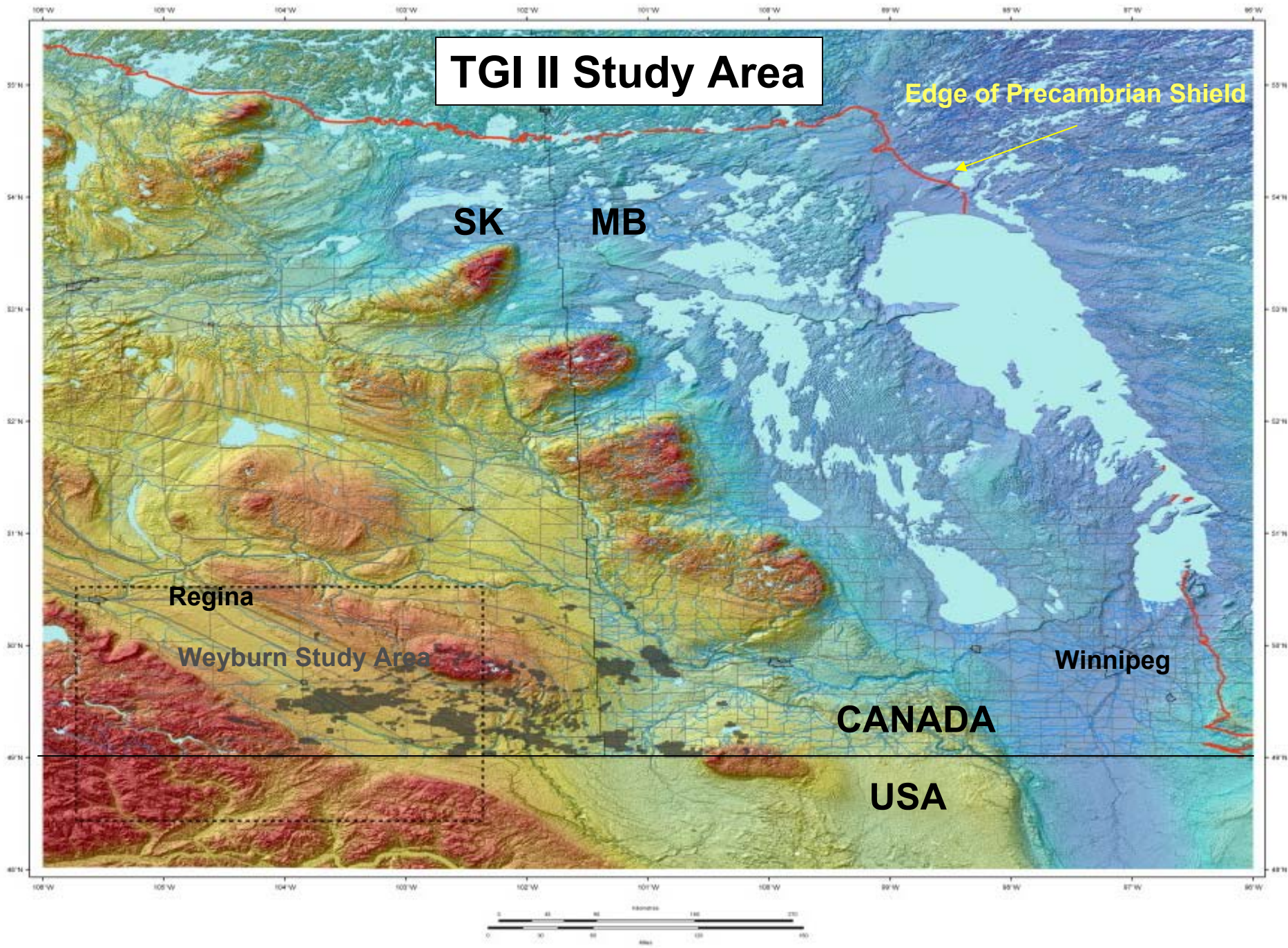
Objective

- **Produce a 3D geological model of Williston Basin (portions of Saskatchewan and Manitoba)**
- **Enhance our understanding of hydrocarbon and mineral potential**

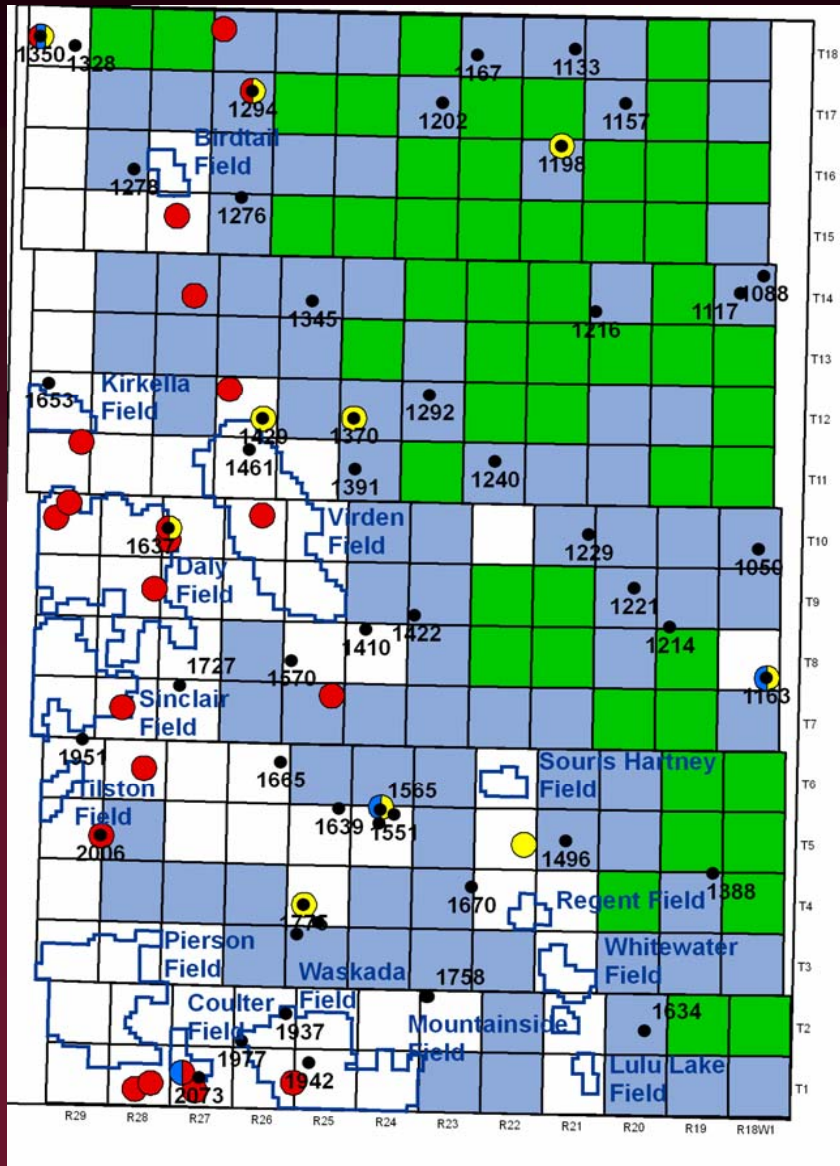
Partners

- **Geological Survey of Canada**
- **Manitoba Industry, Economic Development and Mines**
- **Saskatchewan Industry Resources**

<http://www.gov.mb.ca/iedm/mrd/geo/willistontgi/index.html>



Future Opportunities



Drilling Density

- No Wells
- 1 – 5 Wells
- > 5 Wells

Pre-Mississippian Oil Shows

- Devonian
- Ordovician
- Silurian

