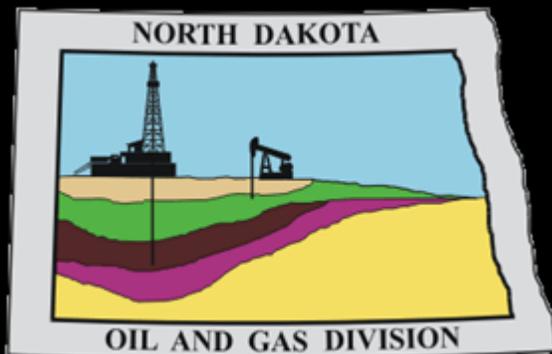


North Dakota Department of Mineral Resources



<http://www.oilgas.nd.gov>



<http://www.state.nd.us/ndgs>

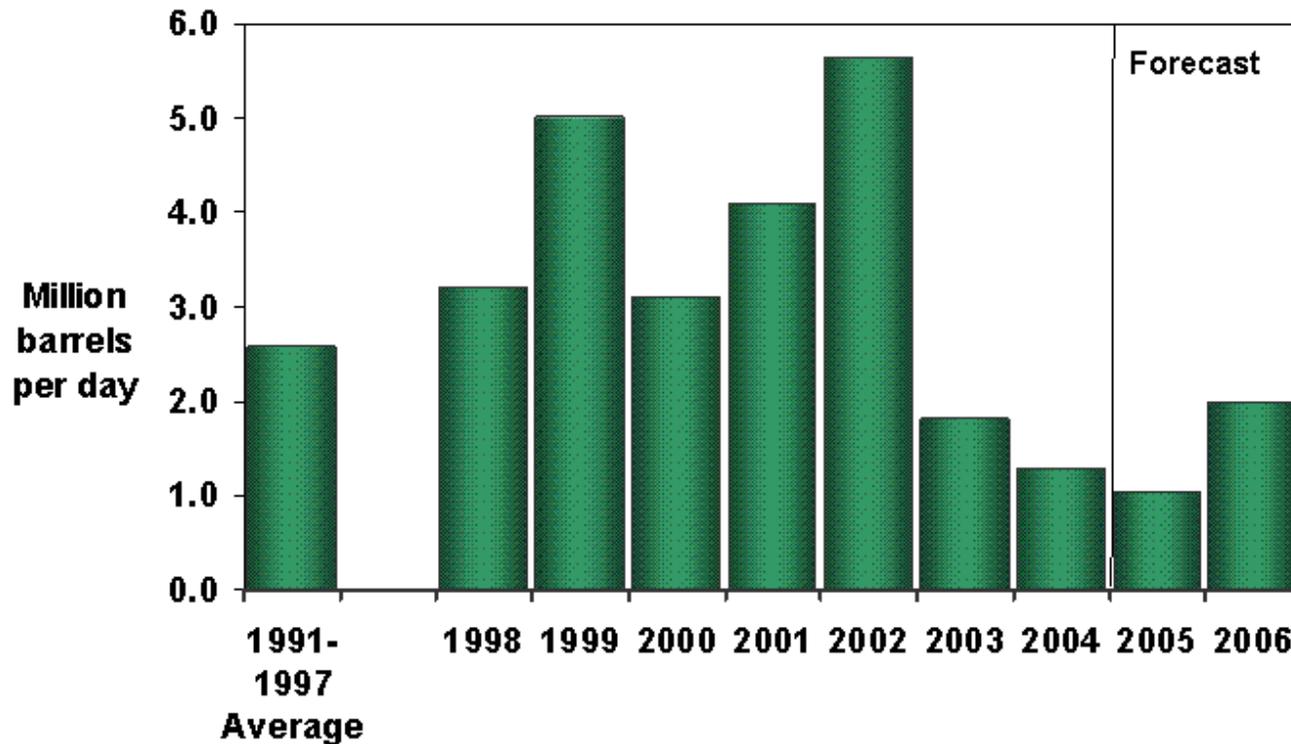
600 East Boulevard Ave. - Dept 405

Bismarck, ND 58505-0840

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

That's what a lot of folks say after listening to congress debate energy policy. Get a new doctor! The fun began in 2003,

Figure 7. World Oil Spare Production Capacity



Short-Term Energy Outlook, November 2005



and things got wilder in 2005 and 2006.

\$50 million total loss, blown 66 miles to the northeast

Ocean Warwick



Rig rests by the shore in Dauphin Island, Ala. Tuesday Aug. 30, 2005 after hurricane Katrina passed through the area.

Rig Under Construction



- The PSS Chemul, a 13,000-ton semi-submersible accommodation/ maintenance vessel owned by PEMEX that broke loose during Hurricane Katrina is wedged under the Cochrane Bridge in Mobile, Alabama. (AFP/Stan Honda)

Blown 1.5 miles up Mobile River from shipyard to Cochrane Bridge



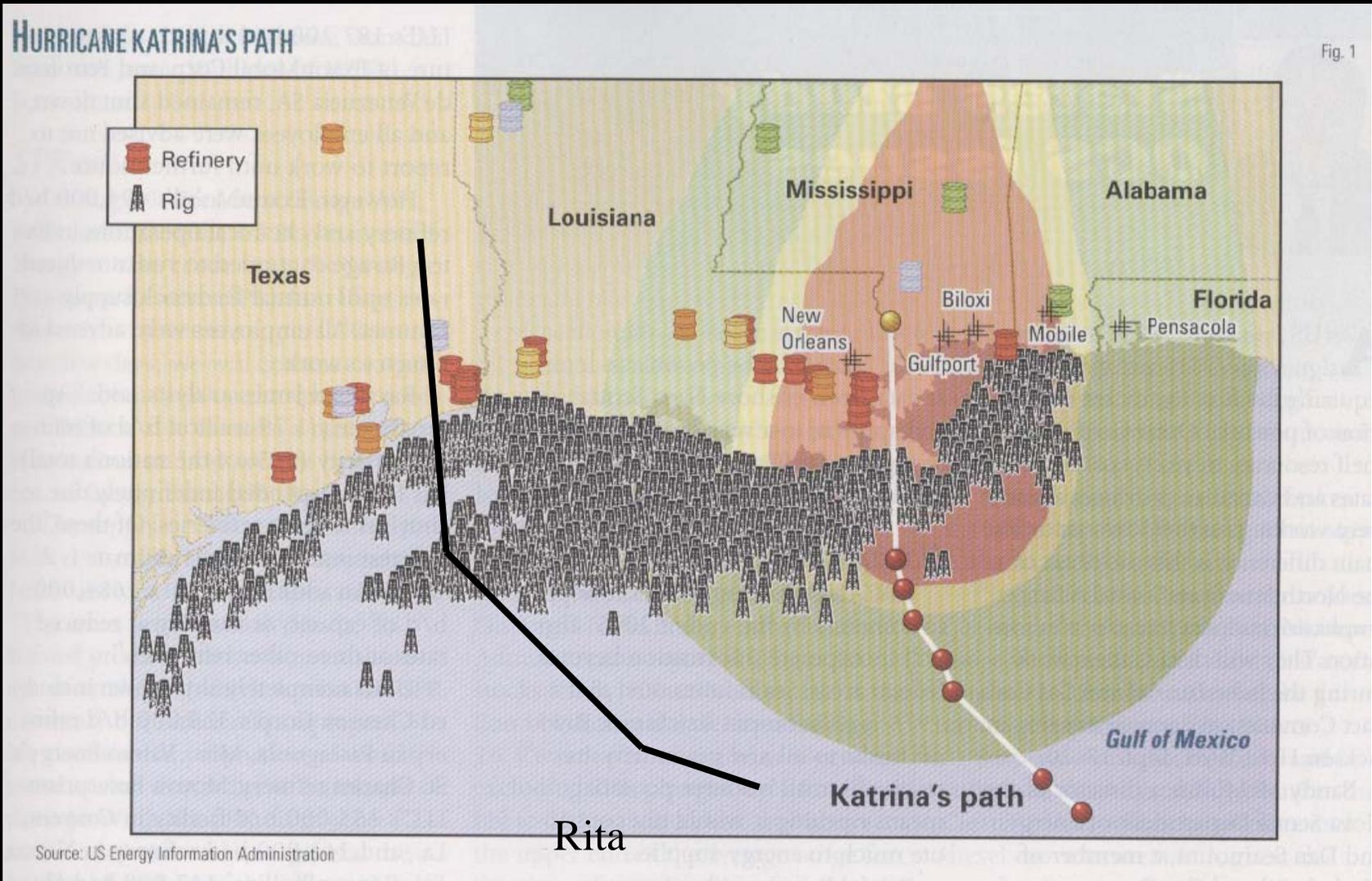
Mars TLP (30 Aug 05)

190,000 BOPD = 1.7 times total North Dakota production



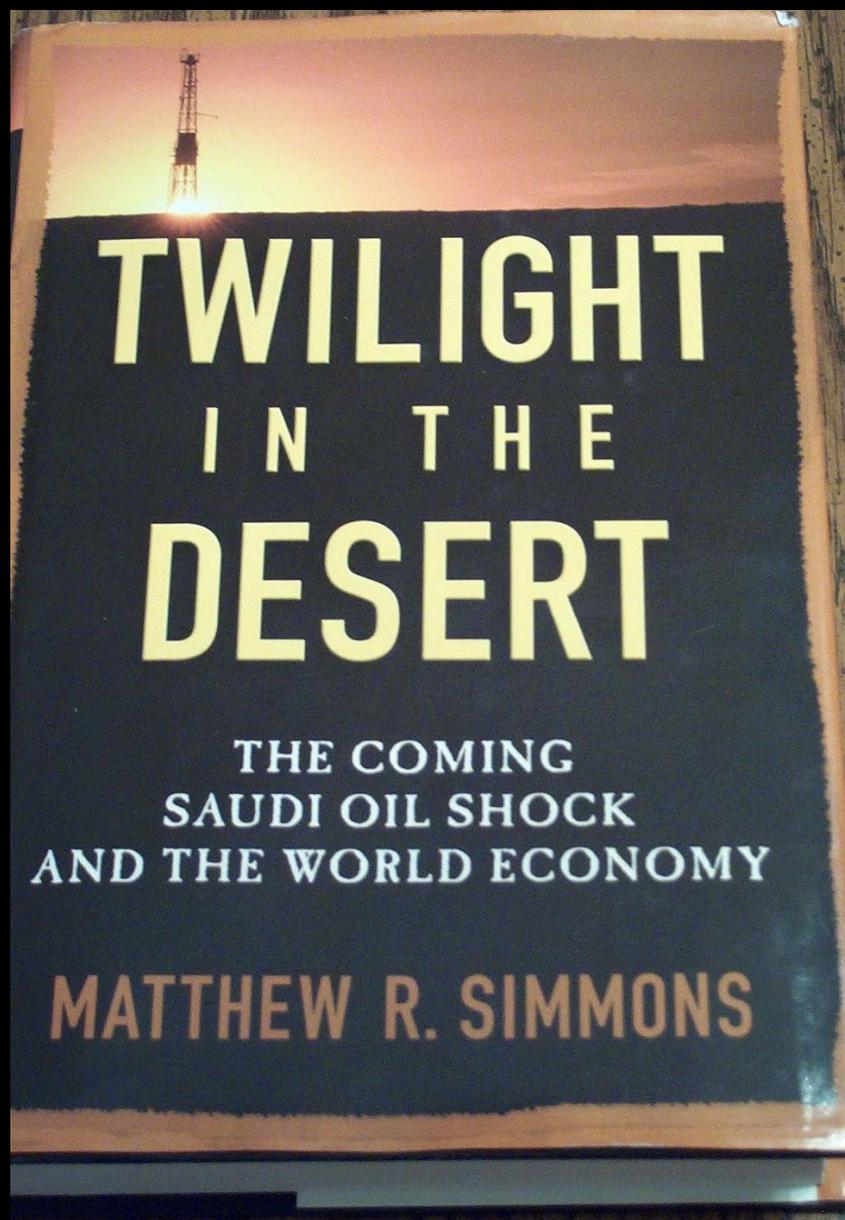
- Awash: Shell's refinery in Pascagoula, Mississippi, flooded after Hurricane Katrina made landfall
- Upstream.com

35% of US oil and natural gas production (4,000 platforms)



45% of US refining capacity, 70% of VLCC ports, Henry Hub, natural gas and gasoline pipelines (33,000 miles), SPR

\$25 billion in damage and \$16 billion lost revenue



2/3 of increased world oil production 2000-2005 was from the former Soviet Union, not OPEC

Saudi Arabia

Year	Pop(million)	MBOPD	Reserves(BB)	Fields	Wells
1960		1,219		18	
1970	6	4,117	110/50/15	37	100
1980	9	9,839	160/?/?	64	800
1990	14	8,300	260/?/?	76	2,000
2000	22	6,830	260/?/?	101	5,000
2010*	30	12,000???	?/?/?		

43% under 14, birthrate 6.3, national debt \$170 billion,
GDP \$9,000/person versus Spain \$15,000

Over 90% of natural gas reserves will be consumed to make drinking water and
electricity for AC





Asia the lurching giant

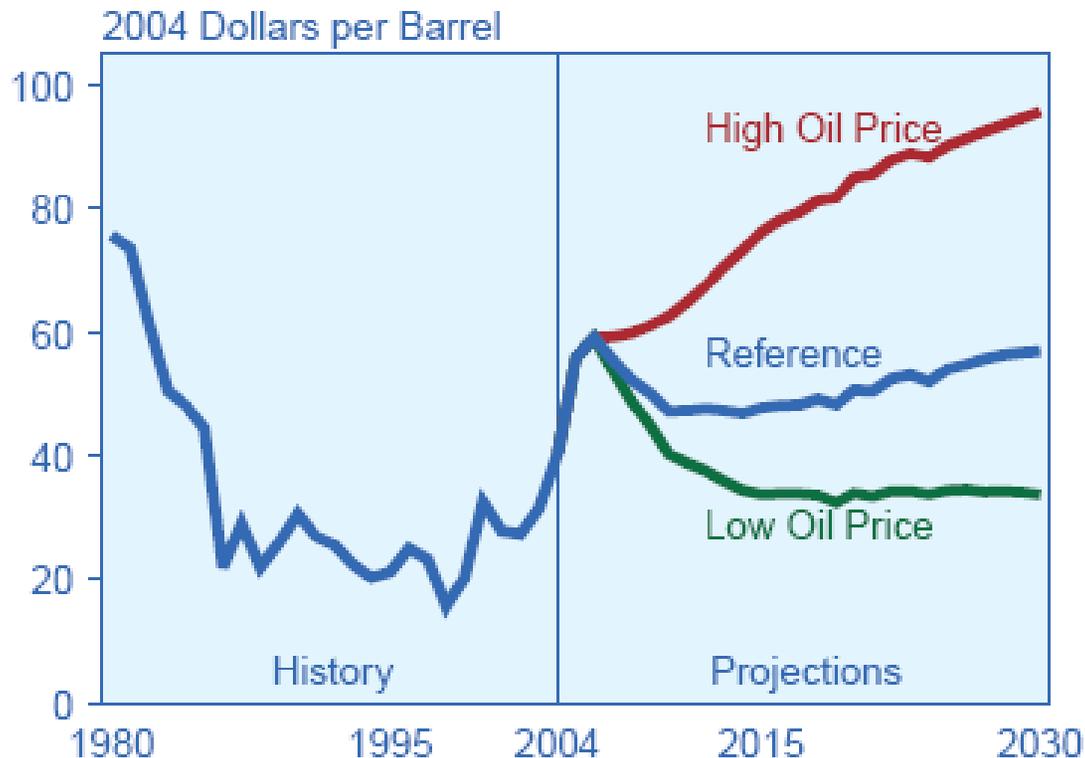
Year	Population (billion)	People/ Household	% Urban	Vehicles (million)
1980	2.3	4.7	23	1
2000	3.0	3.5	38	15
2015	3.7	3.0	50	500

Asia now uses 90% of the world's fertilizer and 20% of the world's pesticides while emitting 30% of the world's carbon dioxide.

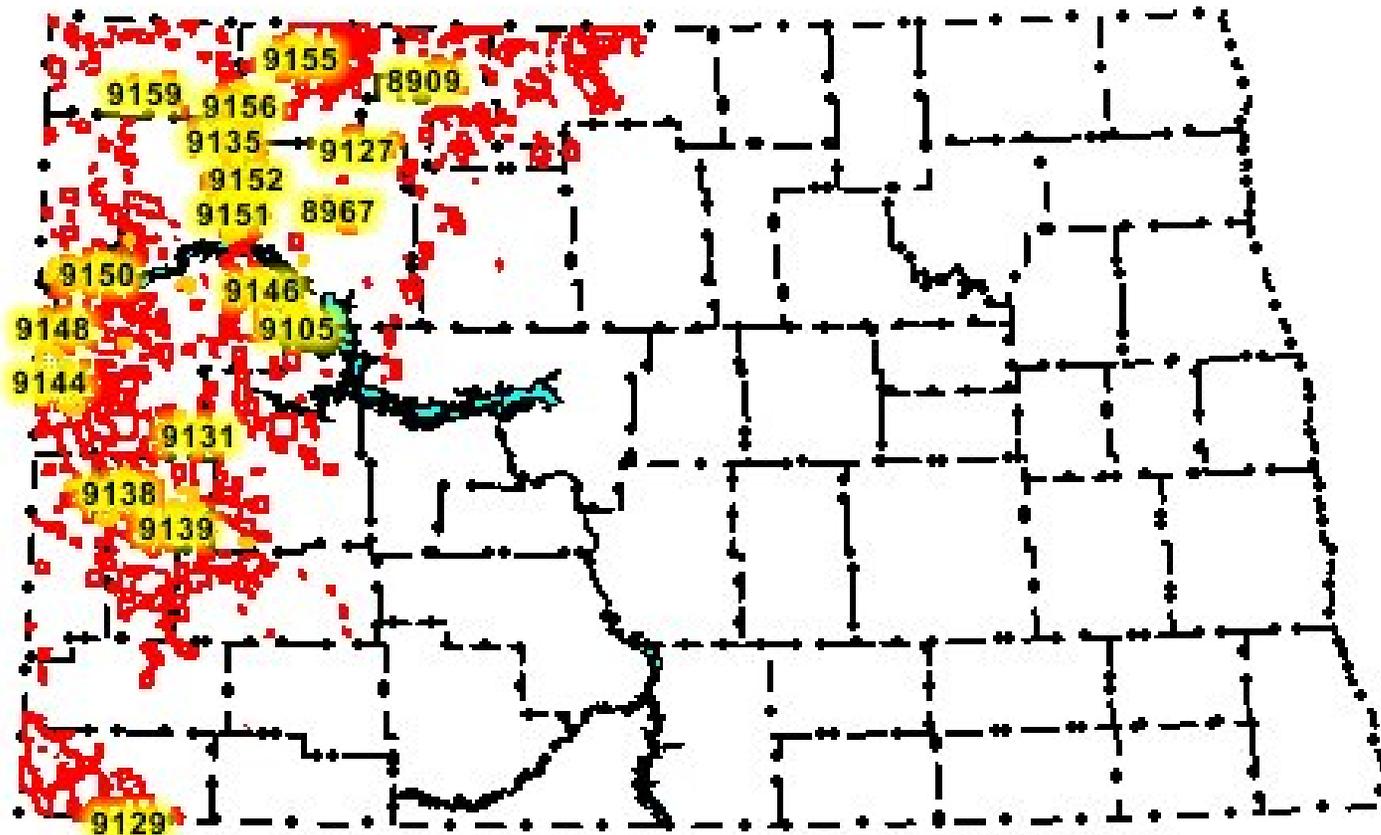
If the rest of the world achieves zero consumption growth, but Asia achieves first world consumption levels, total world consumption will more than double.

US DOE EIA Price Projections

Figure 32. World Oil Prices in Three Cases, 1980-2030

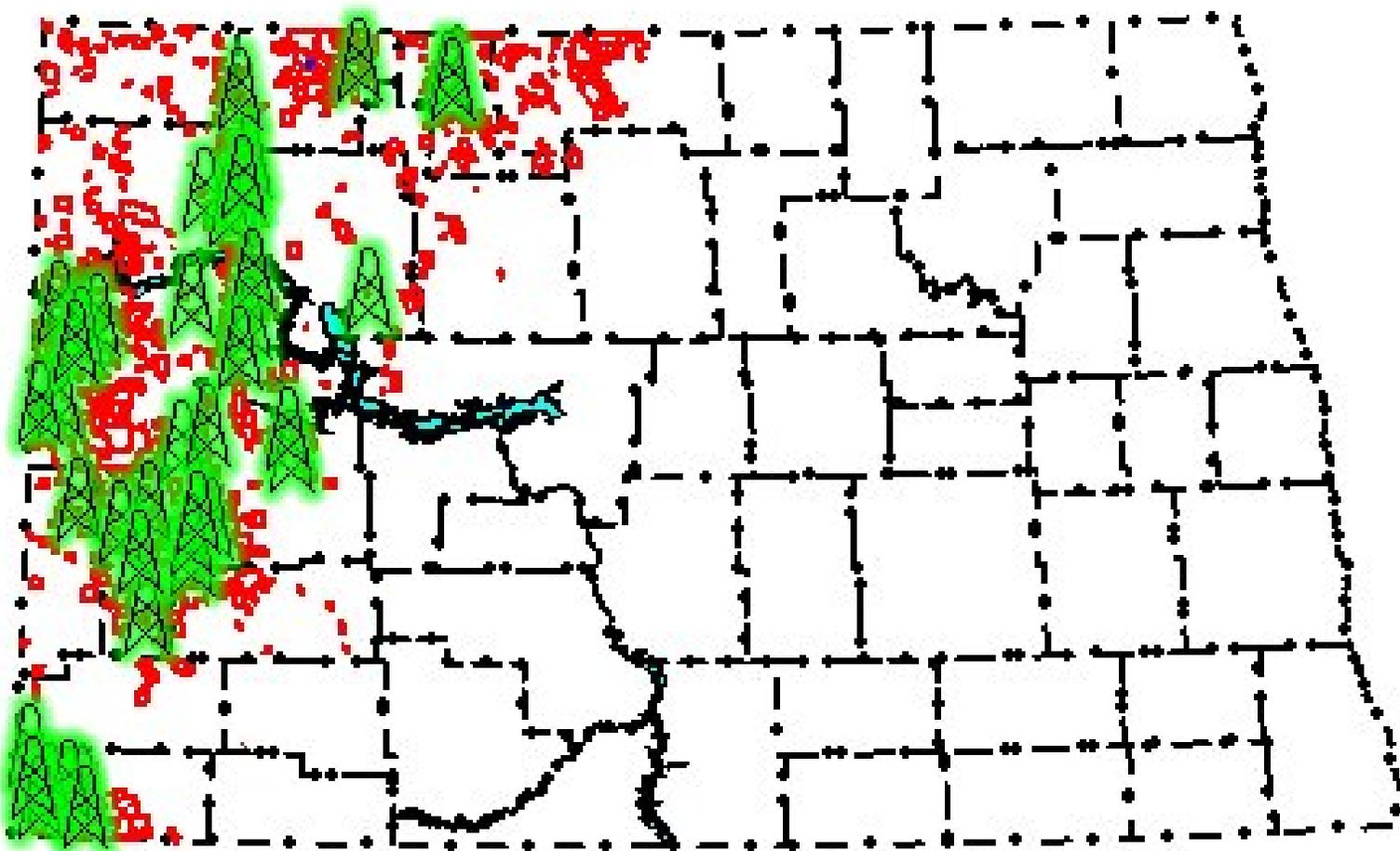


Sources: History: Energy Information Administration (EIA), *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), web site www.eia.doe.gov/emeu/aer/. Projections: EIA, *Annual Energy Outlook 2006*, DOE/EIA-0383(2006) (Washington, DC, February 2006).



- Legend**
- Cases Docketed
 - Oil Fields
 - Oil/Gas Field
 - Acid Gas Field
 - Abandoned Field
 - County Boundaries
 - Missouri River





- Legend
-  Rig Location
 -  Oil Fields
 -  Oil/Gas Field
 -  Acid Gas Field
 -  Abandoned Field
 -  County Boundaries
 -  Missouri River

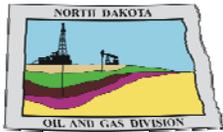


WHAT'S HAPPENING AROUND ND?

- Bakken
 - 22 Rigs
 - \$4-6 million dollars per well
 - 173 BOPD (5 to 463)
- Birdbear
 - 2 Rigs
 - \$3-4 million per well
 - 261 BOPD (85 to 394)

WHAT'S HAPPENING AROUND ND?

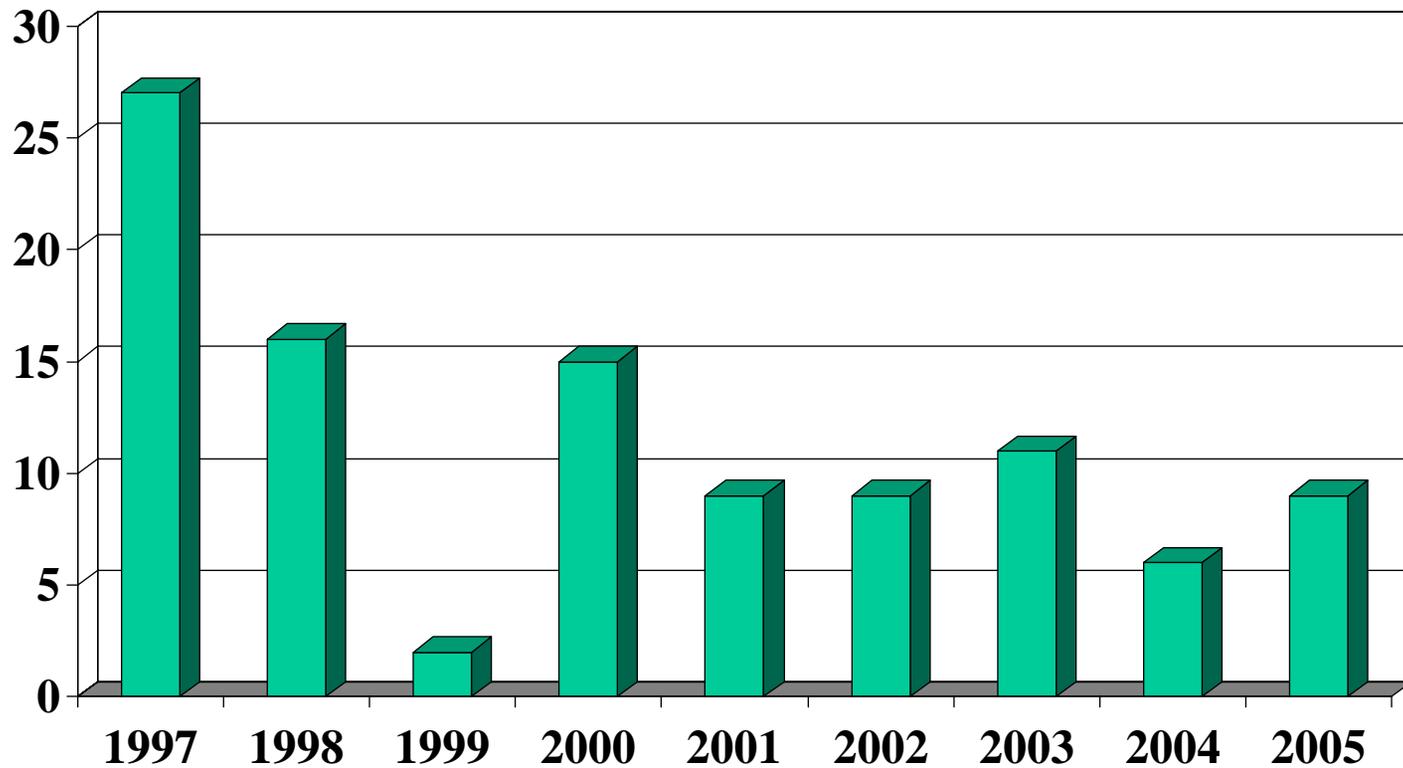
- Mission Canyon / Ratcliffe
 - 8 Rigs
 - \$2.5 million per well
 - 160 BOPD (10 to 385)
- Red River horizontal & water floods
 - 7 Rigs
 - \$2 million per well
 - 291 BOPD (32 to 698)



North Dakota Average Monthly Rig Count

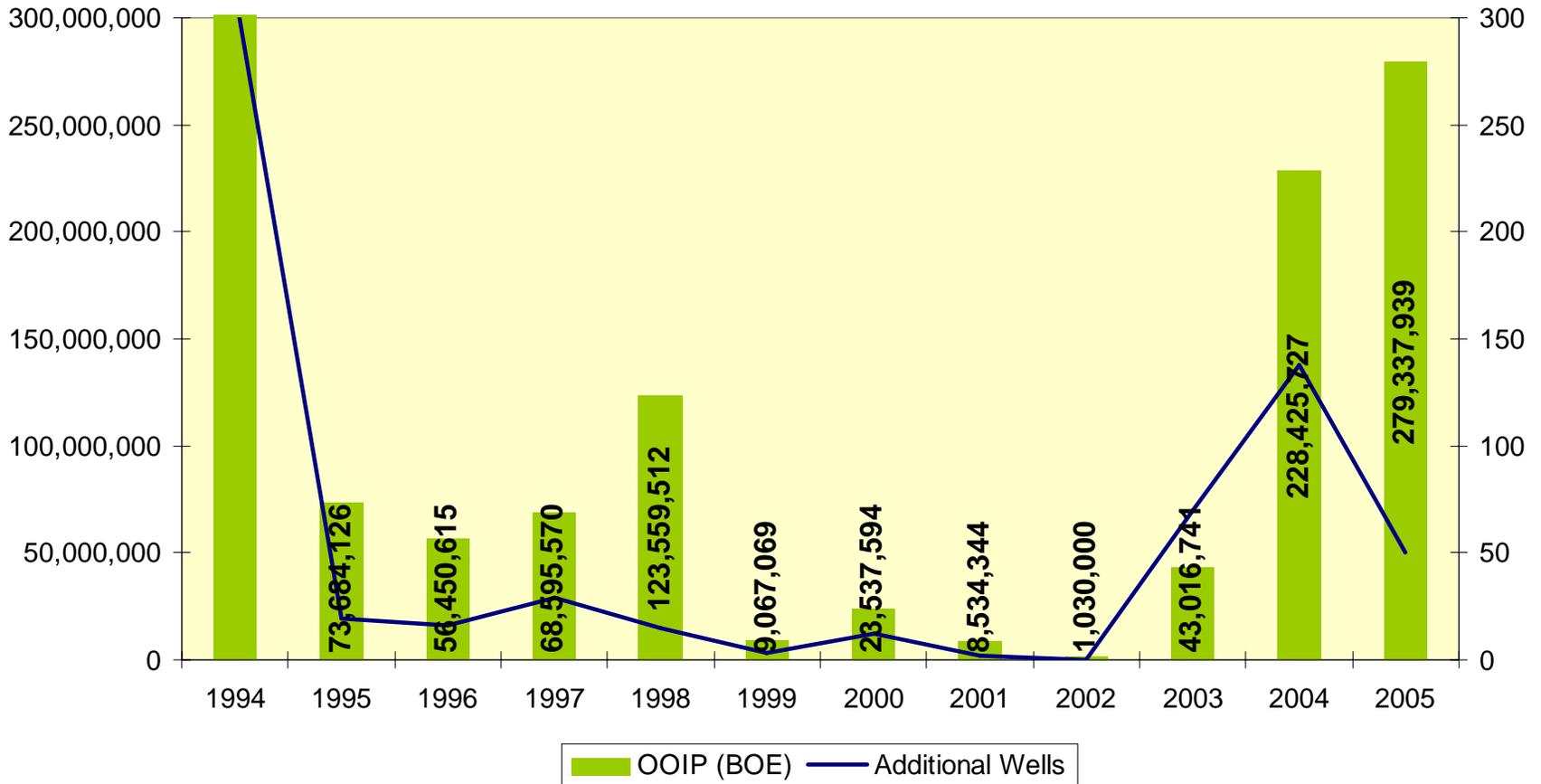


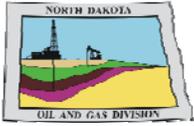
North Dakota Seismic Permits since July 1997



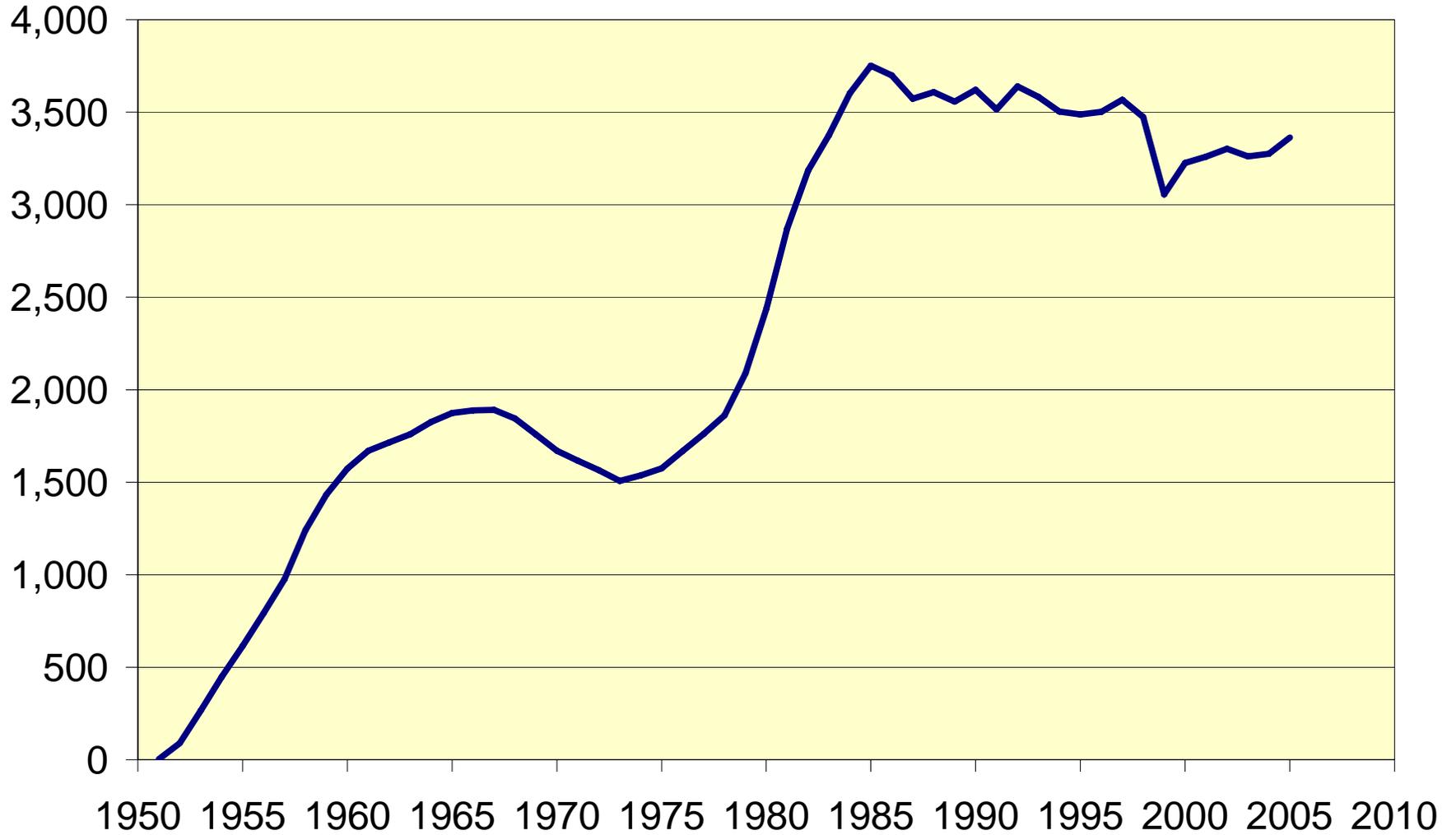


North Dakota Discoveries



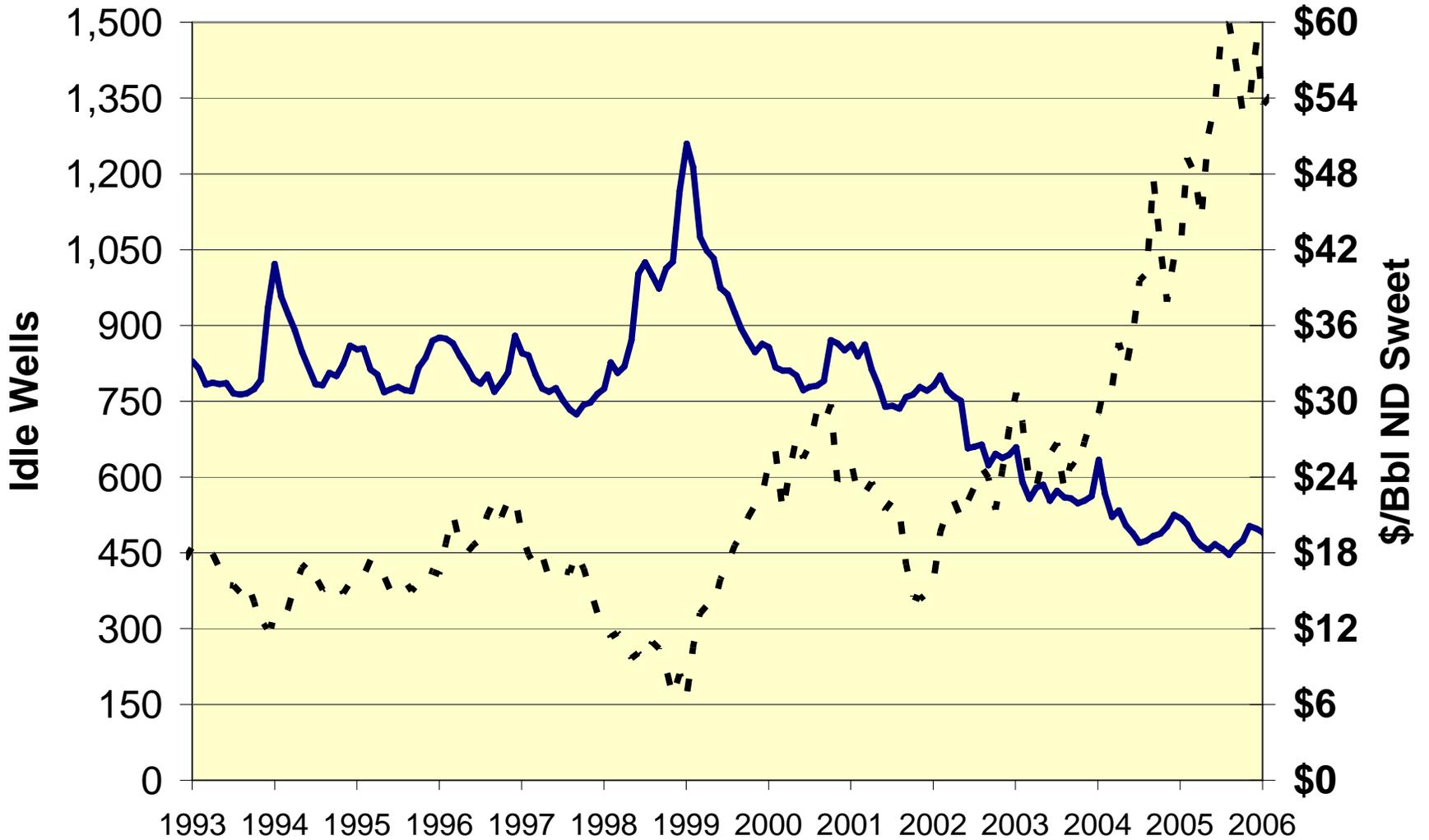


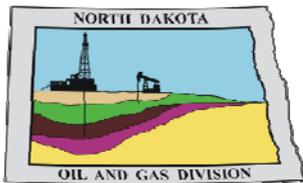
North Dakota Wells Producing Each Year



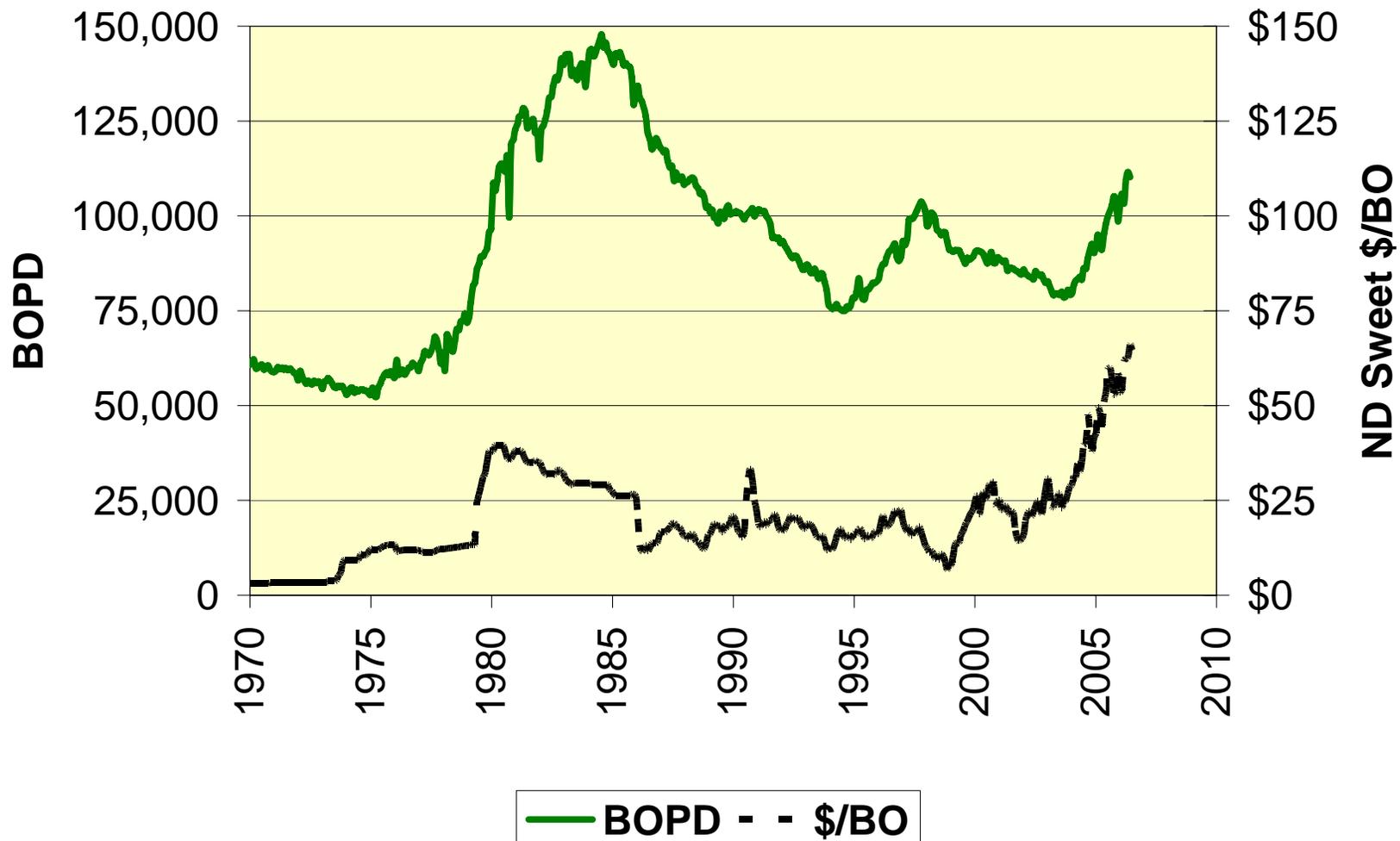


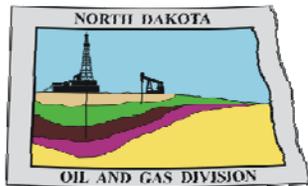
North Dakota Idle Wells



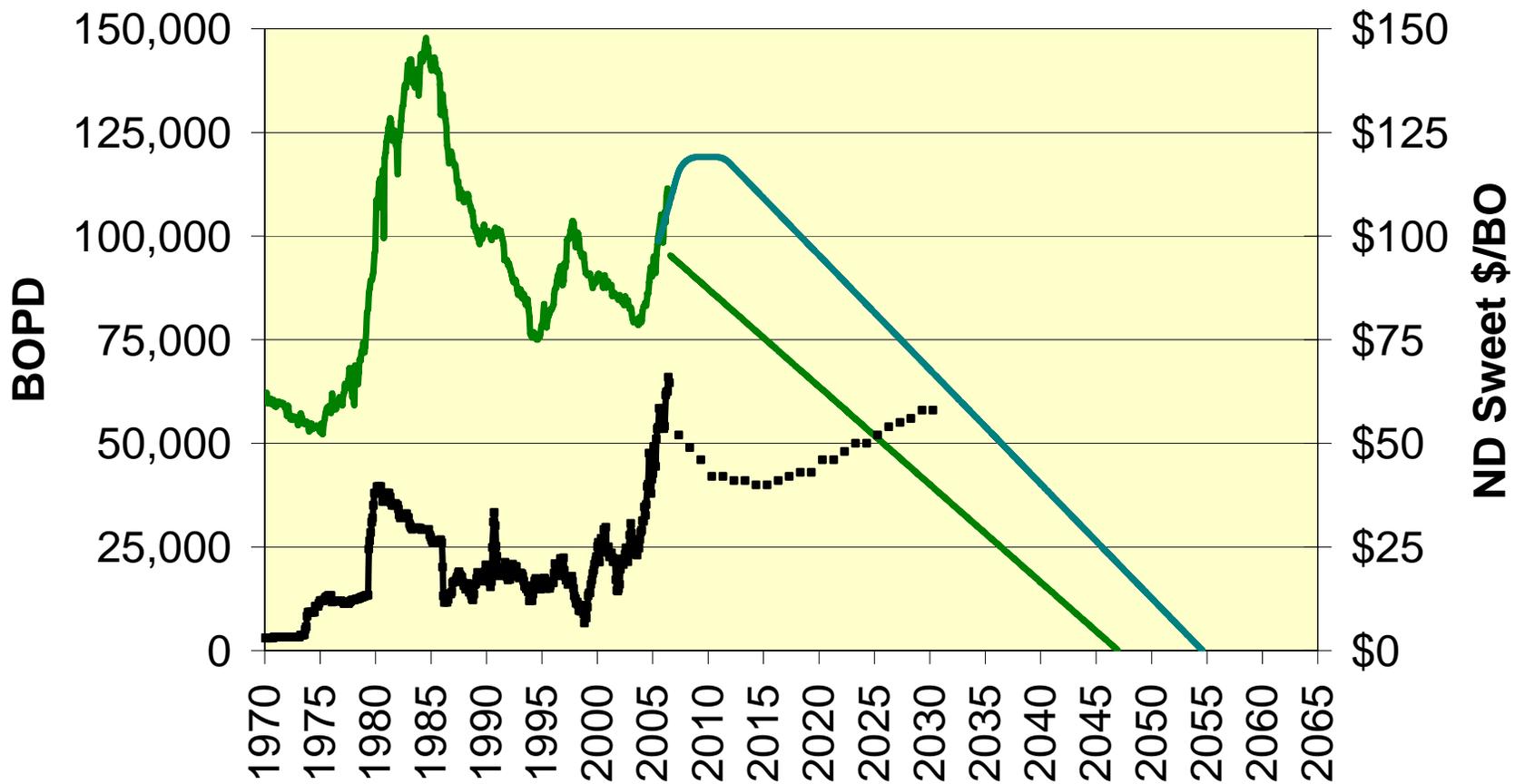


North Dakota Daily Oil Produced and Price





North Dakota Daily Oil Production and Price



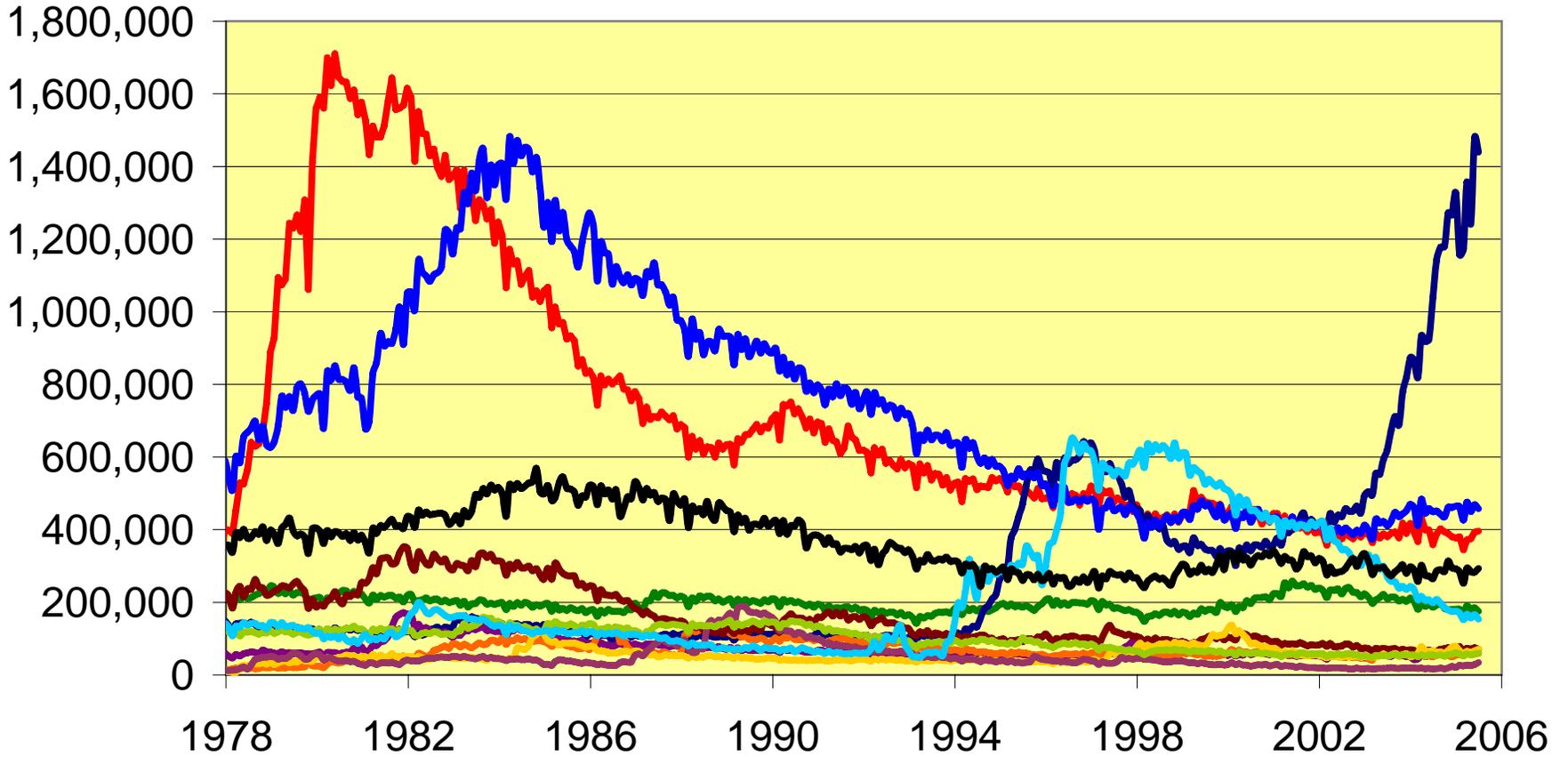
— BOPD History & P1 Reserves

— P2 Reserves

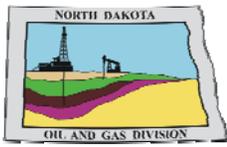
— \$/BO History & DOE-EIA



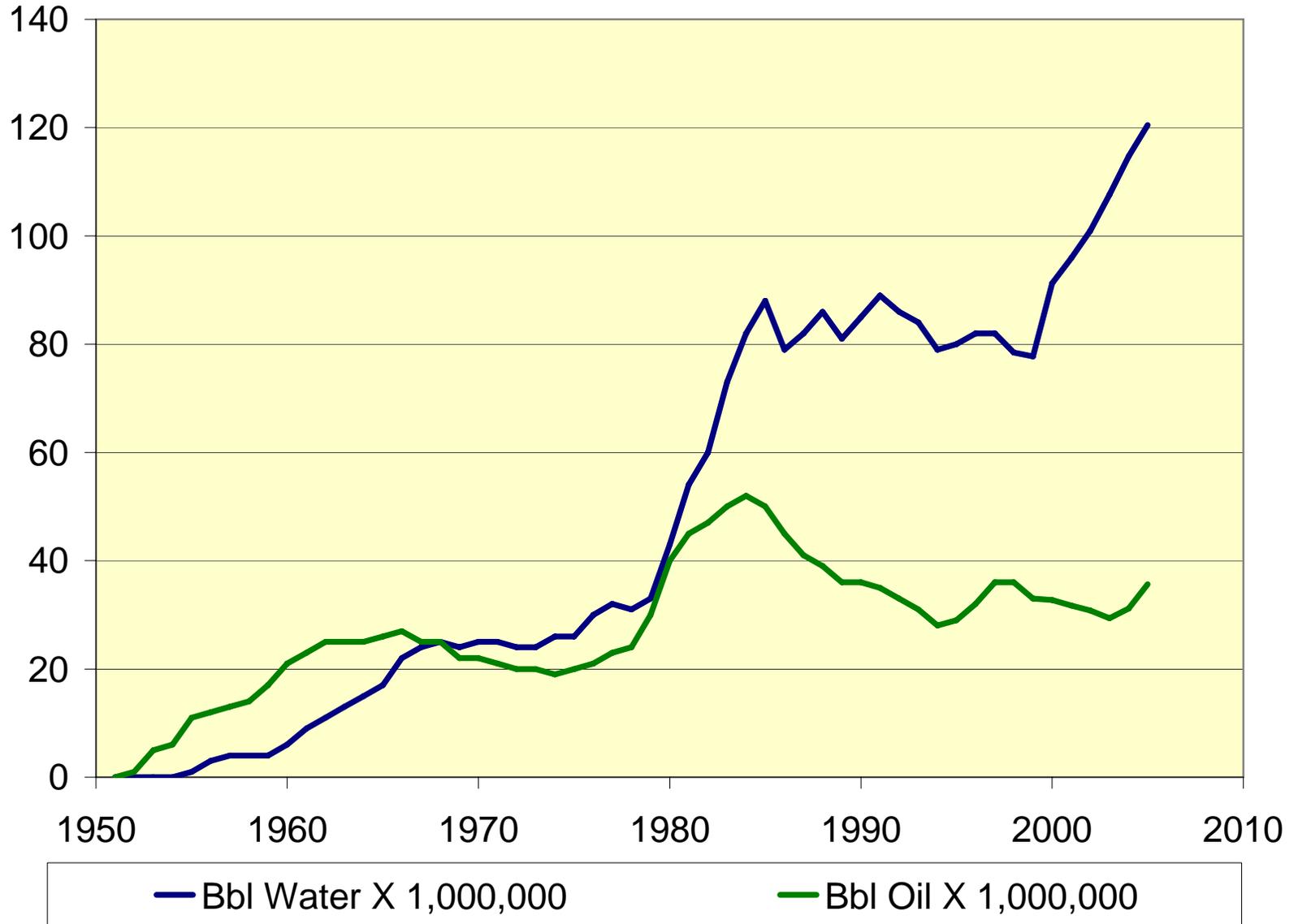
North Dakota Monthly Production Top 12 Counties

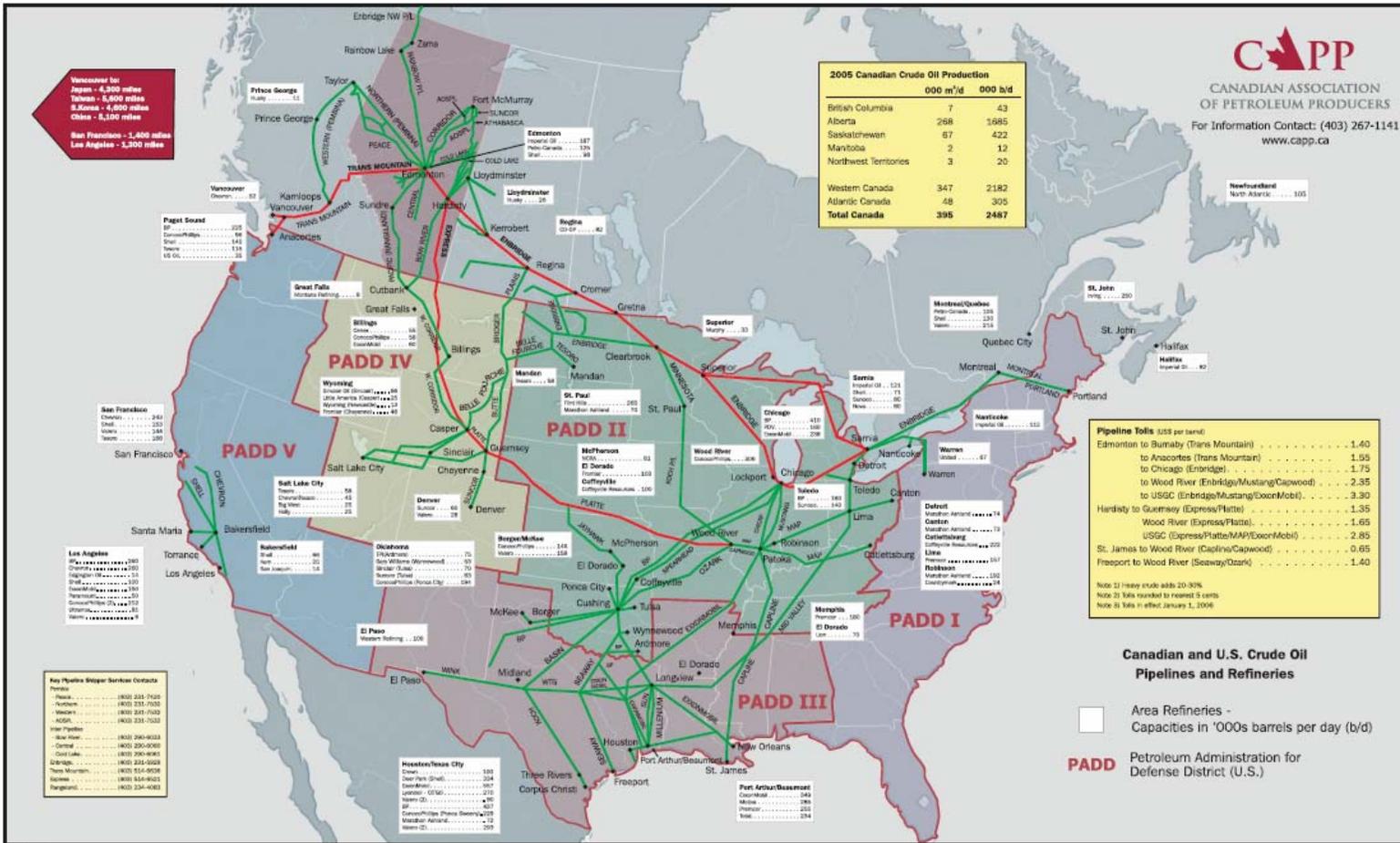


BILLINGS	BOTTINEAU	BOWMAN	BURKE
DIVIDE	DUNN	GOLDEN VALLEY	McKENZIE
MOUNTRAIL	RENVILLE	STARK	WILLIAMS



North Dakota Oil vs Water Production





Oil Sands ... Visualization



Source: Syncrude

Bitumen can be Upgraded (or not)



Bitumen



Synthetic Crude Oil
Or... Bitumen Blends

It takes 40 cubic feet of natural gas and 5 gallons of water to make 1 gallon of blend

What North Dakota can do

Increase the Minimum Quality on Enbridge Pipeline System in North Dakota

Transport Crude Oil by Rail

Enbridge Pipeline Expansion

Access Keystone Pipeline Project

Expand the Mandan Tesoro Refinery and build refined products pipeline

Build New Refineries in Williston Basin Markets

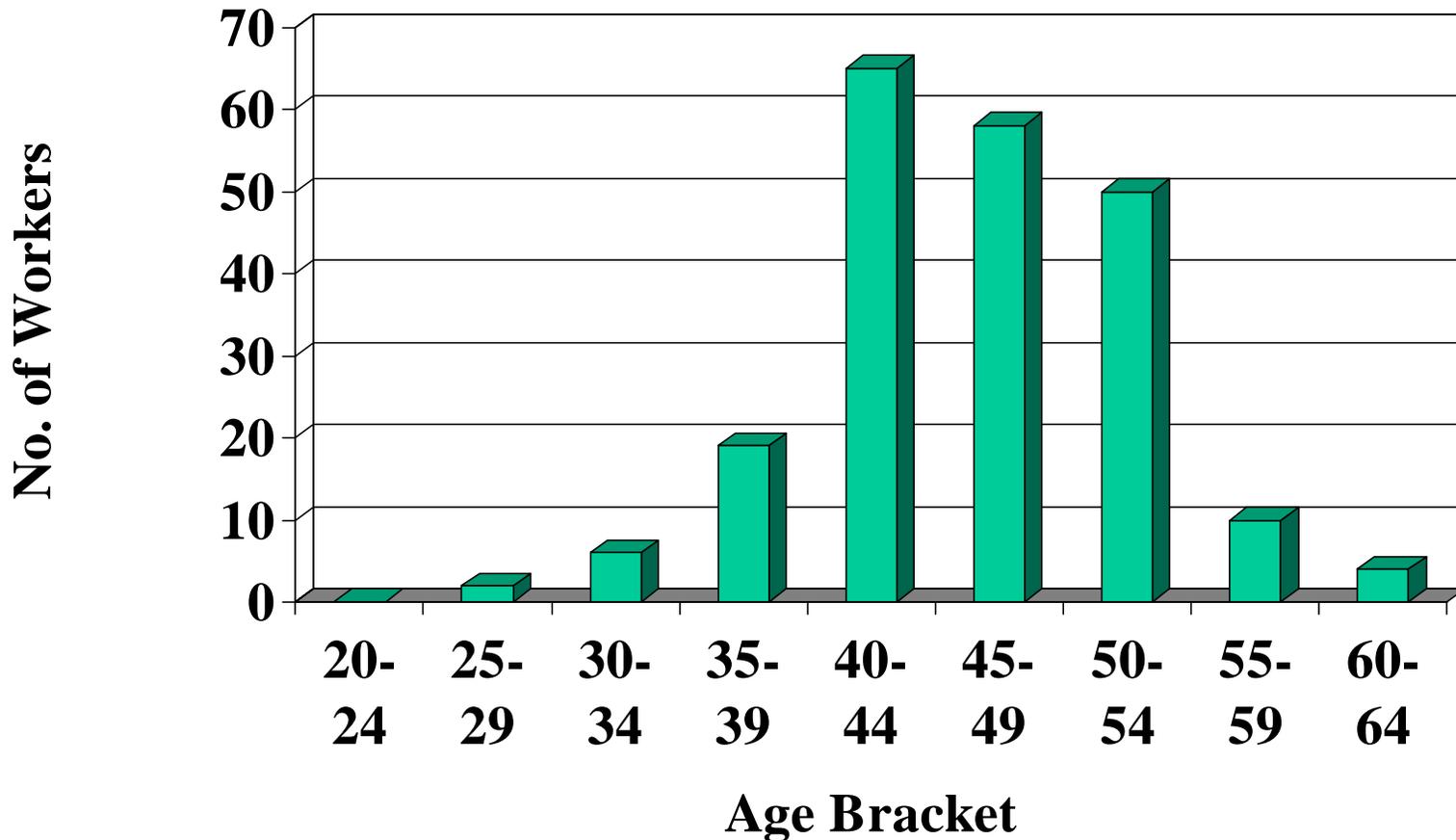
Create a Pipeline Transportation Authority

Explore a North Dakota or Williston Basin Quality Bank

Apportion the Production of Crude in North Dakota/Montana

Place a Tariff or Excise Tax on Canadian Crude Oil Entering North Dakota

Typical age profile of workforce (North Dakota Energy Industry)



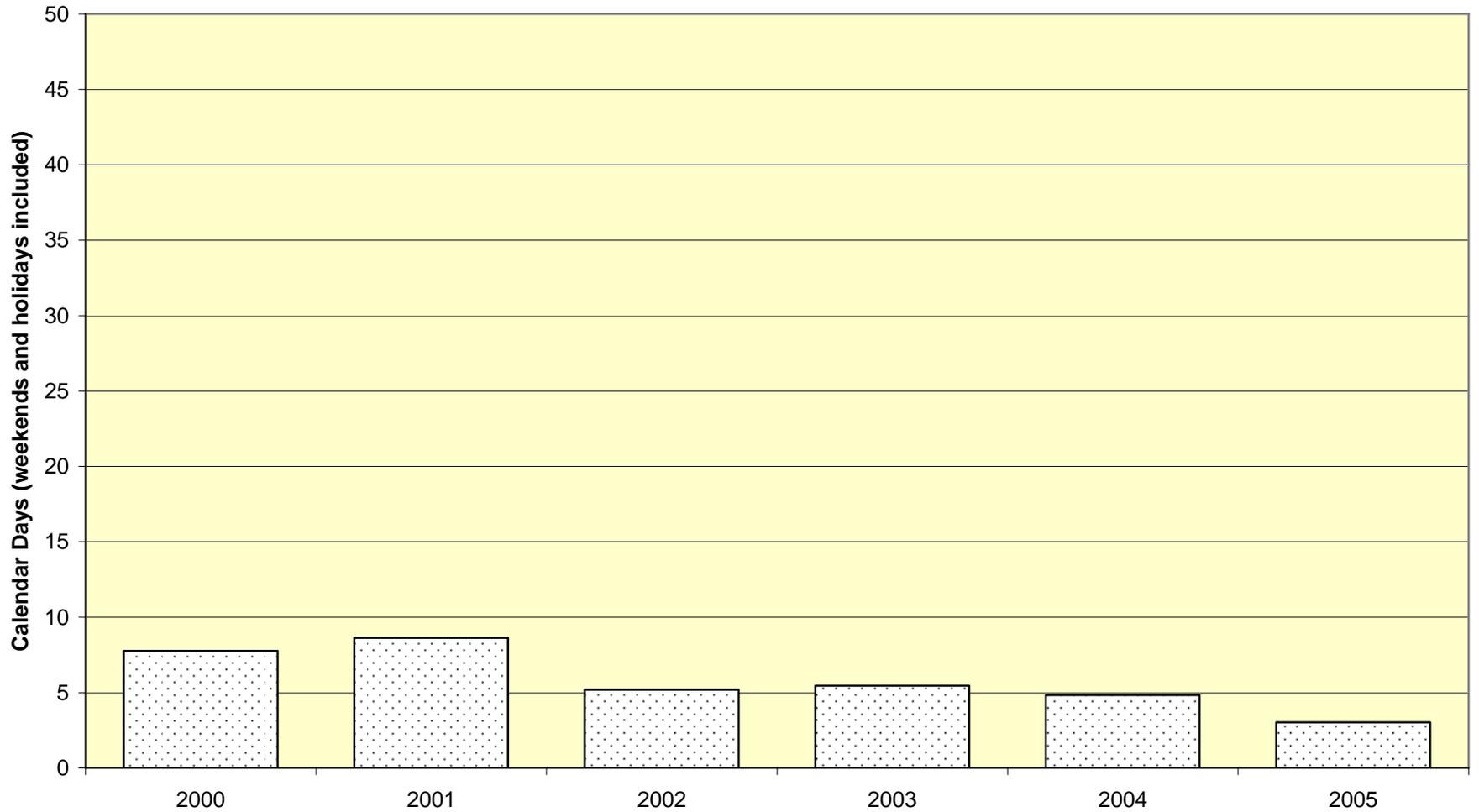
Concerns and Opportunities

- For the next 8 to 10 years, demand for skilled labor will exceed available supply for ND energy industry
- Retirements and new construction will increase demand even more
- Shrinking labor pool and low interest in vocational careers are affecting supply
- Problem is nationwide
- High paying career opportunities close to home will be available for ND young people



Drilling Permit Approval Time

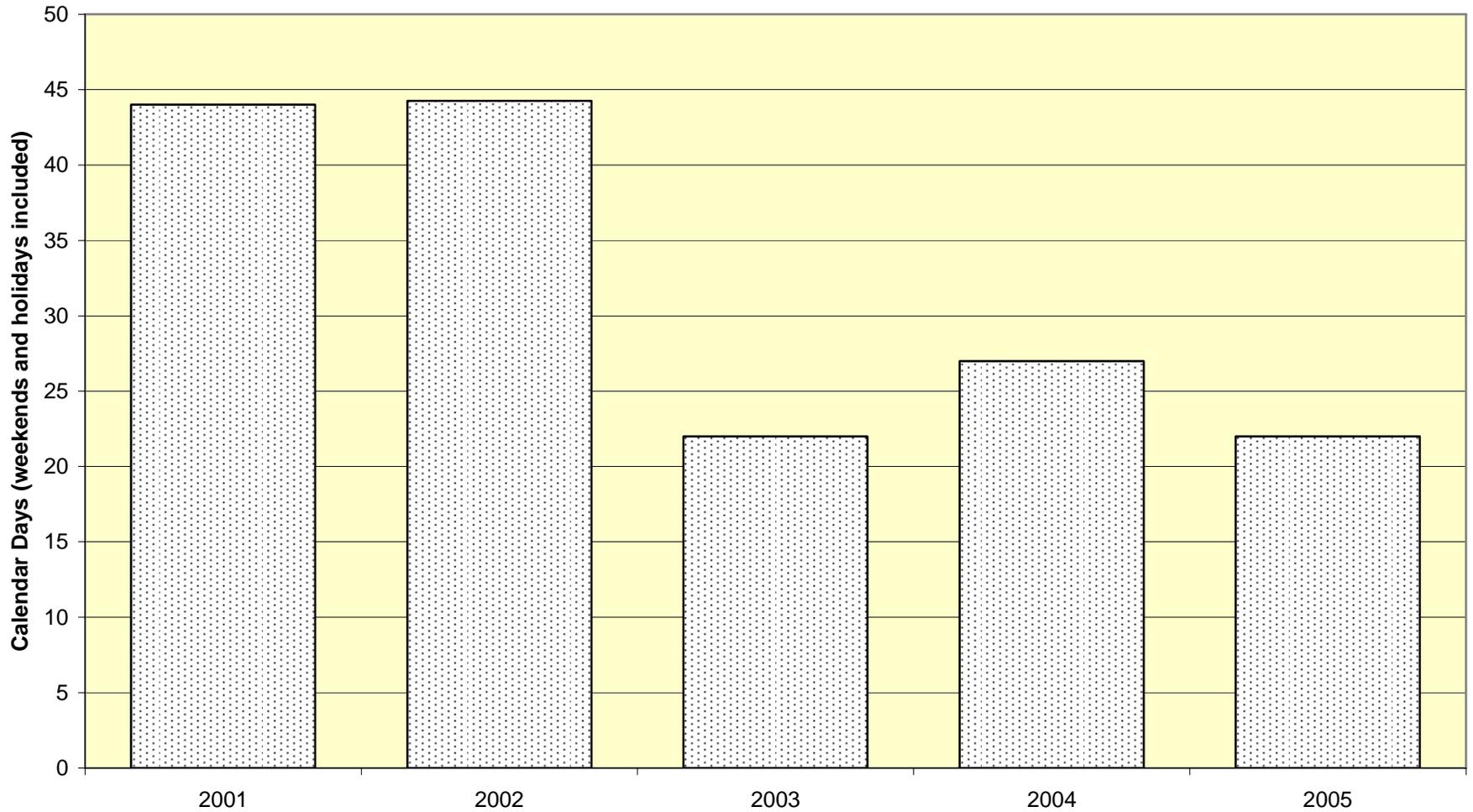
The Oil and Gas Division continues to improve permit processing efficiency.





UIC Permit Approval Time

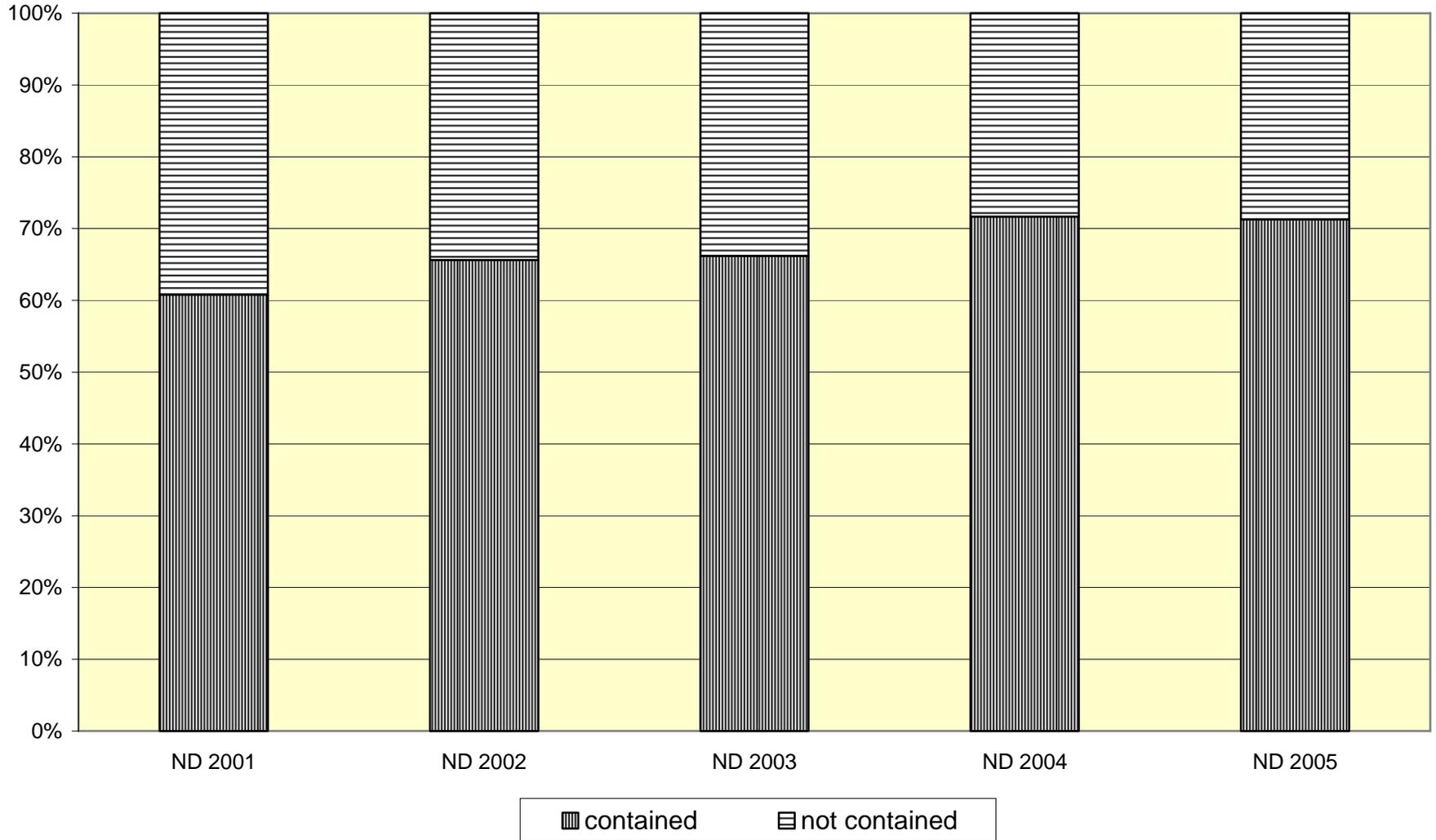
The Oil and Gas Division continues to improve in UIC Permit processing efficiency.

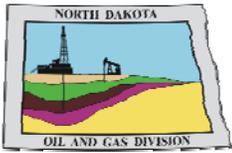




Surface Spills

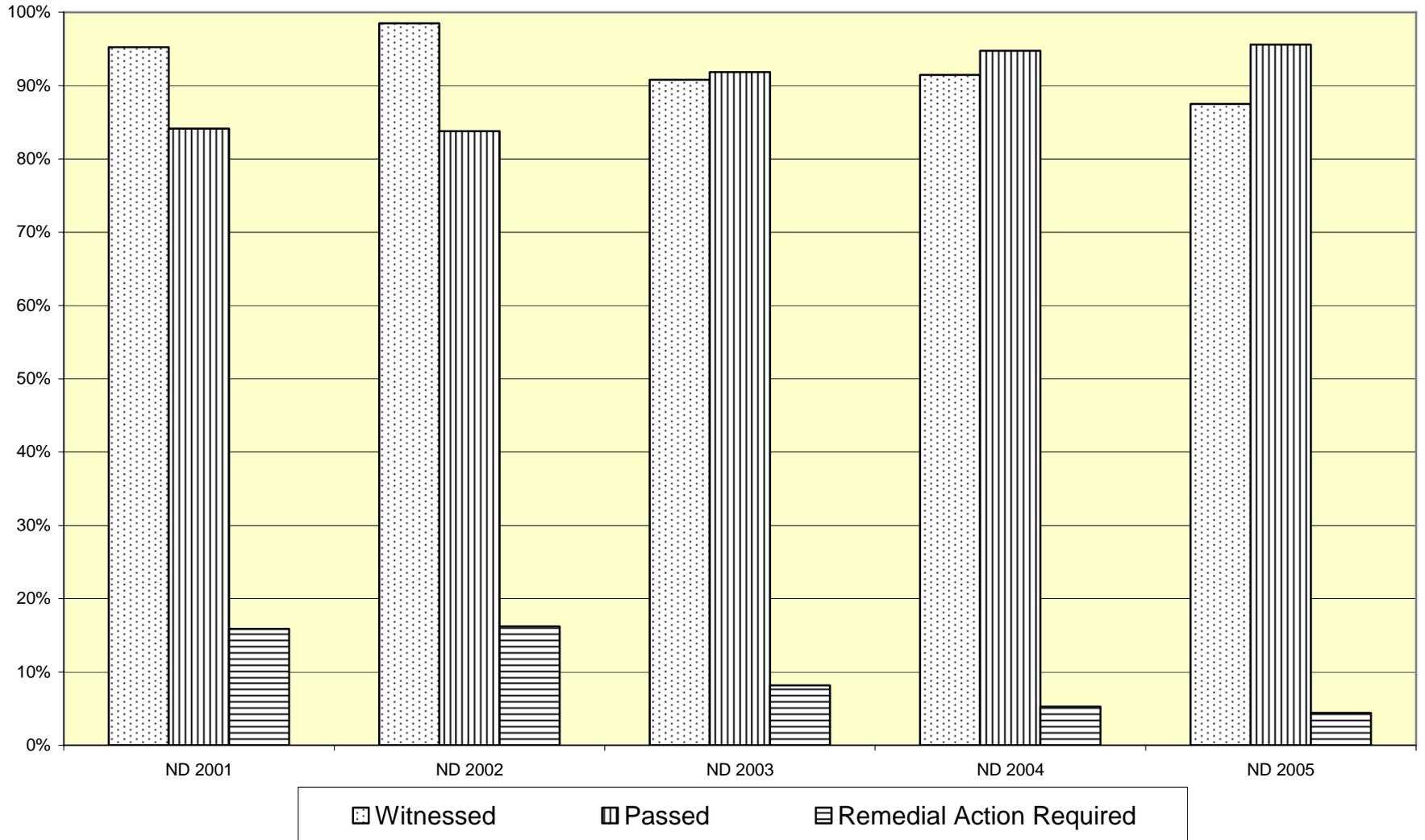
The Oil and Gas Division regulates spill containment through diking and site construction rules.

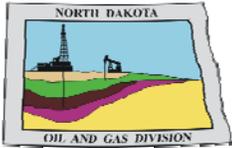




Mechanical Integrity Tests

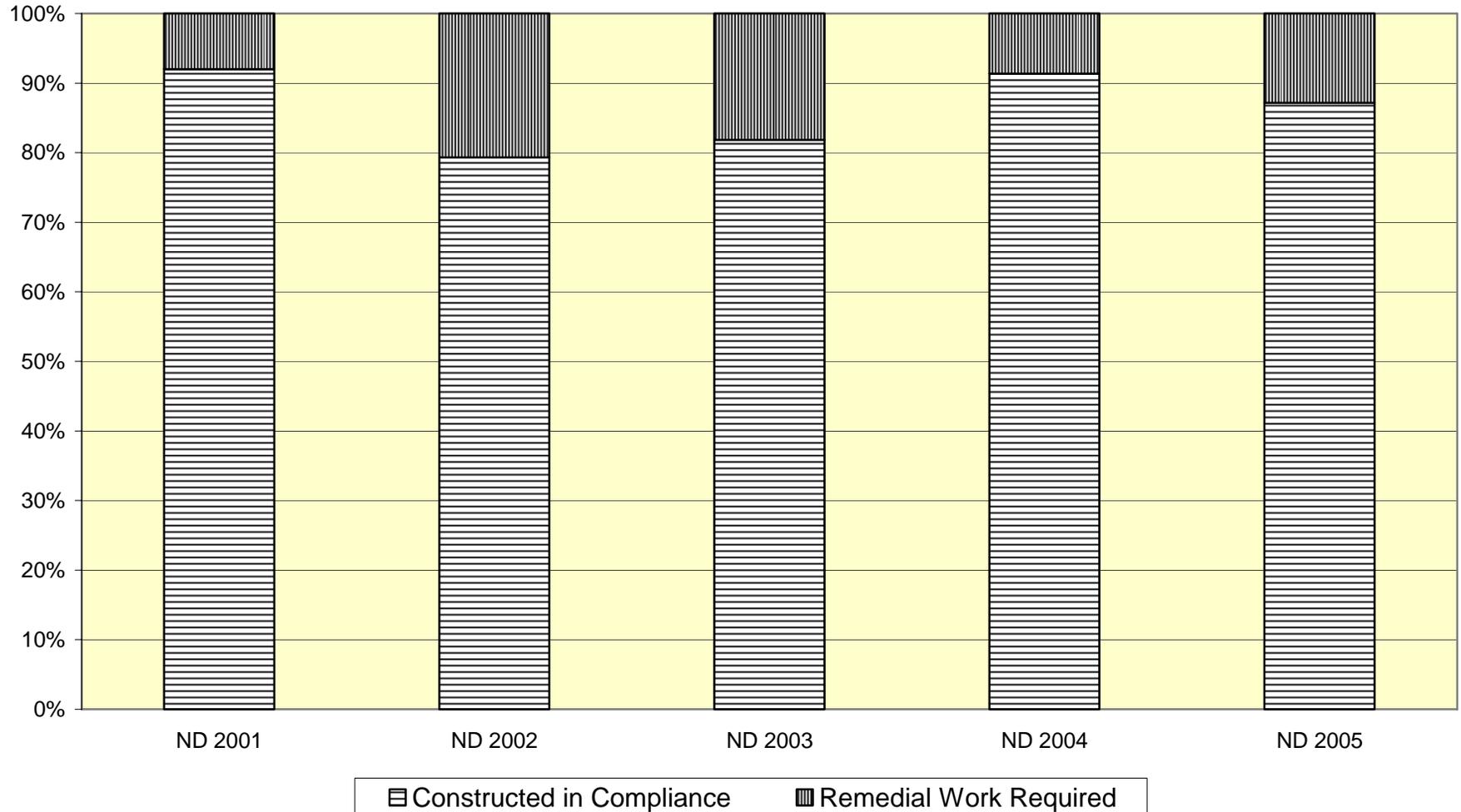
The Oil and Gas Division witnesses a very high percentage of tests.
Without this program 5% of North Dakota injection and temporary abandoned wells could be leaking.





Well Construction

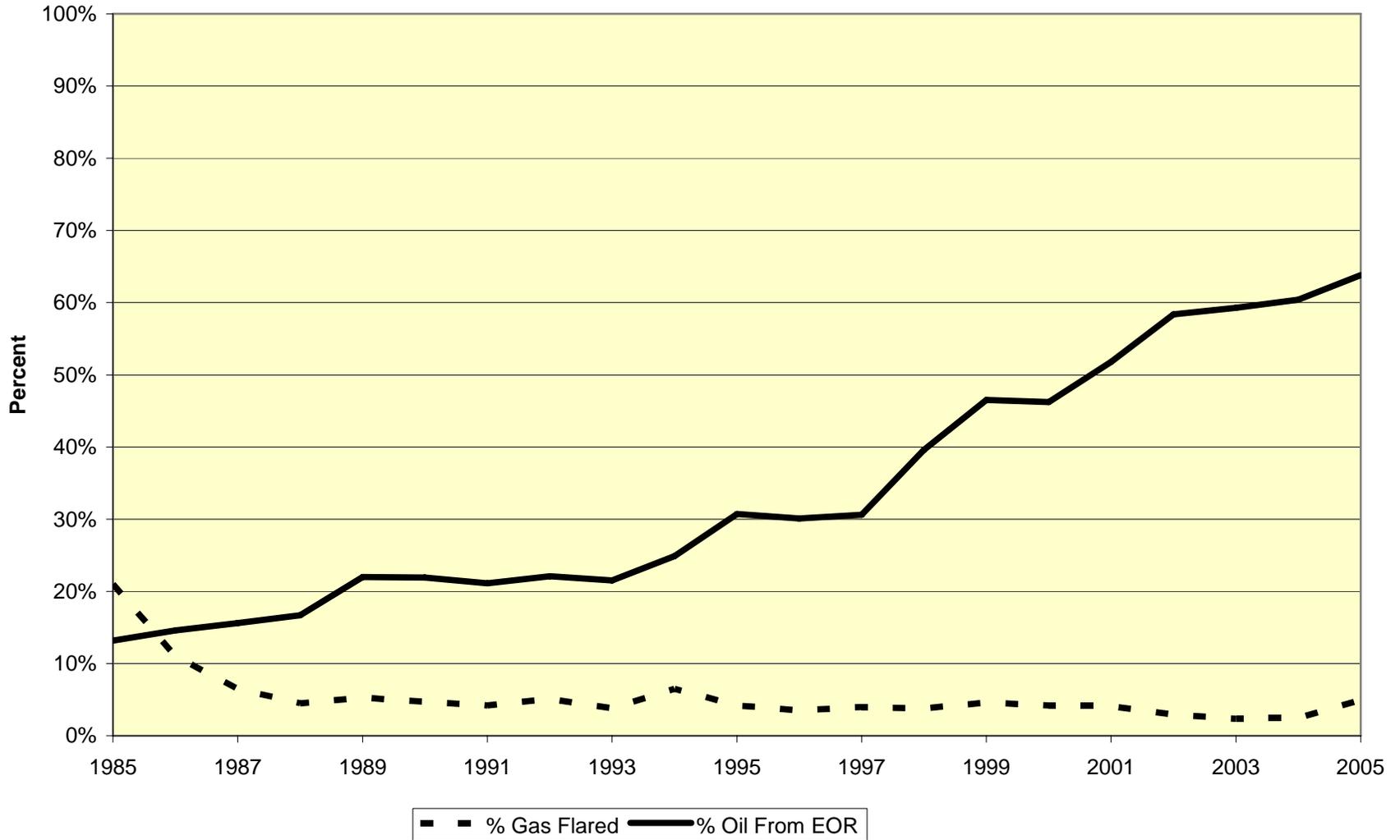
The Oil and Gas Division has well construction rules to protect underground drinking water.
Without this program 10-20% of new North Dakota wells could be leaking.

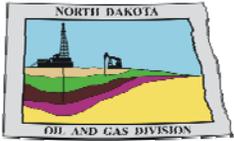




Conservation

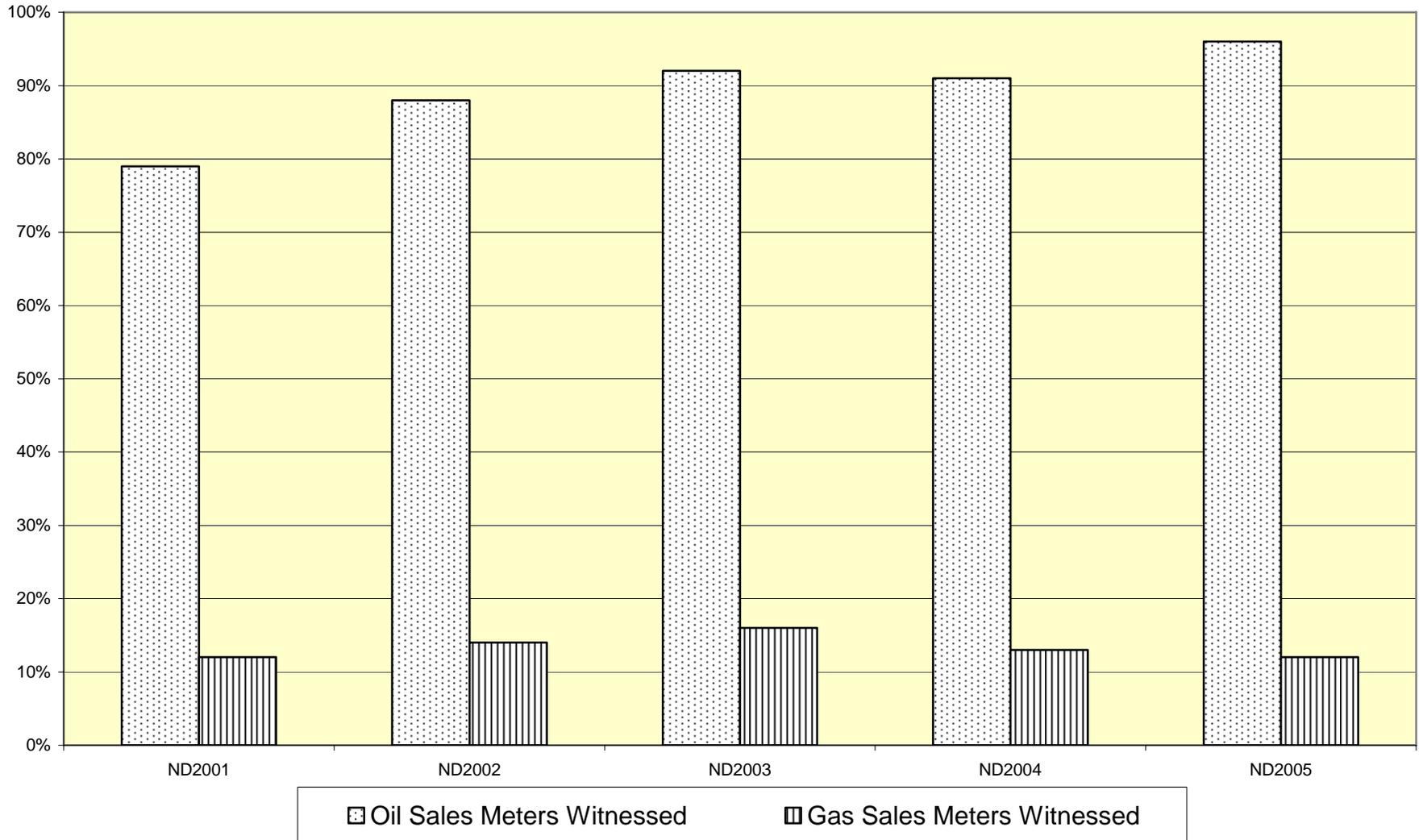
The Oil and Gas Division prevents waste and protects correlative rights. Two methods are Enhanced Oil Recovery (EOR) and gas flaring restrictions.

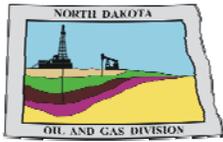




Sales Meter Tests

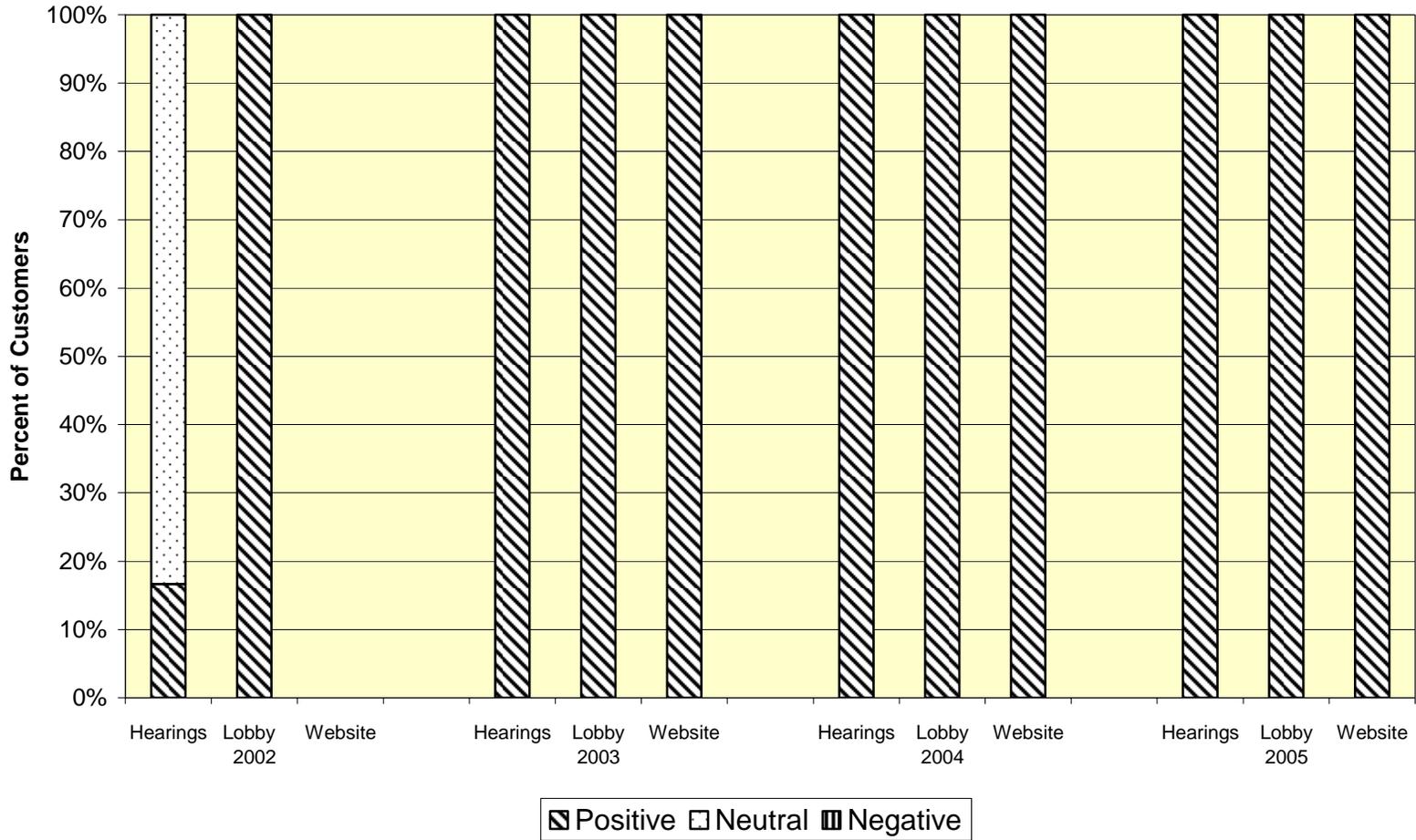
The Oil and Gas Division regulates oil and gas meter accuracy and royalty owner information.
We witness a high percentage of sales meter tests.



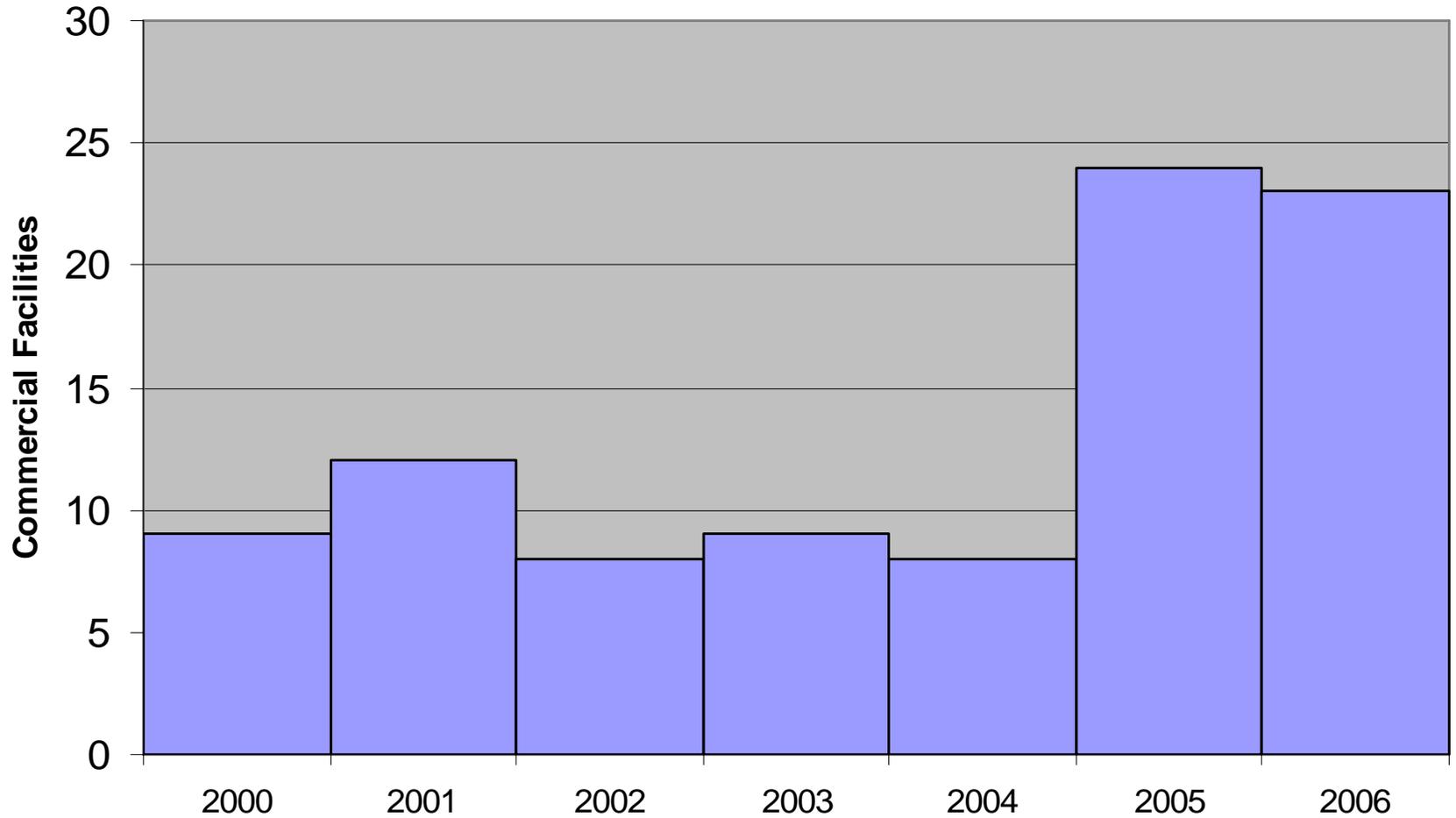


Customer Service

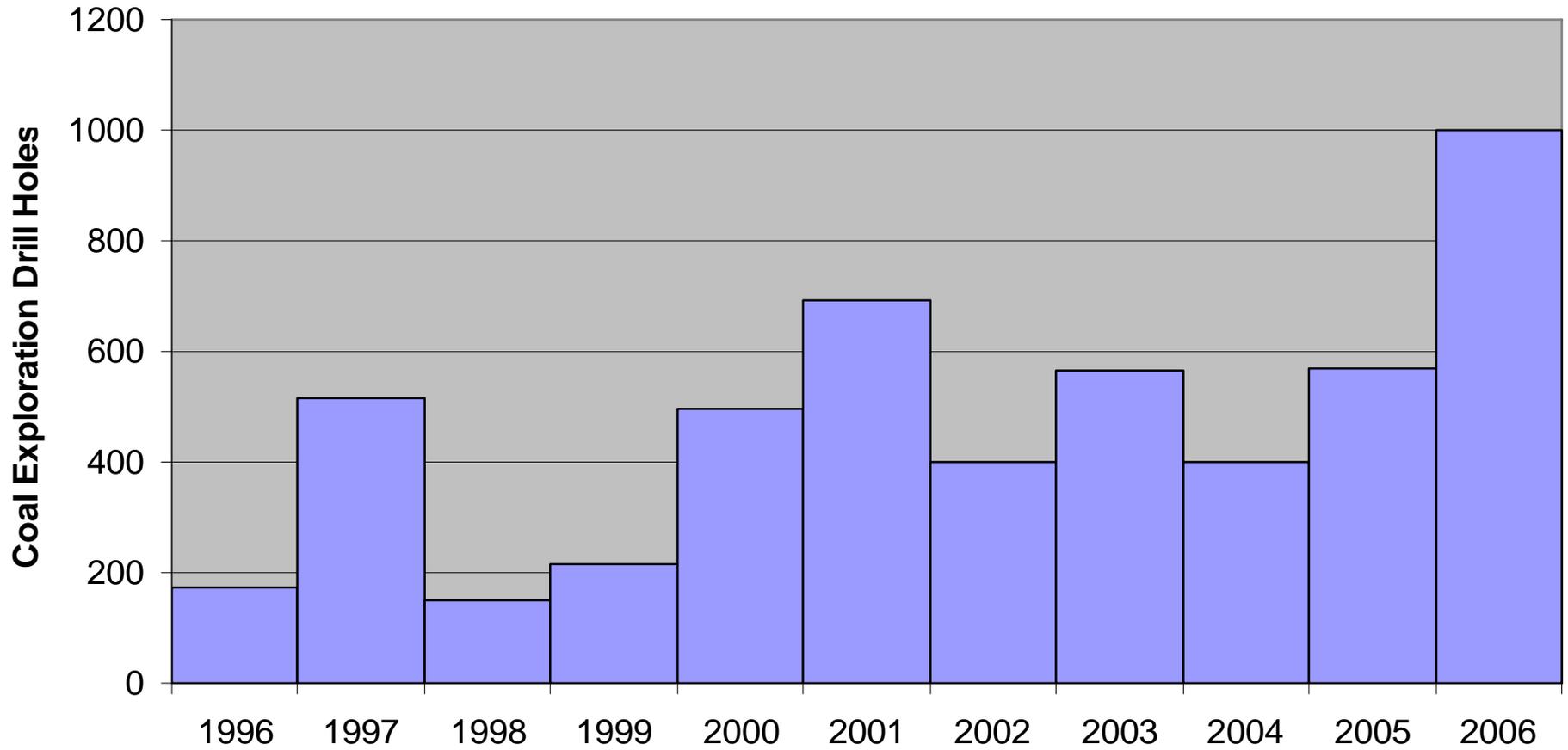
The Oil and Gas Division measures customer satisfaction in three areas. We are doing well in all three.



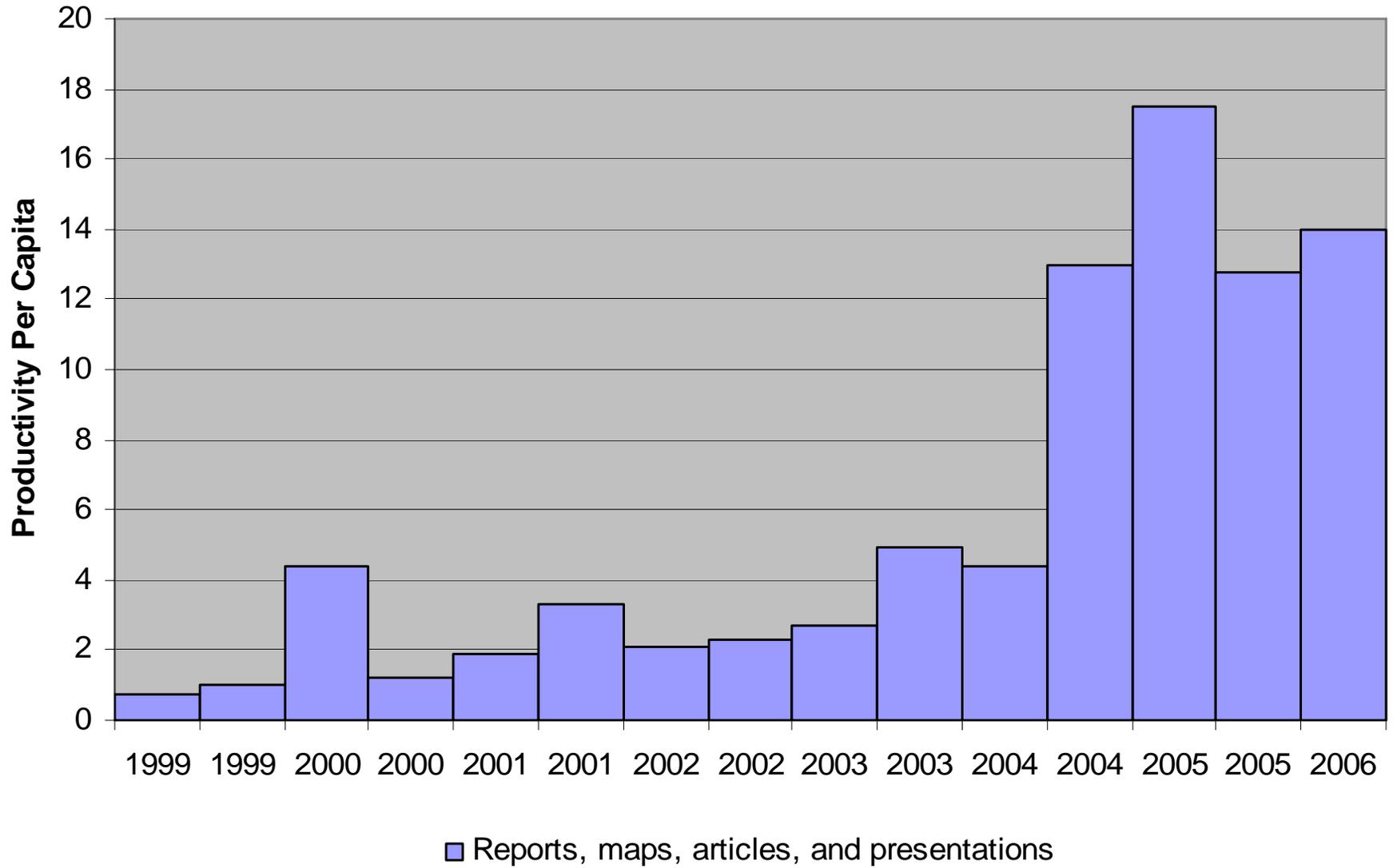
GEOHERMAL INSTALLATIONS IN NORTH DAKOTA



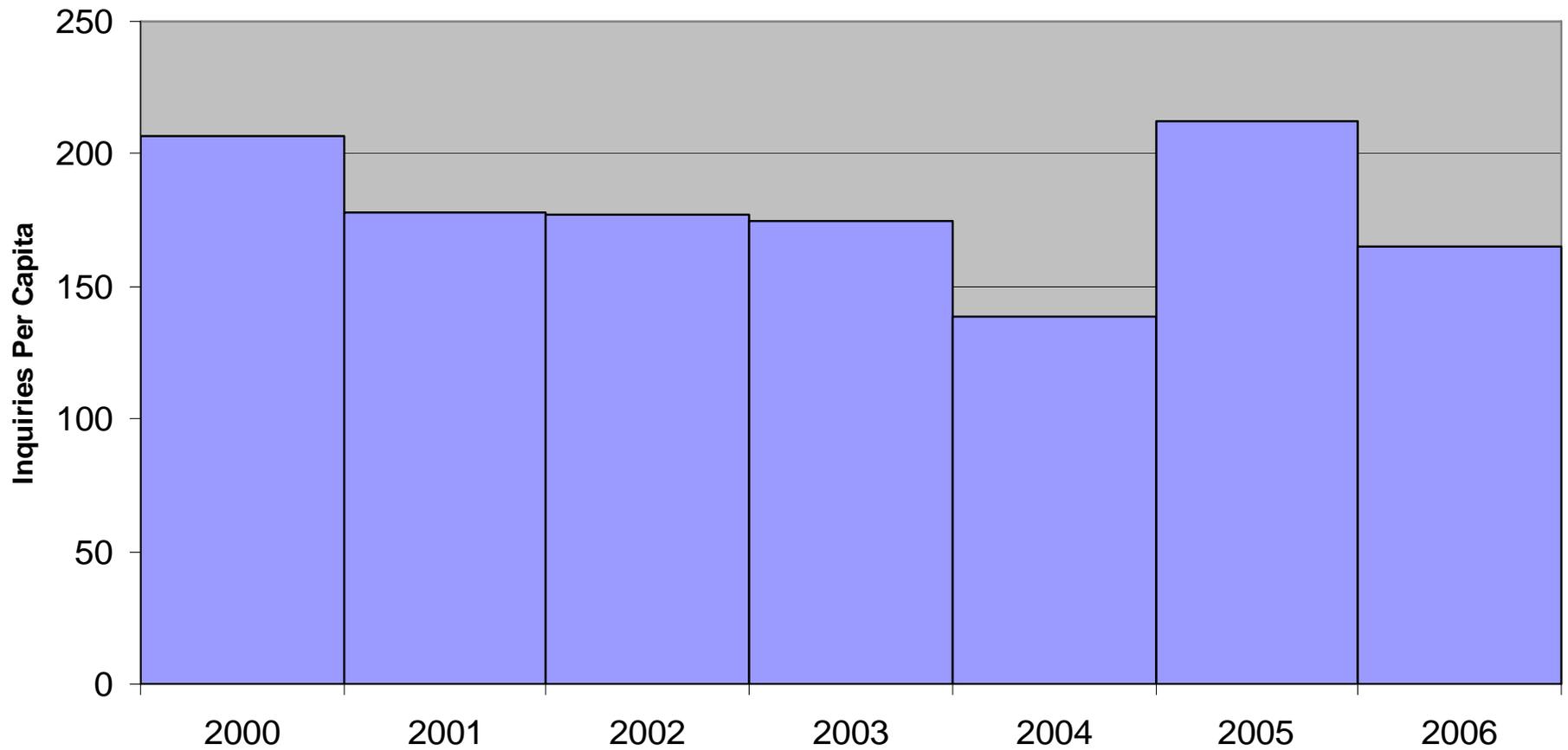
North Dakota Geological Survey



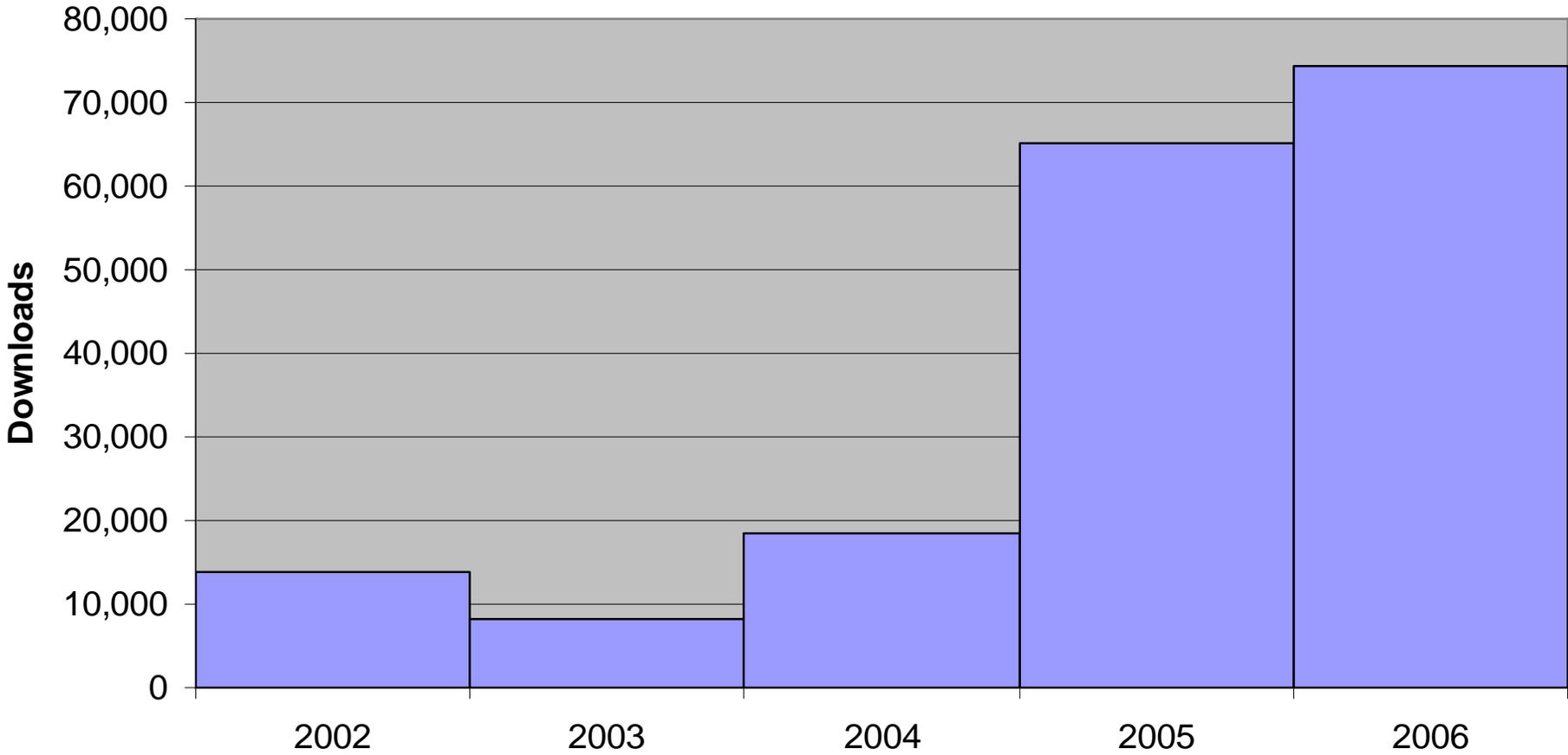
NORTH DAKOTA GEOLOGICAL SURVEY



NORTH DAKOTA GEOLOGICAL SURVEY



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NORTH DAKOTA GEOLOGICAL SURVEY PHOTO PROJECT

