

South Dakota

*Department of Environment
& Natural Resources*

Minerals and Mining Program

Oil & Gas Section - Rapid City, SD

2008 SOUTH DAKOTA OIL & GAS UPDATE

SIXTEENH WILLISTON BASIN

PETROLEUM CONFERENCE

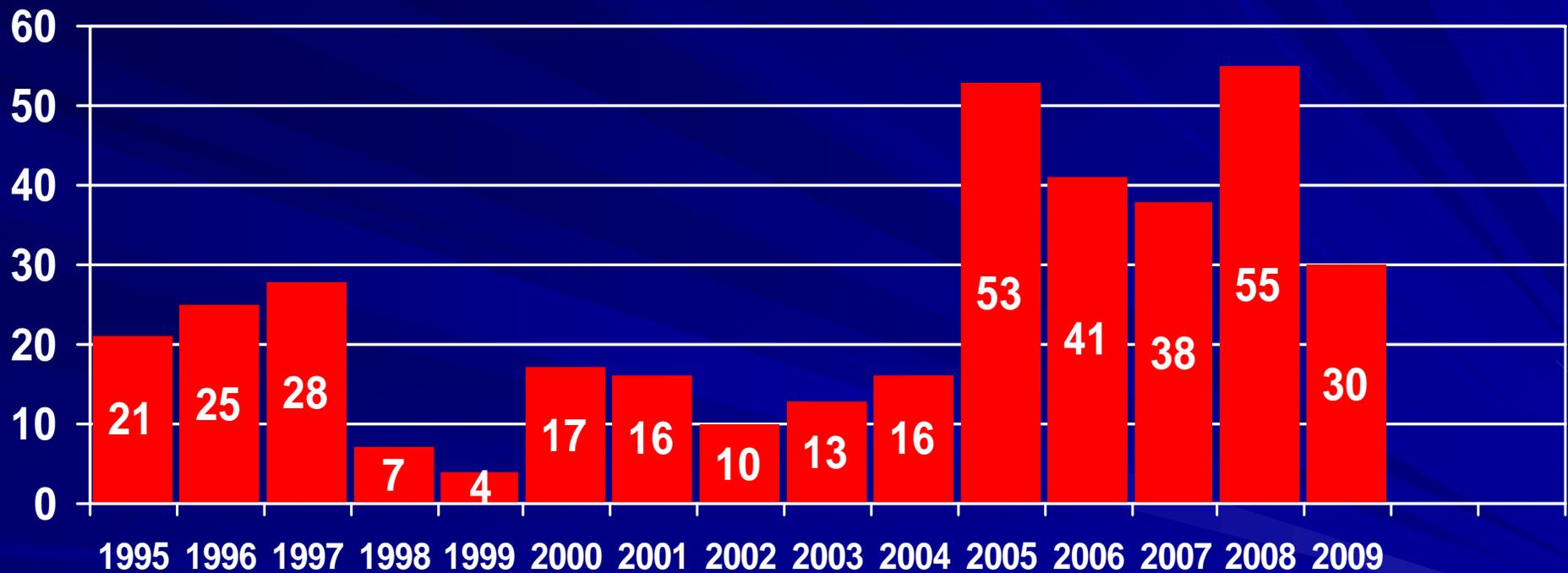
APRIL 27 – 29, 2008

COMPILED BY GERALD (MACK) MCGILLIVRAY

PRESENTED BY THE HONORABLE LYNN HELMS

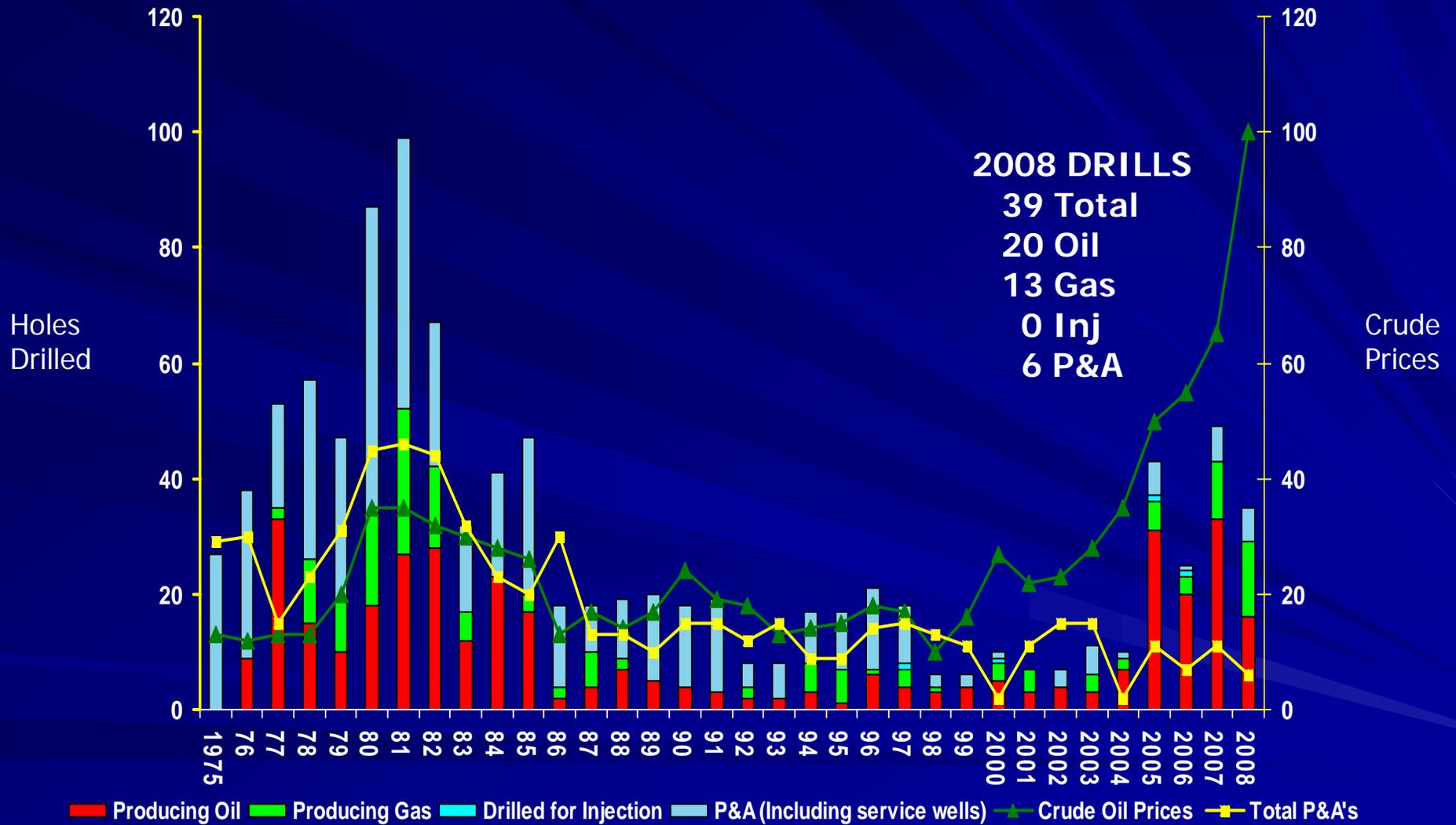
***South Dakota Crude Oil
and Natural Gas
Production Set New
Records in 2008***

South Dakota Drilling Permits Issued 1995 – 3/31/09
Although the numbers are still low compared to surrounding States and Provinces, the upward trend is encouraging.
In 2009, all but one of the permits are for Shannon gas wells.

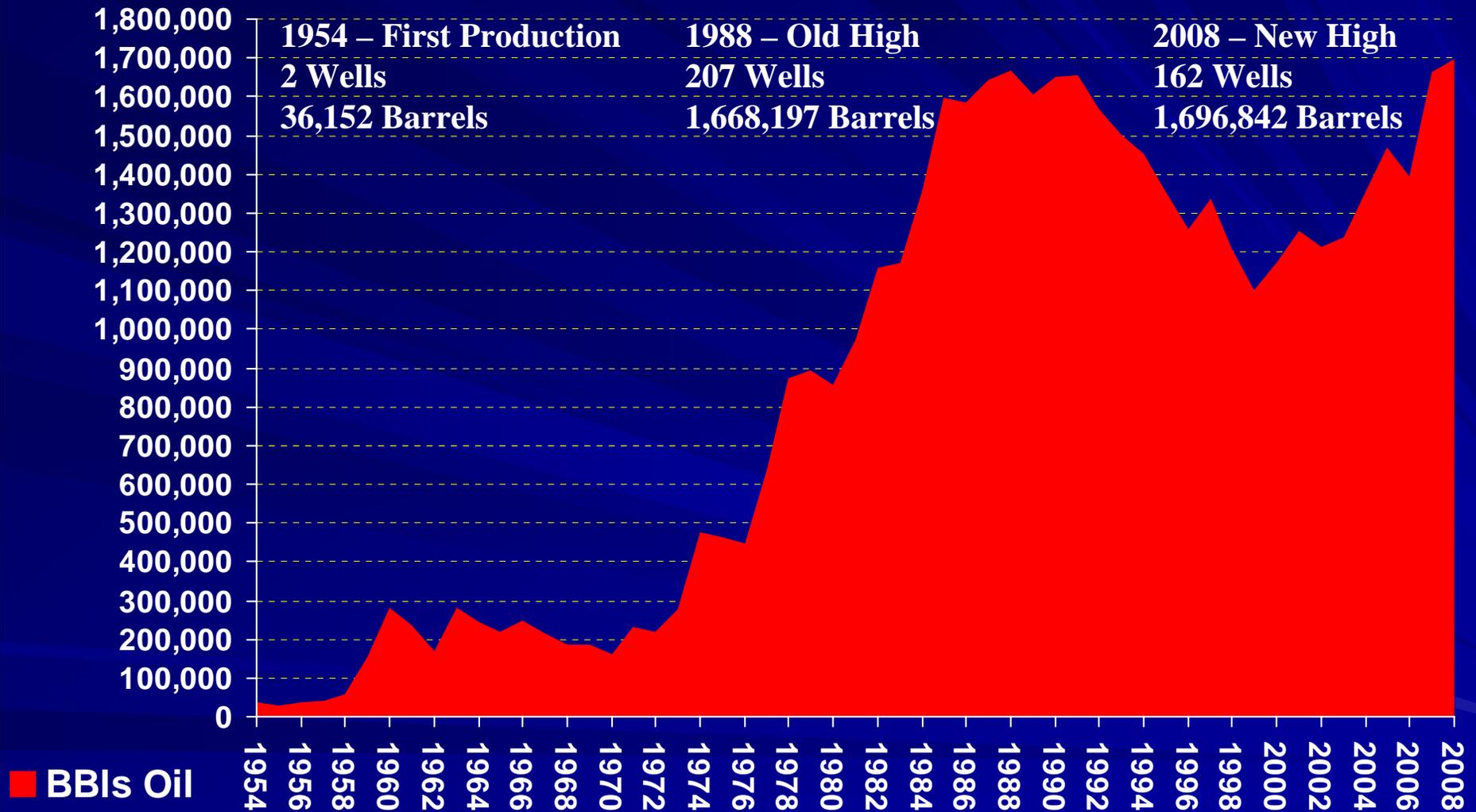


■ Number of Permits Issued

South Dakota Oil & Gas Tests/Plugs 1975-2008

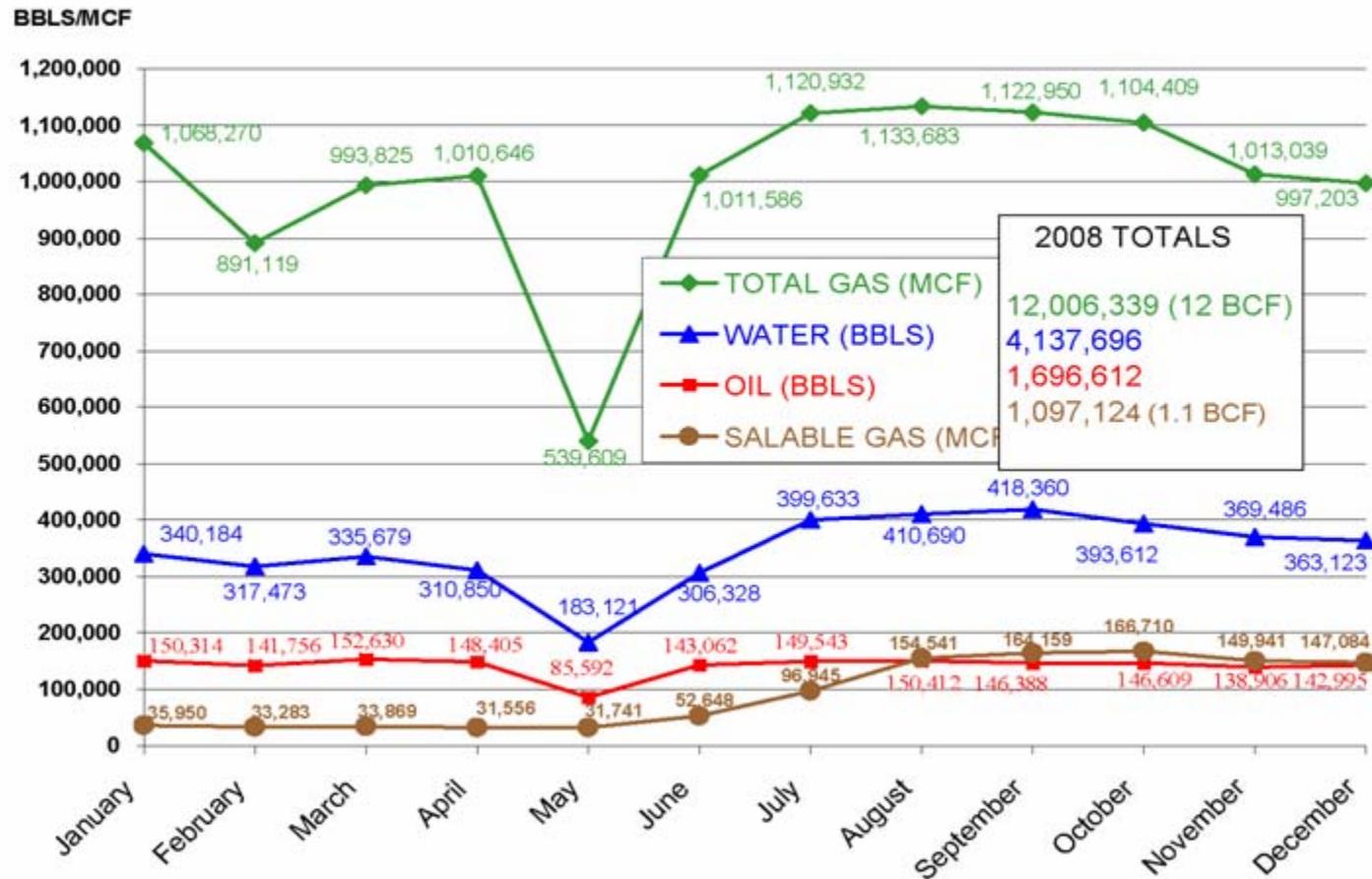


South Dakota Crude Oil Production (bbls) 1954-2008



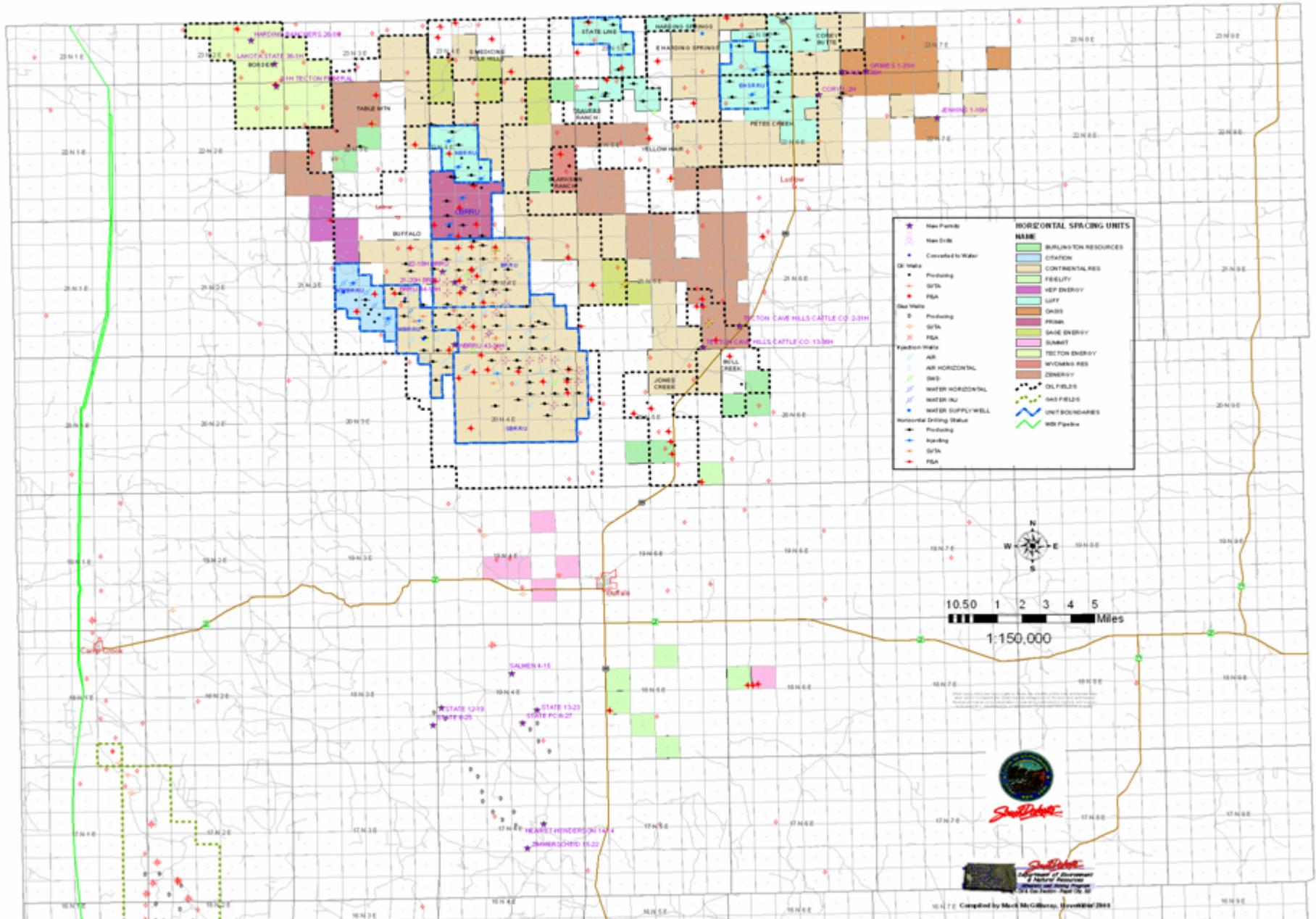
Notice the decreased production in May, which was a result of a major blizzard.

2008 MONTHLY OIL/GAS/WATER PRODUCTION

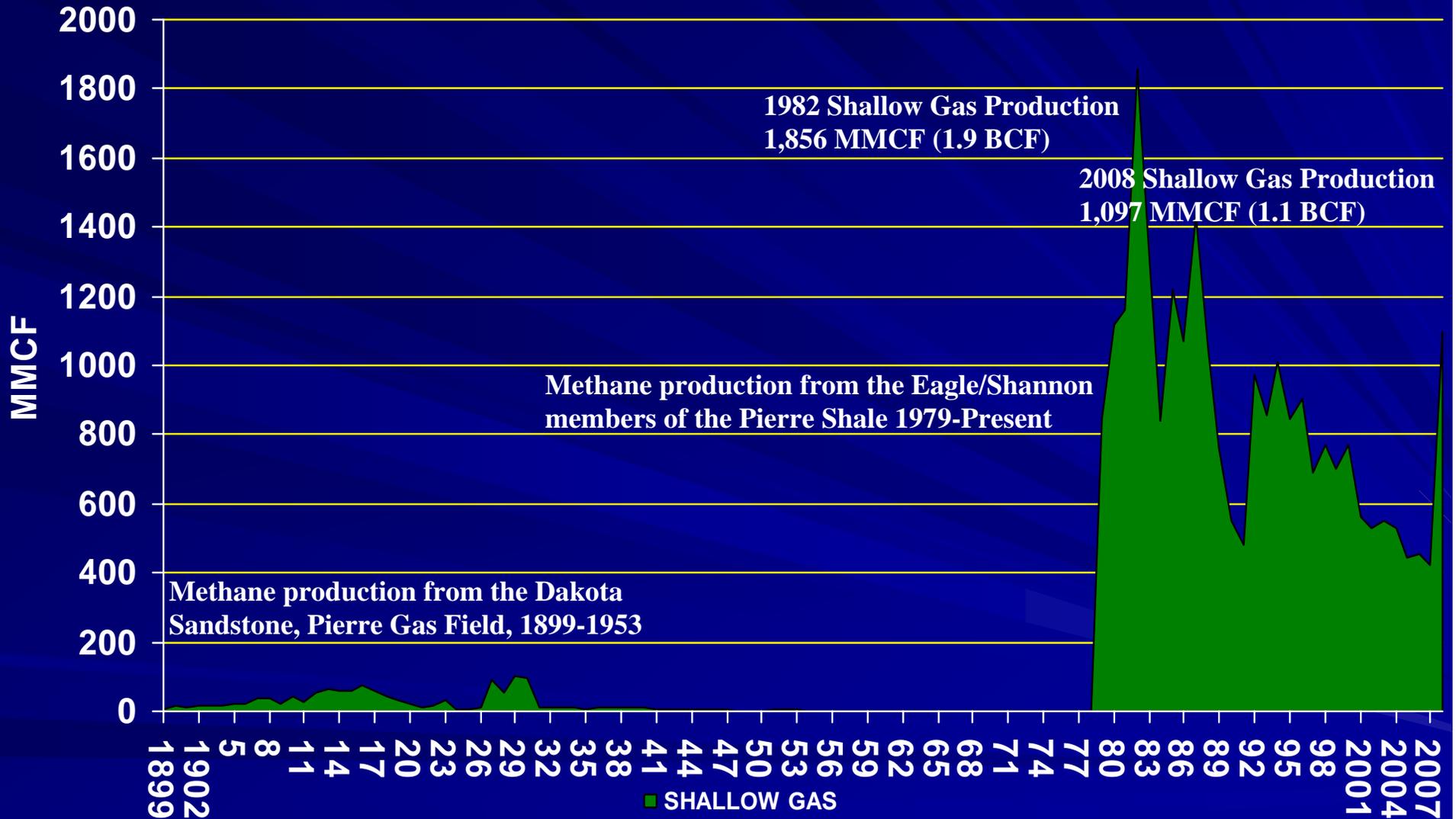


The colors denote horizontal drilling spacing units, and show the large areas spaced not only by established Operators like Continental Resources and Luff, but new Players like Tecton and Zenergy.

Northern Harding County Wells/Spacing Units

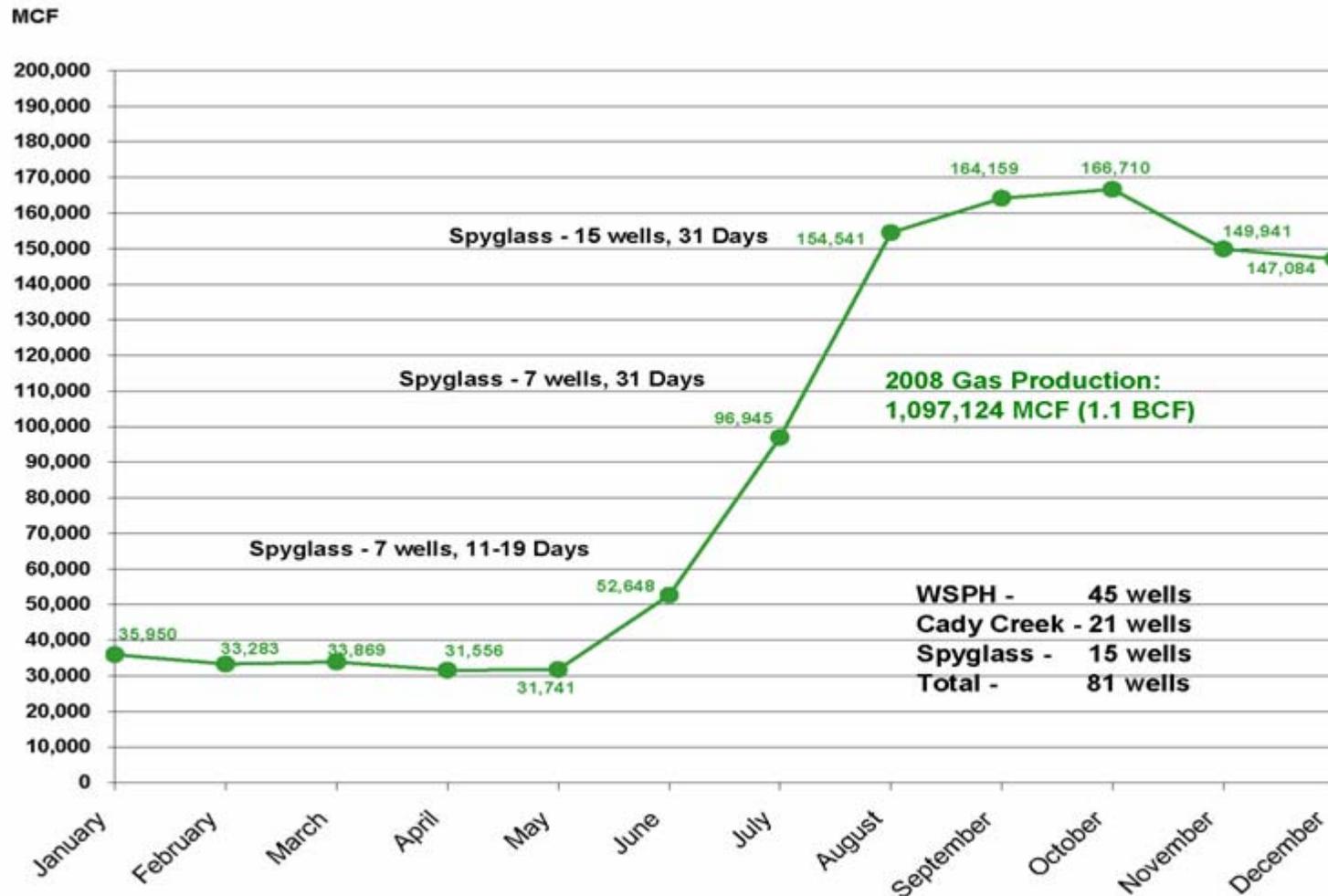


South Dakota Shallow (Methane) Gas Production 1899 - 2008

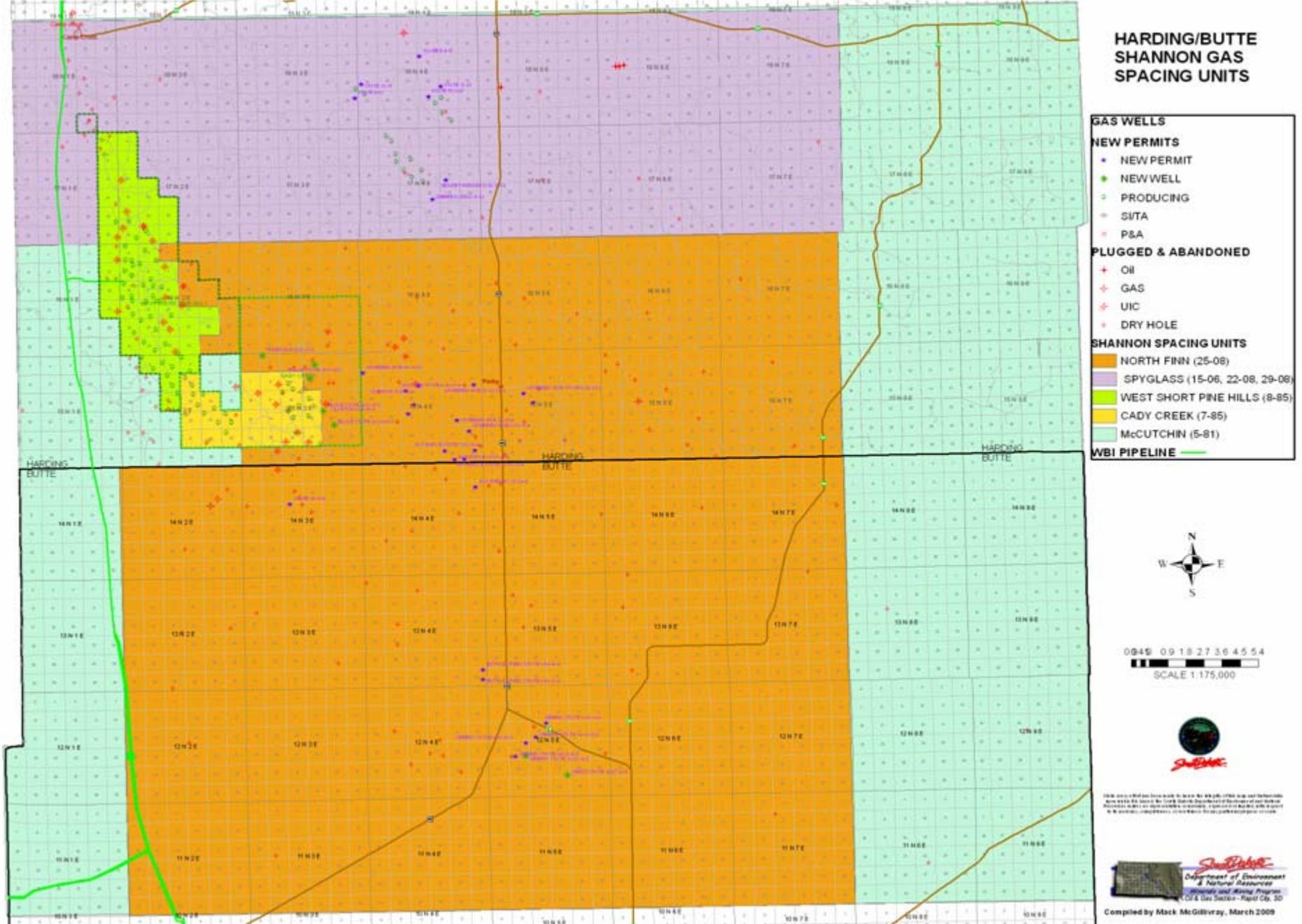


Notice that the total production increased by a factor of five as a result of production from the Spyglass wells.

2008 MONTHLY SALABLE GAS PRODUCTION

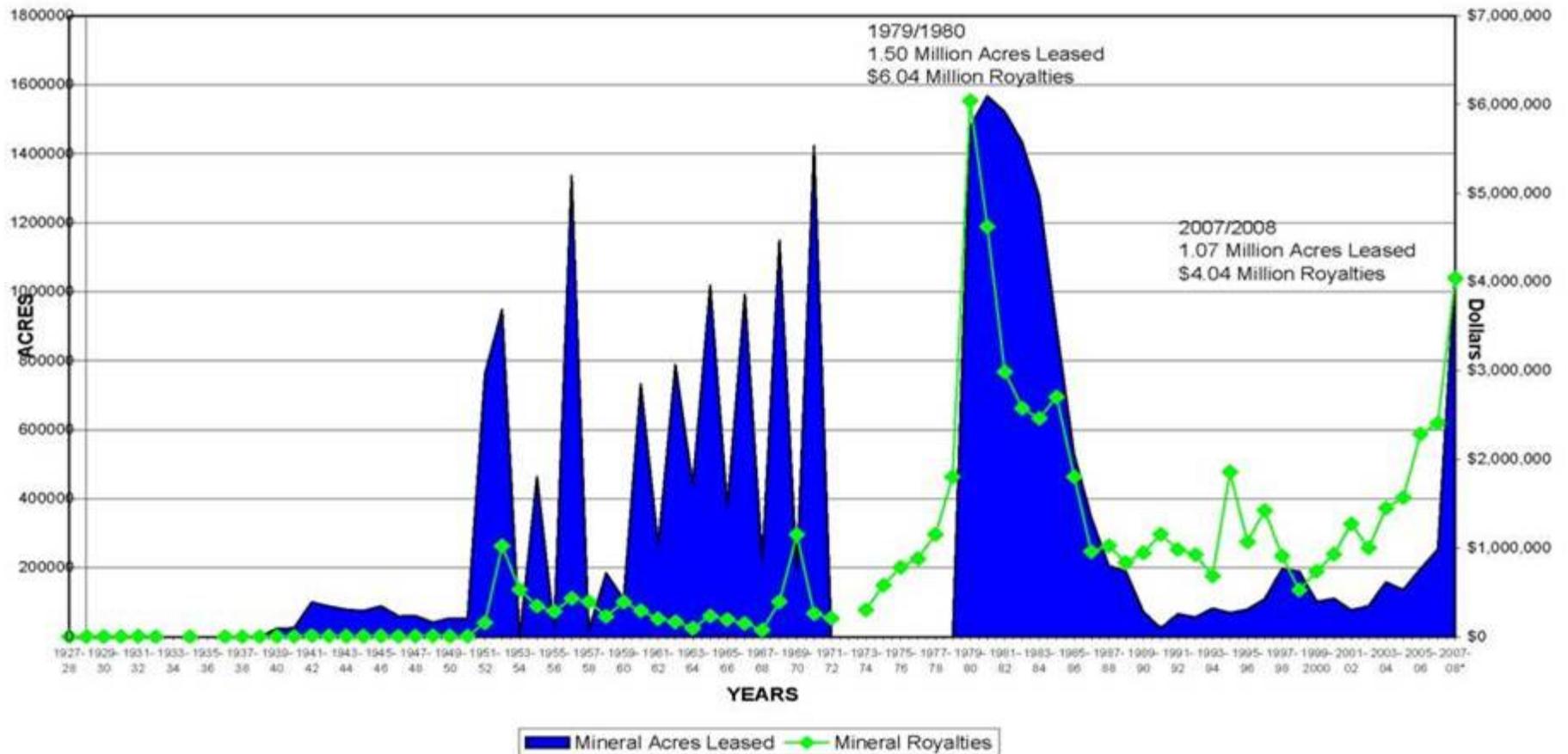


This map of southern Harding and northern Butte counties show the recent Shannon spacing units, and new wells and permits.



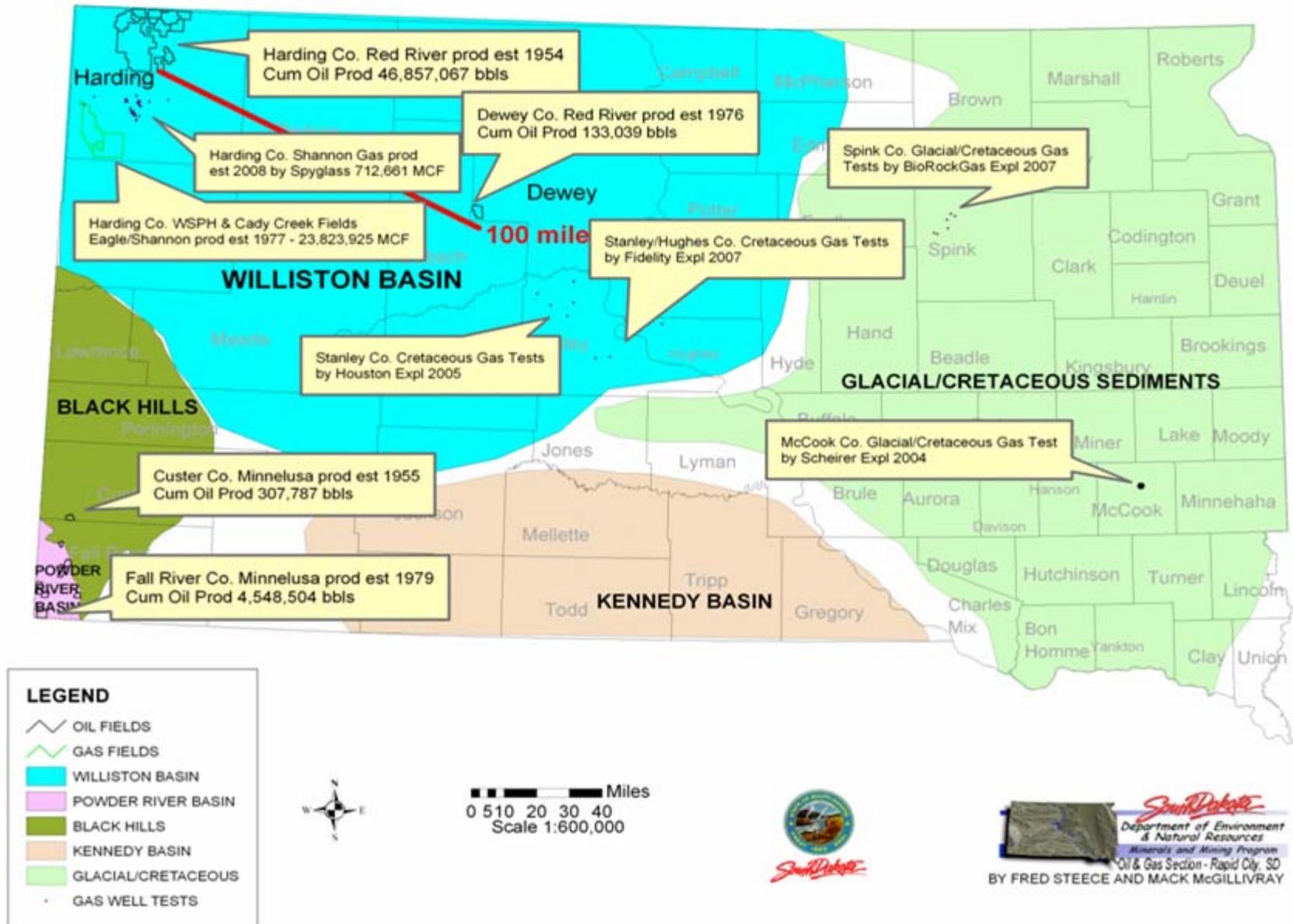
This chart shows the revenue the SD School and Public Lands Dept. has received from Recent oil & gas leasing and royalties, which is separate from the 4.5% surety tax.

South Dakota School and Public Lands Oil and Gas Lease Sales



This map illustrates that over 100 mi. separates Harding and Dewey Co. Red River Production, the area in between is the largest and deepest section of the Williston Basin, and it is essentially unexplored.

CURRENT AND POTENTIAL OIL & GAS PRODUCING BASINS/AREAS IN SOUTH DAKOTA



***CURRENT
PUBLICATIONS
AND
SERVICES***

- O&G Dev
- RULES & REGS
- NEW PERMITS
- FORMS
- PROD/INJ
- MAPS
- WELL DATA
- LINKS



Fred Steece - Oil & Gas Supervisor/Geology Specialist ([E-mail](#))
Gerald (Mack) McGillivray - Senior Geologist/Web Page Developer ([E-mail](#))

Welcome to the South Dakota Oil & Gas Section homepage. The Oil & Gas Section is under the [Minerals & Mining Program](#), [Division of Environmental Services](#), [Department of Environment and Natural Resources](#), and is located at 2050 W. Main, Suite #1, Rapid City, SD 57701. PH: (605) 394-2229.

What We Do
The purpose of the Oil & Gas Section is to provide environmental regulation in a customer service oriented manner, and to promote the development of oil and gas resources in the state in a manner that will prevent waste, encourage the greatest economic recovery of oil and gas, and protect correlative rights, ground water resources, the environment and human health.



New Oil & Gas Website, essentially the same data, just a different format, and is available now.

Oil & Gas homepage - Microsoft Internet Explorer provided by State of South Dakota

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Department of Environment & Natural Resources

Protecting South Dakota's tomorrow...today!





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 - Well data
 - Production/Injection
 - Mapping
- Permits/Forms
 - Oil & Gas forms
 - Issued permits
- Miscellaneous
- Industry news
- Links

As a phrase Search Site Reset

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Oil & Gas Section - Rapid City, SD

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1929 Drilling Rig, Barker Dome Field - Custer County (click on photo to enlarge)

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Last updated: March 20, 2009

Done Trusted sites

State and County Oil & Gas Maps, currently available in PDF formats or paper copies, will be interactive soon.

Oil and Gas Maps - Microsoft Internet Explorer provided by State of South Dakota

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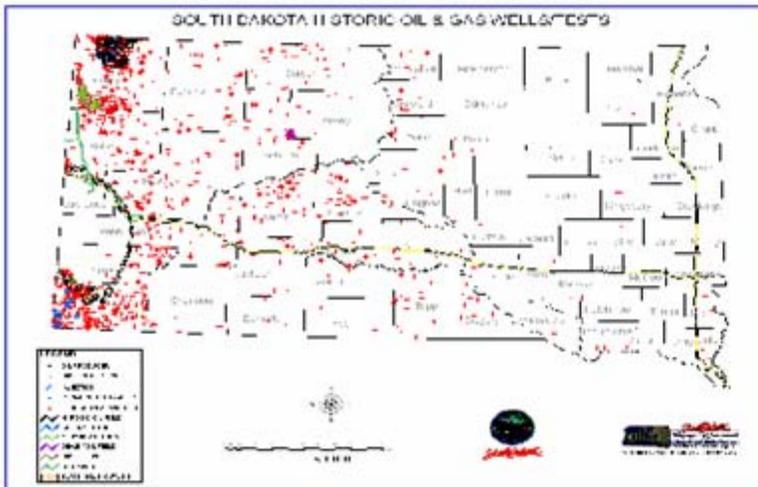
Back Forward Stop Refresh Home Search Favorites Media Print Mail Stop

Address <http://www.state.sd.us/denr/DES/Mining/Oil&Gas/o&g-maps.htm> Go

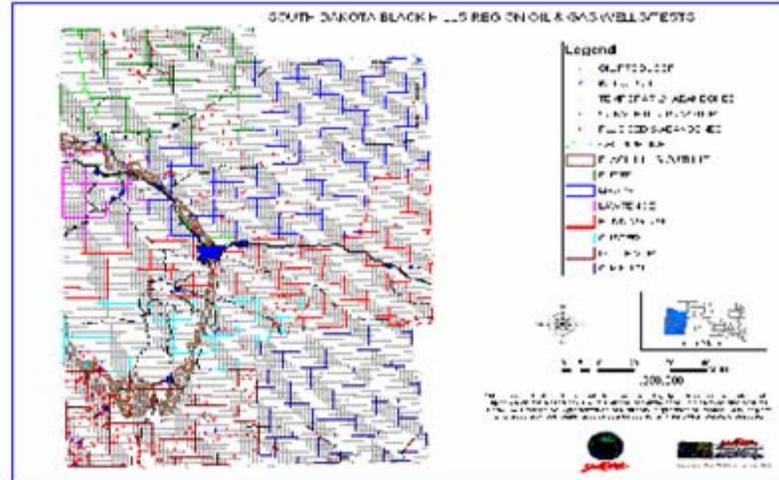
The maps are updated on a monthly, or as needed, basis. They are also available by mail order (including key with well locations and data) from our office. The paper sizes and costs are listed below. Costs for larger scale plots will be determined on a case-by-case basis.

8.5x11 in. \$1.00 - 11x17 in. \$1.25 - 17x22 in. \$2.50 - 22x34 in. \$5.00 - 34x44 in. \$10.00

To order, please contact Mack McGillivray at mack.mcgillivray@state.sd.us or call 605-394-2229.



South Dakota Statewide



Black Hills Region



Local intranet

Oil & Gas Database Search to obtain data for any well drilled in the state.

Oil & Gas Database Search - Microsoft Internet Explorer provided by State of South Dakota

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Address http://jurassic2.sdgs.usd.edu/cold_fusion/oil_gas/search_oil_gas.cfm Go



South Dakota
Department of Environment
& Natural Resources
Minerals and Mining Program
Oil & Gas Section - Rapid City, SD

ENTER SEARCH CRITERIA

Search Tips

Search Field		Value
Well Field	equals	Buffalo
	<input type="radio"/> Simple	
	<input checked="" type="radio"/> AND	
	<input type="radio"/> OR	
Location	equals	%22N-4E%

[Help on Fields](#) [About](#)

Done Internet

start I... O... M... O... M... N... 2:40 PM

Example of Data obtained from the Oil & Gas Database

Oil/Gas Search Results - Microsoft Internet Explorer provided by State of South Dakota

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print

Address http://jurassic2.sdgs.usd.edu/cold_fusion/oil_gas/search_results_oil_gas.cfm Go

Oil and Gas Search for: well_field like 'Buffalo' AND loc like '%22N-4E%'

Page 1 of 2 well formation both Page: 1

Record 1 of 20

Well Information

API No:	40 063 20056	County:	HARDING
Well Name:	PHILLIPS 1 B THOMAS	Location:	NWSW 32-22N-4E
Permit No:	659	Total Depth:	8790
Operator Name:	PHILLIPS PETROLEUM CO	Bottom Hole:	Red River
Permit Date:	1972-05-02	KB Elevation:	3046
Spud Date:	1972-06-03	Ground Elevation:	3034
Plug Date:	1982-08-18	Latitude:	45.825545
		Longitude:	-103.661939
Well Field:	BUFFALO	Status:	P&A
Class:	OIL	Type:	

Formation Tops

Formation	Depth (ft.)
Piper	5316
Pine Salt	5602
Minnekahta	5944
Opeche	5990
Minnelusa	6099
1st Leo	6256

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start Inbo... O&G Micr... Micr... Oil/... 2:35 PM

NEW STUFF!!

REVISED RULES

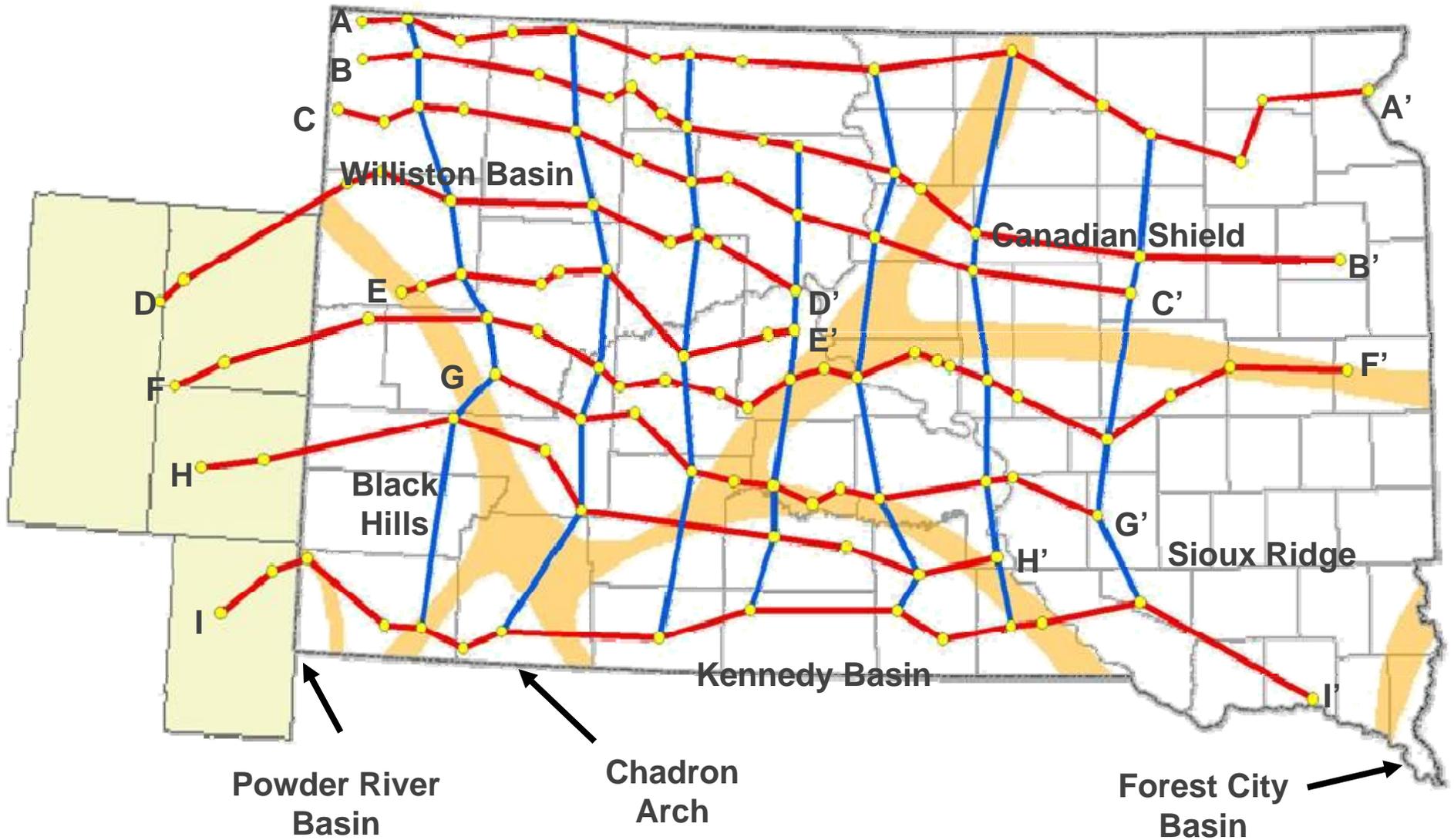
Revise 74:10:03:16. Procedures for setting surface casing and production casing.

The rule currently requires a minimum of 100 feet of surface casing to protect shallow aquifers in all oil and gas wells. Operators that are exploring for shallow oil and gas in the state asked the department to change the current rule because some of the oil and gas they are targeting is at depths of less than 100 feet. In addition, there are areas in the state where 100 feet of surface casing is not necessary due to the surface geology (shale, glacial till). This rule change will eliminate the minimum 100 feet of surface casing requirement and allow the department to determine how much surface casing is required on a case-by-case basis as we do now when more than 100 feet is required.

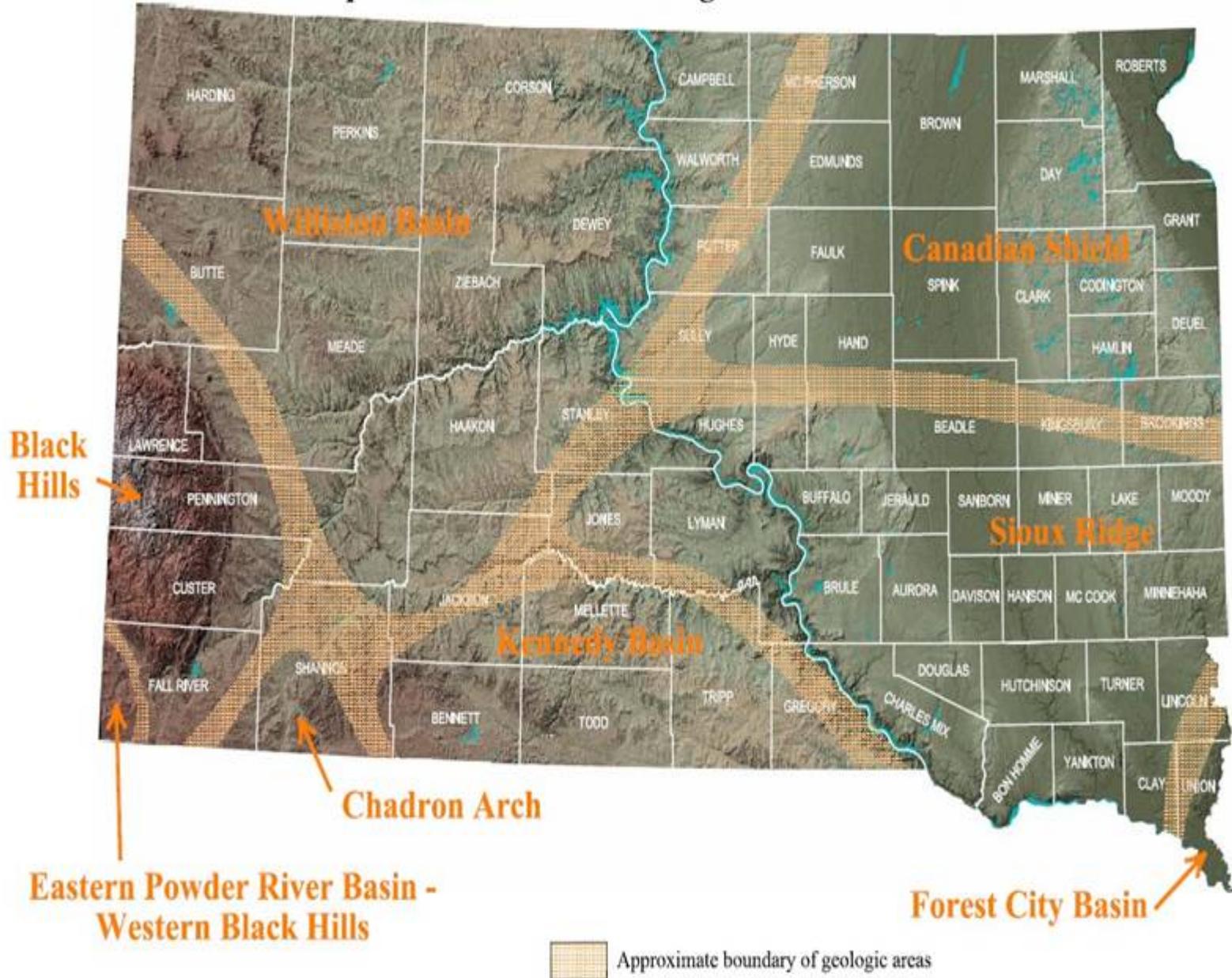
Revise 74:10:09:12. Secretary to set maximum injection pressure.

As the rule was written, the maximum injection pressure could not cause new fractures in the formation into which the fluid is injected. The DENR changed the rule so the maximum injection pressure does not cause new fractures in the confining zone. We believe this change is protective of potential underground sources of drinking water, and it is consistent with the surrounding states' Class II requirements and EPA guidance.

Cross Sections of Geophysical Logs of Phanerozoic Rocks in South Dakota



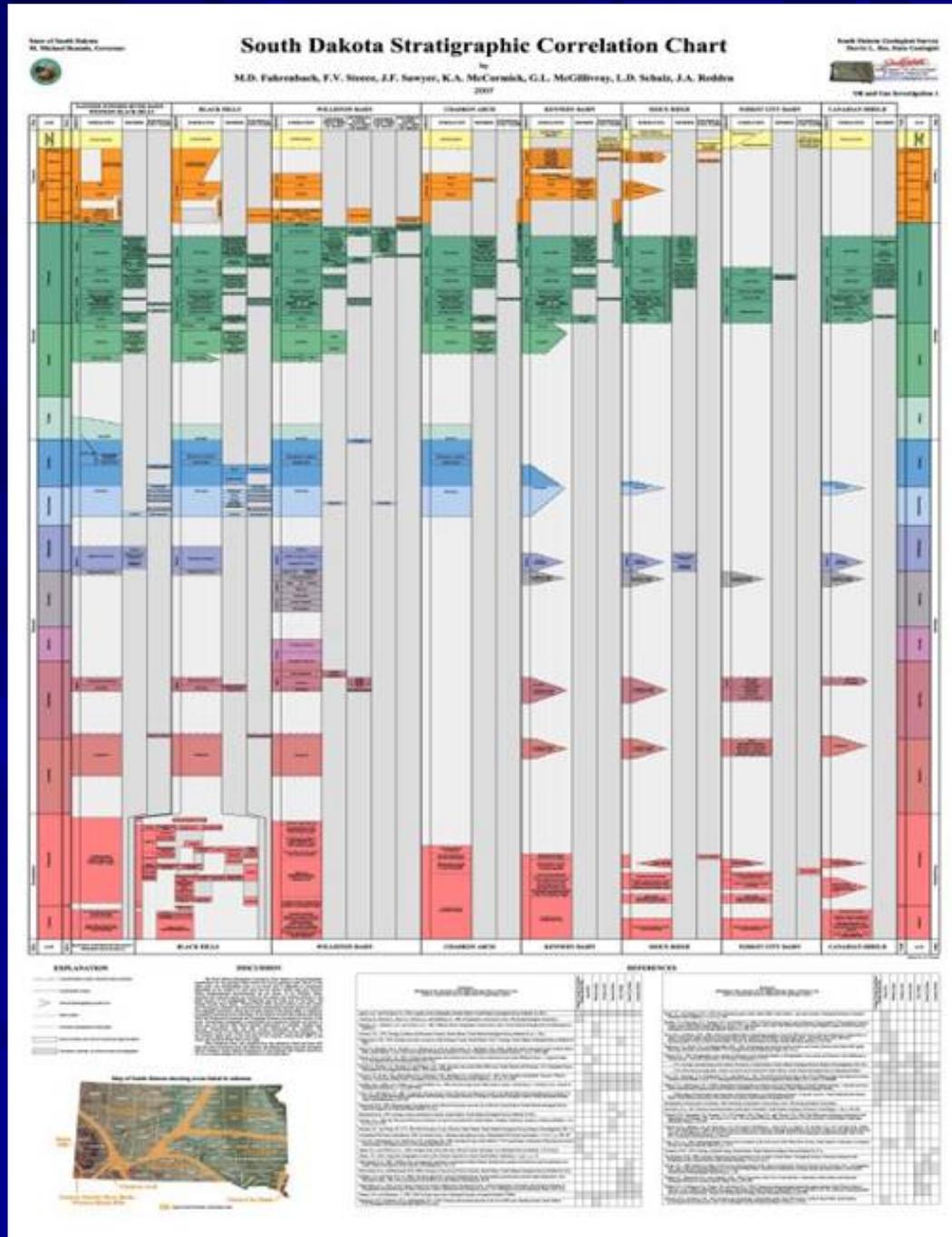
Map of South Dakota showing areas listed in columns



Stratigraphic Correlation Chart of South Dakota

Joint Effort by DENR
Oil & Gas Section
South Dakota Geological Survey
And
Dr. Jack Redden, SDSMT

Currently Available
as a SDGS publication
(Oil & Gas Investigation 1)



I would like to thank the Williston Basin Petroleum Conference Organizers and Participants for allowing me to include my presentation in this years Conference.

And I would like to especially thank Lynn Helms for giving this presentation. I am sure he did a good job, but if you feel he did not, be sure to let him know! I hope to see you all next year. *Mack*

FOR MORE INFORMATION,

SEE OUR WEBSITE <http://www.state.sd.us/denr/DES/Mining/Oil&Gas/O&Ghome.htm>

OR CONTACT:

FRED STEECE (SUPERVISOR) email: fred.steece@state.sd.us

MACK MCGILLIVRAY (SENIOR GEOLOGIST) email: mack.mcgillivray@state.sd.us

**SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
MINERALS & MINING PROGRAM - OIL & GAS SECTION**

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