

Osage Oil & Gas Summit

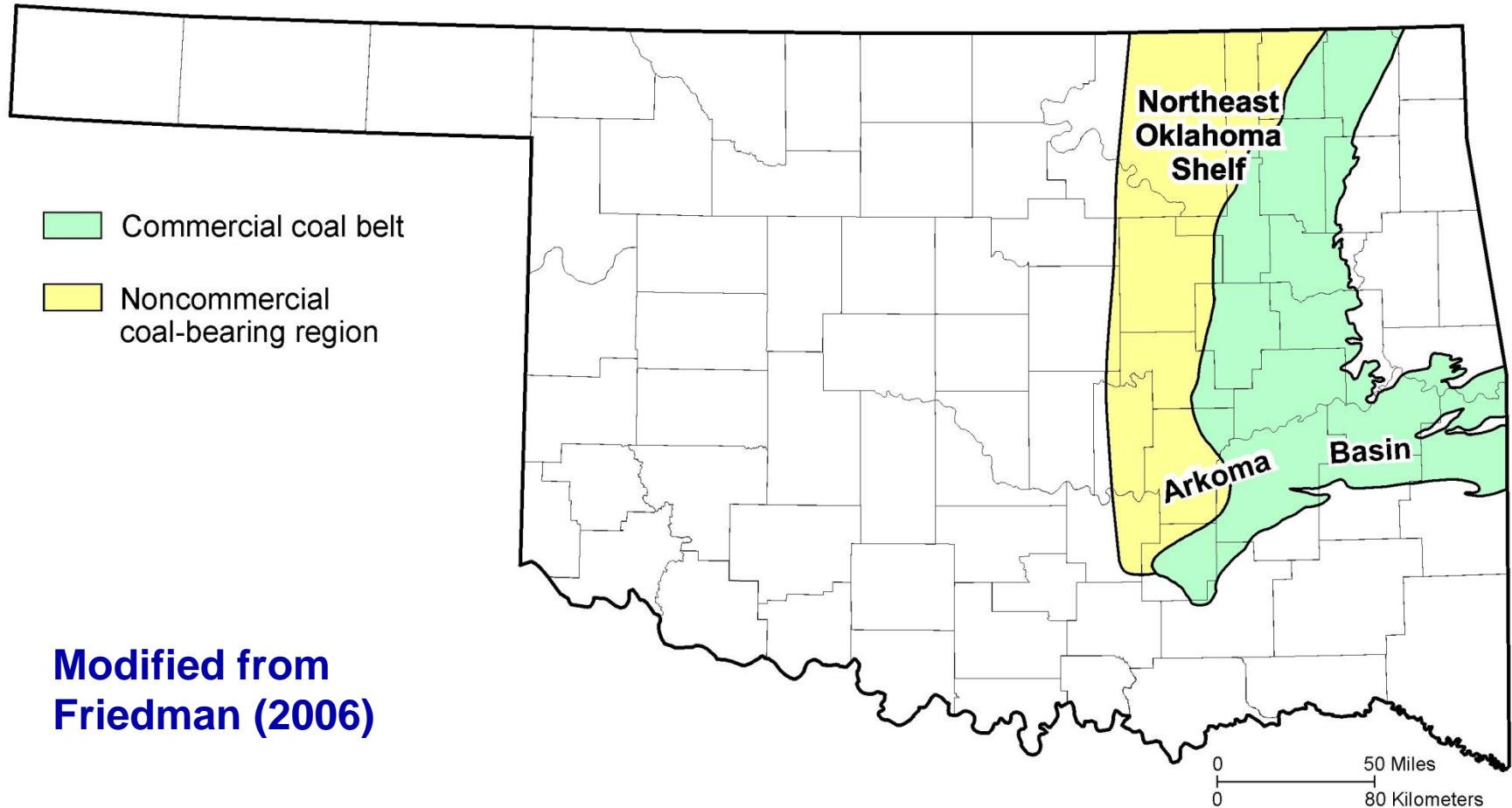
November 8, 2012

# Northeast Oklahoma Shelf Coalbed-Methane Activity and Issues, 1994-2012

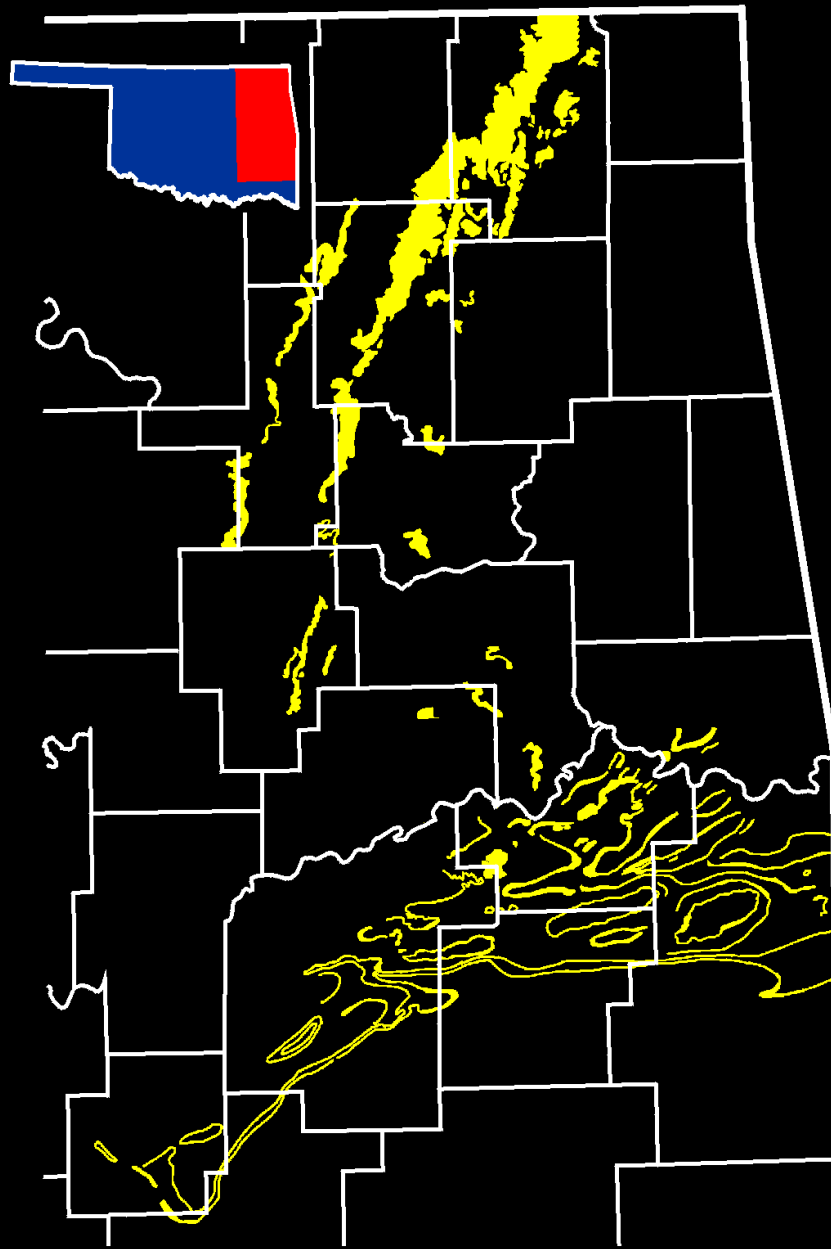


Brian J. Cardott  
Oklahoma Geological Survey

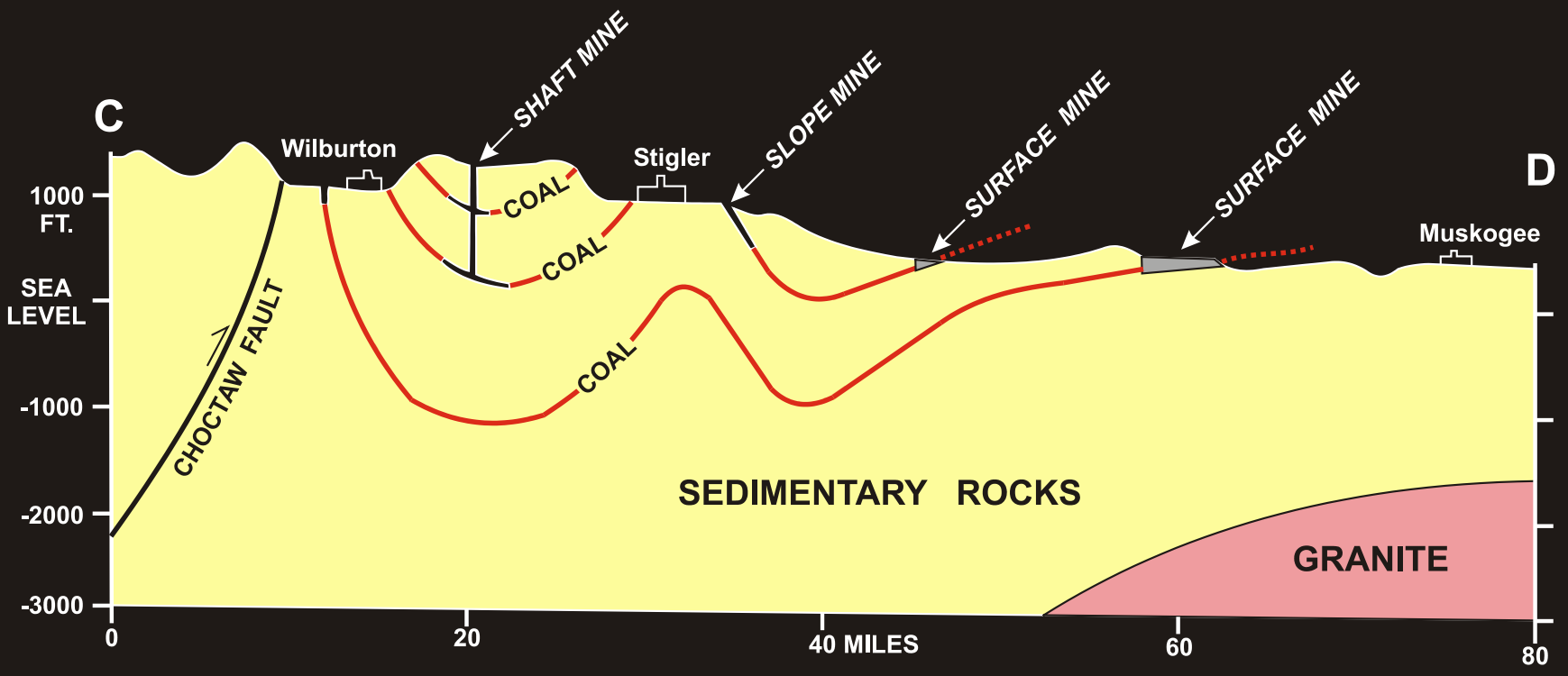
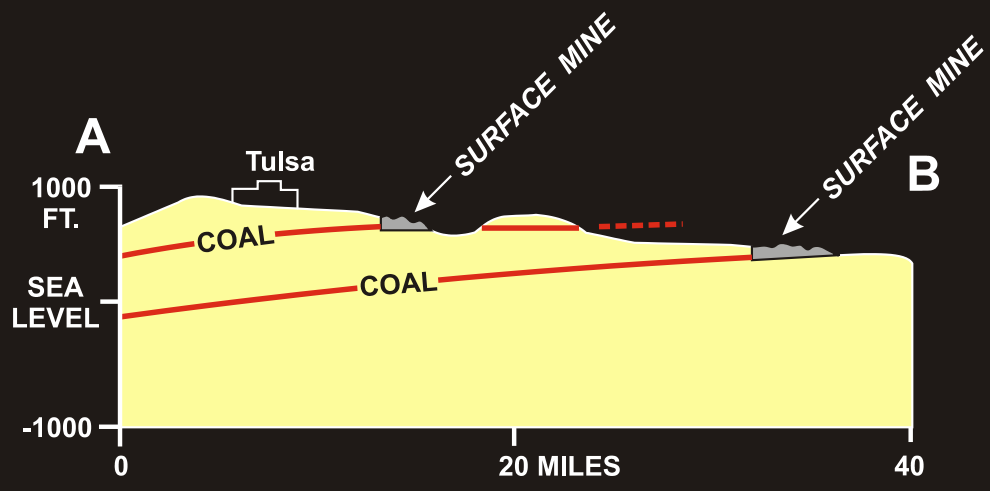
# Oklahoma Coalfield



Modified from  
Friedman (2006)



**COAL OUTCROP AND SUBCROP MAP  
OF OKLAHOMA COALFIELD (Friedman, 1982)**



Modified from Johnson (1974)

# OKLAHOMA COAL RANK Generalized for all coals, at or near the surface

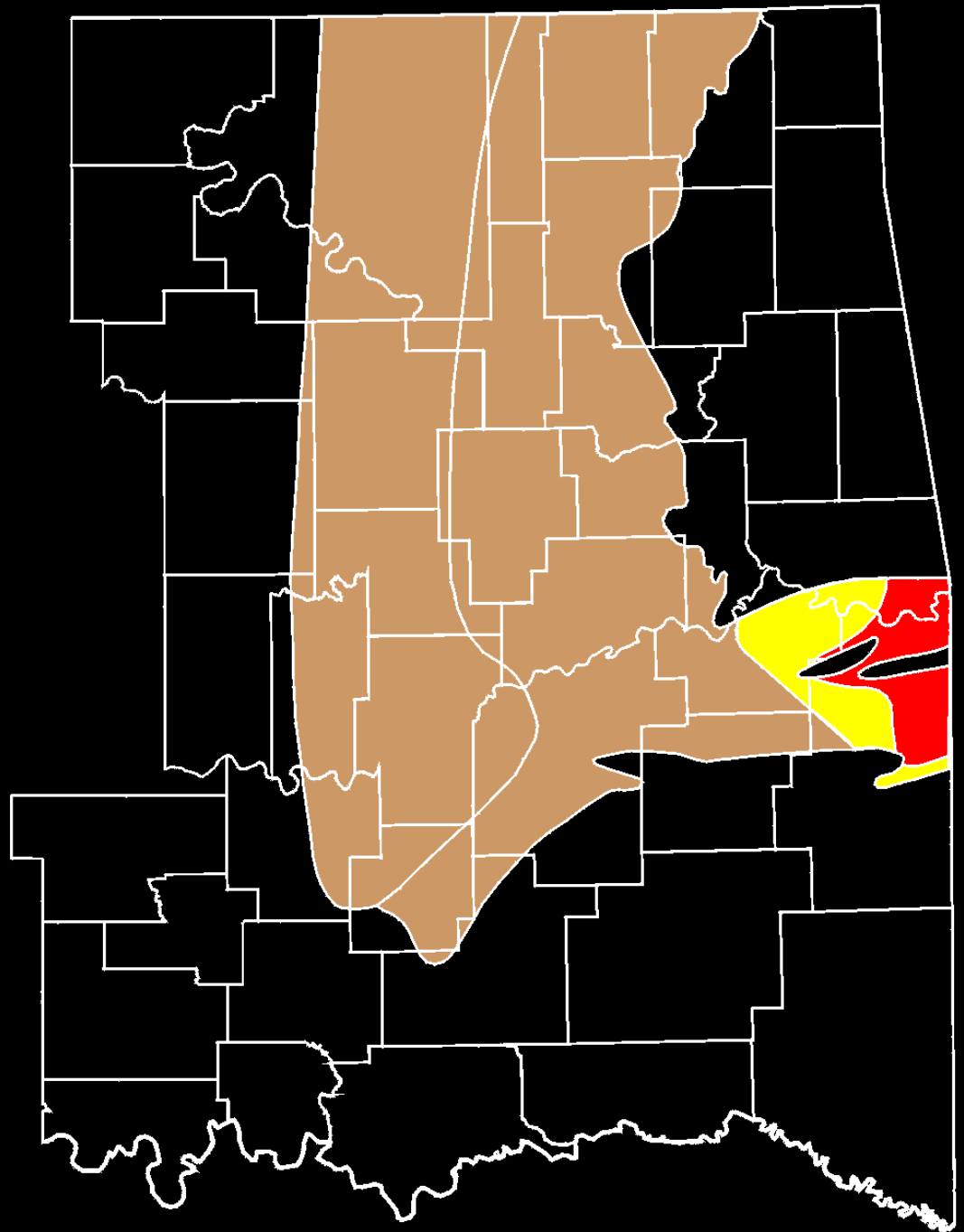
High-volatile bituminous



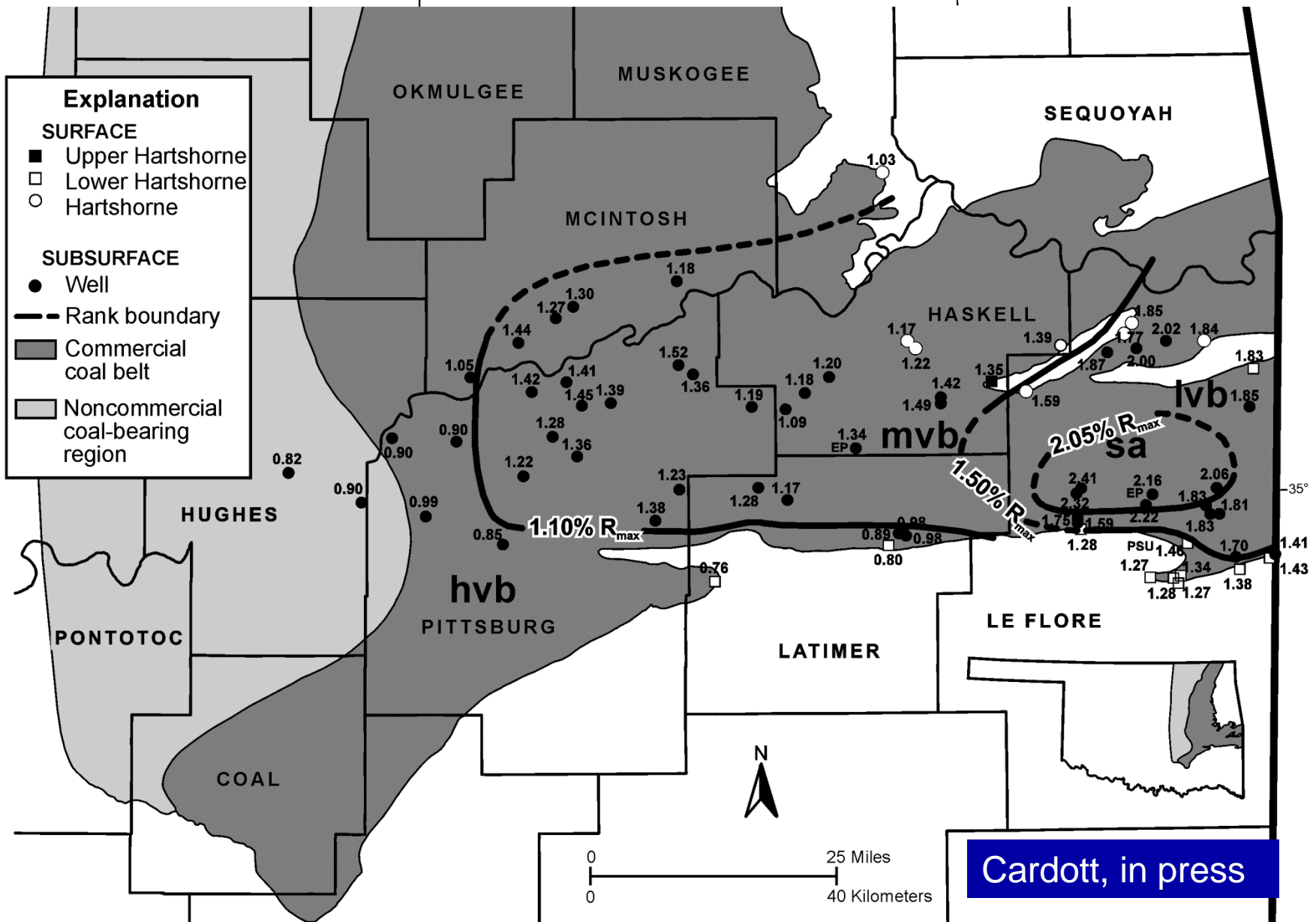
Medium-volatile bituminous



Low-volatile bituminous



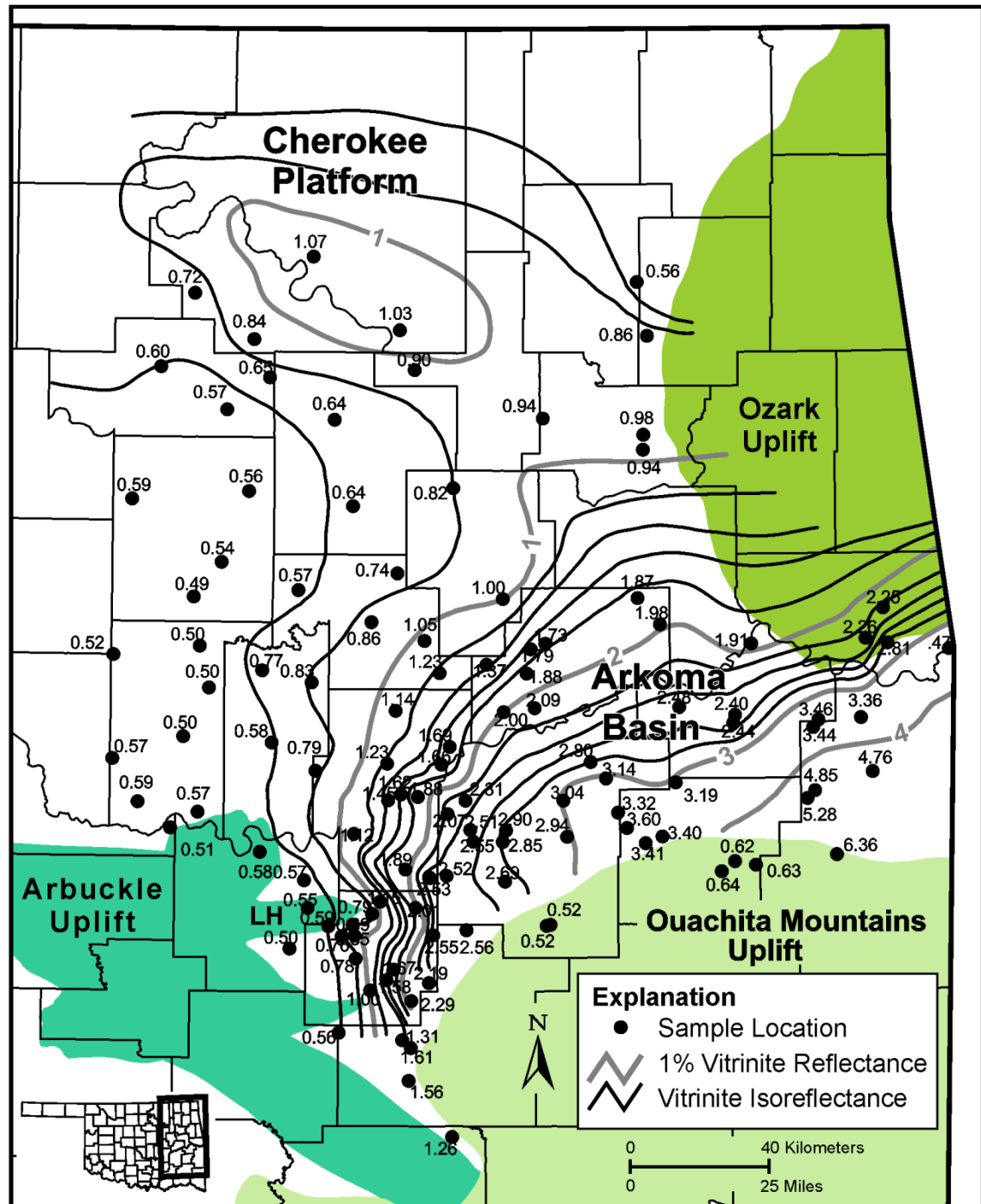
# Hartshorne Coal Rank Map



Thermal anomaly recorded in Woodford Shale (Late Devonian-Early Mississippian) in Osage County

High Volatile Bituminous = 0.5-1.1% Ro

Cardott, 2012



# Coal Resources Publications of NE Oklahoma Shelf

OKLAHOMA GEOLOGICAL SURVEY



## AVAILABLE COAL REPORTS AND MAPS

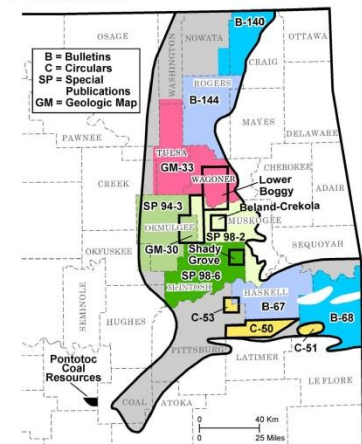
August 2011

### Purpose

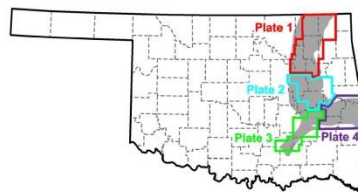
This informal flyer is intended to assist the public in selecting published Oklahoma coal information, especially maps. Recently, topics in greatest demand are coal resources, coal structure, coal-bed methane, and abandoned mine maps. Other topics are coal stratigraphy, coal rank (maturity), coal petrography, chemical analyses of coal, water chemistry of coal-mine ponds, and bibliography of abandoned coal-mine lands. This is not a bibliography of everything on coal that was ever published. Very old maps and reports by the U.S. Geological Survey, although out-of-print, may be available in the Youngblood Library on the second floor of Sarkeys Energy Center. Refer to the bibliographies on Oklahoma coal on the OGS website ([www.ogs.ou.edu/coal.php](http://www.ogs.ou.edu/coal.php)).

### Introduction to the Coalfield

Identified coal resources are present in an area of approximately 8,000 square miles in 20 counties in eastern Oklahoma. The area is within the southern part of the Western Region of the Interior Coal Province of the United States. The coal beds are of Middle and Late Pennsylvanian age, 0.8-10 ft thick, 0.4-6.5% in sulfur content, coking or non-coking, contain 11,400-15,000 Btu/lb, and are low (2-7%) in inherent moisture. Oklahoma contains the most significant deposits of bituminous coal between the Mississippi River and the Rocky Mountains. Although the McClellan-Kerr Arkansas River Navigation System is available for barging coal to international ports, most coal production is shipped by truck or rail. As of January 1, 1994, 8.1 billion short tons of remaining coal resources have been identified; 76% are in the Arkoma basin and 24% are in the northeast Oklahoma shelf area. About 41% of the State's coal resources are low- and medium-volatile bituminous in rank and are present in the Arkoma basin. Four mining companies produced about 1.0 million tons of Oklahoma coal at nine mines in six counties in 2010. About 0.5 million tons of Oklahoma bituminous coal was used by one non-utility electric power plant in Oklahoma. The coal also was used in lime and cement kilns in the State during 2010.



Map of eastern Oklahoma showing areas included in the publications list.



Map of Oklahoma showing location of coalfield and the four plates of Geologic Map GM 23.

## Coal Resources

**Special Publication 74-2.**-An investigation of the coal reserves in the Ozarks section of Oklahoma and their potential uses, by S. A. Friedman. Final report to the Ozarks Regional Commission: distributed by permission of the Commission. 117 pages, 24 figures, 77 tables. 1974; 5th printing, 1981. \$4.00.

**Bulletin 67.**-Geology and mineral resources of Haskell County, Oklahoma, by M. C. Oakes and M. M. Knechtel. 134 pages, 8 figures, 6 plates. 1948. (Photocopy\*)

**Bulletin 68.**-Geology and coal and natural gas resources of northern Le Flore County, Oklahoma, by M. M. Knechtel. 76 pages, 1 figure, 7 plates, 3 tables. 1949. (Photocopy\*)

**Bulletin 140.**-Coal geology of Craig County and eastern Nowata County, Oklahoma, by LeRoy A. Hemish. 131 pages, 17 figures, 8 plates, 2 tables. 1986. \$22.00.

**Bulletin 144.**-Coal geology of Rogers County and western Mayes County, Oklahoma, by LeRoy A. Hemish. 118 pages, 12 figures, 8 plates, 2 tables. 1989. Clothbound, \$30.00; paperbound, \$24.00.

**Map GM-33.**-Coal geology of Tulsa, Wagoner, Creek, and Washington Counties, Oklahoma, by LeRoy A. Hemish. 3 sheets (plates 1-5), scale 1:63,360 (shows mined areas in gray), accompanying text. 1990. \$13.00, folded in envelope.

**Special Publication 94-3.**-Coal geology of Okmulgee County and eastern Okfuskee County, Oklahoma, by LeRoy A. Hemish (with an underground coal mine map by Samuel A. Friedman). 86 pages, 9 figures, 8 plates, 2 tables. 1994. \$14.00.

**Special Publication 98-2.**-Coal geology of Muskogee County, Oklahoma, by LeRoy A. Hemish. 111 pages, 7 figures, 3 plates, 2 tables. 1998. \$12.00.

**Special Publication 98-6.**-Coal geology of McIntosh County, Oklahoma, by LeRoy A. Hemish. 74 pages, 8 figures, 2 color plates, 2 tables. 1998. \$16.00.

**Map GM-23.**-Map showing potentially strippable coal beds in eastern Oklahoma, by Samuel A. Friedman. 4 color sheets (plates 1-4), scale 1:125,000 (shows mined areas in gray). Prepared in cooperation with Oklahoma Department of Mines. 1982. \$5.00, folded in envelope.

**Map GM-24.**-Map of eastern Oklahoma showing locations of active coal mines, 1977-79, compiled by Samuel A. Friedman. Includes tabulation of coal mines and coal data. Scale 1:500,000. 1982. \$3.00, folded in envelope.

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# Generalized Stratigraphy of Northeast Oklahoma Shelf Coal-Bearing Strata

SYSTEM	SERIES	GROUP	FORMATION	LITHOLOGY		THICKNESS (ft.)	COAL BED	THICKNESS OF COAL (ft.)	
				S	N				
PENNSYLVANIAN	MISSOURIAN	OCHELATA	Chanute			13-150	Thayer	0.1-1.5	
			Dewey			6-60			
		SKIATOOK	Nellie Bly			10-400			
			Hogshooter			2-50			
			Coffeyville			175-500	Unnamed coals Cedar Bluff	0.1-1.0 0.1-1.5	
				Checkerboard			0-26		
			Seminole			2-375	Checkerboard Mooser Creek	0.1-0.2 0-0.1	
								Tulsa	0.1-1.0
		Holdenville			40-250	Len- apah	5-29	Dawson	0.3-2.5
								Jenks	0.6-2.0
		DESMOINESIAN	MARMATON	Nowata			60-500		
					Wewoka			0-700	
				Oologah				32-165	
				Labette			40-250		
				Wetumka			0-200		

SYSTEM	SERIES	GROUP	FORMATION	LITHOLOGY	THICKNESS (ft.)	COAL BED	THICKNESS OF COAL (ft.)	
								PENNSYLVANIAN
Fort Scott								
CABANISS	Senora			160-500				
		Unnamed coal	0.1-0.2					
		Croweburg	0.2-3.4					
		Fleming	0.1-1.5					
		Mineral (Morris) Scammon (?)	0.1-2.7 0.1-0.5					
		Tebo RC Weir-Pittsburg	0.1-0.8 0.1-0.5 0-6.2					
KREBS	Boggy			35-700				
		Wainwright (Taft)	0.3-2.3					
		Bluejacket	0.1-1.5					
		Peters Chapel	0.1-2.0					
		Secor rider Secor	0-0.1 0.1-1.8					
Savanna			150-200					
	Drywood	0.1-3.0						
	Rowe	0.2-2.5						
McAlester			100-400					
	Unnamed coal	0.1-0.3						
	Unnamed coal	0.1-0.2						
	Sam Creek Tulahassee	0.1-0.6 0.1-0.2 0.1-0.9						
Spaniard								
	Keota	0.1-1.1						
Keaton								
	Tamaha	0.1-1.0						
McAlester (Stigler)								
	Keifton (Warner)	0.1-1.1						
Riverton								
	Hartshorne	0.1-0.3						
Hartshorne			0-50					
	Hartshorne	0.1-0.4						
Atoka								
	Unnamed coal	0.1-0.6						

From Hemish (1988)

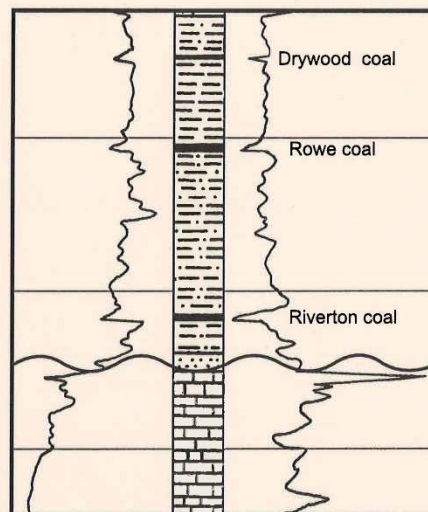


Oklahoma  
Geological  
Survey  
2002

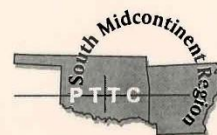
Special Publication 2002-2

## Surface to Subsurface Correlation of Methane-Producing Coal Beds, Northeast Oklahoma Shelf

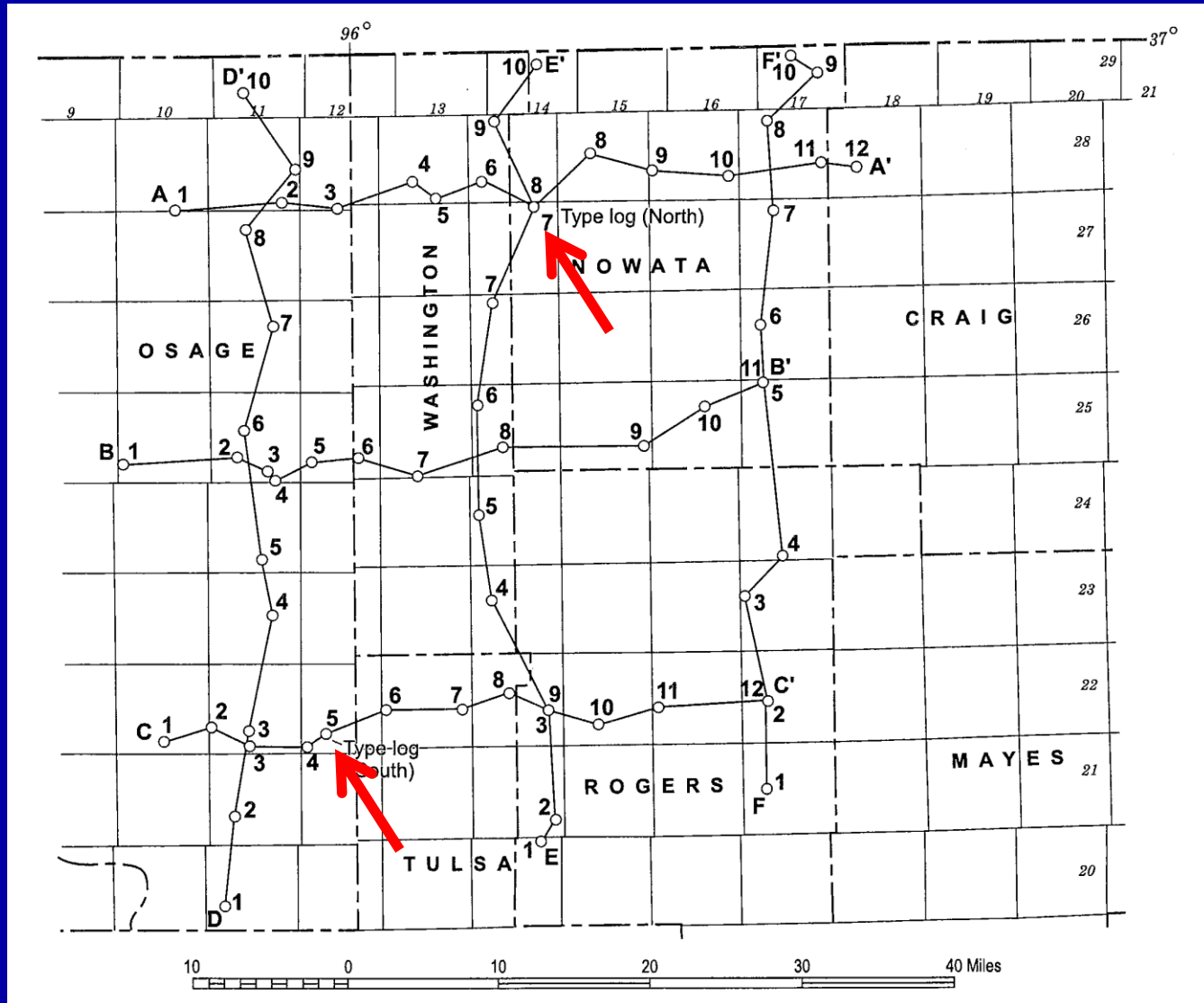
*LeRoy A. Hemish*



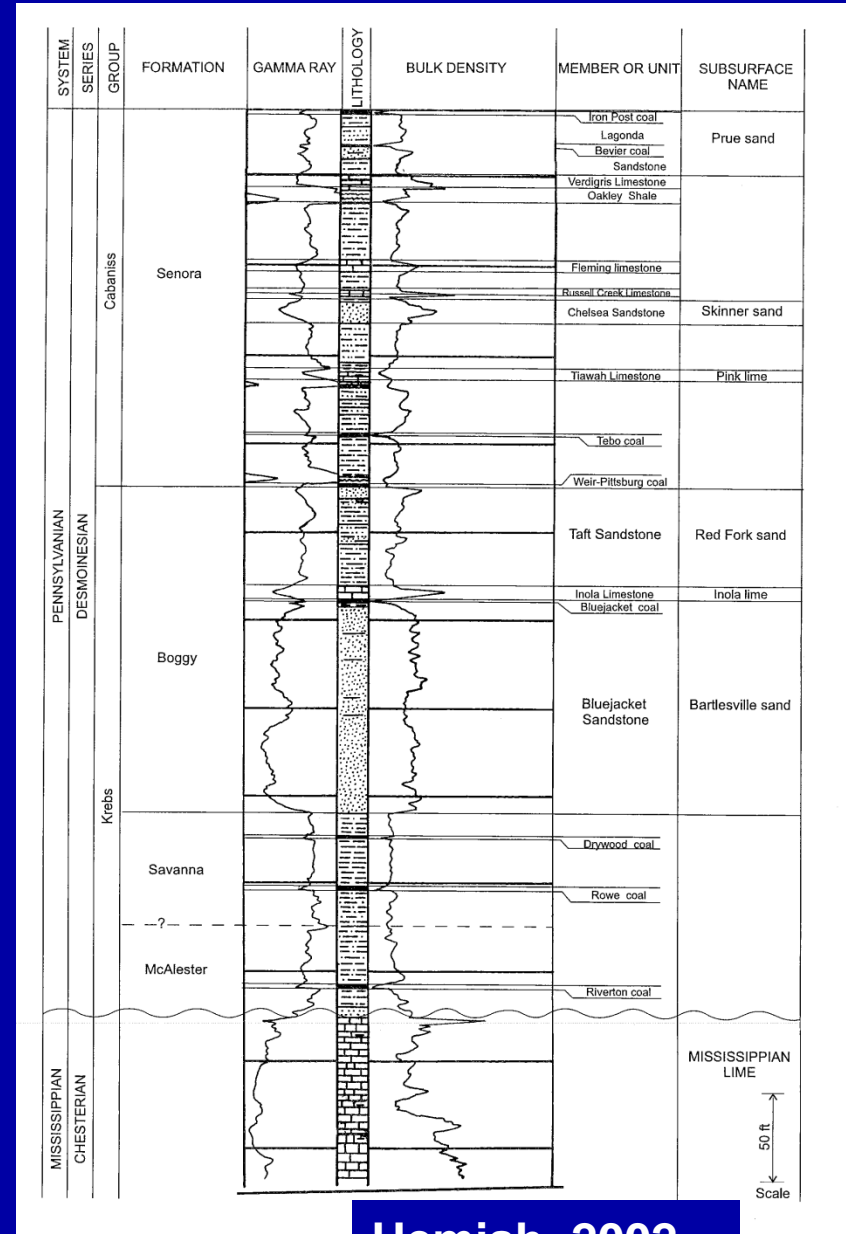
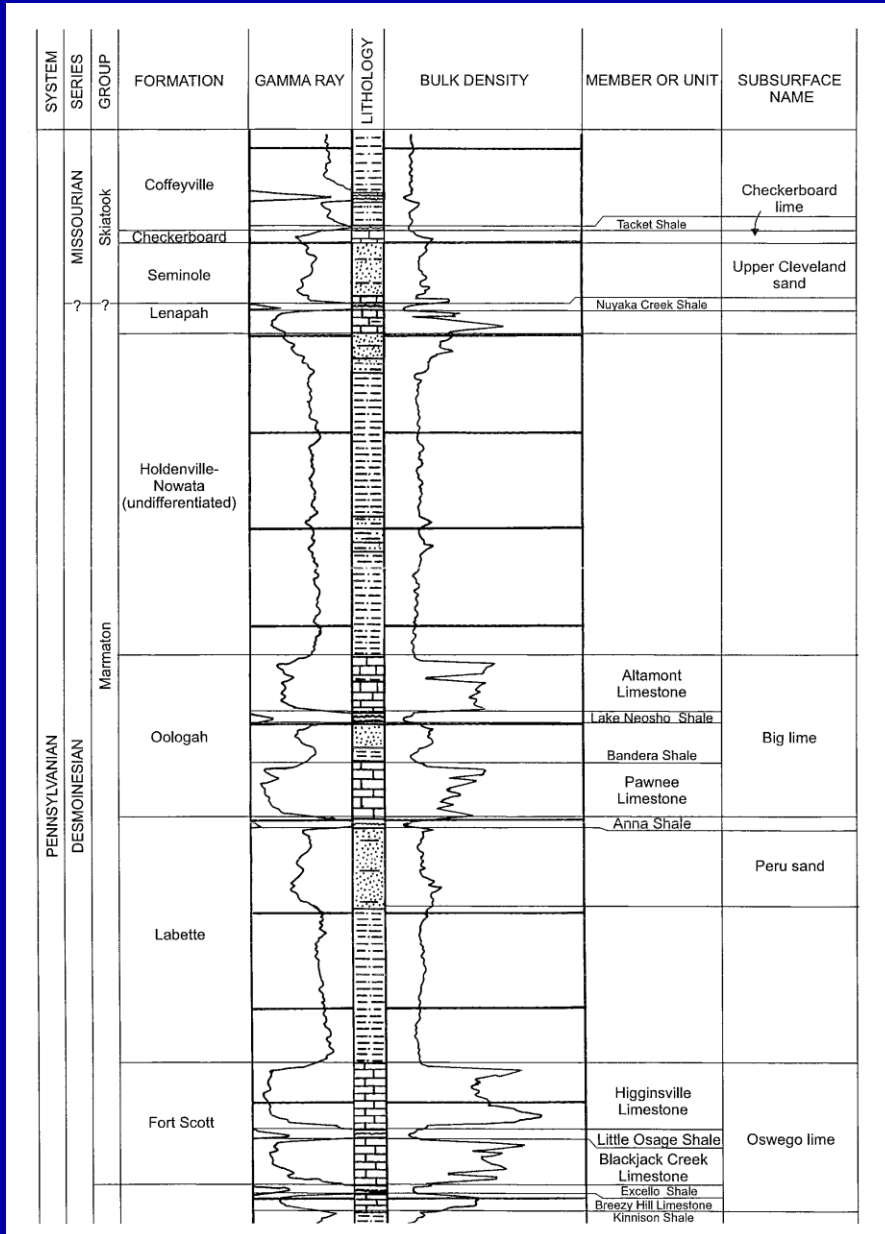
Workshop co-sponsored by:  
Oklahoma Geological Survey  
and  
Petroleum Technology Transfer Council



# Index Map Showing Location of Wells and Lines of Cross Sections for NE Oklahoma Shelf CBM Subsurface Study

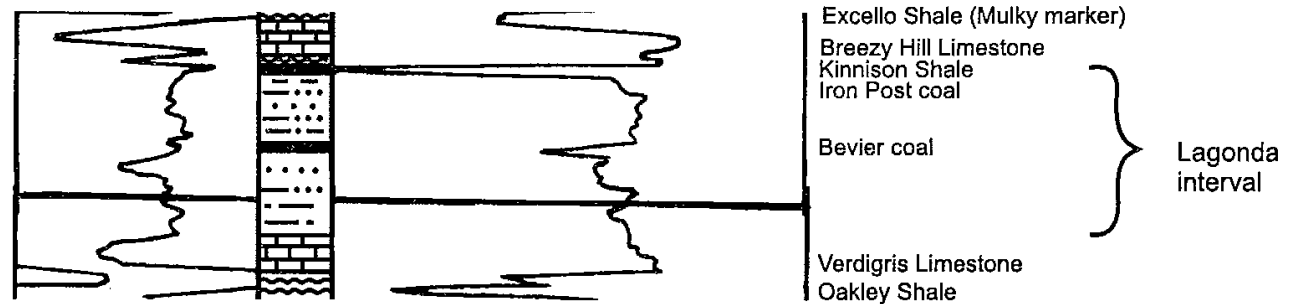


# Type Log for Northern Part of NE Oklahoma Shelf Area

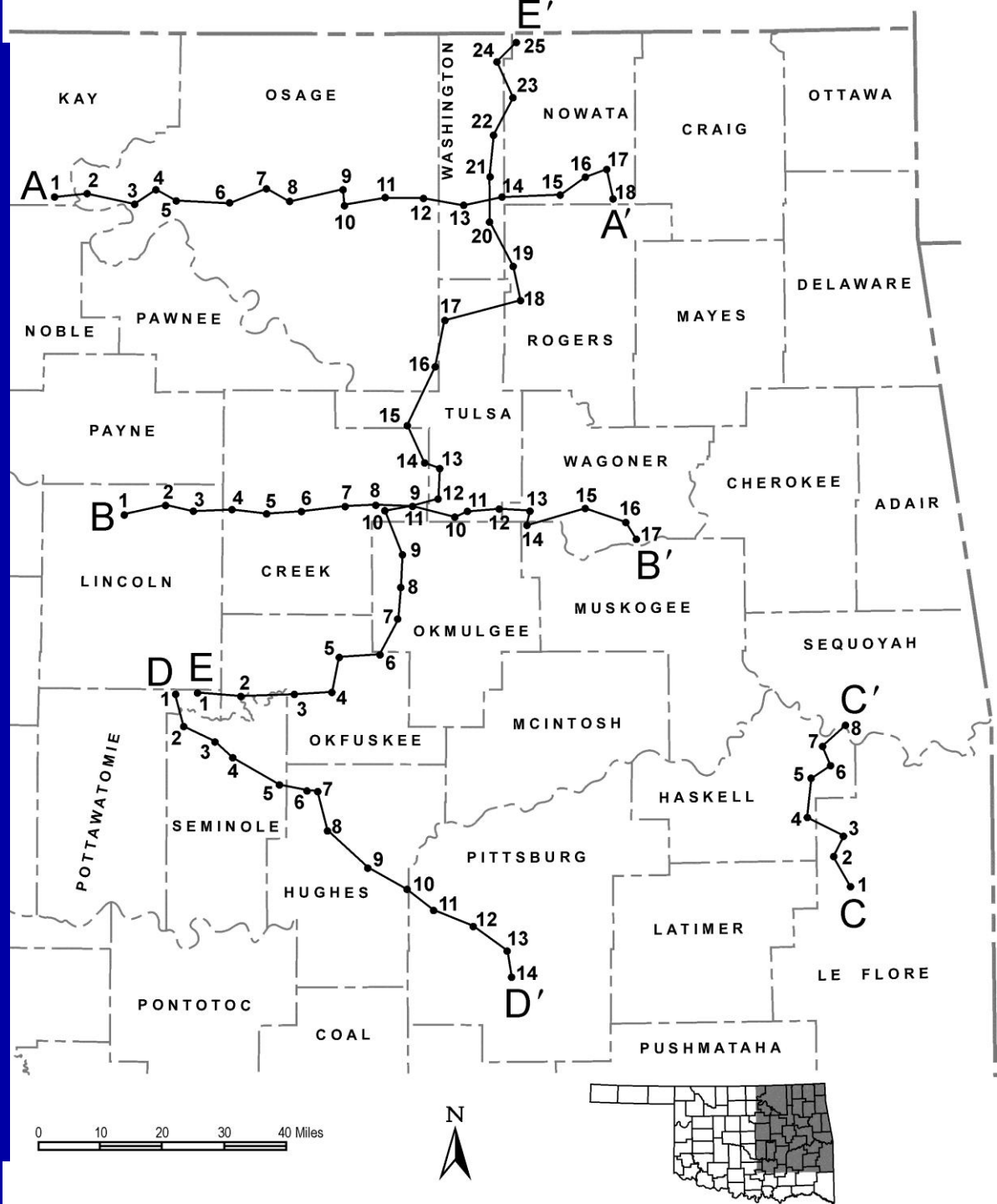


# Example of Stratigraphic Marker

Figure 14. Stratigraphic markers in upper part of Senora Formation (Cabaniss Group). Excerpt from Perry No. 3 Pierce well, NE¼ sec. 30, T. 25 N., R. 11 E., Osage County. For explanation of lithologic symbols, see Figure 19.



**Index Map Showing Location of Wells and Lines of Cross Sections for NE Oklahoma Shelf CBM Subsurface Study (annotated logs by Hemish, unpublished). Well records for cross sections A-D are in the OGS online Coal Stratigraphic Database (<http://www.ogs.ou.edu/coaldb.php>).**



**Cleat**  
**(natural fractures in coal)**

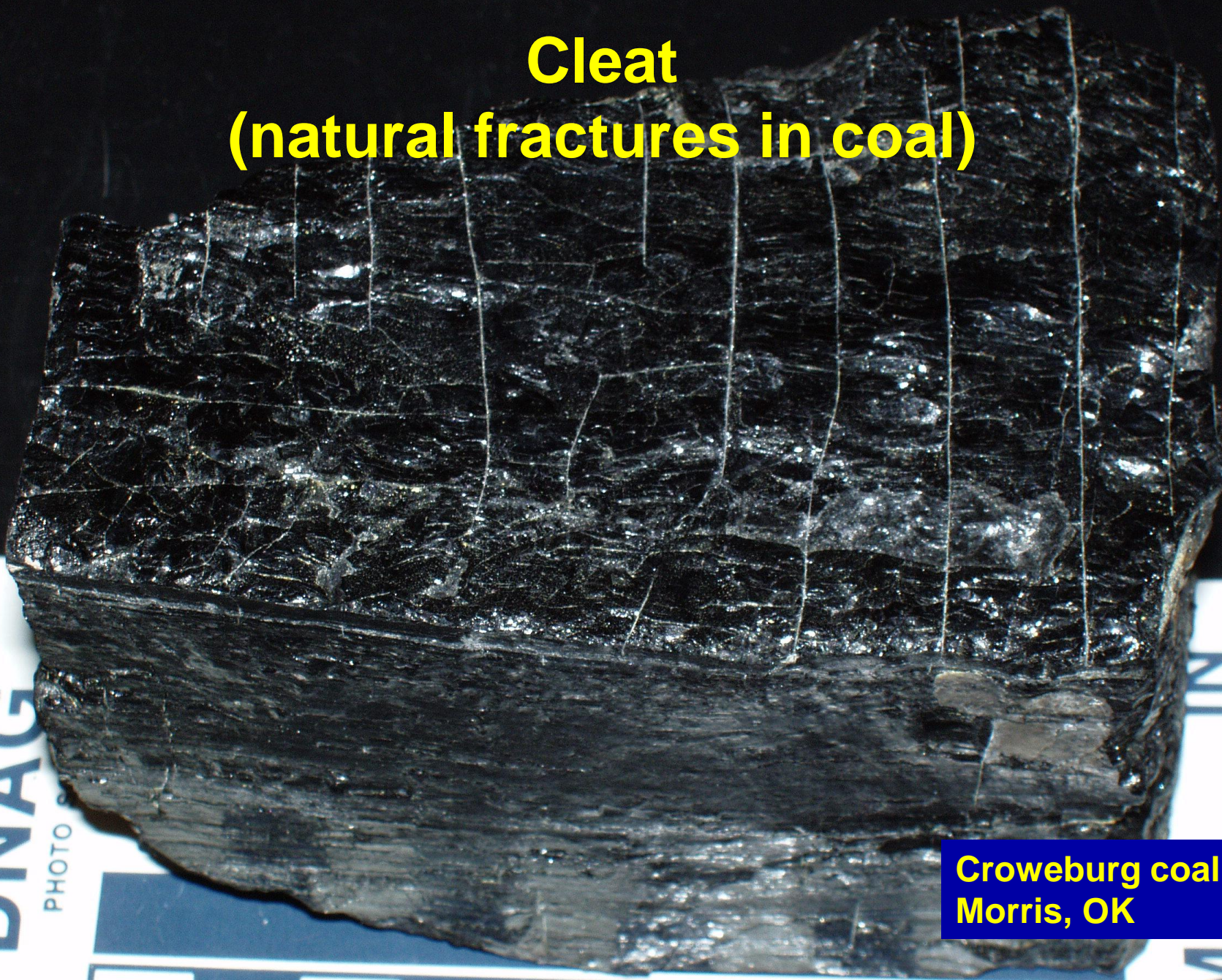
**Croweburg coal,  
Morris, OK**

**DNAG**

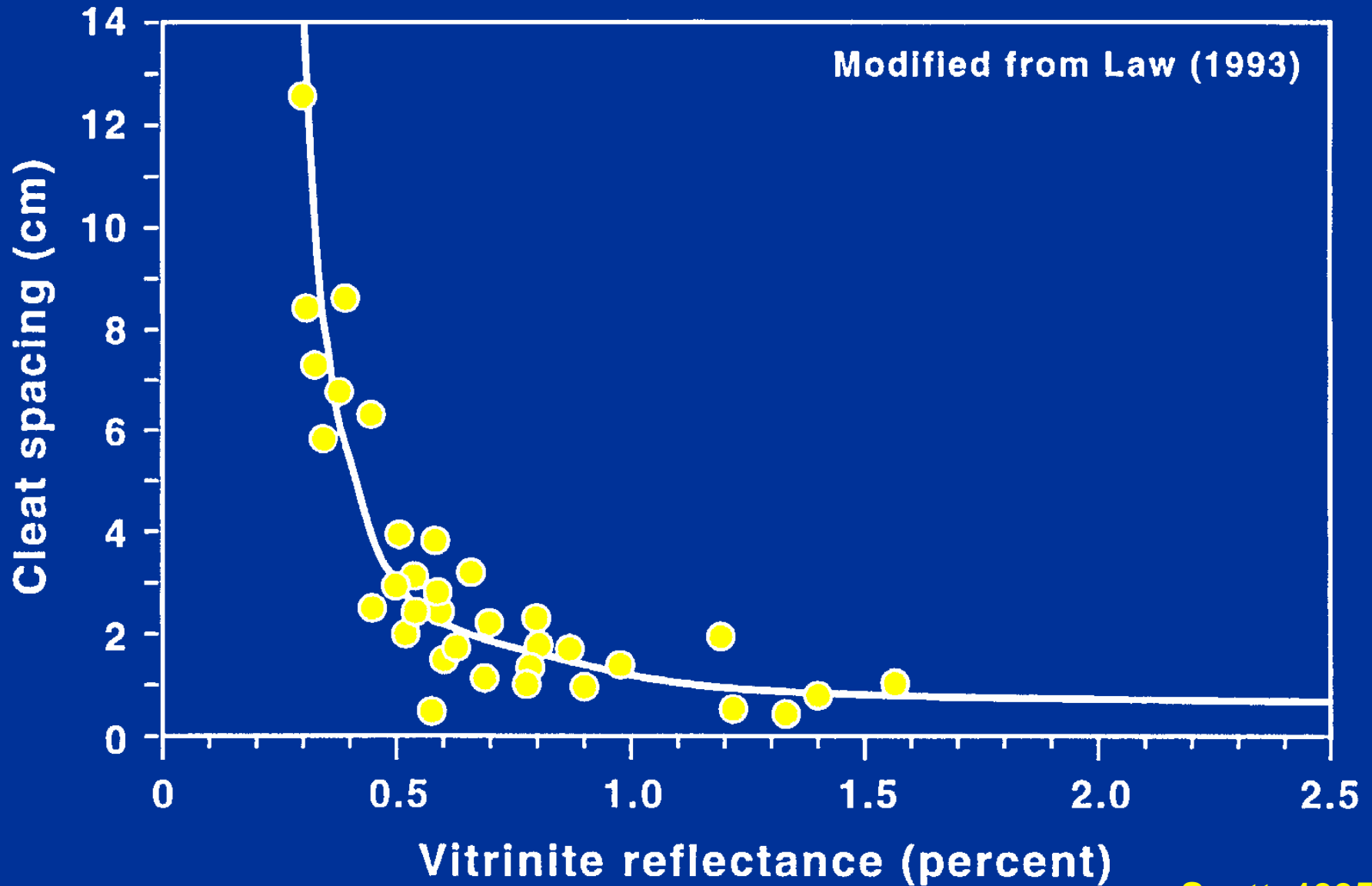
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# CLEAT SPACING AND COAL RANK

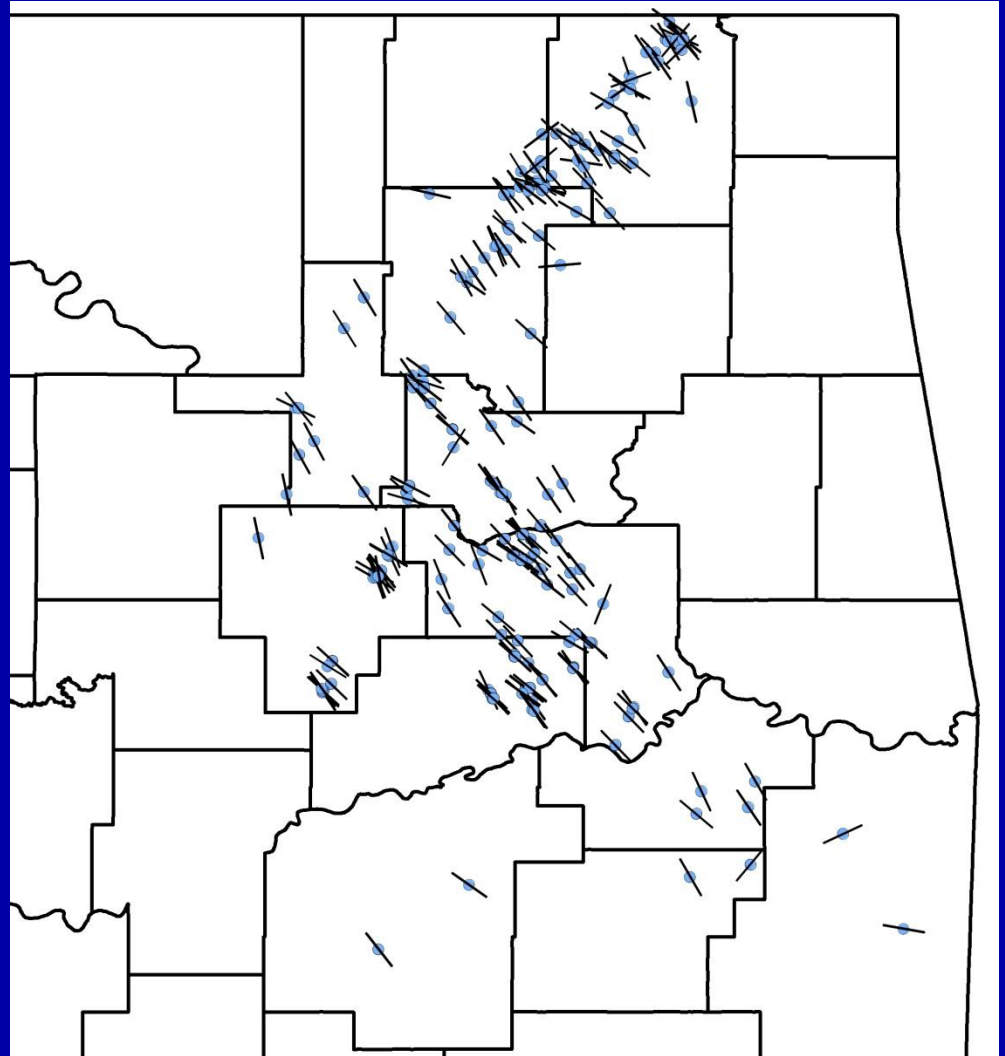




# Cleat Orientation

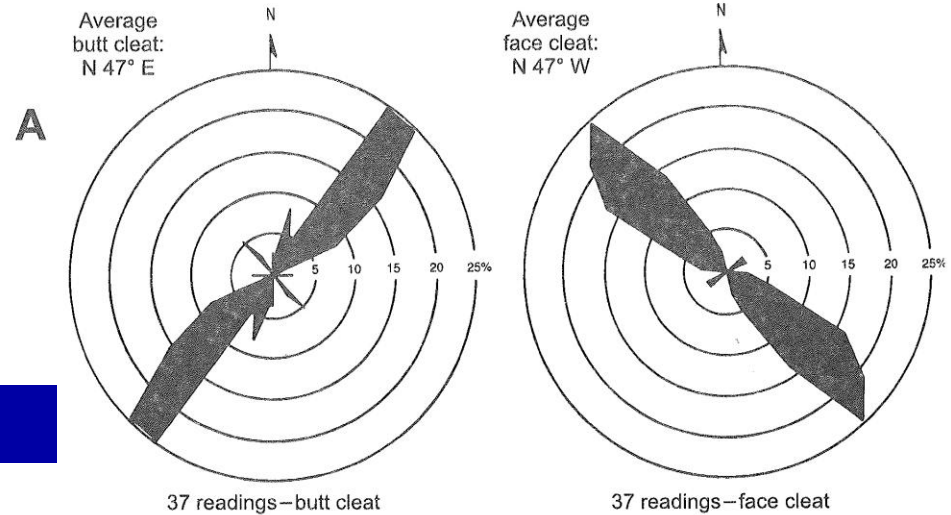
**Face Cleat:**  
Extension fractures  
formed parallel to  
maximum  
compressive stress.

**Butt Cleat:** Strain-  
release fractures  
formed parallel to  
fold axes.

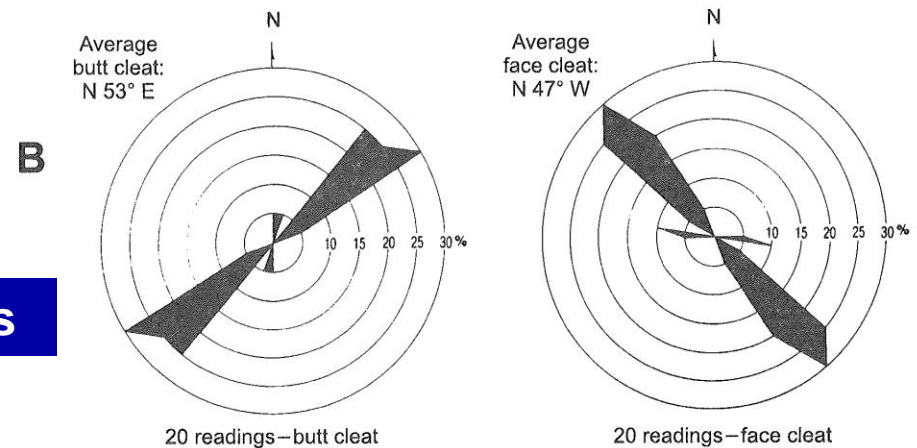


# Rose diagrams of cleat orientations in coal beds (Hemish, 2002)

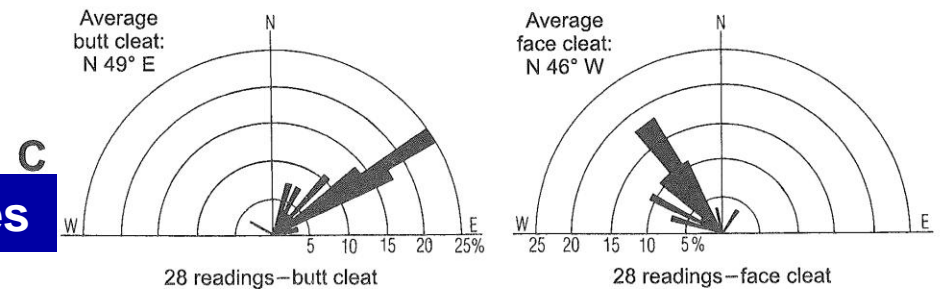
Craig & Nowata counties

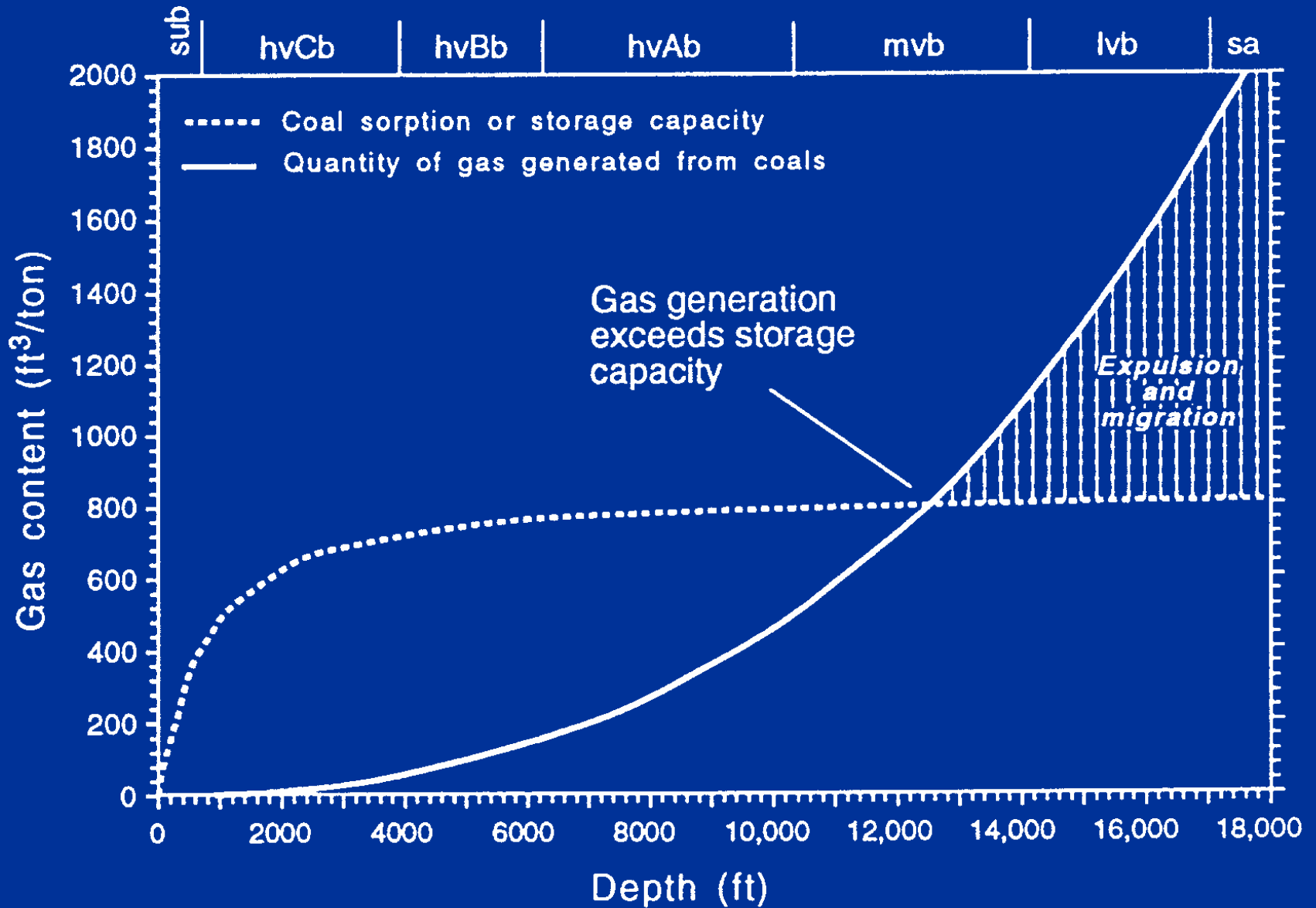


Rogers & Mayes counties



Tulsa & Wagoner counties





# **CBM Tax Incentive from IRS**

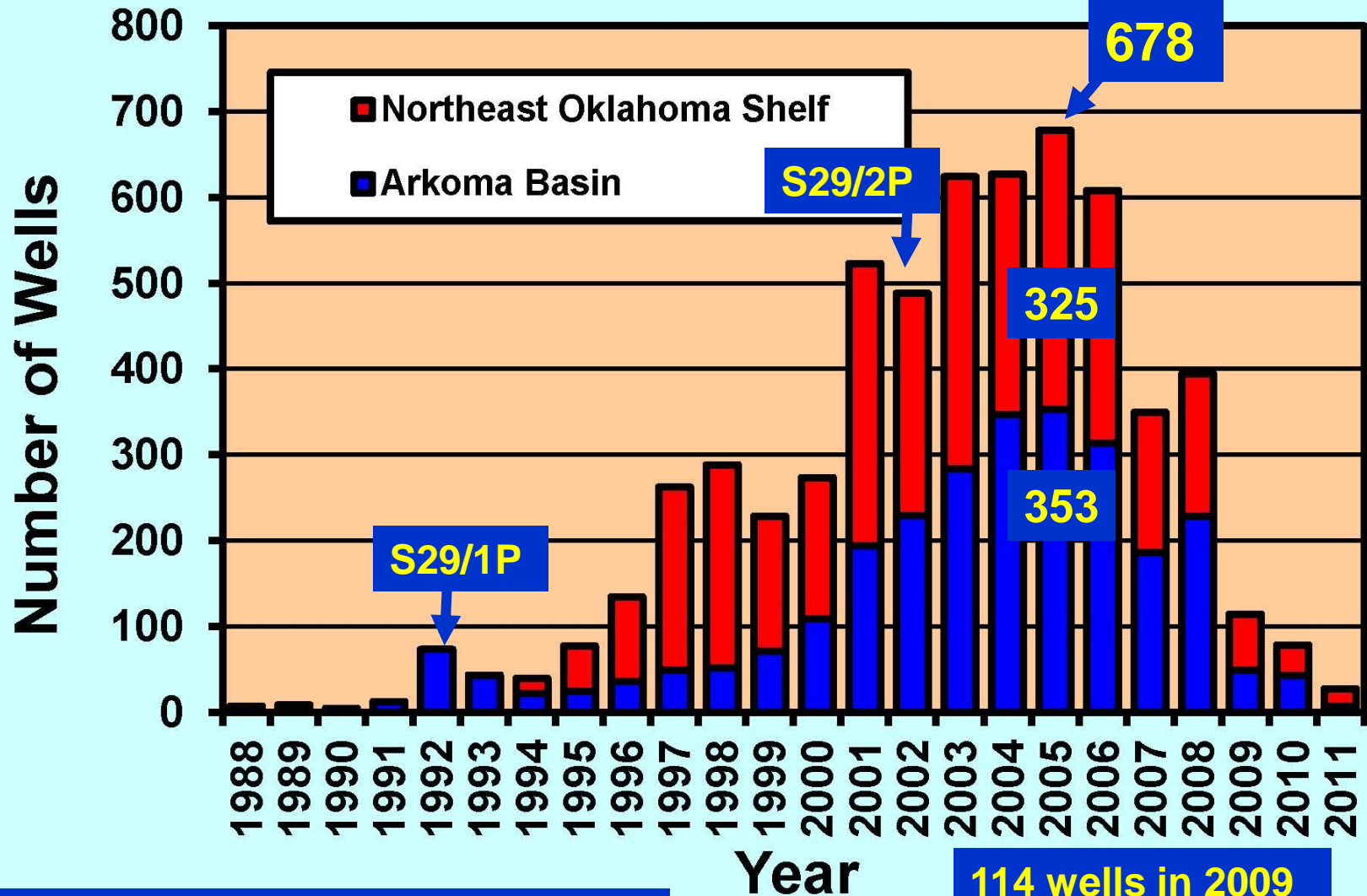
## **Phase One of IRS Section 29 Tax Credit (Non-Conventional Fuels):**

Tax credit on gas produced from new coal gas wells drilled from January 1, **1980** to December 31, **1992**.

## **Phase Two of IRS Section 29 Tax Credit:**

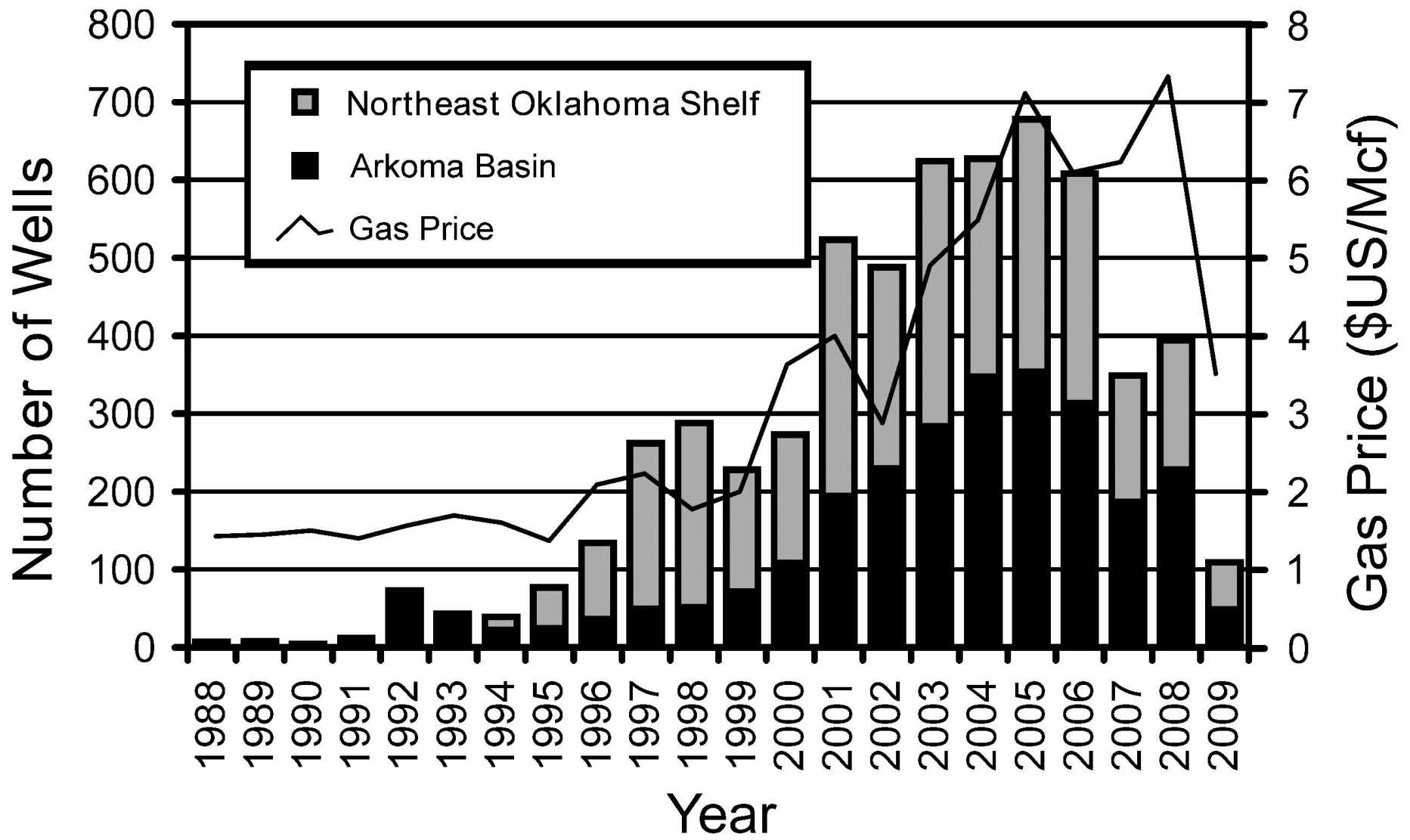
Tax credit on gas produced from recompleted wells drilled from January 1, **1993** to December 31, **2002**.

# Oklahoma CBM Well Completions History

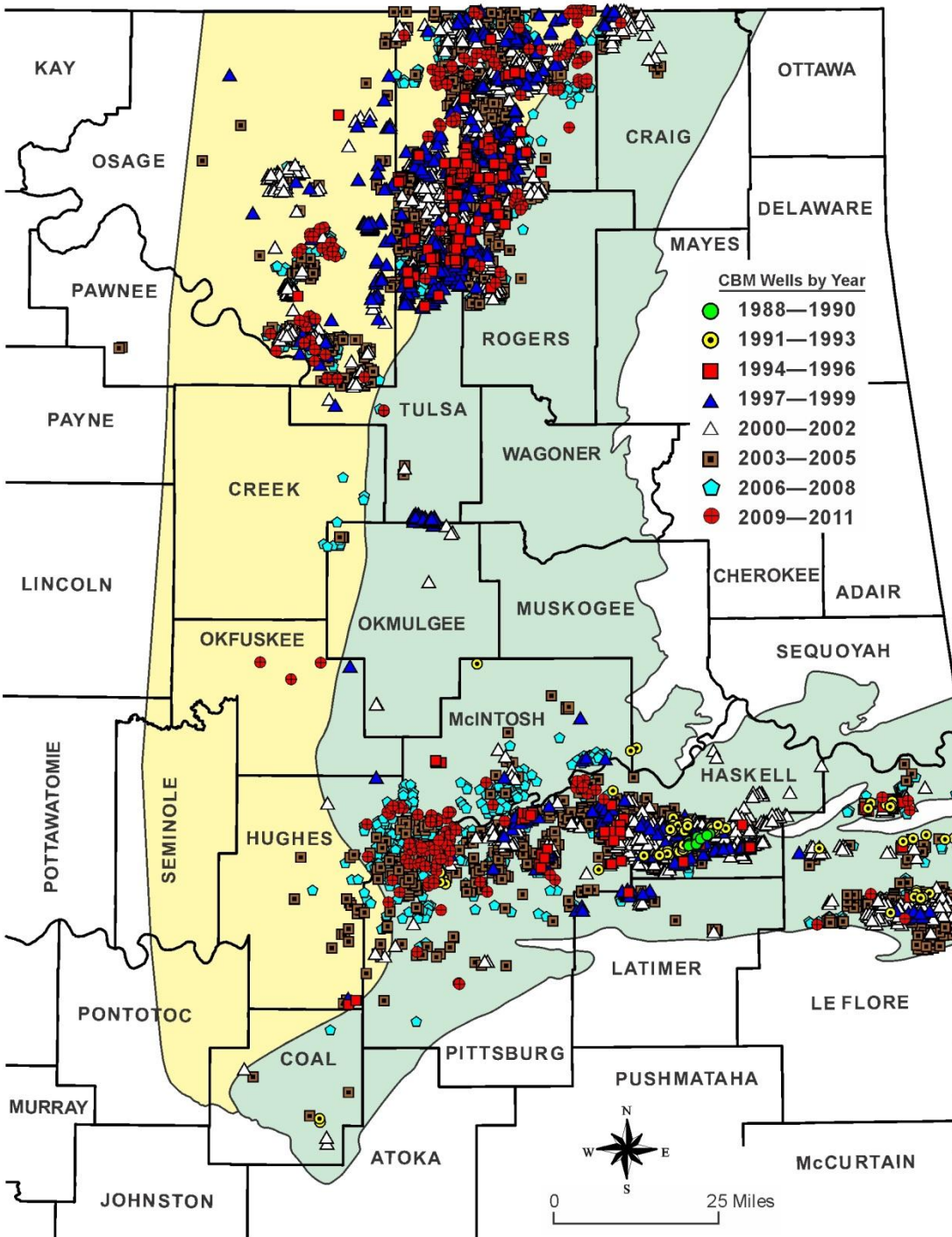


**5,976 CBM Completions 1988-2011**

**114 wells in 2009  
78 wells in 2010  
27 wells in 2011**



# Oklahoma CBM Completions by Year (1988-2011) (5,976 wells)

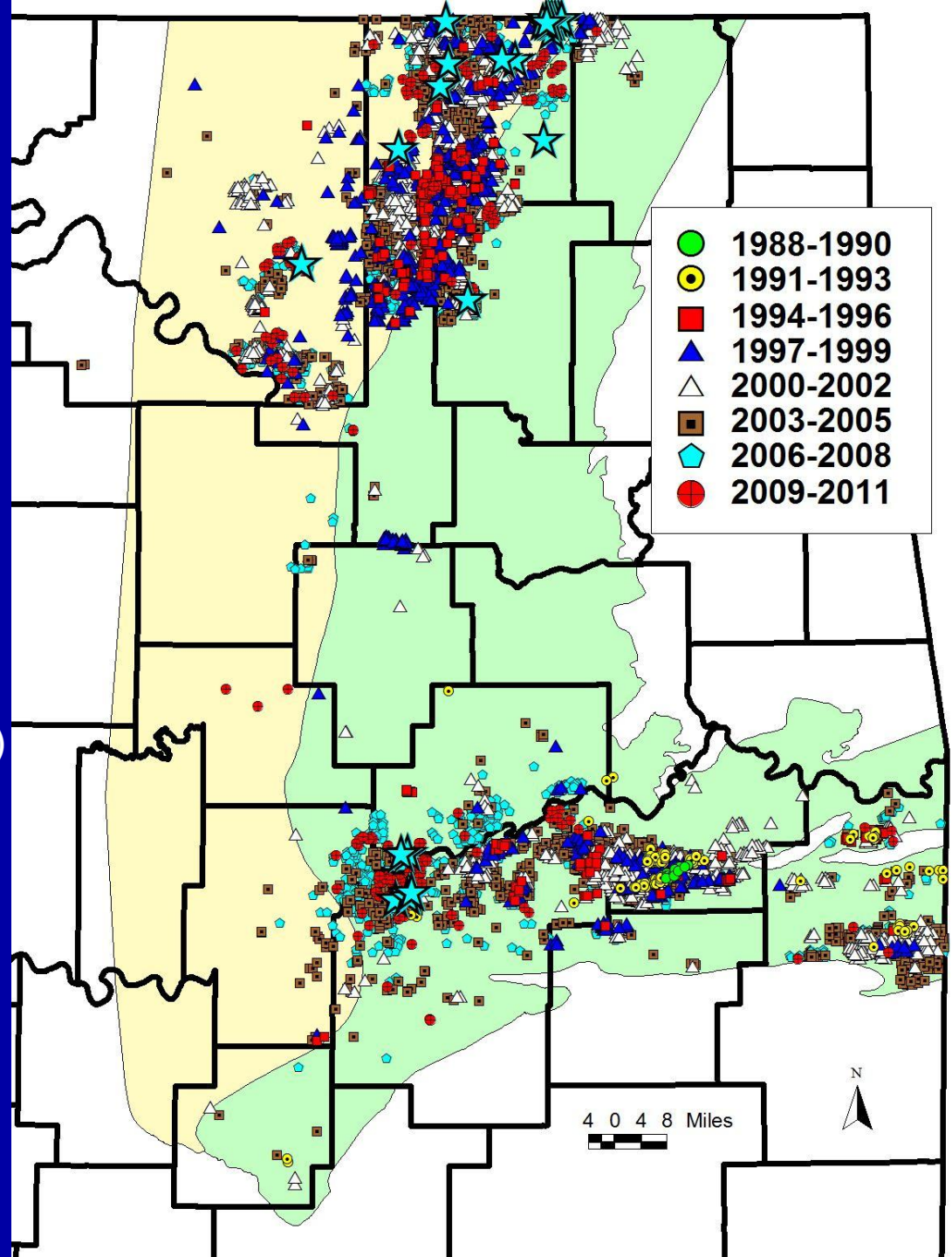


[updated October 2012]

# Oklahoma CBM Completions by Year Highlighting 2011 (Blue Stars)

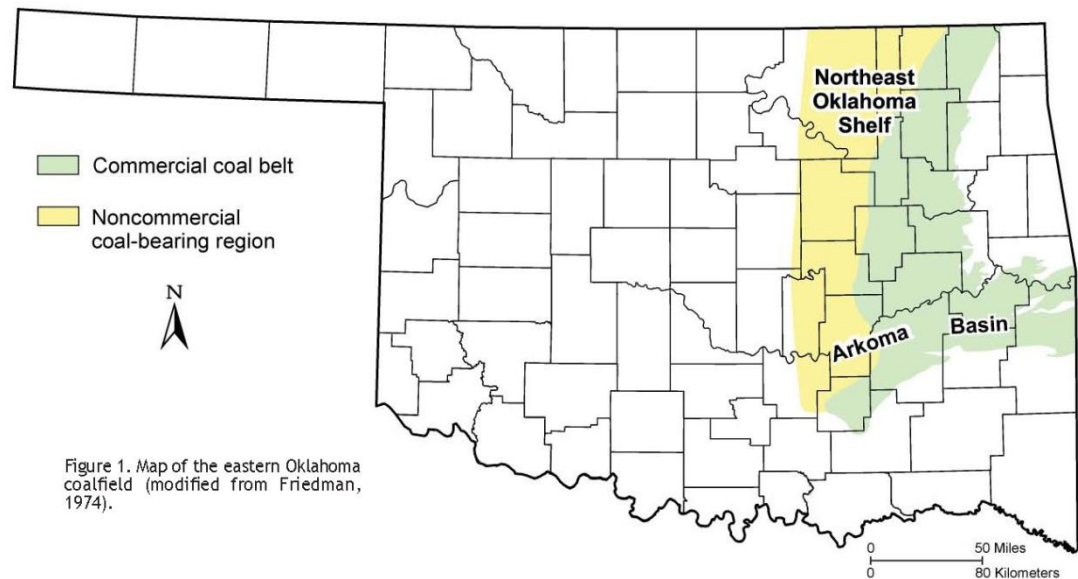
(27 wells)

- 1 Allied Operating (Rowe)
- 3 Bratco Operating (Rowe; Riverton)
- 1 Bullseye Operating (Riverton)
- 7 Canaan Resources (Hartshorne)
- 1 CEP Mid-Continent (Mulky et al.)
- 1 NEOK Production Co. ("Penn.")
- 13 Postrock Midcontinent (Mulky et al.; Riverton)





# Oklahoma CBM article was published in the 2010 Oklahoma Geology Notes (v. 70, p. 4-14)



## Issues Related to Oklahoma Coalbed-Methane Activity, 1988-2008

**Brian J. Cardott**  
Oklahoma Geological Survey

### INTRODUCTION

Numerous studies and tax incentives led to the development of coalbed methane (CBM) in Oklahoma

Alabama in 1980. The United States Internal Revenue Service (IRS) § 29 income tax credit further stimulated interest in CBM (Phase I from 1980 through 1992, Phase II from 1993

coal-bearing region (area containing coal beds too thin or deep for mining; Figure 1). There are CBM wells in both areas. The coalfield is further divided into the northeast Oklahoma shelf ("shelf") and the Arkoma basin ("basin"). Coal beds on the shelf strike north-northeast and dip to the west; CBM wells occur throughout the shelf. The coal beds in the basin are highly folded and faulted (Cardott, 2002).

of CBM began in the San Juan Basin of Colorado and New Mexico in 1977 and the Black Warrior Basin of

coal beds of commercial value for coal mining) and the noncommercial

first CBM wells in eastern Oklahoma were drilled in 1988 to the Hartshorne coal (middle Pennsylvanian) in Haskell County. From 1988

1. Horizontal CBM
2. Gas fields by county
3. Recompletions (OWWO)
4. Mulky coal problem

5. CBM with noncoal
6. "Pennsylvanian" CBM
7. Commingled CBM

# Horizontal CBM Wells (1998-2008)



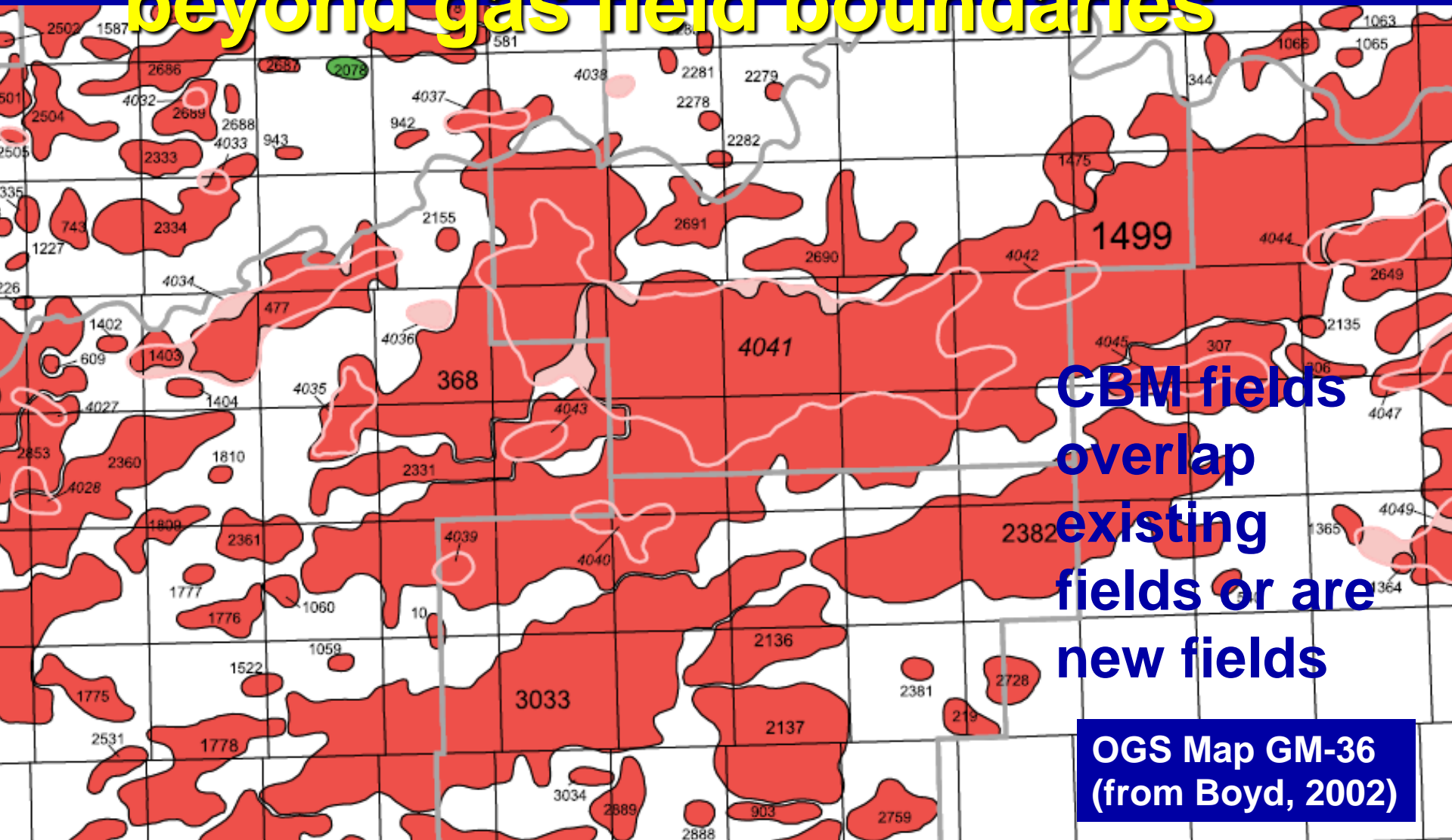
★ Horizontal/Directional  
● Vertical

**Coalfield:** 4,104 vertical wells;

**Shelf:** 28 horizontal/8 directional wells by Amvest Osage & CEP Mid-Continent (2004-2008);

**Arkoma:** 1,567 horizontal wells

# CBM Field Boundaries: coals are continuous reservoirs extending beyond gas field boundaries

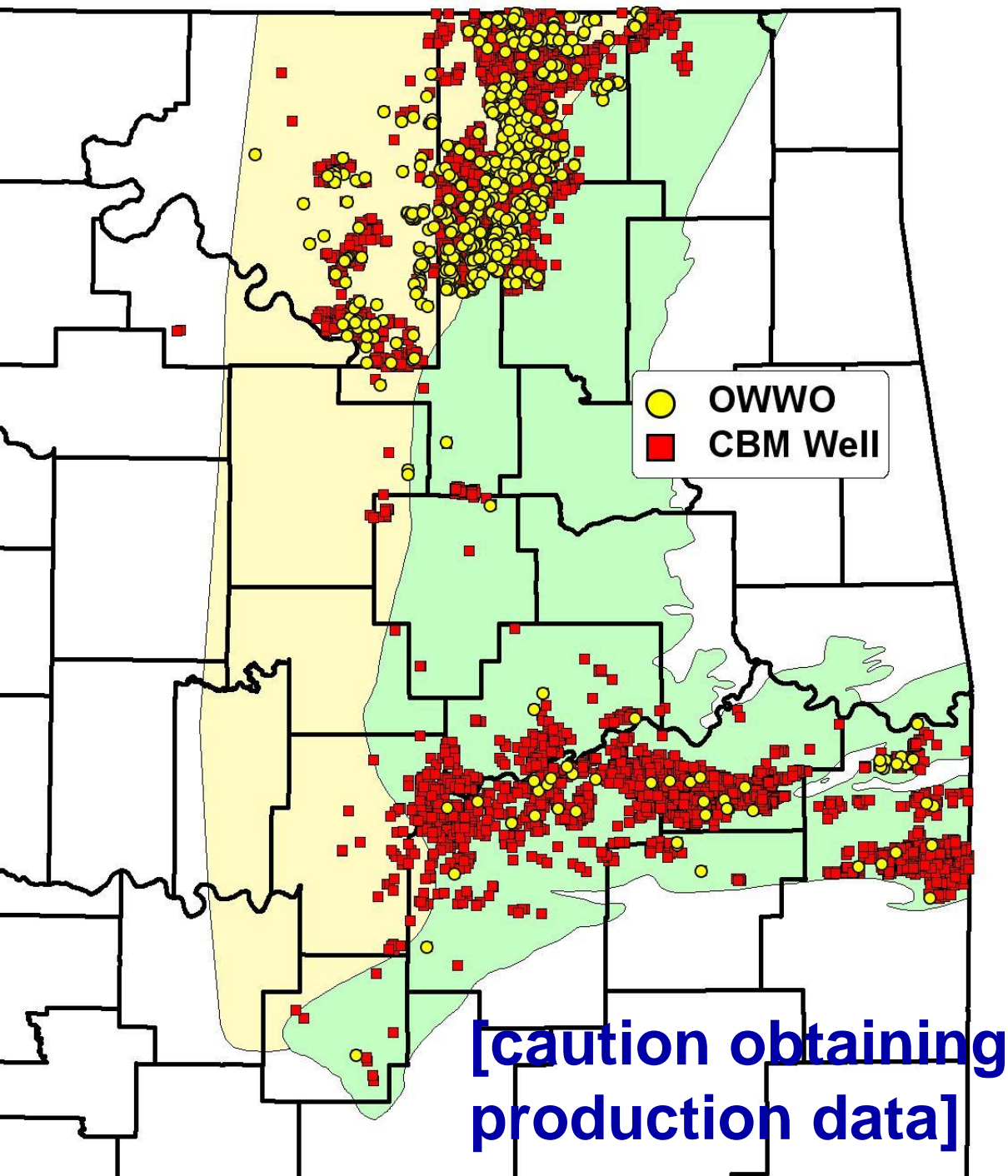


CBM fields overlap existing fields or are new fields

OGS Map GM-36 (from Boyd, 2002)

# Oklahoma Corporation Commission added “County CBM Gas Area” field names in 2001

Field Name	S	Tot	T	E	4t	3rr	2r	1st	County	Coal_Bed	Depth	Se	
Ramona	29	24	N	13	E		SH	SE	NW	Washington	Rowe	1488-14	14
Brooken	7	8	N	18	E		NE	SE	NW	Haskell	Hartshorne	1807	
Le Flore County CBM Gas Area	6	5	N	27	E		NE	SW	SW	Le Flore	Hartshorne	3643-36	37
Delaware-Childers	12	27	N	14	E		SW	SW	SW	Nowata	Mulky; Iron P	0902-09	09
Coffeyville S	15	29	N	15	E		SE	SE	SE	Nowata	Riverton	1103-11	
Brooken	12	8	N	17	E		NE	NW	SW	Pittsburg	Hartshorne	1924	
Brooken	12	8	N	17	E		NW	SW	SW	Pittsburg	Hartshorne	1912	
Woody	10	24	N	14	E		C	SE	SW	Rogers	Rowe	1248-12	
Woody	11	24	N	14	E		C	SE	SW	Rogers	Rowe	1334-13	
Tulsa County CBM Gas Area	3	22	N	14	E		NE	SE	NE	Tulsa	Rowe	1061-10	10
Tulsa County CBM Gas Area	3	22	N	14	E		NW	SE	SE	Tulsa	Mulky	0406-04	
Tulsa County CBM Gas Area	3	22	N	14	E		EH	NW	SW	Tulsa	Rowe	1066-10	10
Ramona	11	24	N	12	E		C	SE	SE	Washington	Mulky	1088-10	
Ramona	8	24	N	13	E		SW	NW	SE	Washington	Riverton	1481-14	
Washington County CBM Gas Area	27	24	N	13	E		NW	NE	NE	Washington	Rowe	1341-13	13
Vera	33	24	N	14	E		EH	SW	NE	Washington	Rowe	1272-12	
Washington County CBM Gas Area	16	27	N	14	E		SW	SW	NE	Washington	Mulky; Iron P	0917-09	09
Kinta	35	8	N	21	E		C	NE	SW	Haskell	Hartshorne	0853-08	
Rogers County CBM Gas Area	9	24	N	15	E		C	SE	NW	Rogers	Rowe	1058-10	10
Washington County CBM Gas Area	25	25	N	12	E		EH	EH	SE	Washington	Riverton	1462-14	
Kinta	35	8	N	21	E		NH	SW	NW	Haskell	Hartshorne	0947-09	
Le Flore County CBM Gas Area	11	6	N	24	E		SW	NE	SE	Le Flore	McAlester; Ha	2316-23	23
Le Flore County CBM Gas Area	17	6	N	25	E		SE	NW	NW	Le Flore	McAlester; Ha	1358-13	14
D&A	9	26	N	12	E		SE	SE	NW	Osage	Iron Post		
Woody	15	24	N	14	E		C	SE	NE	Rogers	Rowe	1223-12	
Collinsville	10	22	N	14	E		SW	SE	NW	Tulsa	Mulky	0422-04	



Old Well  
Workover  
**(OWWO)**  
completed as  
CBM wells  
beginning in  
1991  
(Hartshorne) &  
1994 (NE OK  
shelf)

727 (13%) of  
5,707 wells

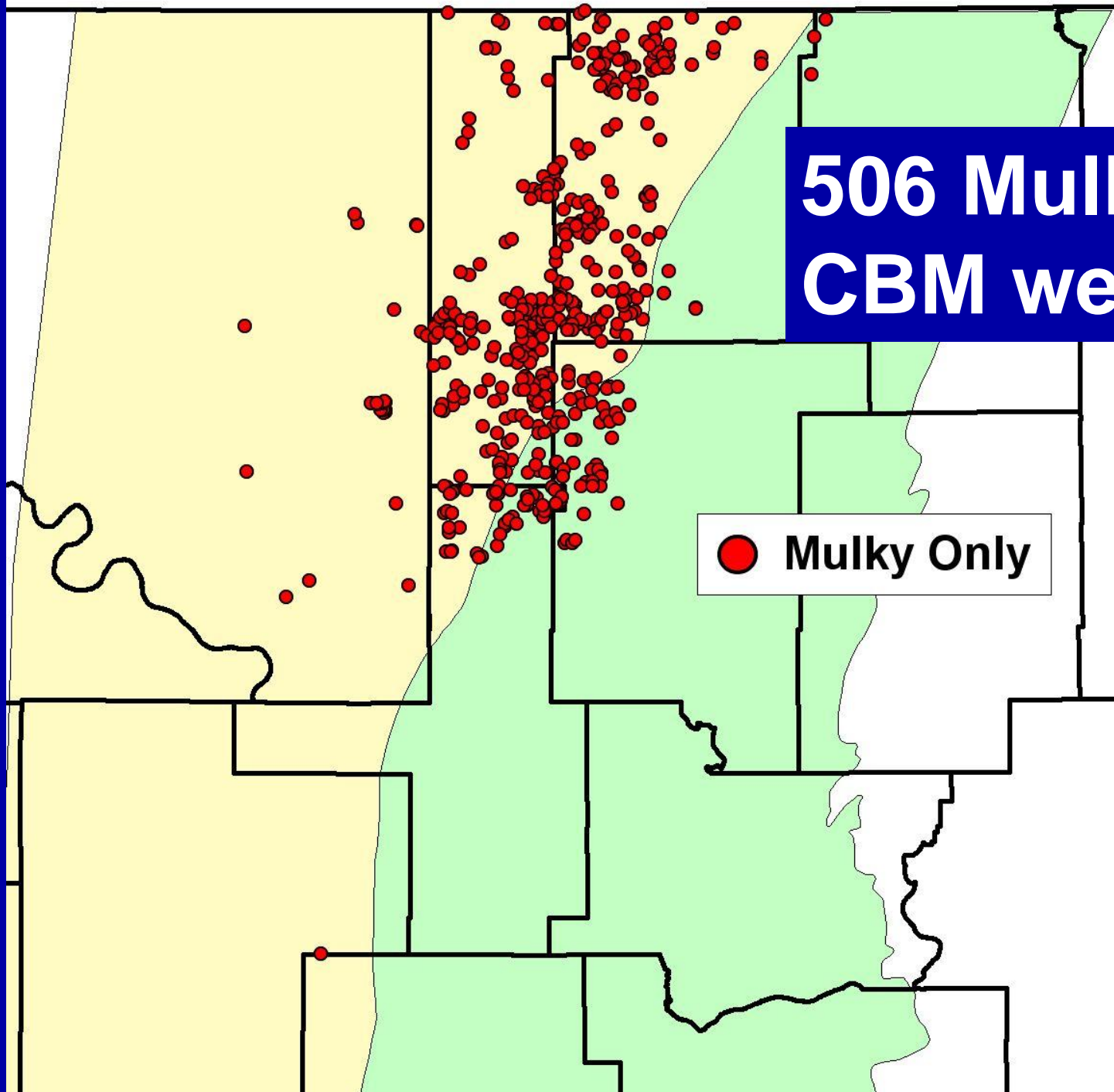
[caution obtaining  
production data]

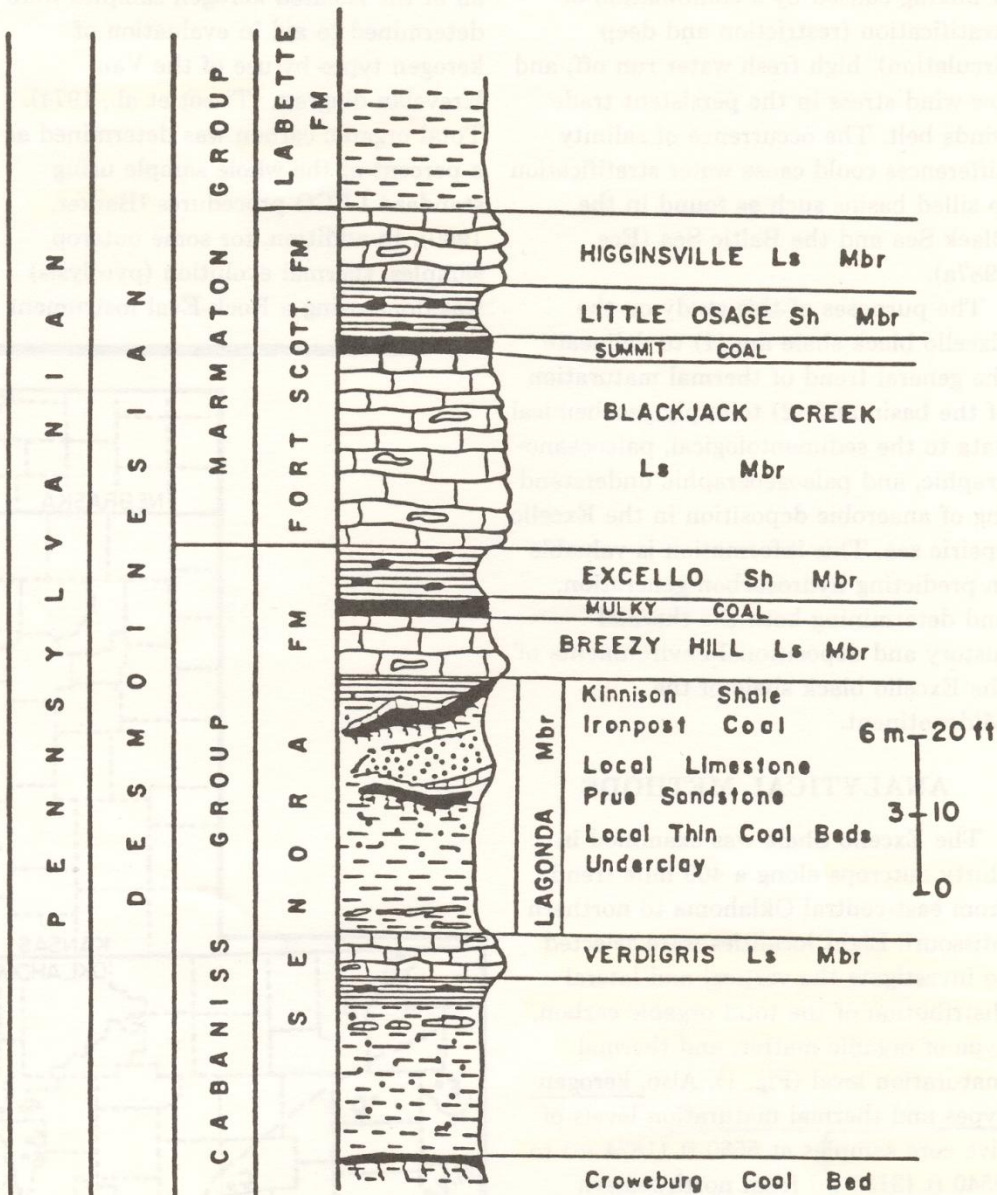
# Mulky “Coal” Problem







**Mulky-only coalbed-methane production is primarily Excello Shale gas production.**

# 506 Mulky-Only CBM wells

● Mulky Only





-  Shale
-  Black Shale
-  Coal
-  Sandstone
-  Underclay
-  Limestone

# Excello Shale Stratigraphy

(<16 ft thick)

Ece (1989)



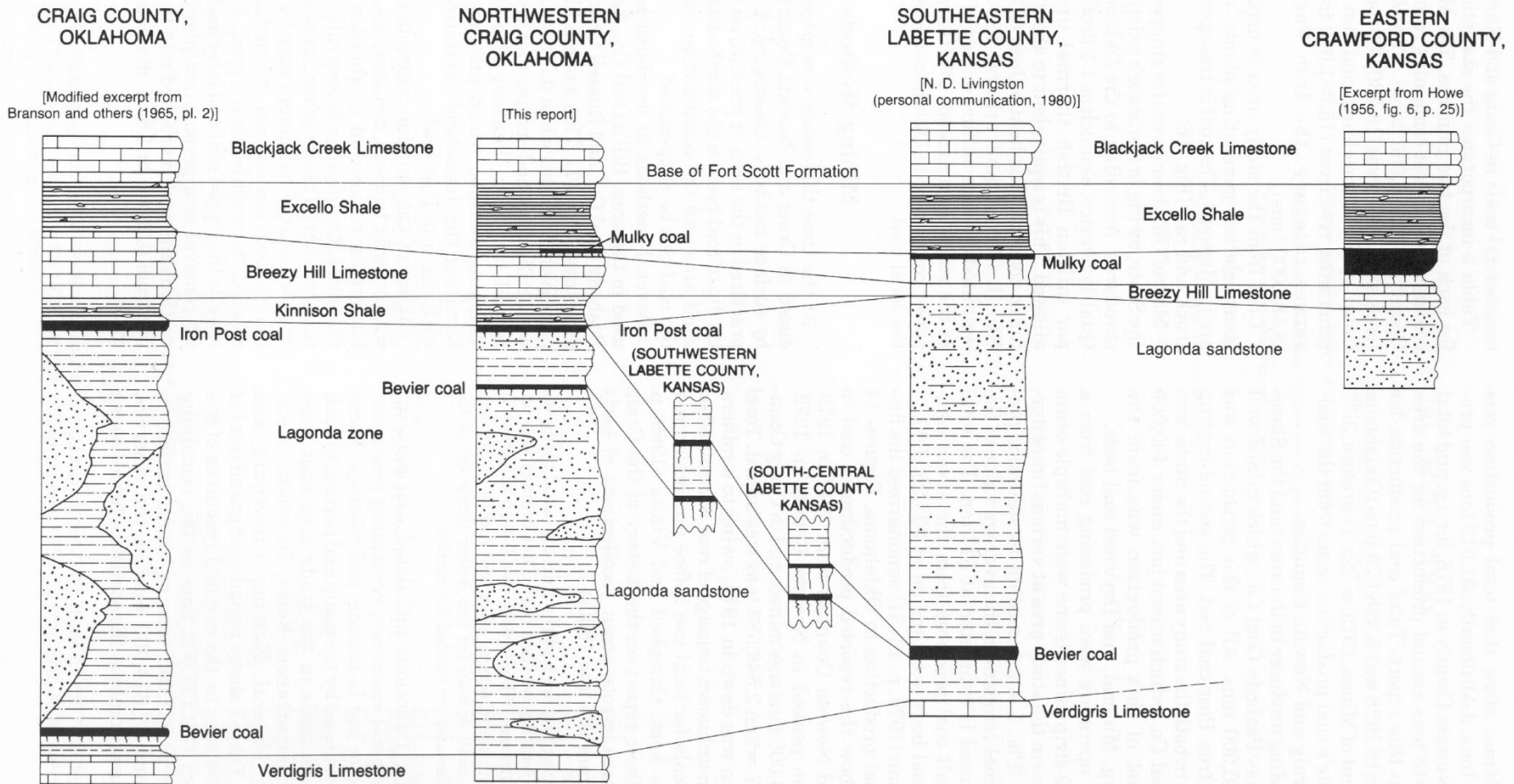
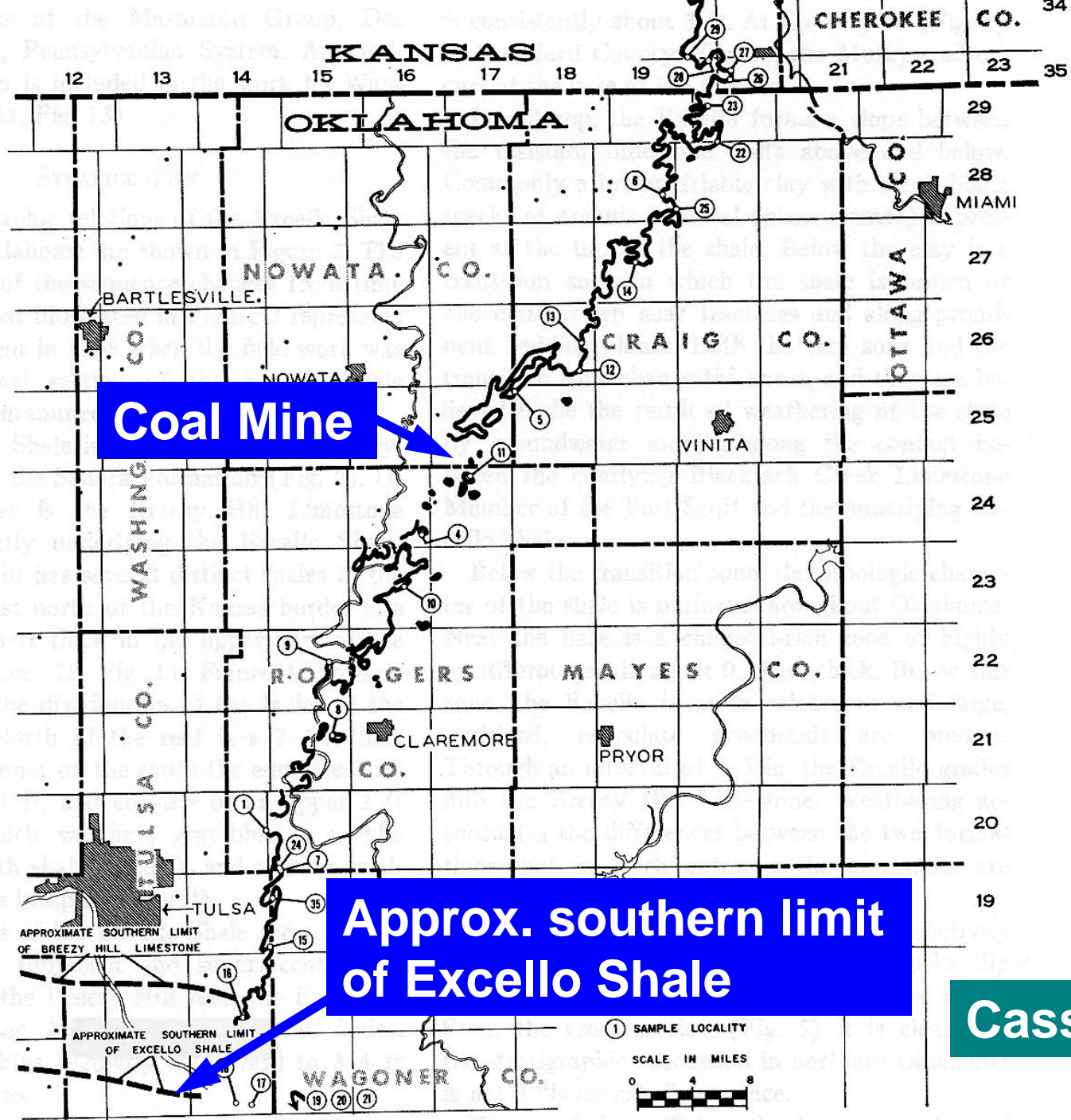


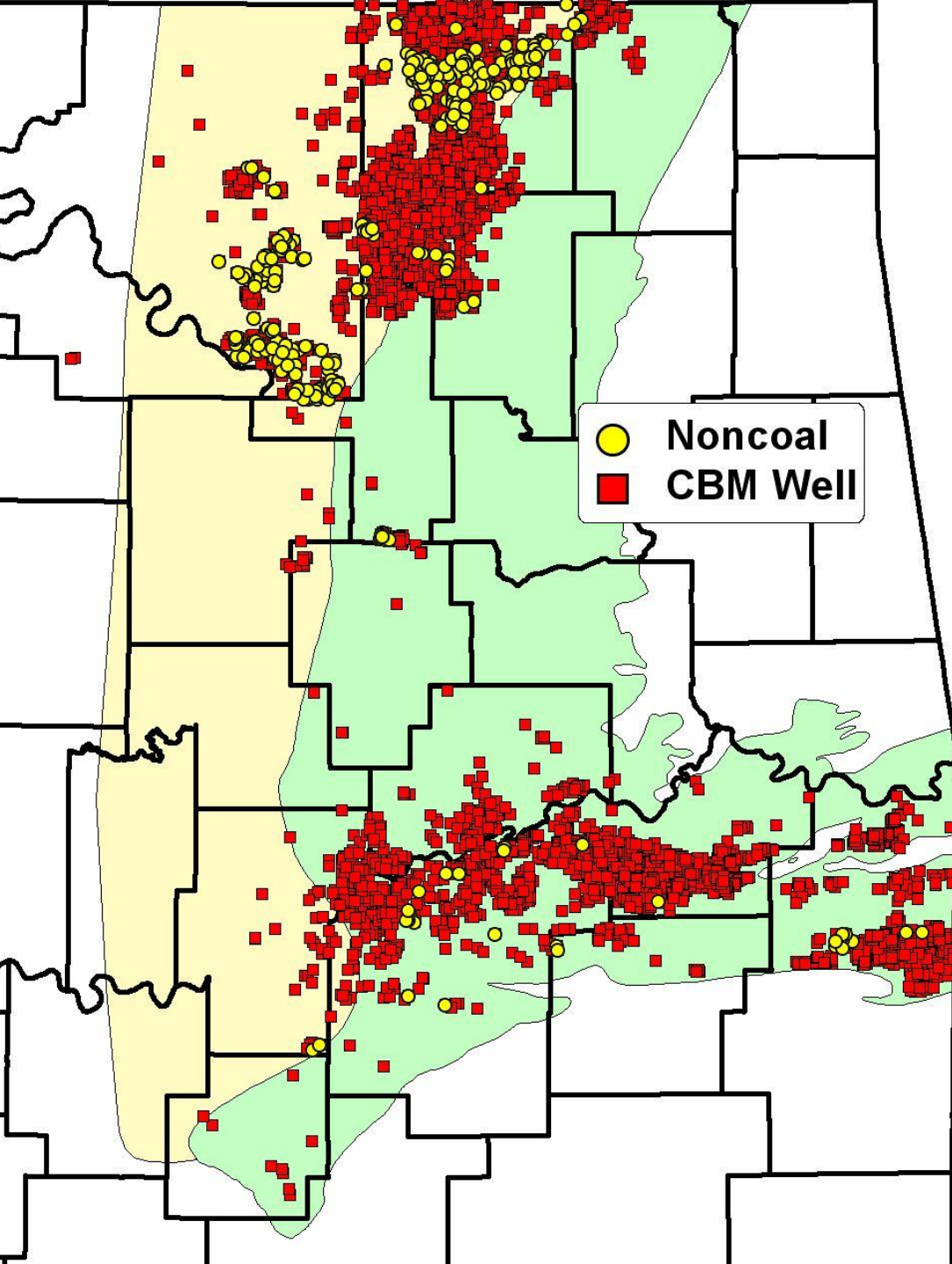
Figure 13. Stratigraphic positions of the Bevier coal, the Iron Post coal, and the Mulky coal, and correlation of beds in northwestern Craig County, Oklahoma, southern Labette County, Kansas, and eastern Crawford County, Kansas. The stratigraphic interpretation of Branson and others (1965) contrasts with the interpretation of this report. Thickness of units approximate.



**Cassidy (1968)**

**Excello Shale and Breezy Hill  
Limestone contact with no Mulky  
coal in Nowata County coal mine**





Coal  
commingled  
with **thin**  
**noncoal**  
(shale or  
sandstone)  
beginning in  
1992

341 (6%) of  
5,707 wells

# Examples of Noncoal

## Sandstone

Bartlesville

Burgess

Cleveland

Peru

Red Fork

Skinner

Tucker/Cushing

## Limestone

Big Lime

Oswego

Pink Lime

Verdigris

## Shale

Little Osage

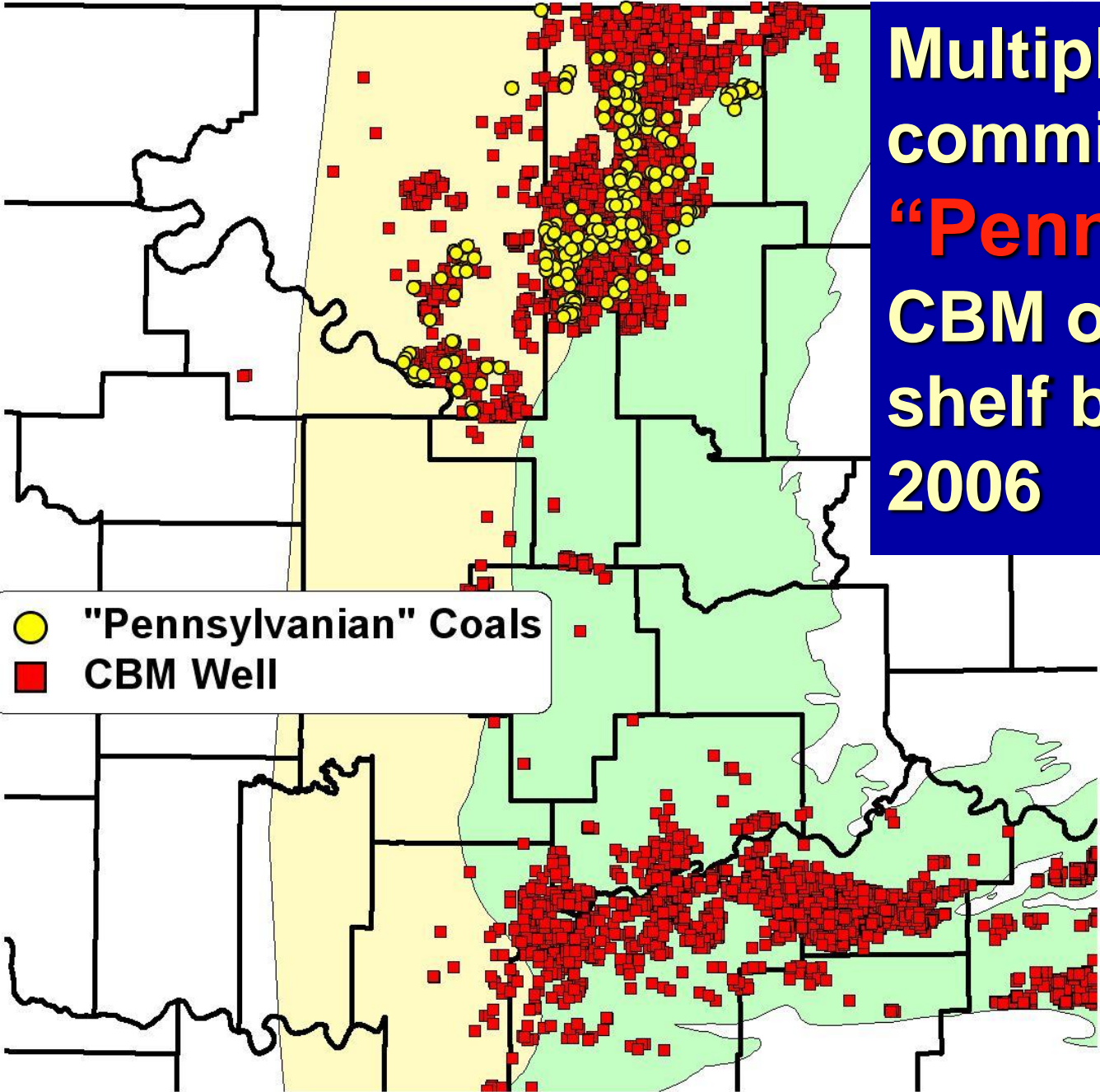
Nuyaka

Oakley

Summit

**Recent “CBM” wells with primarily noncoal perforations have been excluded from the OGS CBM Completions database.**

Multiple coals  
commingled as  
**“Pennsylvanian”**  
CBM on NE OK  
shelf beginning in  
2006



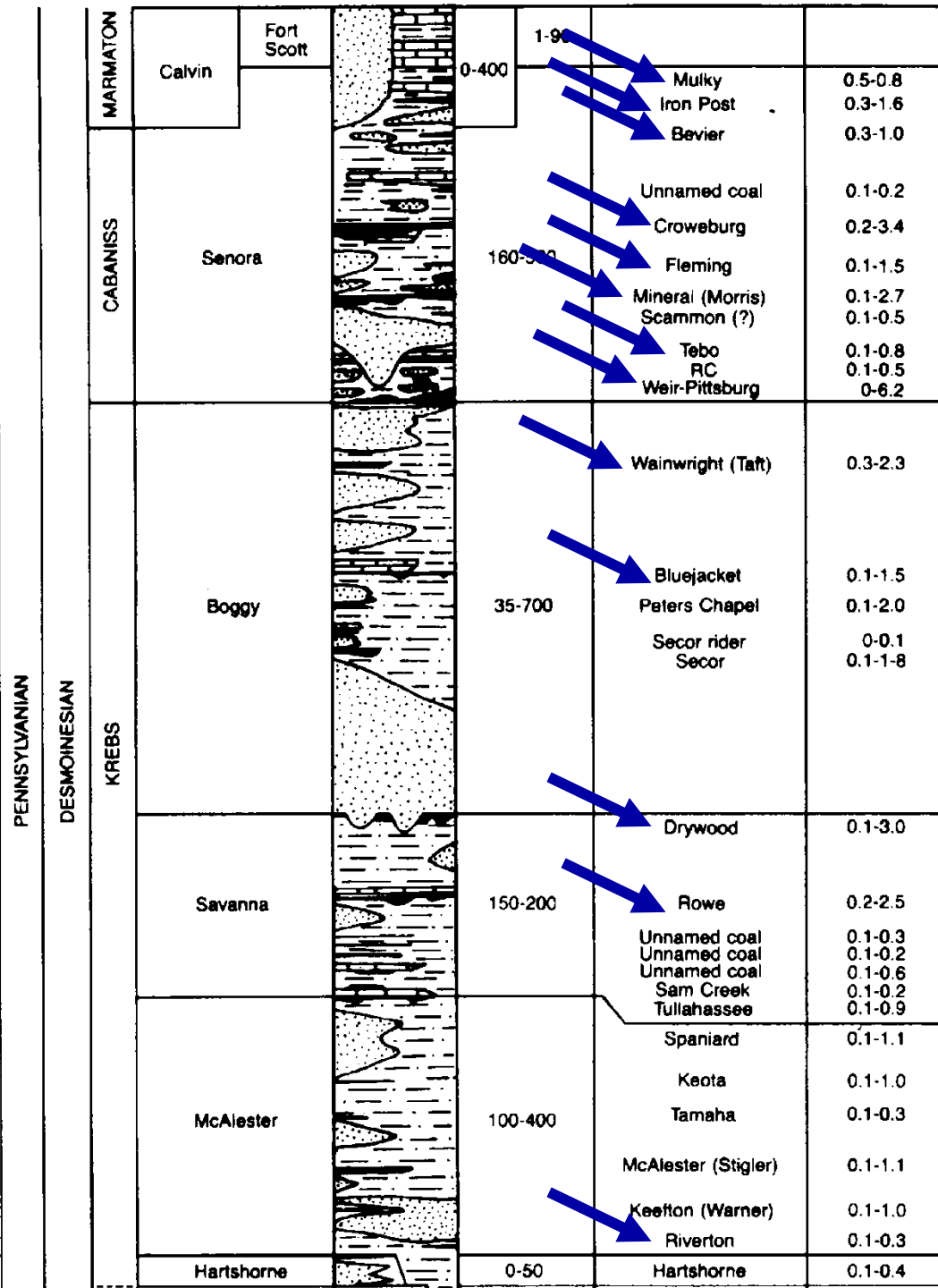
● "Pennsylvanian" Coals  
■ CBM Well

248 (4%) of  
5,707 wells

**COMMINGLED:** There are more than 40 named and unnamed coals in NE OK. Numerous CBM wells have commingled more than 3 coals on the NE OK shelf beginning in 1999 (only shallowest coal symbol is plotted on map)

# Generalized Stratigraphic Column for Northeast Oklahoma Shelf (13 common coals in NE OK CBM wells)

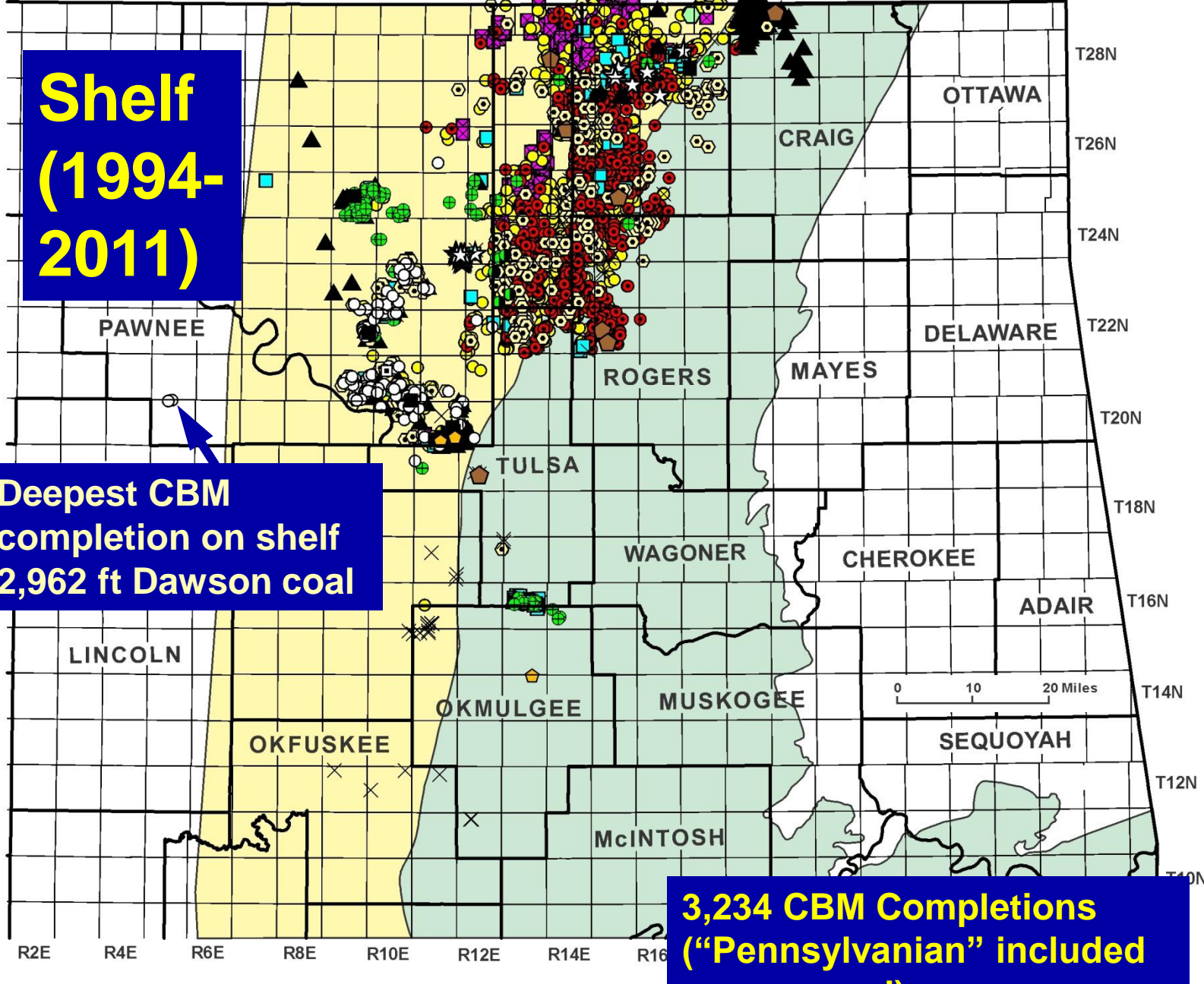
Modified from Hemish (1988)





**Shelf  
(1994-  
2011)**

**Deepest CBM  
completion on shelf  
2,962 ft Dawson coal**



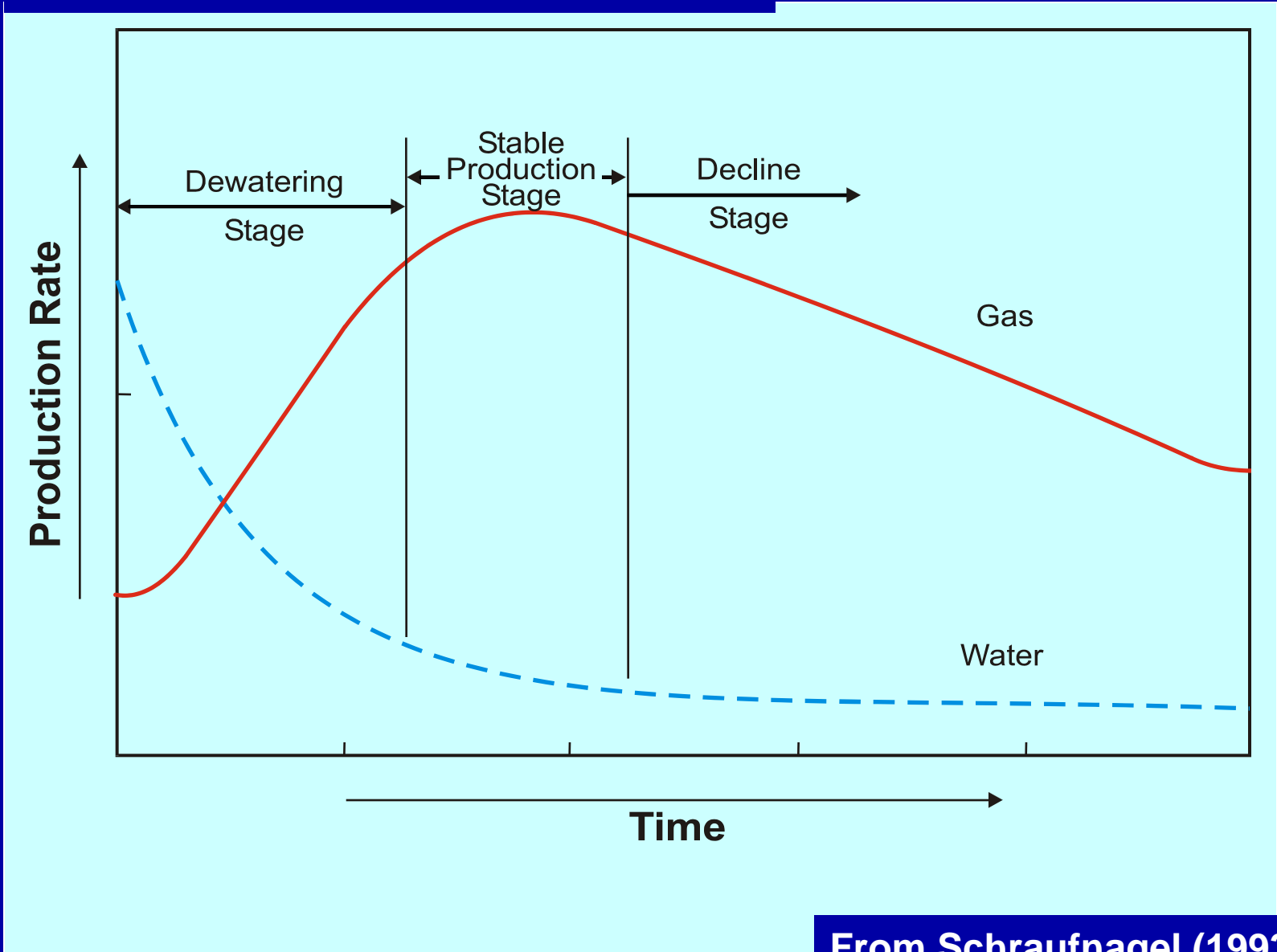
**Coal-Bed Symbols**

- Dawson
- Lexington
- Mulky
- Iron Post (Fort Scott)
- ☆ Bevier
- × Croweburg
- ◊ Fleming
- ◆ Mineral
- Tebo
- ▲ Weir-Pittsburg
- ◻ Wainwright
- Bluejacket
- ◆ Drywood
- Rowe
- Riverton
- ◊ Unnamed

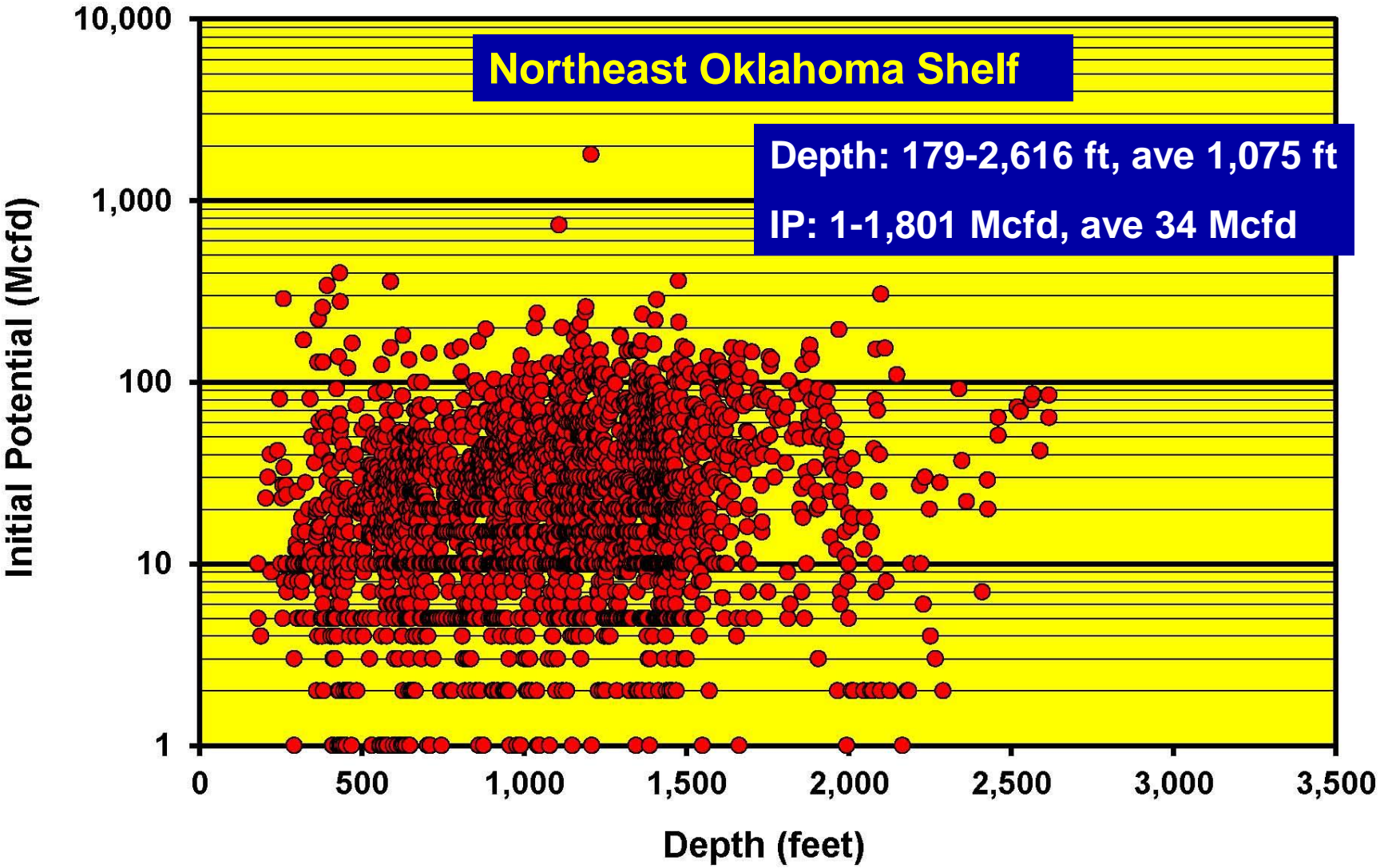
**3,234 CBM Completions  
("Pennsylvanian" included  
as unnamed)**

**[updated October 2012]**

# Theoretical decline curve for CBM well

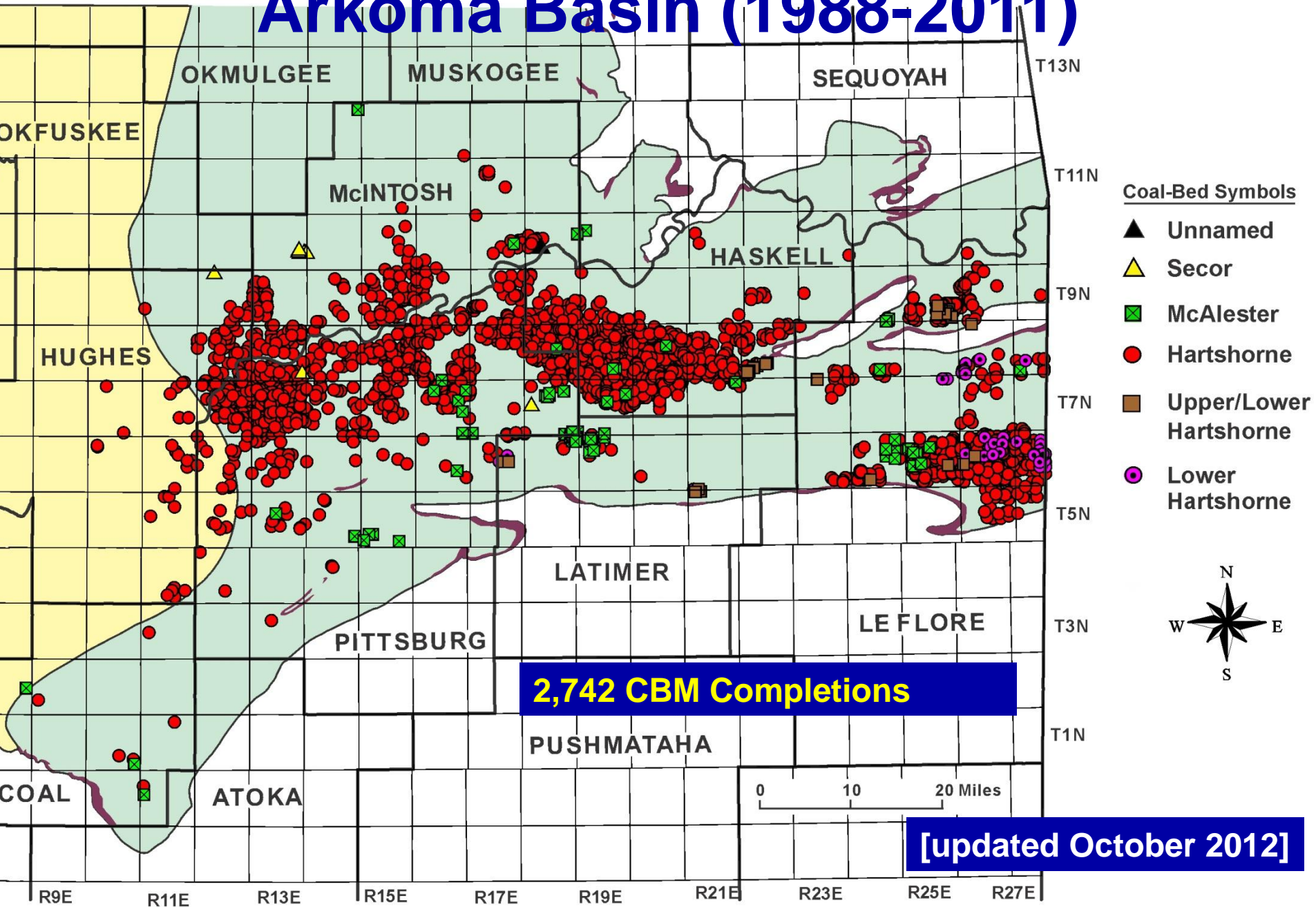


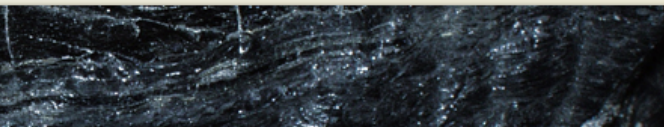
From Schraufnagel (1993)



**2,654 pairs**

# Arkoma Basin (1988-2011)





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## COAL AND COALBED METHANE

OKLAHOMA GEOLOGICAL SURVEY

Coal is an organic-rich rock derived from plant material deposited in a swamp, marsh, or bog. Coal varies by grade (percentage of mineral impurities), type (organic composition), and rank (level of coalification). Rank describes the transformation from peat (unconsolidated plant remains) through lignite, subbituminous, bituminous, semianthracite, and anthracite coal (rock) from increasing burial pressure, temperature, and time.

The [coalfield](#) in eastern Oklahoma is divided into the northeast Oklahoma shelf and the Arkoma Basin based on physiographic and structural differences. The commercial coal belt contains coal beds  $\geq 10$  in. thick that are mineable by surface methods at depths  $< 100$  ft and coal beds  $\geq 14$  in. thick that are mineable by underground methods. The noncommercial coal-bearing region has limited information on coal thickness and quality or contains coals that are too thin, of low quality, or too deep for surface mining.

The age of commercial coal-bearing strata in the Oklahoma coalfield is Desmoinesian (Middle Pennsylvanian). Generalized [stratigraphic columns](#) of the northeast Oklahoma shelf and Arkoma Basin show about 40 named and several unnamed coal beds and their range in thickness measured from outcrops, mines, and shallow core samples.

[Coal rank](#), generalized for all coals at or near the surface, ranges from high-volatile bituminous in the northeast Oklahoma shelf and western Arkoma Basin to medium-volatile bituminous and low-volatile bituminous in the eastern Arkoma Basin in Oklahoma. Rank increases from west to east and with depth in the Arkoma Basin, attaining semianthracite in Arkansas.

Remaining identified bituminous coal resources in beds  $\geq 10$  in. thick total 8.09 billion short tons (1 short ton equals 2,000 pounds) in 19 counties in eastern Oklahoma, an area of approximately 8,000 square miles. About 1.5 billion short tons of bituminous coal reserves (the economically recoverable part of coal resources) remain in Oklahoma. Oklahoma ranks 19th of 32 coal-bearing states in the U.S. based on coal reserves. From 1873-2008, 292 million short tons of bituminous coal were produced from underground and surface mines in the Indian Territory and Oklahoma. Peak annual [coal production](#) was 5.73 million short tons in 1981, with smaller production peaks during and immediately following World War I and World War II.

There are many uses for coal, primarily in combustion (generation of electricity, used to make steel), conversion (gasification and liquefaction), and it is used in Oklahoma in electric power plants and lime and cement kilns.

Coal generates and stores large quantities of natural gas (methane). Coal in Oklahoma is in the [northeast Oklahoma shelf](#) and [Arkoma Basin](#).

[Presentations, Reports and Maps](#)

[Coal Bibliographies](#)

[Links](#)

[Coal Database](#)

[Coal Maps and Illustrations](#)

Related interest: [Oil and Gas in Oklahoma](#)


## LINKS

Example of coal and coalbed-methane information available on the OGS Web site

(<http://www.ogs.ou.edu/coaldb.php>)

# OGS Coal and CBM Bibliographies

OU Home | Apply | Campus Links | Google™ search ou.edu



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SURVEY**

*Energy*



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**COAL AND COALBED METHANE BIBLIOGRAPHIES**  
OKLAHOMA GEOLOGICAL SURVEY

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[Bibliography of Oklahoma Coalbed Methane](#)

[Bibliography of Oklahoma Coal](#)

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[Bibliography of Oklahoma Coal Mine Disasters](#)

[Bibliography of Oklahoma Coal Structure Maps](#)

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[Bibliography of Oklahoma Palynology](#)

**ARTICLES**

# OGS Coal Databases



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## COAL DATABASES (OKLAHOMA DATA)

Available for download:

- [Analytical Header \(Documentation\)](#)
- [Analytical Data \(Documentation\)](#)
- [Coalbed Methane Completions](#)
- [Coal Production database \(Documentation\)](#)
- [Stratigraphic Data \(Documentation\)](#) 25,518. View or download in Excel.
- [Stratigraphic Header \(Documentation\)](#) 4,496 sample points. View or download in Excel.

Abbreviations:

- OWWO: Old Well Workover
- MCFGPD: Thousand Cubic Feet of Gas Per Day
- BWPD: Barrels of Water per Day
- CBM: Reported as Coalbed-Methane Well

8/8/12

- ### ARTICLES
- [Oil and Gas](#)
  - [Coal](#)
  - [OPIC Oklahoma Petroleum Information Center](#)

# CBM Completions Table on OGS Web Site as Excel File

Coalbed-Methane Completions.xls [Compatibility Mode] - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View

Clipboard Font Alignment Number Styles Cells Editing

Normal Bad Good Neutral Calculation

Check Cell Explanatory... Input Linked Cell Note

AutoSum Fill Clear Sort & Filter

County

	A	B	C	D	E		G	H	I	J	K	L	M	N	O	P	Q	R	S
3161	874	35-113-25999	TEC Resources	6/5/1999	1-14 Osage/Williams	Shell Lake NW	14	20	N	10	E	NE	SW	SW	NW	Osage	Dawson	1231-1235	
3162	875	35-113-26157	TEC Resources	10/4/1999	1 Sutherland	Prue	28	21	N	10	E	C	NE	SW	NW	Osage	Dawson	1235-1238	
3163	876	35-113-28690	TEC Resources	9/19/1999	29-1 Bird	Twin Creek	29	21	N	10	E		NE	NE	SE	Osage	Bluejacket	1929-1933	
3164	877	35-113-26177	TEC Resources	3/25/1999	1 Perkins	Avant	30	23	N	12	E	SE	NE	SW	NE	Osage	Croweburg	1229-1243	1750
3165	892	35-113-29548	TEC Resources	7/9/1999	4 Hunt N B Trust	Prue	35	21	N	10	E		NE	NW	NE	Osage	Dawson	1160-1163	
3166	910	35-113-28250	TEC Resources	8/30/1999	1P Glasgow	Avant	4	23	N	12	E		SE	SE	SE	Osage	Post	1196-1200	1208
3167	935	35-113-29470	TEC Resources	6/4/1999	10 Robinson & Neff	Twin Creek	30	21	N	10	E		C	SW	SE	Osage	Dawson	1329-1332	
3168	1023	ZZ523203	TEC Resources	8/3/1998	2C Sam Schell	Ochelata N	32	25	N	12	E				NE	Osage	Post	1272-1276	1286
3169	1050	35-113-41186	Performance Petroleum	3/30/2000	3-1 Buck Creek	Domes-Pond Creek	3	26	N	11	E		NW	SE	NE	Osage	Rowe	1624-1630	
3170	1051	35-113-41185	Performance Petroleum	6/30/2000	33-8 Mullendore	Caney	34	29	N	12	E		SE	NE	SW	Osage	Rowe	1587-1590	
3171	1052	35-113-41182	Performance Petroleum	3/25/2000	34-2 Candy Creek	Ochelata N	34	25	N	12	E		NE	NW	NW	Osage	Mulky	1187-1190	
3172	1053	35-113-41201	Performance Petroleum	3/30/2000	3-2 Buck Creek	Domes-Pond Creek	3	26	N	11	E		SW	SW	SW	Osage	Mulky	1346-1351	
3173	1100	35-113-40985	Carter, E.W.	12/10/2000	3A Osage	Prue	33	21	N	10	E		NE	SW	NE	Osage	Dawson	1112-1115	
3174	1147	35-113-28483	Welco Energy Company	3/1/2001	1P IBA	Signal Hills	16	23	N	9	E		SE	SW	NE	Osage	Pittsburg	2046-2050	
3175	1209	35-113-41214	TEC Resources	8/24/2000	T7 Pharris	Javine District	19	22	N	12	E		NW	NW	SW	Osage	Post	1044-1046	1055
3176	1222	35-113-41222	TEC Resources	9/1/2000	T2-28 Osage	Prue	28	21	N	10	E		C	SE	NE	Osage	Rowe	2088-2090	
3177	1223	35-113-41231	Chinn, Larry	11/24/2000	18A Osage	Domes-Pond Creek	36	27	N	11	E		SW	SE	SW	Osage	Riverton	1610-1613	
3178	1284	35-113-40990	TEC Resources	10/1/2000	T-1 Hudson	Alameda	29	26	N	11	E		EH	EH	SE	Osage	Dawson	0976-0979	
3179	1328	35-113-00773	TEC Resources	6/28/2001	1A Hunt	Prue	35	21	N	10	E		NE	SE	NE	Osage	Pittsburg	1900-1904	
3180	1329	35-113-41322	Amvest West	7/1/2001	54 Osage	Wildhorse	13	22	N	9	E		NE	NW	SW	Osage	Mulky; Iron	1448-1459	1815
3181	1330	35-113-41321	Amvest West	7/1/2001	53 Teresa Rogers	Wildhorse	13	22	N	9	E		SE	NW	NW	Osage	Mulky; Iron	1439-1445	1800
3182	1331	35-113-41323	Amvest West	8/1/2001	61 Teresa Rogers	Wildhorse	13	22	N	9	E		NW	SW	NW	Osage	Mulky; Iron	1453-1464	1820
3183	1332	35-113-41324	Amvest West	6/30/2001	62 Lee & Nora Deshazer	Wildhorse	13	22	N	9	E		SW	NW	SW	Osage	Mulky; Iron	1436-1444	1795
3184	1333	35-113-41328	Amvest West	7/30/2001	52 Mark Ingleright	Hominy	14	22	N	9	E		NW	NE	NE	Osage	Mulky; Iron	1461-1469	1820
3185	1334	35-113-41325	Amvest West	6/30/2001	51 Gerald Lay Jr.	Wildhorse	14	22	N	9	E		NE	SW	NW	Osage	Mulky; Iron	1488-1500	1857
3186	1335	35-113-41316	Amvest West	6/15/2001	59 Osage	Hominy	14	22	N	9	E		SE	NE	NW	Osage	Croweburg;	1440-1451	1873
3187	1336	35-113-41317	Amvest West	6/15/2001	60 Osage	Hominy E	14	22	N	9	E		NE	SW	NE	Osage	Mulky; Iron	1482-1492	1850
3188	1337	35-113-41262	Amvest West	1/30/2001	10 Richard Wilson et al	Hominy E	23	22	N	9	E		NE	NE	NE	Osage	Pittsburg;	1943-1951	1984
3189	1392	35-113-29245	McKee Energy	11/21/1997	26-2 Avant Unit	Avant	26	24	N	11	E				SE	Osage	Mulky	1325-1329	
3190	1393	35-113-37879	McKee Energy	7/17/1997	26-14 BIA	Avant	26	24	N	11	E				SE	Osage	Bevier	1298-1303	
3191	1394	ZZ425442	McKee Energy	11/9/1997	26-34BIA	Avant	26	24	N	11	E				SE	Osage	Bevier	1429-1433	
3192	1395	ZZ425446	McKee Energy	7/23/1997	26-3 Avant Unit	Avant	26	24	N	11	E				SE	Osage	Croweburg	1690-1695	
3193	1396	ZZ425447	McKee Energy	11/27/1997	26-5 Avant Unit	Avant	26	24	N	11	E				SE	Osage	Iron Post	1324-1329	
3194	1397	35-113-29244	McKee Energy	11/21/1997	26-1 Avant Unit	Avant	26	24	N	11	E		NW	SE	SE	Osage	Iron Post	1301-1305	
3195	1398		McKee Energy	3/14/1997	25-4 BIA	Avant	25	24	N	11	E				SE	Osage	Mulky	1605-1609	
3196	1399	ZZ423078	McKee Energy	3/14/1997	25-2 BIA	Avant	25	24	N	11	E				SE	Osage	Mulky	1303-1306	
3197	1400	ZZ425364	McKee Energy	3/9/1997	701	Avant	25	24	N	11	E				SE	Osage	Bevier	1580-1584	
3198	1401	ZZ425369	McKee Energy	3/27/1997	7 BIA	Avant	25	24	N	11	E				SE	Osage	Mulky	1316-1319	
3199	1402	ZZ425381	McKee Energy	4/6/1997	19 BIA	Avant	25	24	N	11	E				SE	Osage	Mulky	1312-1315	

Ready

Count: 5978

5,976 records (1988-2011)





# Coal Maps and Illustrations

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## COAL MAPS AND ILLUSTRATIONS

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[OK Coalfield](#)– Map of Oklahoma coalfield.

Northeast Oklahoma Shelf Stratigraphic [Column Upper](#) & [Column Lower](#) - Generalized stratigraphy of coal-bearing strata of the northeast Oklahoma shelf.

Arkoma Basin Stratigraphic [Column Upper](#) & [Column Lower](#) - Generalized stratigraphy of coal-bearing strata of the Arkoma Basin.

[Coal Rank](#) – Generalized rank of all coal beds at or near the surface in the Oklahoma coalfield.

[Hartshorne Coal Rank](#) Hartshorne coal rank map based on vitrinite reflectance of surface and subsurface samples of Hartshorne coal (Cardott, 2012).

[Coal Production Graph](#) showing coal production in Oklahoma from 1873 to present.

[CBM Completions Histogram](#)

[Northeast Oklahoma Shelf Coalbed-Methane Activity – 1994-2011](#): Distribution of coalbed-methane well completions by coal bed in the northeast Oklahoma shelf.

[Arkoma Basin Coalbed-Methane Activity – 1988-2011](#): Distribution of coalbed-methane well completions by coal bed in the Arkoma Basin.

[Coalbed-Methane Completions by Year, 1988-2011](#)

Miscellaneous Map 16 [Map of Eastern Oklahoma Showing Active Coal Mines During 1975 \(January 1, 1976\)](#), compiled by S. A. Friedman. September 15, 1976. Scale: 1:500,000.

Miscellaneous Map 17 [Map of Eastern Oklahoma Showing Active Coal Mines \(January 1, 1977\)](#), compiled by S. A. Friedman. July 28, 1977. Scale: 1:500,000.

Open File Report 1-2008 [Map Showing the Distribution of Underground Mines in the Lower Hartshorne and McAlester Coals in the Adamson 7.5' Quadrangle, Pittsburg and Latimer Counties, Oklahoma](#), by S. A. Friedman. 2008. 1 sheet, includes 1 table and annotations.

Open File Report 7-1996 [Map Showing the Distribution of Underground Mines in the Hartshorne and McAlester Coals in the Hartshorne 7.5' Quadrangle, Pittsburg and Latimer Counties, Oklahoma](#), by Samuel A. Friedman, 1996.

Open File Report 52-2004 [Map Showing Location of Underground Coal Mines in Eastern Oklahoma](#), compiled by S. A. Friedman, 1979, 2006.

LINKS