

Map prepared and published by the Geological Survey
in cooperation with the Oklahoma Highway Department,
Oklahoma Water Resources Board, and Oklahoma State Soil
Conservation Board
Control by USGS, USC&GS, and Oklahoma Geological Survey
Topography by photogrammetric methods from aerial
photographs taken 1956. Field checked 1957
Polyconic projection, 1927 North American datum
10,000-foot grid based on Oklahoma coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks,
zone 15

USDA GRID AND 1978 MAGNETIC NORTH
COORDINATION OF CENTER OF SHEET

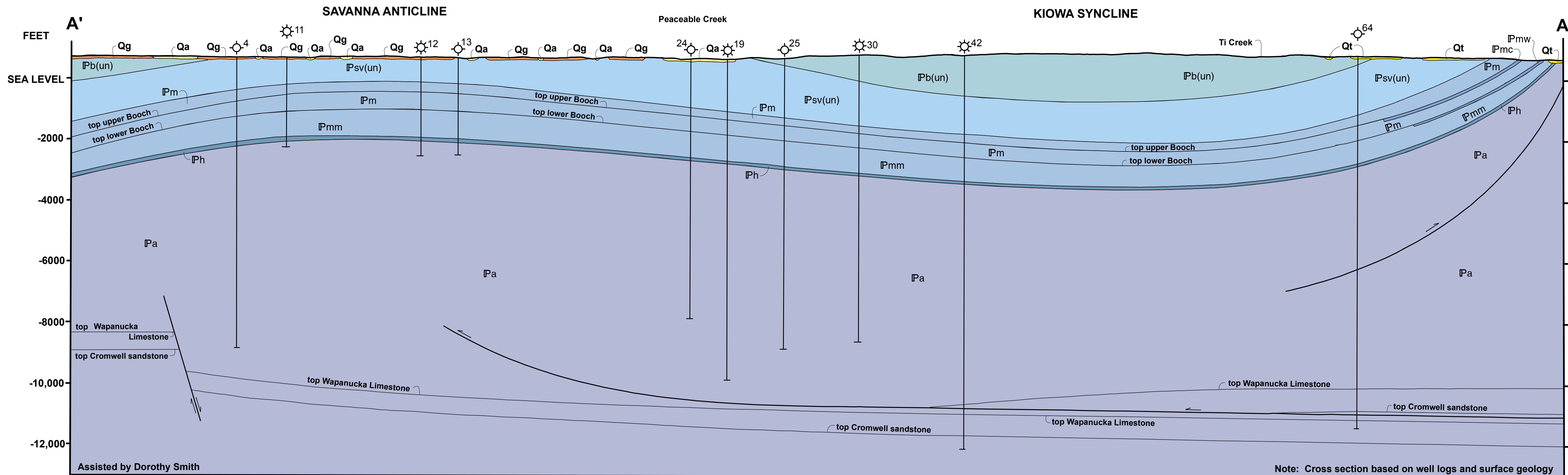
SCALE 1:24,000

COUNTOUR INTERVAL, 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

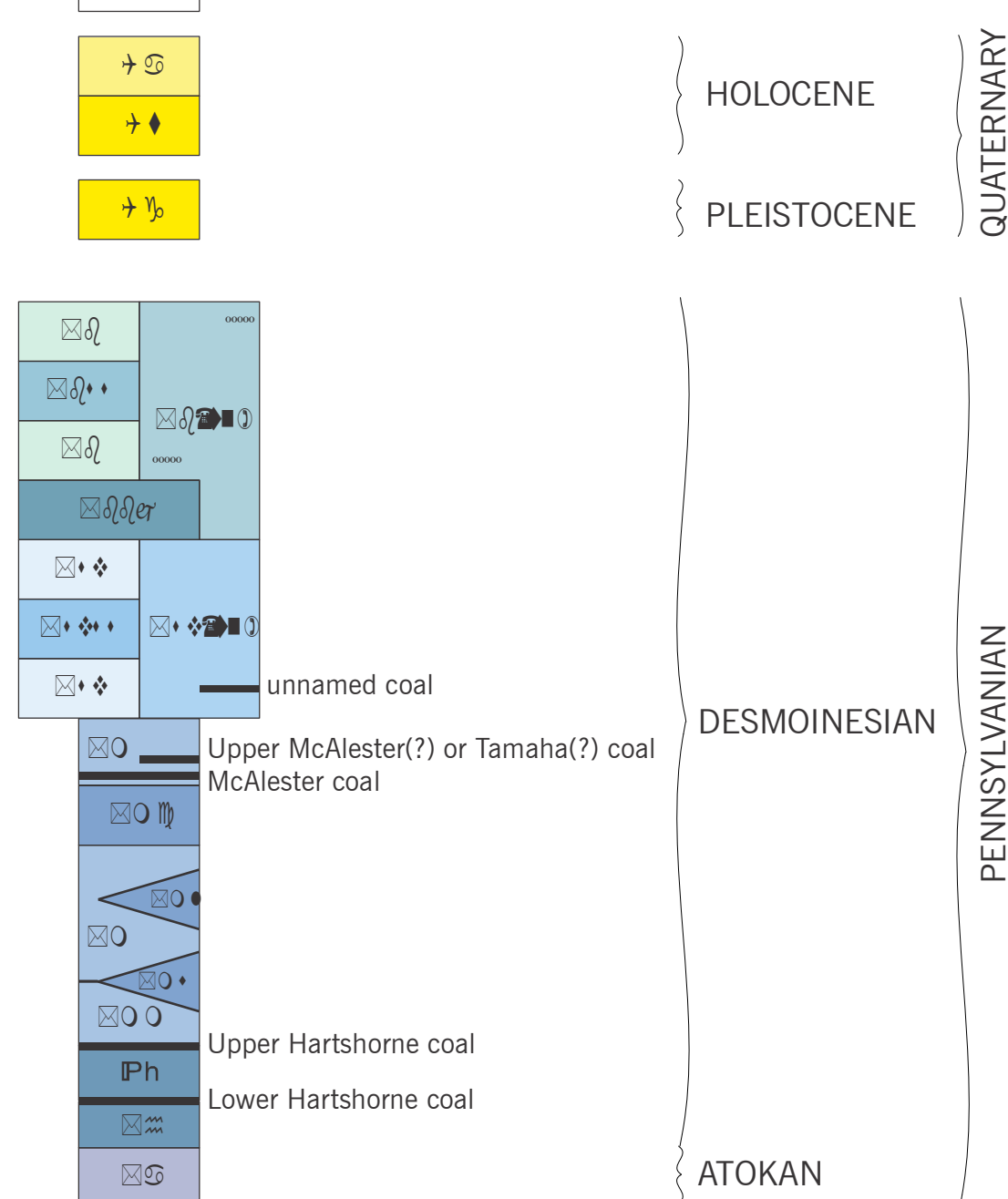
Geology mapped by N. H. Sureson,
assisted by L. A. Hemish, 1997

GEOLOGIC MAP OF THE SAVANNA 7.5' QUADRANGLE,
PITTSBURG COUNTY, OKLAHOMA

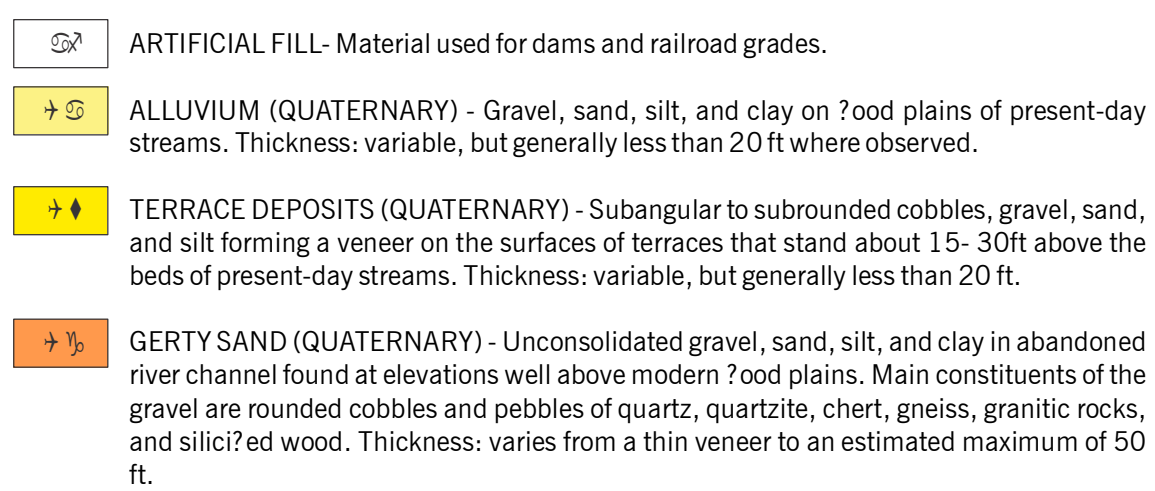
By
Neil H. Suneson
1997



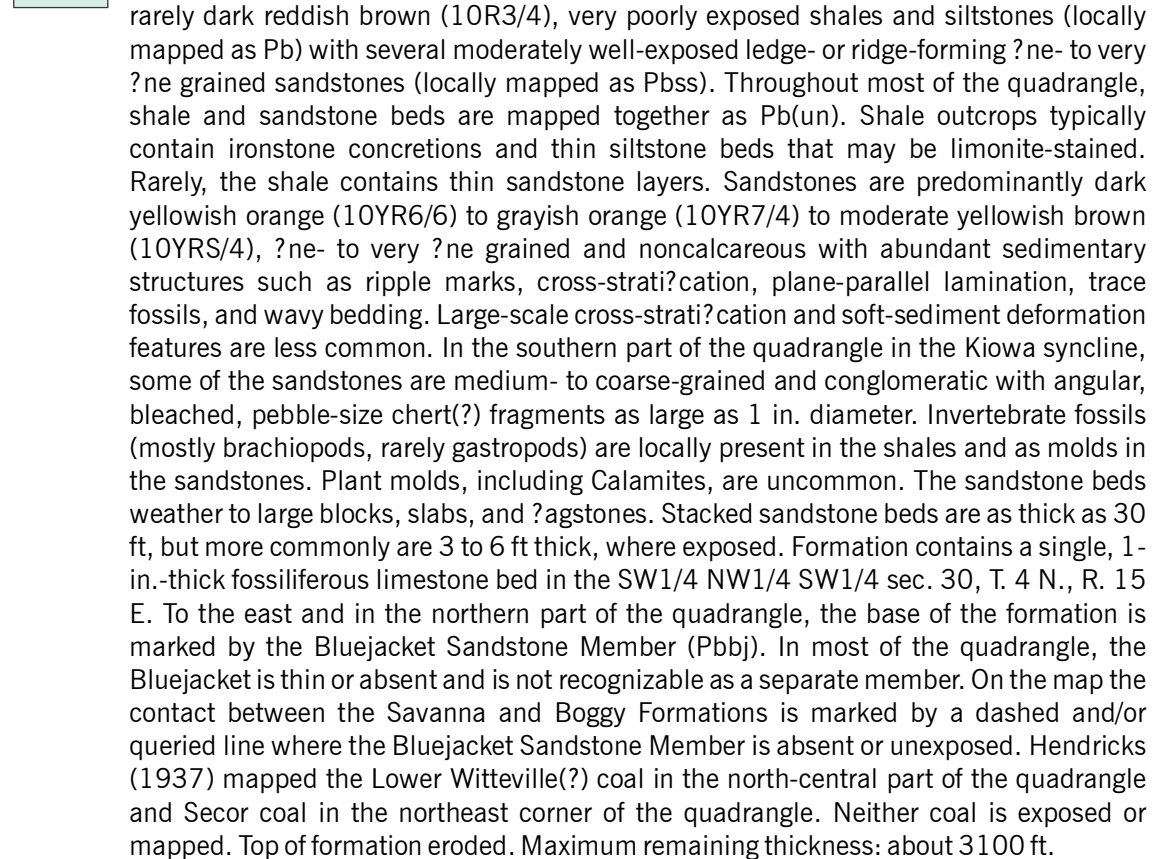
CORRELATION OF MAP UNITS



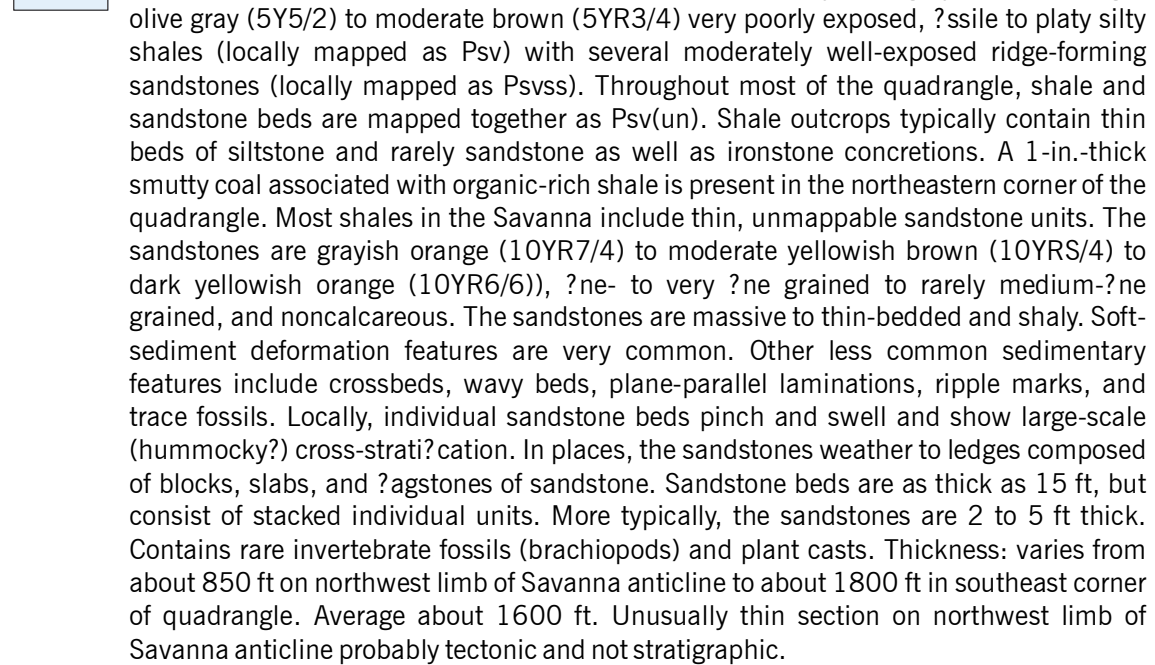
DESCRIPTION OF UNITS



 BOGGY FORMATION (PENNSYLVANIAN) - Predominantly olive gray (5Y3/2 to 5Y4/1) to



 SAVANNA FORMATION (PENNSYLVANIAN)- Predominantly olive gray (5Y4/1) to light



McALESTER FORMATION (PENNSYLVANIAN) - Consists of 4 named members including (oldest to youngest): McCurtain Shale (Pmm), Warner Sandstone (Pmw), Lequire Sandstone (Pml), and Cameron Sandstone (Pmc). Unnamed shale labelled Pm separates the named sandstones. The McCurtain Shale Member is predominantly poorly exposed olive gray (5Y3/2) to olive black (5Y2/1), 7sille, spheroidally weathering, silty shale. Ironstone concretions and layers are present but uncommon. Includes very minor siltstone and sandstone beds. Thickness: 300 - 500 ft.

The Warner Sandstone Member (Pmw) is predominantly a relatively well exposed grayish orange (10YR7/4) to dark yellowish orange (10YR6/6), fine- to very fine grained, noncalcareous sandstone. Beds typically weather to slabs or tagstones and are commonly equidimensional blocks. Individual sandstone beds vary from less than 1 to over 3ft thick and occur as isolated beds separated from others by covered intervals that are probably shale and siltstone; thicker sandstones consist of stacked beds. Ripple marks, cross-stratification, and wavy or swaley bedding characterize most beds, some beds are also characterized by plane parallel stratification and soft-sediment deformation features. Trace fossils and dish-and-pillar structures are rare. Sandstone beds locally appear to grade into silt, 7-ster-bedded siltstone/sandstone sequences as thick as several tens of ft. As much as 20 ft of sandstone and covered intervals separating sandstone beds is exposed. The unit is probably thicker and is shown that way on the map. Thickness: 0-200ft.

The Lequire Sandstone Member (Pml) is a relatively well exposed fine grained silty sandstone that typically weathers to blocks, slabs, and rarely flagstones. Sedimentary structures include ripple marks, parallel laminations, soft-sediment deformation features, and trace fossils. Calamites impressions are rare. Outcrops range from 3 to 10 ft thick. Thickness: 0 to 150 ft.

The Cameron Sandstone Member (Pmc) is a relatively well exposed, yellowish gray (5Y7/2) to dusky yellow (5Y6/4), ?ne- to ?ne grained noncalcareous silty sandstone that typically weathers to ripple-marked slabs and ?agstones. Individual ripple marks are 4- to 8-ft thick sandstone beds stacked sandstone beds 100 ft thick. In the southeastern corner of the map, the Cameron shows rapid thickening and thinning. Although mapped as a single unit, the Cameron Sandstone Member includes covered intervals that separate sandstone beds and are probably shale and siltstone. Some cross-stratification structures, in addition to ripple marks, include wave bedding, large-scale cross-stratification, soft-sediment deformation features, and sole marks. The thickest sandstone bed in the Cameron Sandstone Member is 7-8 ft thick and marks a 7-8-bedded sandstone/siltstone sequences. Outcrop thickness locally exceeds 100 ft. Thickness: 0-2.75 ft.

Shale in the McAlester Formation (Pm) is predominantly olive gray (5Y3/2 to 5Y4/1), olive black (5Y2/1), to grayish black (N2), very poorly exposed silty shale that contains rare thin siltstone beds. Where exposed, the shale typically weathers to thin, waxy or chippy and locally contains iron-oxide-stained concretions and carbonized plant debris. The McAlester is a thin bedded shale, with bed thicknesses ranging from 1 to 2 cm. The McAlester or Tamaha coal ranges in thickness from about 2 to 4 ft (Hendricks, 1937). It is about 120 ft above the top of the Cameron Sandstone Member just northeast of Blanco and ranges from 250 to 600 ft above the Cameron on the Savanna anticline in the northwestern part of the quadrangle. The coal has been locally mined and is used for fuel. The McAlester or Tamaha coal is also present in the Uppermost and Middlemost sandstone members of the Cameron Sandstone and is a thin bedded, very fine smutty coal bed occurs about 400 ft above the Cameron Sandstone northeast of Blanco. This coal bed may be the Upper McAlester or Tamaha coal.

Thickness of McAlester Formation: varies from 1750 to 2500 ft. Thickest at hinge of Savanna anticline, probably due to tectonic thickening.

[illegible]

ATOKA FORMATION (PENNSYLVANIAN) - To the east, predominantly very poorly exposed, grayish black (N2) to olive gray (5Y3/2), slightly to very silty, ?ssile to platy, noncalcareous shale. No outcrops observed in this quadrangle. The Atoka Formation in this quadrangle represents the upper part of the formation. Thickness unknown. Thickness of Atoka Formation in subsurface determined from well logs about 7000 ft.

REFERENCE CITED

Hendricks, T.A., 1937, Geology and fuel resources of the southern part of the Oklahoma coal field. Part I. McAlester District: U.S. Geological Survey Bulletin 874-A, 90p.

MALESTER	KRIGS	ADAMSON	GAVIN	WILBURTON	PANKLA	FED OAK	LETORE	SUMMERFIELD	WISTER	HEAENDER	BATES
SAVANNA	WARTSHORPE SW	WARTSHORPE	HIGGINS	DAMON	BAUER MOLYBANI	TALIHMA	BLACKLOCK RODGE	LETORE SE	HOGZENT	HORTLEBBY	LOWING

**GEOLOGIC MAPS PUBLISHED AS PART OF
COGEOMAP & STATEMAP PROJECTS**

SYMBOLS

CONTACT - Dashed where approximately located; queried where uncertain

COAL BOUNDARY - Approximate outcrop boundary of coal bed (named on map); triangle indicates exposure of coal

THRUST FAULT - Sawteeth on upper plate; dotted where concealed

FAULT - Arrows show relative horizontal movement; dashed where approximately located; dotted where concealed

FAULT - Dashed where inferred; U = upthrown side, D = downthrown side

FAULT - Displacement unknown; dashed where approximately located; dotted where concealed

ANTICLINE - Showing crestline; arrow along axis shows direction of plunge; dashed where approximately located; dotted where concealed

SYNCLINE - Showing troughline; arrow along axis shows direction of plunge; dashed where approximately located; dotted where concealed

COAL EXPOSURE

TRENCH

ABANDONED STONE QUARRY

ABANDONED SHAFT OR DOGHOUSE

SPOIL PILES FROM ABANDONED COAL MINE

INVERTEBRATE FOSSIL LOCALITY

CONGLOMERATE FACIES OF BOGGY FORMATION

MARKER BED

STRIKE AND DIP OF BEDS

↖ Leader to location of measurement

↗ Strike and dip of beds

↘ Strike and dip of beds, approximate

⋈ Vertical beds

⋈ Undulatory beds

⊕ Horizontal beds

OIL AND GAS WELLS

↖ Leader to location of wellsite

⬠ Dry hole, abandoned

⊛ Gas well

42 Number on map corresponds to list of wells

LIST OF WELLS SPUDDED BEFORE MAY 31, 1997

Tide	West - 25m Geradenie	n/a	6150
Beren 1-25 Berline	918/81	3115	
Beren 1-30 Turner	924/81	3210	
Seagull Mid-South 1-35 SMS Rock	1219/94	9500	
Beren 1-35 Dodge	921/80	3110	
Beren 1-36 Ward	762/70	3168	
TXO 1 Turner "C"	310/82	3100	
TXO 1 Turner	525/79	3700	
Leben 1-31 Cambron "A"	836/69	9300	
Leben 1-31 Cambron "A"	831/69	9300	
1. Beren 1-3 Biggs	74/80	2938	
Beren 2-15 Davis	32/80	2900	
Beren 1-2 Davis	103/79	3201	
4. Beren 1-1 Alexander	327/81	3190	
5. Deck 1-B Buckner	121/97	3190	
Beren 1-10 Backster "B"	411/82	3055	
7. Unit 1 Raleigh	620/90	7013	
Unit 2 Smart	1031/90	6776	
Unit 1 Smart	919/81	6500	
Sampson 1 Keyway	122/86	7000	
Sampson 1 Bondvick	1025/81	10,472	
Unit 2 Cattle	411/82	6200	
Cotton 1 Atterbury	311/81	11,500	
Area 4 Kimball "D"	523/89	8500	
TXO 1 Kimball "C"	912/81	9500	
Unit 2 Cable	620/90	9500	
Unit 1 Cable	119/87	6920	
Tenneco 1-13 Dalling	313/81	9000	
Tenneco 1-13 Rooks	1120/84	15,750	
Unit 3 Cable	1114/94	9400	
Sanita Fe 1-18 Cable	1121/89	8325	
Tenneco 2-18 Rollins	912/81	15,000	
Tenneco 3-18 Cable	898/81	10,000	
Arimco 4-18 Cable	314/86	8383	
Whitmar 1-17 Ship	61/92	9873	
Whitmar 2-18 Ship	925/88	9873	
Tenneco 1 Battles	16/82	9118	
Tenneco 1-22 Walker	1111/91	9100	
TXO 1 Crabtree "C"	44/80	9000	
TXO 1 Crabtree "C"	720/80	7725	
TXO 1 Harris "	1119/81	12,012	
Section 1-19 Cable	731/82	12,900	
Wardburg 1 MacLean 30 Federal	116/91	12,900	
Cotton 1 Depot	122/881	12,610	
no information		3000	
Carver-Garrig	720/81	12,605	
Unit 2 R.L. Mullen unit	720/81	8000	
TXO 2 Romine	3ne/85	8801	
TXO 1 Romine	1011/86	12,587	
TXO 1 Crabtree "A"	110/80	8620	
Skelly 1 J.C. Layle	827/67	10,000	
Supron 21-32 Turney	112/78	11,249	
Supron 1-31 Turney	717/78	7474	
TXO 1 Harrington	1230/76	12,326	
TXO 1 Turney	620/79	7798	
Unit 1 Davis "C"	824/82	8450	
TXO 1 A Pearl	24/84	12,840	
TXO 1 Pearl	42/82	12,001	
Unit 1 Brandon	1226/75	13,301	
Supron 1 J.B. Biggers	800/78	8000	
TXO 2 Biggers	814/79	8531	
TXO 3 Biggers	807/78	9000	
Seneca 1-4 Echelle	1121/82	11,425	
Oxy 1 Cable	521/90	12,230	

