

CORRELATION OF MAP UNITS

QUATERNARY

Qa
Qt

UNITS NORTH OF CHOCTAW FAU

UNITS SOUTH OF CHOCTAW FAU

DESCRIPTION OF UNITS

Qa ALLUVIUM (Quaternary)—Gravel, sand, silt, and clay on flood plains of present-day streams

UNITS PRESENT NORTH OF CHOCTAW FAULT

Pb BOGGY FORMATION (PENNSYLVANIA) – Predominantly sandy, grayish-black (N 2 gray) (5Y 4/2) to dark yellow-brown (10YR 4/2) shales and siltstones (Pb) with several thin, scarp-forming, fine- to very-fine-grained sandstones (Pbb1, Pb2, Pb3, Pb4). At the base is the Sandstone Member (Pbb5). Mostly medium-to-yellowish-brown (10YR 5/4), about 250–300 m thick, Pb1 is a progradational, light brown (10YR 6/3) to dark yellowish-brown (10YR 5/2) stratified, noncalcareous sandstones with abundant sedimentary structures such as ripple marks, scale marks, and soft-sediment-deformation features. At this (4-in.) scale Pb1, Pb2, and Pb3 are predominantly light brown (10YR 6/3) to dark yellowish-brown (10YR 5/2) stratified, noncalcareous sandstones with abundant sedimentary structures such as ripple marks, scale marks, and soft-sediment-deformation features. At this (4-in.) scale Pb4 is the Blackduck Sandstone. Pb5 includes shale beds of varying thickness. The Sector coal bed is in shale interval between Pbb1 and Pb2. It is known to be split into as many as 4 seams (Pb5a, Pb5b, Pb5c, Pb5d) in the upper 100 m. The 100-m-thick, 100-ft-thick, 100-in. sandstone lenses are present in the shale units. Top of formation eroded. Thickness: approximately 700 ft.

[illegible]

Pm **MAELSTROM FORMATION (PENNSYLVANIAN)** – Predominantly dark-gray (N) to black shales containing abundant ironstone concretions. McCurtain Shale (Pmc) member base is approximately 650–700 ft thick. The Warner Sandstone Member (Pmw) and McCurtain Shale Member is resistant, moderate-to-dark-brown (10R–4R) to grayish-green (5GY) to black, thin-bedded, moderately to finely grained, cross-bedded sandstone (1/4–1/2 in. thick). It includes upper and lower, ridge-forming units separated by shale, massive, moderate-brown (5R) clay- to brownish-gray (5R4Y) to moderate-yellowish-brown (6Y) to light gray (10Y) claystone, siltstone, and shale. The McCurtain Shale Member, Cameron Sandstone Member (Pmc), 10–40 ft thick; Tanahua Sandstone Member about 3–50 ft thick; and Koola Sandstone Member (Pmk), which generally consists of 3 to 10 ft thick (one to two in. thick) thin-bedded, moderate-yellowish-brown (6Y) to black shales. Contains poorly exposed Maelstrom coal in the shale interval just above the Sandstone Member. Total thickness: 2,000–2,200 ft.

Ph HARTSHORNE FORMATION (PENNSYLVANIAN) – Grayish-orange (10YR 7/4) to reddish-orange (10YR 6/6) to very light-gray (N 8), very fine-grained, ripple-marked, bioturbated, massive sandstone interbedded with silty, medium-gray (N 5) shale. Contains thin and Upper Hartshorne coal beds. Thickness: approximately 250-325 ft

Pa ATOKA FORMATION (PENNSYLVANIAN) – Predominantly silty, medium-dark-gray (N 4)

gray (5Y 2/1) noncalcareous shale (Pa) with thin, brownish-gray (5YR 3/4) siltstone beds. Numerous, continuous to discontinuous, ridge-forming, moderate-yellowish-brown (10YR 6/4) dark yellowish-orange (10YR 5/6) sandstone, siltstone, and claystone (Bee) are

plant fragments, sole markings, and trace fossils. Approximately 7,400 ft of upper part

UNITS PRESENT SOUTH OF CHOCTAW FAULT

ATOKA FORMATION (PENNSYLVANIAN) – Predominantly poorly exposed olive-gray to grayish-olive (10Y 4/2), slightly silty, nonconspicuous, poorly laminated shale and thin beds of laminated siltstone and thicker beds of sandstone. Sandstone is light olive-gray and yellowish-gray (5Y 7/2) where fresh, and grayish-orange (10YR 7/4) where weathered. The shale is grayish olive-gray to grayish yellow (5Y 7/2 to 10Y 7/2), moderately to strongly micaceous, and contains about 95% quartz, 3% feldspar and lithic fragments, and conspicuous white mica pebbles. Laminations. Individual beds vary from several inches to several feet thick and average a thickness of 10 to 15 feet. Laminations are generally massive (corresponding to the To Boma turbidite sequence) (Amari) (This thickness is variable). The beds are generally massive, but some beds are blocky, coarse, trace fossils) at base of sandstone beds locally common. Dish-and-pillar structure marks typical of some beds. Unfossiliferous except for local concentrations of plant remains (Strophomena). Shale is micaceous, and contains some small pebbles of quartz. Choctaw fault unknown. Approximately 2,000 ft exposed in southwestern part of quadrangle.

SYMBC

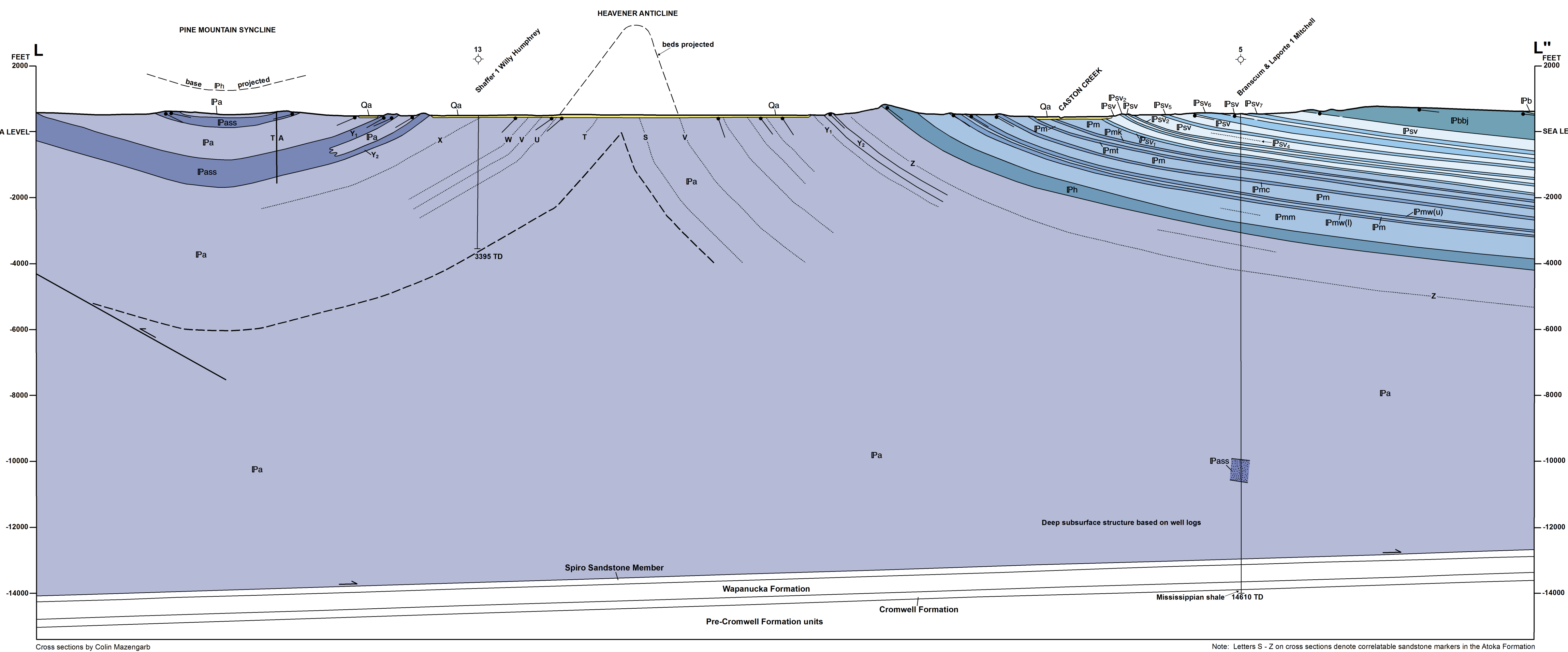
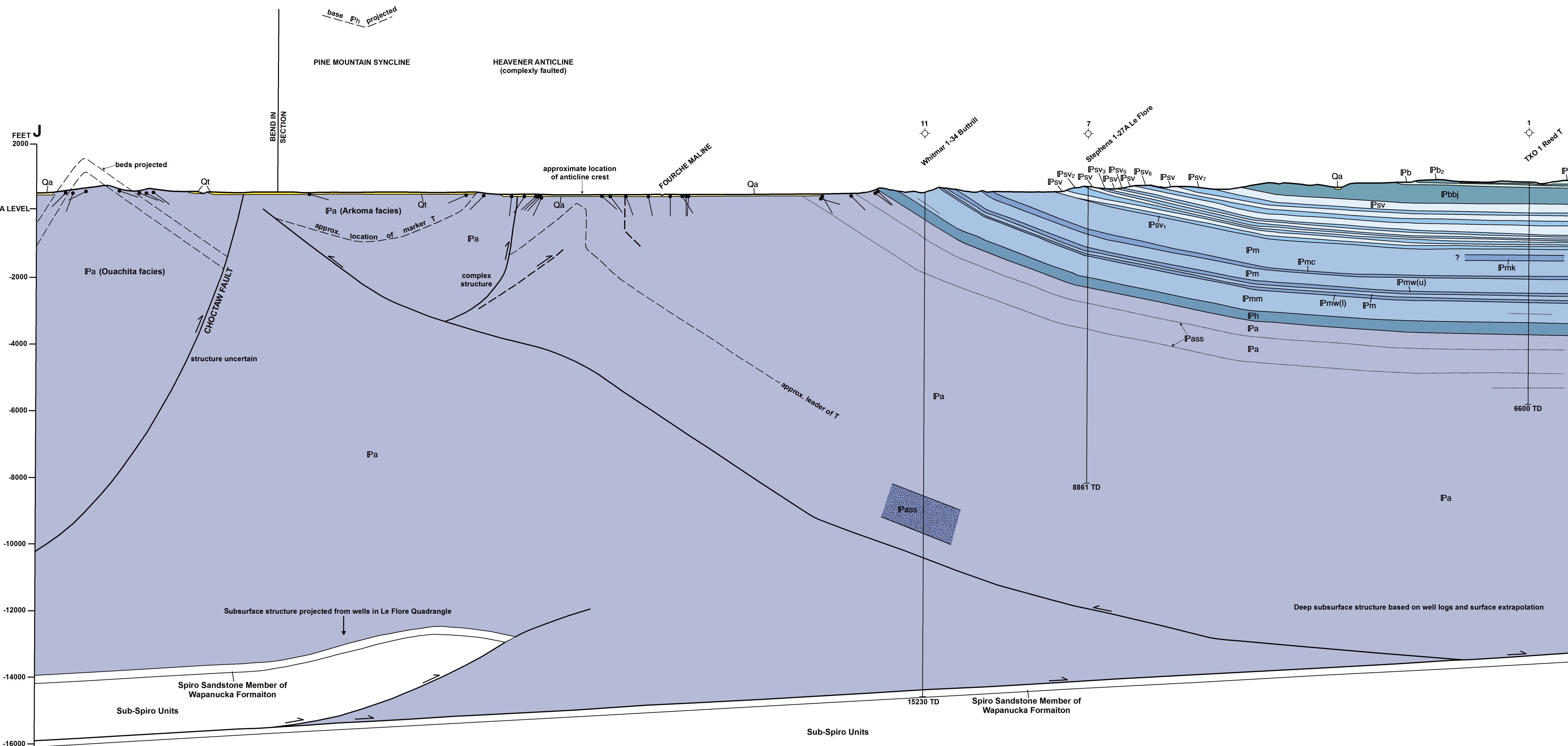
---	CONTACT	- Dashed where approximately located
MARKER BED		
.....	COAL BOUNDARY	- Approximate outcrop of coal bed (named on map); dashed where indicated exposure of coal; queried where probable
---	THRUST FAULT	- Sawtooth on upper plate; dashed where approximately located; dotted where concealed; queried where probable
→---	FAULT	- Arrows show relative horizontal movement; dashed where approximately located; dotted where concealed
---	FAULT	- Inferred, sense of offset unknown
---	ANTICLINE	- Showing crestline; arrow shows direction of plunge, if determined; dotted where concealed
→---	SYNCLINE	- Showing troughline; arrow shows direction of plunge, if determined; dashed where approximately located; dotted where concealed; queried where doubtful
---	MINOR ANTICLINE	- Showing direction and amount of plunges, if determined
Δ	Outcrop, Sam Creek (?)	Limestone
X	Outcrop, Spaniard (?)	Limestone
⋈	Abandoned small coal mine, stone quarry, or open shale pit	
STRIKE AND DIP OF BEDS		
→	Arrow pointing to location of measurement	
— —	Strike and dip of beds	
— —	Strike and dip of beds, upright position confirmed	
→ —	Strike and dip of beds, overturned	
— —	Vertical beds, ball indicated top of beds	
⊙	Horizontal beds	
—	Bedrock dip projected onto cross section lines (cross sections only)	

OIL AND GAS WELLS

☉ Dry hole, abandoned

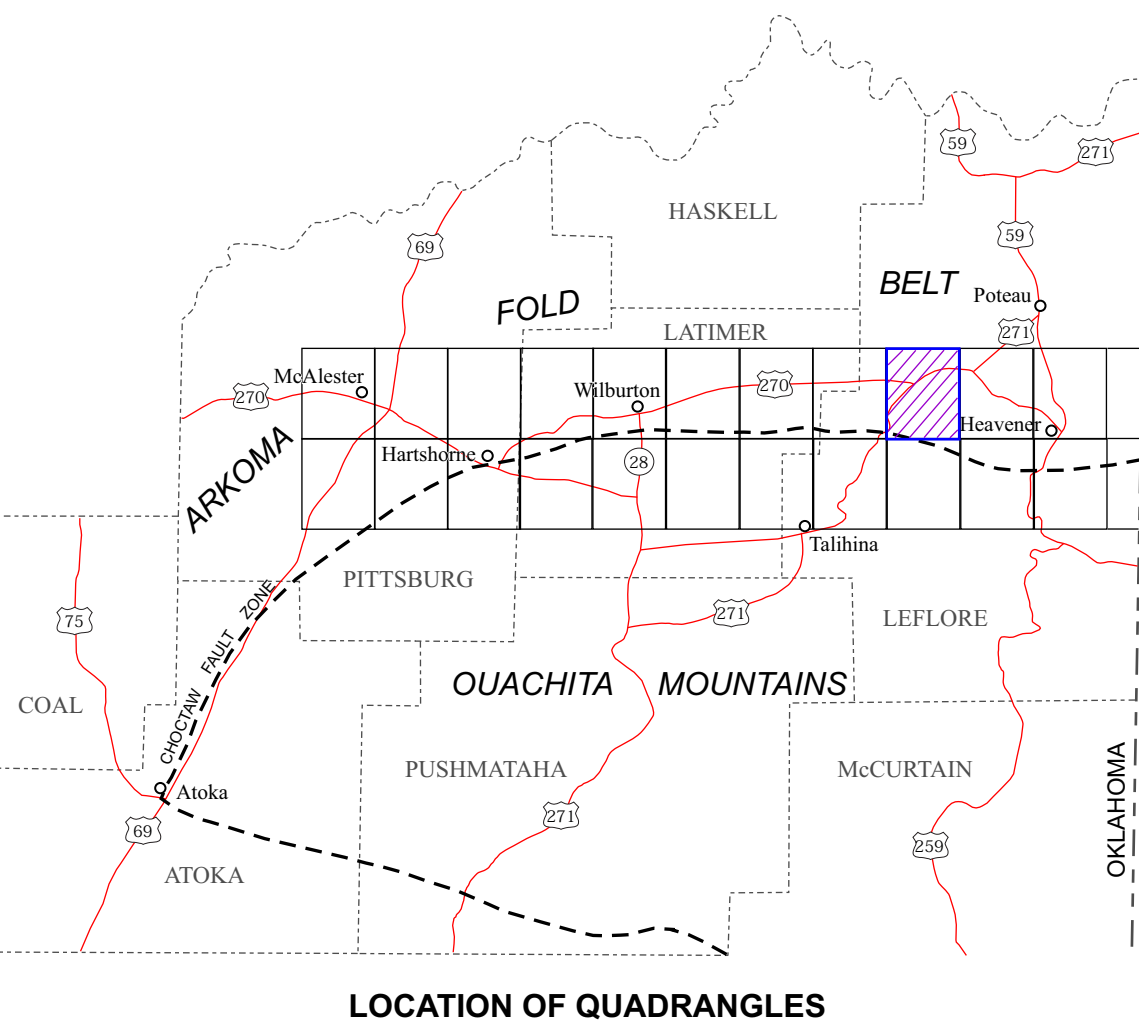
✱ Gas well

2 Number on map corresponds to list of wells



Note: Letters S - Z on cross sections denote correlatable sandstone markers in the Atoka Formation

LIST OF WELLS SPUDDED BEFORE JUNE 1, 1992				
MAP NO.	OPERATOR	LEASE	SPUD DATE	TOTAL DEPTH (FT)
1	TXO Production Corp.	1. Reed Tree	2/5/94	6,600
2	ARCO Oil & Gas Co.	1 J. L. Schaffner Ranch	4/20/82	6,650
3	ARCO Oil & Gas Co.	1 R. D. Mitchell	3/21/82	6,785
4	Humble Oil and Refining Co.	1 Noble Thompson	5/28/86	14,630
5	Horizon Oil Tool & Service (work over)	1 Noble Thompson	5/28/86	14,630
6	Branscom Petroleum, Inc. & Laporte Energy Co.	1 Mitchell	8/15/82	14,610
7	Stephens Production Co.	1-27 La Flore	7/8/73	976
8	Stephens Production Co.	1-27 La Flore	7/22/73	9,861
8	Eberly & Meade, Inc.	1-29 Humphreyville	4/24/80	3,260
9	Jacobs-Stewart-Coleman	1 Jackson Judy	9/23/91	2,700
10	Max Pray	1 Christine C. Jackson	11/27/84	8,540
11	Whitmar Exploration Co.	1-34 Buttrli	7/21/81	15,237
12	Ark-La Gas	USA	Unknown (Comp. 3-84)	12,251
13	Shaffler Oil & Refining Co.	1 Willy Humphrey	5/27/75	3,395
14	American Quacaro Petroleum Co. of New Mexico	1 S. L. Sutton	12/1/74	14,590



MALESTER	KREPS	ADAMSON	GOWEN	WILBURTON	PANOLA	RED OAK	LEFLORE	SUMMERFIELD	WINTER	HEAVENER	BATES
SAVANNA	HARTSHORNE SW	HARTSHORNE	HIGGINS	DAMON	BAKER MOUNTAIN	TALIMHA	BLACKJACK PRIDGE	LEFLORE SR	HODGON	WONTUBBY	LOWING

INDEX TO MAPPED QUADRANGLES

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

SUMMERFIELD, OKLA.
N3452.5—W9445/7.5
1966
PHOTOINSPECTED 1976
AMS 5053 IV NE—SPRINGER, V&X

GEOLOGIC MAP OF THE SUMMERFIELD 7.5' QUADRANGLE, LE FLORE COUNTY, OKLAHOMA

By
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1992