

Maped, edited, and published by the Geological Survey
Control by USGS and USGS
Topography by photogrammetric methods from aerial
photographs taken 1964. Field checked 1965
Polyconic projection. 1927 North American datum
10,000-foot grid based on Oklahoma coordinate system, south zone
1,000-meter Universal Transverse Mercator grid ticks,
zone 15, shown in blue

UTM GRID AND 10° MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

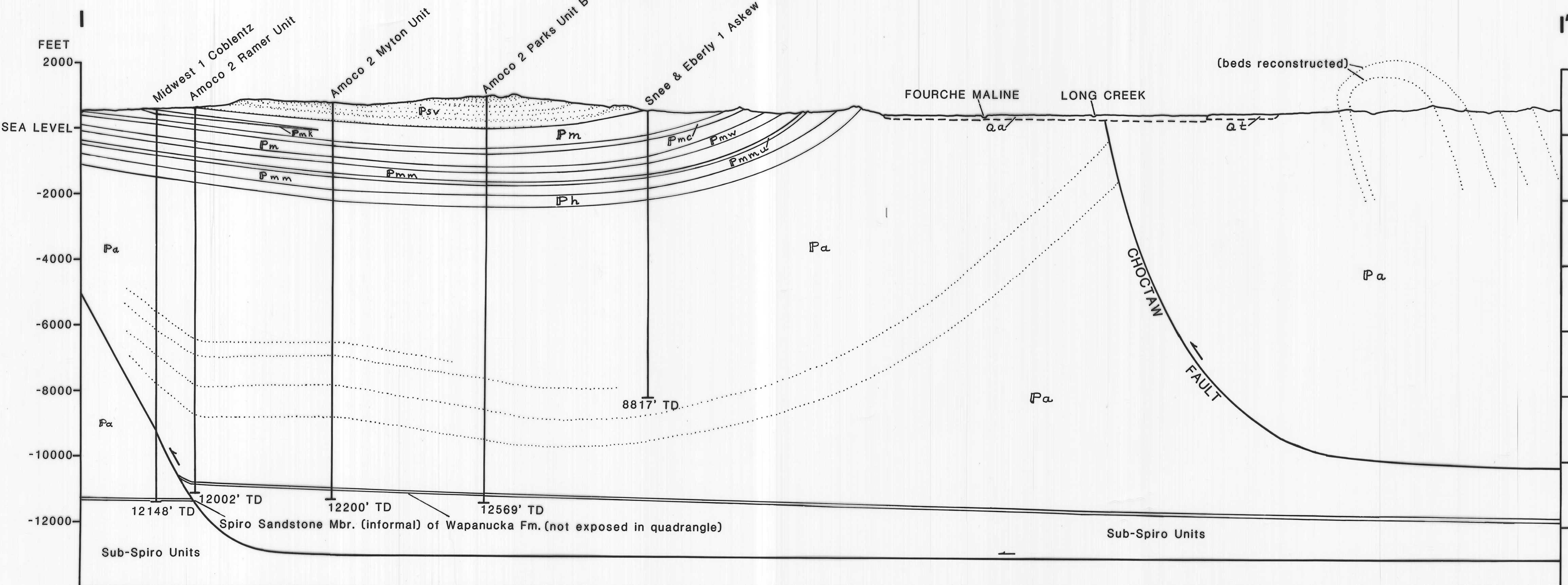
SCALE 1:24,000

CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 10-FOOT CONTOURS
NATIONAL GEOLOGIC VERTICAL DATUM OF 1929

ROAD CLASSIFICATION
Heavy-duty Light-duty
Medium-duty Unimproved dirt
U.S. Route

Geology by L. A. Hemish, 1990

LEFLORE, OKLA.
N3452.5--W9452.5/7.5



Assisted by Dorothy Smith

Cross section based on surface geology and well-log interpretation.
Sandstone beds (stippled) used to show structure.

GEOLOGIC MAP OF THE LE FLORE QUADRANGLE, LATIMER AND LE FLORE COUNTIES, OKLAHOMA

By
LeRoy A. Hemish
1991

DESCRIPTION OF UNITS

- Qa** ALLUVIUM (QUATERNARY)—Gravel, sand, silt, and clay on flood plains of present-day streams
- Ql** TERRACE DEPOSITS (QUATERNARY)—Subangular to subrounded cobbles, gravel, sand, and silt, forming a veneer, generally about 4–10 ft thick, on the surfaces of terraces that stand about 40–50 ft above the beds of present-day streams
- UNITS PRESENT NORTH OF CHOCTAW FAULT**
- Pb** BOGGY FORMATION (PENNSYLVANIAN)—Predominantly grayish-green, fine- to medium-grained, noncalcareous, scarp-forming sandstone that weathers yellowish-brown and reddish-brown. Present only in the Cavalier Syncline in the northeastern part of the area. At the base is the Bluejacket Sandstone Member (Pb2) 200–250 ft thick. Pb2 consists of massive to ripple-marked and cross-bedded sandstone, shaly sandstone, siltstone, sandy shale, and shale, not mapped separately. Overlying the Bluejacket Sandstone is a poorly exposed unit of dark-gray shale (Pb), overlain by a thin, fine-grained, resistant, brown sandstone (Pb2) present only in the extreme northeastern part of the area, east of Cedar Creek. Top of formation eroded. Thickness of remaining units 225–280 ft
- Psv** SAVANNA FORMATION (PENNSYLVANIAN)—Predominantly brown to olive-gray to dark-gray shales (Psv) with several mappable, brown, fine-grained, noncalcareous sandstone units (Psv1, Psv2, Psv3, Psv4, Psv5, Psv6, Psv7). The sandstones are massive to thin-bedded and shaly. They commonly are cross-bedded and ripple-marked and in places contain abundant soft-sediment-deformation features. Sole marks (trace fossils; brush and prod marks; flute, groove, and load casts) at the base of some sandstone beds are locally common. Psv1 marks the base of the formation on the northwest flank of the Cavalier Syncline. On the south flank of the syncline Psv1 is not mappable, and the contact with the underlying McAlester Formation is only approximately located. Psv1–Psv5 are all mapped as single units, but may locally contain shale beds. A thin, unmappable, impure, fossiliferous limestone (outcrop shown by X on map) occurs within Psv3 in sec. 21, T. 6 N., R. 22 E. The Cavalier coal bed (Psv6) occurs in the shale just below Psv5 in sec. 28, T. 6 N., R. 23 E. Psv6 is split into two units (Psv6a, Psv6b) separated by shale throughout most of the area. Psv7 is also split into two units (Psv7a, Psv7b) separated by shale over most of the area. A thin, unnamed coal bed and a thin, unmappable, impure, fossiliferous limestone (outcrop shown by X on map) occur at different locations in the shale between Psv6 and Psv7 in sec. 29, T. 6 N., R. 23 E. Most shales also include thin, unmappable sandstone units. Thickness: 1,500–2,000 ft
- Pm** McALESTER FORMATION (PENNSYLVANIAN)—Predominantly dark-gray to black, blocky shales containing abundant ironstone concretions. McCurtain Shale Member (Pmm), at the base, is 650–700 ft thick. A discontinuous, brown, shaly, thin, unnamed sandstone unit (Pmmu) lies near the middle of the McCurtain Shale Member. The Warner Sandstone Member (Pmw) overlies the McCurtain Shale Member. It is a resistant, brown, fine-grained, ridge-forming sandstone of variable thickness, and is split into upper and lower sandstones separated by shale. Two named, brown, fine-grained, thin-bedded sandstone units occur in the shale (Pm) above the Warner Sandstone Member. Cameron Sandstone Member (Pmc), and Kaosa Sandstone Member (Pmk). Poorly exposed McAlester and Upper McAlester coal beds (Pmmc) occur in the shale interval above the Cameron Sandstone Member. A thin, non-economic coal bed (Kaosa [T] coal) crops out in Coal Creek about 0.75 mi northeast of Fanshawe. Surface-mined areas designated PmmM. Thickness: 2,000–2,400 ft
- Ph** HARTSHORNE FORMATION (PENNSYLVANIAN)—Brown to very light-gray, very fine-grained, ripple-marked, bioturbated, thin-bedded to massive sandstone interbedded with silty gray shale (Ph). Contains the Lower and Upper Hartshorne coal beds (Phn). Thickness about 300–400 ft
- Pa** ATOKA FORMATION (PENNSYLVANIAN)—Predominantly silty, brown to gray to grayish-black, noncalcareous shale (Pa) with discontinuous, ridge-forming, brown, fine-grained sandstones (Pass). Approximately 1,200 ft of upper part exposed north of the Choctaw fault

UNITS PRESENT SOUTH OF CHOCTAW FAULT

- Pa** ATOKA FORMATION (PENNSYLVANIAN)—Predominantly poorly exposed grayish-black to olive-gray to grayish-olive, slightly silty, noncalcareous, poorly laminated shale and mudstone. Contains thin beds of laminated siltstone and thicker beds of sandstone. Sandstone is light-olive-gray and grayish-orange where fresh, and yellowish-brown where weathered. Mostly very fine-grained, rarely fine-grained, poorly to moderately sorted, noncalcareous, and composed of about 95% quartz, 3% feldspar and lithic fragments, and conspicuous white mica parallel to laminations. Individual beds vary from several inches to several feet thick and average about 2 ft. Amalgamated beds common. Thicker beds are generally massive (corresponding to Ta of Bouma turbidite sequence) to parallel laminated (Tb); thinner beds commonly are ripple cross-laminated (Td). Sole marks (flute, groove, load casts, and trace fossils) at base of sandstone beds locally common. Dish-and-pillar structures and ripple marks typical of some beds. Contains local concentrations of plant debris and organic matter on bedding planes. Maximum thickness of lower part approximately 3,800 ft south of Choctaw fault

SYMBOLS

- CONTACT—Dashed where approximately located
- MARKER BED
- COAL BOUNDARY—Approximate outcrop boundary of coal bed (named on map); triangle indicates exposure of coal
- 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—Dashed where inferred; dotted where concealed; U, upthrown side; D, downthrown side
- ANTICLINE—Showing crestline; arrow shows direction of plunge; dashed where approximately located; dotted where concealed
- SYNCLINE—Showing troughline; arrow shows direction of plunge; dashed where approximately located; dotted where concealed
- MINOR ANTICLINE—Showing plunge
- MINOR SYNCLINE—Showing plunge
- OVERTURNED ANTICLINE—Arrows show direction of dip of limbs; dashed where approximately located; dotted where concealed
- OVERTURNED SYNCLINE—Arrows show direction of dip of limbs; dashed where approximately located
- STRIKE AND DIP OF BEDS
- Strike and dip of beds, facing direction unknown south of Choctaw fault
- Strike and dip of beds, upright
- Strike and dip of beds, overturned
- Vertical beds, facing direction unknown
- Vertical beds, ball indicates top of beds
- Horizontal beds

OIL AND GAS WELLS

- Drilling as of January 1, 1990
- Dry hole, abandoned
- Gas well
- Number on map corresponds to list of wells

CORRELATION OF MAP UNITS

Qa	QUATERNARY
Ql	

Units North of Choctaw Fault

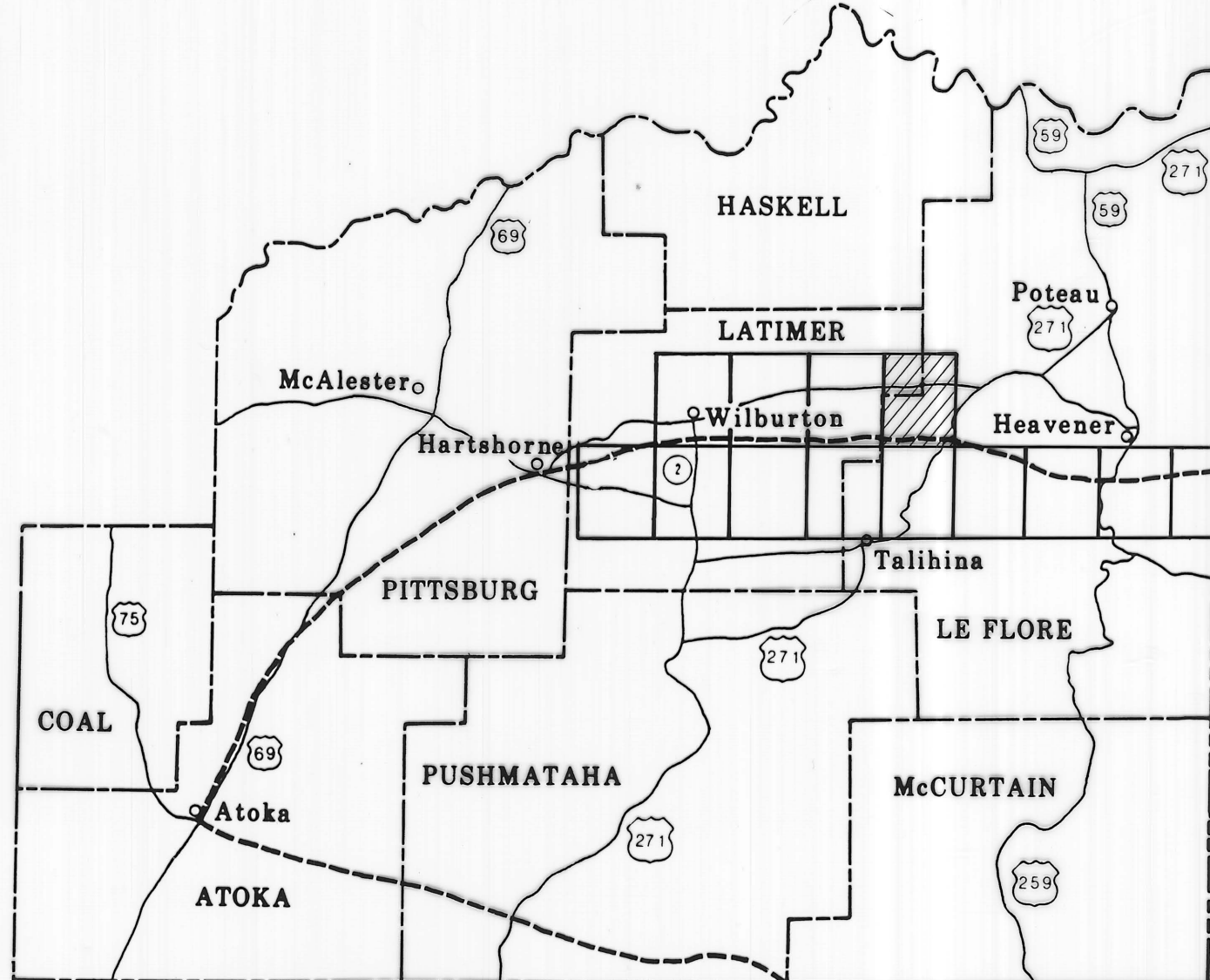
IPb2	PENNSYLVANIAN
IPb	
IPbj	
IPsv	
IPsv7b	
IPsv7a	
IPsv	
IPsv6b	
IPsv6a	
IPsv	
IPsv5	PENNSYLVANIAN
IPsv	
IPsv4	
IPsv	
IPsv3	
IPsv	
IPsv2	
IPsv	
IPsv1	
IPm	
IPmmc	PENNSYLVANIAN
IPm	
IPmc	
IPm	
IPmw	
IPmm	
IPmmu	
IPh	
IPa	
IPass	

Units South of Choctaw Fault

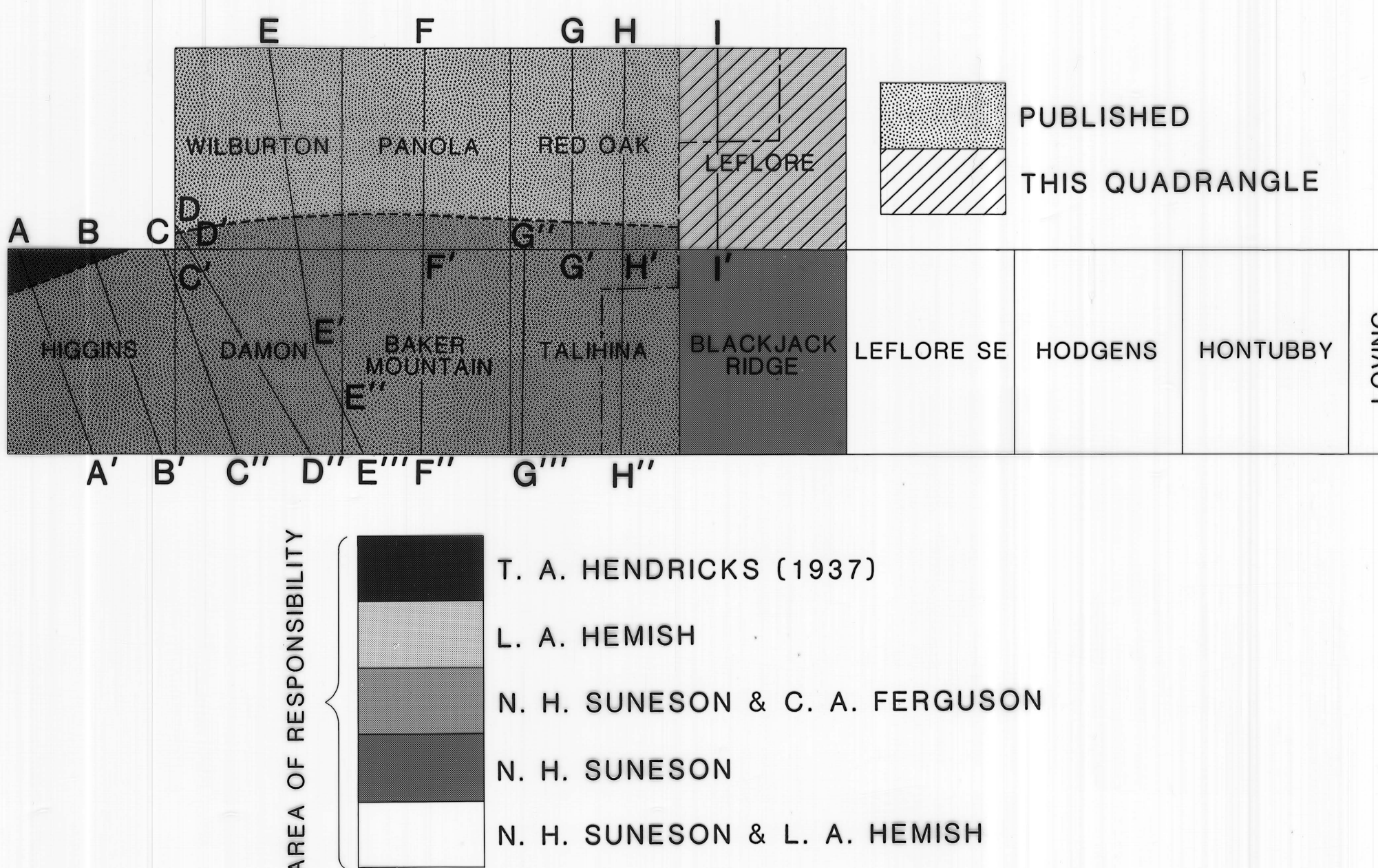
IPa	PENNSYLVANIAN
IPa	
IPa	
IPa	
IPa	
IPa	
IPa	
IPa	
IPa	
IPa	

LIST OF WELLS SPUN OFF BEFORE JANUARY 1, 1990

- Amoco Production Co. 2 Coblenz Unit, Spud 7/31/86, TD 7,017'
- Midwest Oil Corp. 1 Coblenz, Spud 1/11/61, TD 12,148'
- Midwest Oil Corp. 1 Smallwood, Spud 10/20/62, TD 7,150'
- Midwest Oil Corp. 1 Ramer, Spud 10/29/63, TD 7,703'
- Midwest Oil Corp. 1 Mabry, Spud 5/20/64, TD 8,150'
- Amoco Production Co. 2 Mabry Unit, Spud 5/28/65, TD 3,492'
- Mobil Oil Co. 2 Gladys C. Pate Unit, Spud 5/19/69, TD 8,904'
- Mobil Oil Co. 1 Gladys Cella Pate Unit, Spud 4/30/65, TD 8,610'
- Cochina Oil 1 Branscum, Spud 8/14/71, TD 9,456'
- Gose Petroleum 1 Wade, Spud 8/19/66, TD 10,192'
- Amoco Production Co. 2 Smallwood Unit A, Spud 2/28/7, TD 7,500'
- Amoco Production Co. 2 Ramer Unit, Spud 9/19/66, TD 12,002'
- Amoco Production Co. 3 Mabry Unit, Spud 6/19/67, TD 8,760'
- Hudson Petroleum Corp. 1-17 Gladys, Spud 12/28/61, TD 9,340'
- Sun Oil Co. 1 Bell Heirs, Spud 3/18/65, TD 7,640'
- Midwest Oil Corp. 1 Mylon Unit, Spud 7/10/65, TD 8,102'
- Mobil Oil Co. 1 Robert James Unit, Spud 12/12/65, TD 8,220'
- Amoco Production Co. 1 Ford Trust Unit, Spud 10/14/67, TD 8,755'
- Kirby Exploration Co. 1-24 Reed, Spud 11/21/75, TD 9,101'
- Daniel-Price Exploration 1 Lee, Spud 10/30/68, TD 9,152'
- Stephens Prod. 1 Bonnie B. Gisher, Spud 1/10/68, TD 9,924'
- Amoco Production Co. 2 Bell Heirs Unit, Spud 12/8/68, TD 8,103'
- Amoco Production Co. 2 Mylon Unit, Spud 7/13/67, TD 12,200'
- Galaxy Oil (Imperial-American) 1 Fleenor, Spud 3/22/69, TD 8,528'
- Kirby Exploration Co. 1-28 Fleenor, Spud 7/7/60, TD 12,244'
- JMC Exploration 2 Fleenor, Spud 7/23/67, TD 8,400'
- Pan American Petroleum Corp. 1 Parks Unit B, Spud 4/24/67, TD 8,900'
- Amoco Production Co. 2 Parks Unit B, Spud 10/13/65, TD 12,569'
- Samson Resources Co. (Leben Drilling, Inc.) 1-26 Major Royalty Co., Spud 12/29/68, TD 9,005'
- King Resources 1-35 Zappuhar, Spud 9/20/68, TD 9,170'
- Snee & Eberly 1 Askew, Spud 6/1/65, TD 8,817'
- Amoco Production Co. 1 Ingle Unit, Spud 8/13/60, TD 14,500'



LOCATION OF QUADRANGLE



AREA OF RESPONSIBILITY

- T. A. HENDRICKS (1937)
- L. A. HEMISH
- N. H. SUNESON & C. A. FERGUSON
- N. H. SUNESON
- N. H. SUNESON & L. A. HEMISH

INDEX TO QUADRANGLES, CROSS SECTIONS, AND AREA OF RESPONSIBILITY