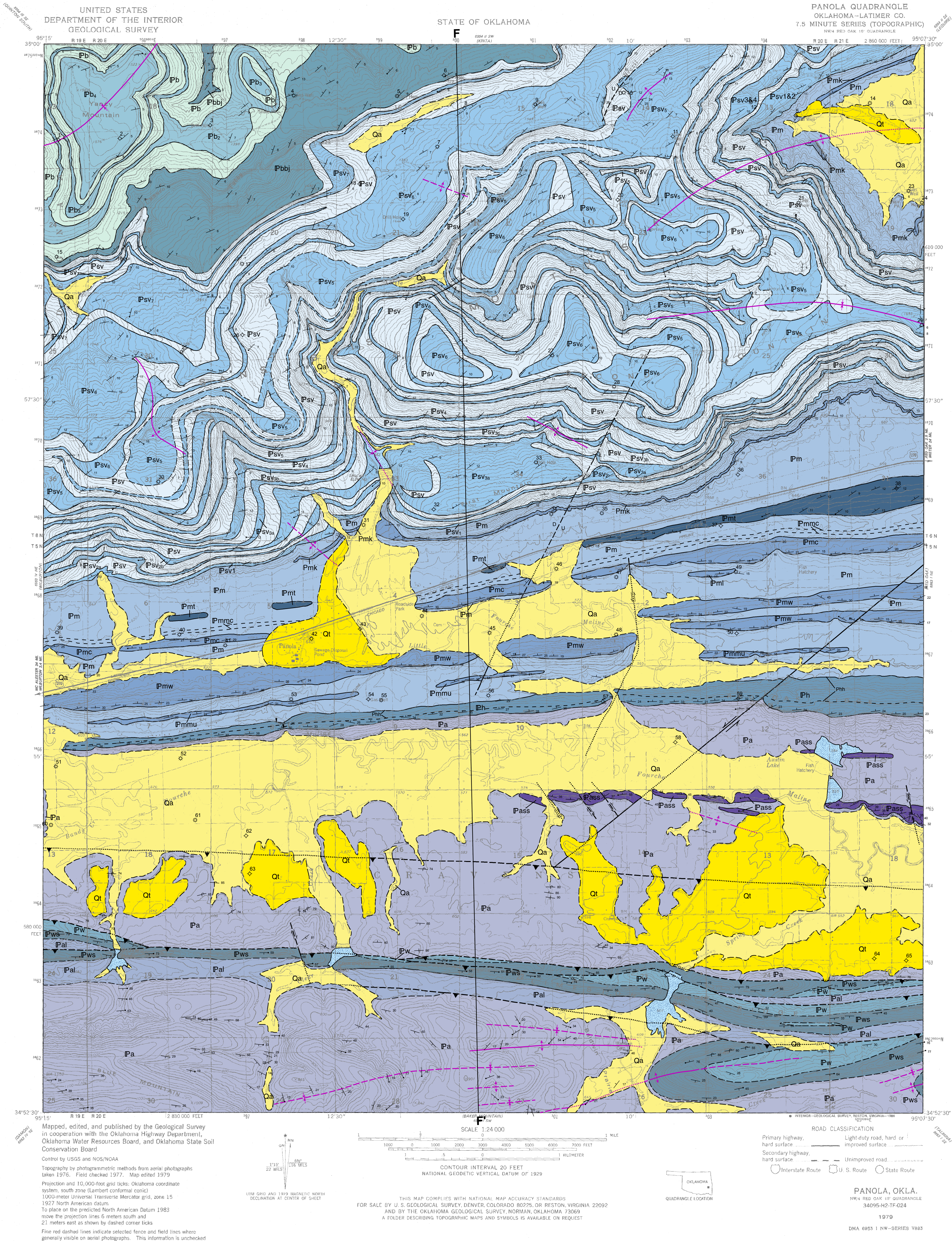


OKLAHOMA GEOLOGICAL SURVEY  
Charles J. Mankin, Director

Prepared in cooperation with the U.S. Geological Survey  
and the Arkansas Geological Commission

Oklahoma Geologic Quadrangle **OGQ-4**  
**Geologic Map of the Panola 7.5' Quadrangle**  
(previously Open-File Report OF-190)



#### CORRELATION OF MAP UNITS

Units North of Choctaw Fault

Units South of Choctaw Fault

#### DESCRIPTION OF UNITS

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

Qt 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 sandy, silty, gray to olive-gray to grayish-black shales and sandstones (Pb) with scarp-forming sandstones. At base is the Bluejacket Sandstone Member (Pb2). 170-200 ft thick. Numbered units (Pb2, Pb3, Pb4) are mappable, scarp-forming, yellowish-brown sandstones. A 35-ft-thick, grayish-green shale unit occurs about 10 ft below the top unit of the Bluejacket Sandstone. Based on projections, a thin stringer of coal (Pbco?) may be present in the shale unit just above the Bluejacket Sandstone. Thin unmappable sandstone lenses are present in the shale units. Top of formation eroded. Thickness: 700-800 ft

Psv SAVANNA FORMATION (PENNSYLVANIAN)—Predominantly brown to olive-gray to dark gray shales (Psv) with several mappable brown, fine-grained sandstone units (Psv1, Psv2, Psv3, Psv4, Psv5, Psv6, Psv7). Psv1 and Psv2, over most of the area, are split into two units separated by shale, in the northeastern part of the quadrangle. Psv1 and Psv2 are not mappable as separate units, and are designated Psv1 and Psv2, undifferentiated. Psv3 in places contains two shale units separating the main sandstone into three units (Psv3a, Psv3b, and Psv3c). Psv4 is a single unit that appears to merge with Psv3 in the northeastern part of the quadrangle, where the units are mapped as Psv3 and Psv4, undifferentiated. Psv5 is a difficult-to-map group of sandstone units of variable thickness separated by shales that wedge out at several localities. Psv6 is split into two units separated by shale in the northwestern part of the quadrangle, but in the north-central part it is represented only by a thick, single sandstone unit. Similarly, Psv7 is split into three units separated by shale in the northwestern part of the quadrangle, but is represented by only a thin, single sandstone unit in the north-central part. Most shales include thin, unmappable sandstone beds. Thickness: 1,500-2,000 ft

Pm MCLESTER FORMATION (PENNSYLVANIAN)—Predominantly dark-gray to black, blocky shales containing abundant ironstone concretions. McCurtain Shale Member (Pm1), at the base, is approximately 900 ft thick. A discontinuous, brown, shaly, thin, unnamed sandstone unit (Pm1u) lies approximately in the middle of the McCurtain Shale Member. The Warner Sandstone Member (Pm2), overlies the McCurtain Shale Member. It is a resistant, brown, fine-grained, ripple-forming sandstone of variable thickness, and locally is split into upper and lower sandstones separated by shale. Three named, brown, fine-grained, ripple-forming sandstone units occur in the shale (Pm3) above the Warner Sandstone Member. Cameron Sandstone Member (Pm4), Tanahara Sandstone Member (Pm5), and Keota Sandstone Member (Pm6). A fourth sandstone (Pm7), which may be correlative with the Leasure Sandstone Member, occurs in a limited area in areas 1 and 2, T. 5 N., R. 20 E. In the shale interval between the Warner Sandstone Member and the Cameron Sandstone Member. Unexposed Mclester and Upper Mclester coal beds (Pmco) occur in the shale interval between the Cameron Sandstone Member and the Tanahara Sandstone Member. Thickness: 2,000-2,400 ft

Ph HARTSHORNE FORMATION (PENNSYLVANIAN)—Brown to very light-gray, very fine-grained, ripple-marked, indurated, thin-bedded to massive sandstone interbedded with silty gray shale (Ph). Contains the Lower and Upper Hartshorne coal beds (Phc). Thickness: Approximately 300 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 olive-gray (5Y3/2) to grayish-olive (10Y4/2), slightly silty, noncalcareous, poorly laminated shale and mudstone. Contains thin beds of laminated siltstone and thicker beds of sandstone. Lower shale (Pa) mapped separately. Sandstone is light olive-gray (5Y5/2) and grayish-orange (5Y7/2) where fresh, and grayish-orange (10Y7/4) where weathered. Mostly fine-grained, rarely medium-grained, poorly to moderately sorted, noncalcareous, and composed of about 85% quartz, 3% feldspar and lithic fragments, and conspicuous white mica parallel to laminations. Individual beds vary from several centimeters to several meters thick and average about 60 cm. Amalgamated beds common. Thicker beds are generally massive corresponding to Ta of Bourne turbidite sequence (Ta) parallel laminated (Ta); thinner beds commonly are ripple cross-laminated (Ta). Sole marks (flute, groove, and load casts, trace fossils) at base of sandstone beds locally common. Diapir 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 350 ft (150 m) south of Choctaw fault

Pal LOWER ATOKA SHALE (PENNSYLVANIAN)—Poorly exposed, olive-gray (5Y3/2) to grayish-olive (10Y4/2), noncalcareous, poorly laminated shale and mudstone with thin siltstone beds. Locally mapped separately from Atoka Formation (Pa). Maximum thickness approximately 100 ft (30 m) south of Choctaw fault

Pws SPIRO SANDSTONE MEMBER (INFORMAL) OF WAPANUKA FORMATION (PENNSYLVANIAN)—Well-exposed, light-brown (5Y6/6) to very pale-orange (10Y8/2) or pale-yellow-orange (10Y7/6), mostly well-sorted, porous, medium-grained, stratified quartz arenite. Quartzose, mostly noncalcareous, locally with abundant trace fossils (Asterosoma) and fragments and molds of corals, corals, brachiopods, calamites, and other plants. Beds typically 2 cm to 1 m thick, amalgamated, and mostly parallel-stratified, but locally planar-laminar cross-stratified. Rarely spicular. Granule sandstone beds with abundant shale clasts rare. Weathers to a very vuggy appearance. Forms ridge and dip slope throughout area. Mostly overlies but locally interfingers with Wapanuka Formation (Pw). Maximum thickness approximately 500 ft (150 m) south of Choctaw fault

Pw WAPANUKA FORMATION (PENNSYLVANIAN)—Predominantly poorly to moderately well-exposed, medium gray (N5) to medium-dark gray (N4), wavy-bedded, sparsely fossiliferous (trilobids, brachiopods, gastropods, corals) micritic and parallel- to rarely cross-stratified packstone and bioclastic limestone. Locally slightly spicular. Micrite locally nodular, slightly petroliculous odor; packstone locally sandy. In southeastern corner of quadrangle, includes thin, poorly exposed shale similar to that in Atoka Formation (Pa) that locally contains sandstone oololiths. Limestone mostly underlying but locally interfingering with Spiro sandstone member (informal). Maximum thickness approximately 300 ft (100 m) 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 concealed; queried where probable  
FAULT-Arrows show relative horizontal movement; dashed where approximately located; dotted where concealed; queried where probable  
FAULT-Dashed where inferred; dotted where concealed; U, upthrown side; D, downthrown side  
ANTICLINE-Shown crestline; arrow shows direction of plunge; dashed where approximately located; dotted where concealed  
SYNCLINE-Shown troughline; arrow shows direction of plunge; dashed where approximately located; dotted where concealed  
OVERTURNED ANTICLINE-Arrows show direction of dip of limbs; dashed where approximately located; dotted where concealed

#### STRIKE AND DIP OF BEDS

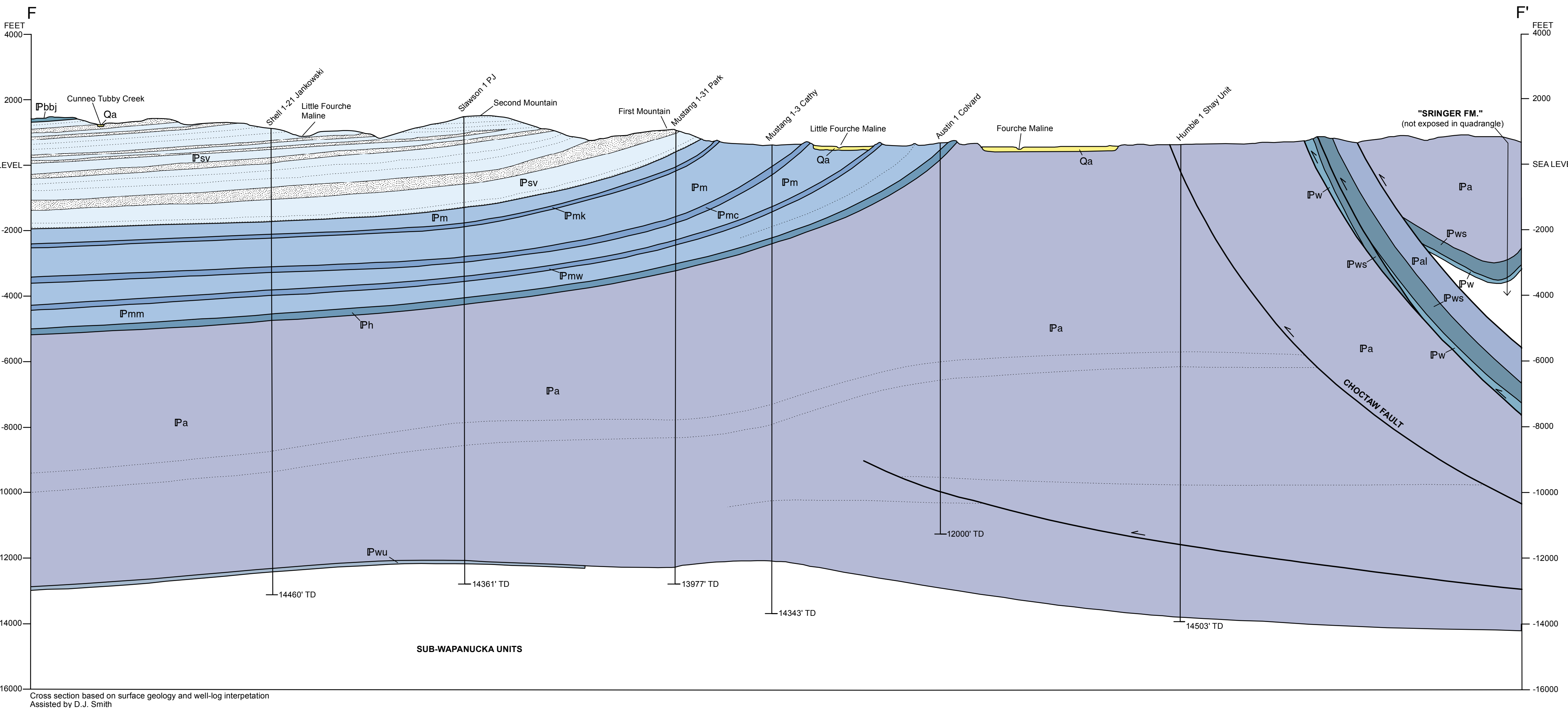
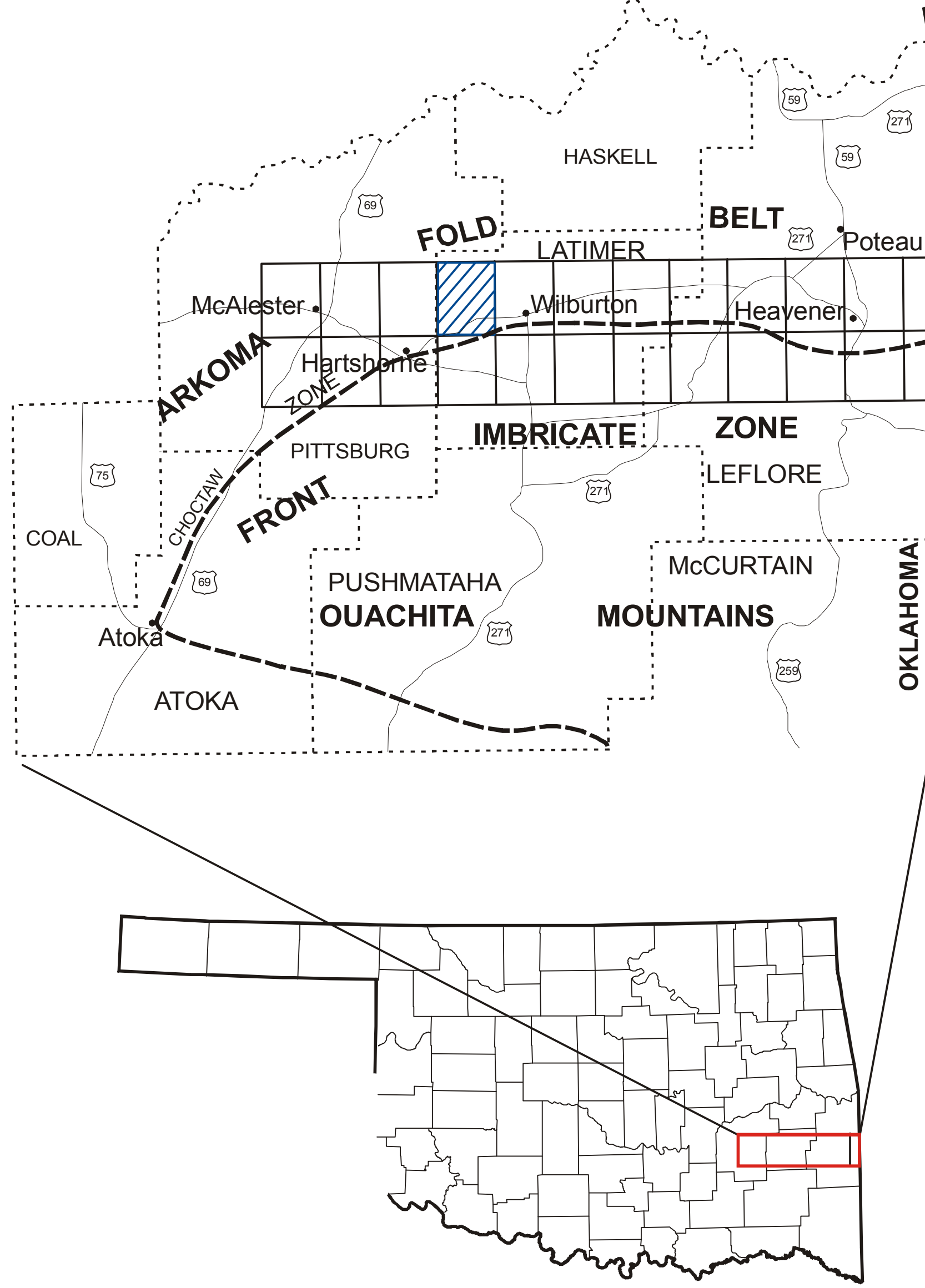
Strike and dip of beds, facing direction unknown south of Choctaw fault  
Strike and dip of beds, upright  
Strike and dip of beds, overturned  
Vertical beds, facing direction unknown  
Vertical beds, ball indicates top of beds

#### OIL AND GAS WELLS

Status unknown as of January 1, 1988  
Dry hole, abandoned  
Gas well

#### LIST OF WELLS SPUDDED BEFORE JANUARY 1, 1988

1. Samson Resources Co. 1 Rothblum, Spud 11/8/82, TD 15,307  
2. Teneco Oil Co. 1-18, Jankowsky, Spud 12/13/81, TD 14,627  
3. Leber Drilling Inc. 1-18 Jankowsky, Spud 12/25/82, TD 10,807  
4. Leber Drilling Inc. 1-17 Parsons, Spud 6/8/89, TD 10,307  
5. Shell Oil Co. 1-19 Parsons, Spud 11/21/82, TD 10,347  
6. Dycs Petroleum Corp. 1 Parsons, Spud 10/7/75, TD 10,325  
7. Texas Oil & Gas Corp. 1 Parsons A, Spud 11/9/80, TD 9,445  
8. Texas Oil & Gas Corp. 1-WL Parsons A, Spud 1/6/80, TD 626  
9. Shell Oil Co. 1-15 Foster, Spud 9/27/80, TD 9,150  
10. Amoco Production Co. 2 Garrett Unit, Spud 5/28/86, TD 10,635  
11. Midwest Oil Corp. 1 Garrett, Spud 5/18/84, TD 9,970  
12. Amoco Production Co. 2 Gardner Unit, Spud 12/8/86, TD 9,700  
13. Mustang Production Co. 1 Gardner, Spud 7/25/82, TD 13,941  
14. Amoco Production Co. 2 White Unit, Spud 4/2/86, TD 13,257  
15. Samson Resources Co. 1 Goughly, Spud 4/11/82, TD 13,870  
16. Teneco Oil Co. 1-19 Cecil, Spud 9/14/81, TD 14,237  
17. Teneco Oil Co. 1-20 Swart, Spud 4/9/82, TD 14,112  
18. PITCO 1-21 Joel, Spud 4/11/75, TD 8,955  
19. Shell Oil Co. 1-21 Jankowsky, Spud 8/25/84, TD 14,467  
20. Dycs Petroleum Corp. 1 Madi, Spud 10/7/74, TD 9,500  
21. Midwest Oil Corp. 1 Sorrells, Spud 11/6/82, TD 13,811  
22. PITCO 1-24 Young & Cooper, Spud 8/13/78, TD 9,500  
23. Humble Oil & Refining Co. 1 Foster Jr. Unit, Spud 2/3/86, TD 8,450  
24. Mustang Production Co. 1-30 Pierce, Spud 11/5/80, TD 14,607  
25. Teneco Oil Co. 1-29 Pierce, Spud 8/21/82, TD 13,650  
26. Donald C. Sawson 1-27 P.J. Spud 12/23/81, TD 14,361  
27. Mustang Production Co. 1-26 Young & Cooper, Spud 2/1/81, TD 13,892  
28. Whitmair Exploration Co. 1-30 McCarty, Spud 10/15/81, TD 14,218  
29. Leede Oil & Gas Inc. 1 Wilburton Mtn, Spud 6/23/79, TD 14,731  
30. Mid Oil Co. 1-Pe Parks Unit, Spud 9/1/83, TD 13,245  
31. Mustang Production Co. 1-33 Parks, Spud 8/17/80, TD 13,977  
32. Sunbelt International Petroleum 1 Farham, Spud 6/7/89, TD 13,207  
33. Mustang Production Co. 1-34 Metzer, Spud 10/5/80, TD 12,895  
34. Mustang Production Co. 1-35 Foster, Spud 2/28/80, TD 12,871  
35. Mustang Production Co. 1-36 Austin, Spud 2/17/80, TD 12,790  
36. Samson Resources Co. 1 Austin Unit, Spud 3/4/82, TD 8,256  
37. Samson Resources Co. 1 Middle Unit, Spud 8/1/84, TD 13,362  
38. Fortuna Energy Corp. 1-1 Schaff, Spud 12/5/84, TD 12,470  
39. Fortuna Energy Corp. 1-1 Lively, Spud 5/6/84, TD 12,281  
40. Donald C. Sawson 1-5 McKee, Spud 2/23/87, TD 12,418  
41. Unit Drilling & Exploration Co. 1 Masey, Spud 12/28/83, TD 12,283  
42. Dycs Petroleum Corp. 1 Gentry, Spud 5/30/77, TD 7,871  
43. Unit Drilling & Exploration Co. 1 Hartshorne, Spud 12/11/81, TD 11,720  
44. Mustang Production Co. 1-3 Cash Mitchell, Spud 5/8/83, TD 11,577  
45. Mustang Production Co. 1-3 Cathey, Spud 1/10/78, TD 14,343  
46. Mustang Production Co. 1-2 Booth, Spud 2/2/78, TD 12,803  
47. Mustang Production Co. 1-2 Adams, Spud 12/15/83, TD 12,359  
48. Gulf Oil Corp. 1-1 W. C. Booth-Sale, Spud 11/2/78, TD 13,454  
49. Donald C. Sawson 1-1 Foster, Spud 9/30/83, TD 13,420  
50. Willford Energy Co. 1-12 Ohio Erie, Spud 4/20/84, TD 12,957  
51. Willford 1-7 Butler, Spud 6/12/83, TD 12,850  
52. Unit Drilling & Exploration Co. 1 Cox, Spud 5/11/83, TD 12,400  
53. Dycs Petroleum Corp. 1 Goughly, Spud 10/24/75, TD 12,368  
54. Unit Drilling & Exploration Co. 1 Goughly, Spud 7/18/82, TD 12,205  
55. Austin Production Co. 1-19 Coward, Spud 1/17/83, TD 12,007  
56. Austin Production Co. 1-11 Robinson, Spud 11/28/80, TD 12,350  
57. Mustang Production Co. 1-11 Robinson, Spud 6/14/81, TD 14,017  
58. Donald C. Sawson 1-12 Abbott, Spud 10/1/84, TD 12,328  
59. Teneco Oil Co. 1-13 Heister, Spud 2/14/84, TD 13,007  
60. Unit Drilling & Exploration Co. 1 Harding, Spud 8/22/83, TD 13,550  
61. Edm L. Cox 1 Shay, Spud 11/14/77, TD 7,257  
62. Humble Oil & Refining Co. 1 Shay Unit, Spud 2/14/86, TD 14,503  
63. Bart Wheeler 1-1 T. Jennings, Spud 7/1/59, TD 9,791  
64. Pan American Petroleum Corp. 1 J. A. Johnson Estate, Spud 7/1/87, TD 12,187



## GEOLOGIC MAP OF THE PANOLA 7.5' QUADRANGLE LATIMER COUNTY, OKLAHOMA

By  
LeRoy A Hemish, Neil H. Suneson, and Charles A. Ferguson, 1990

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