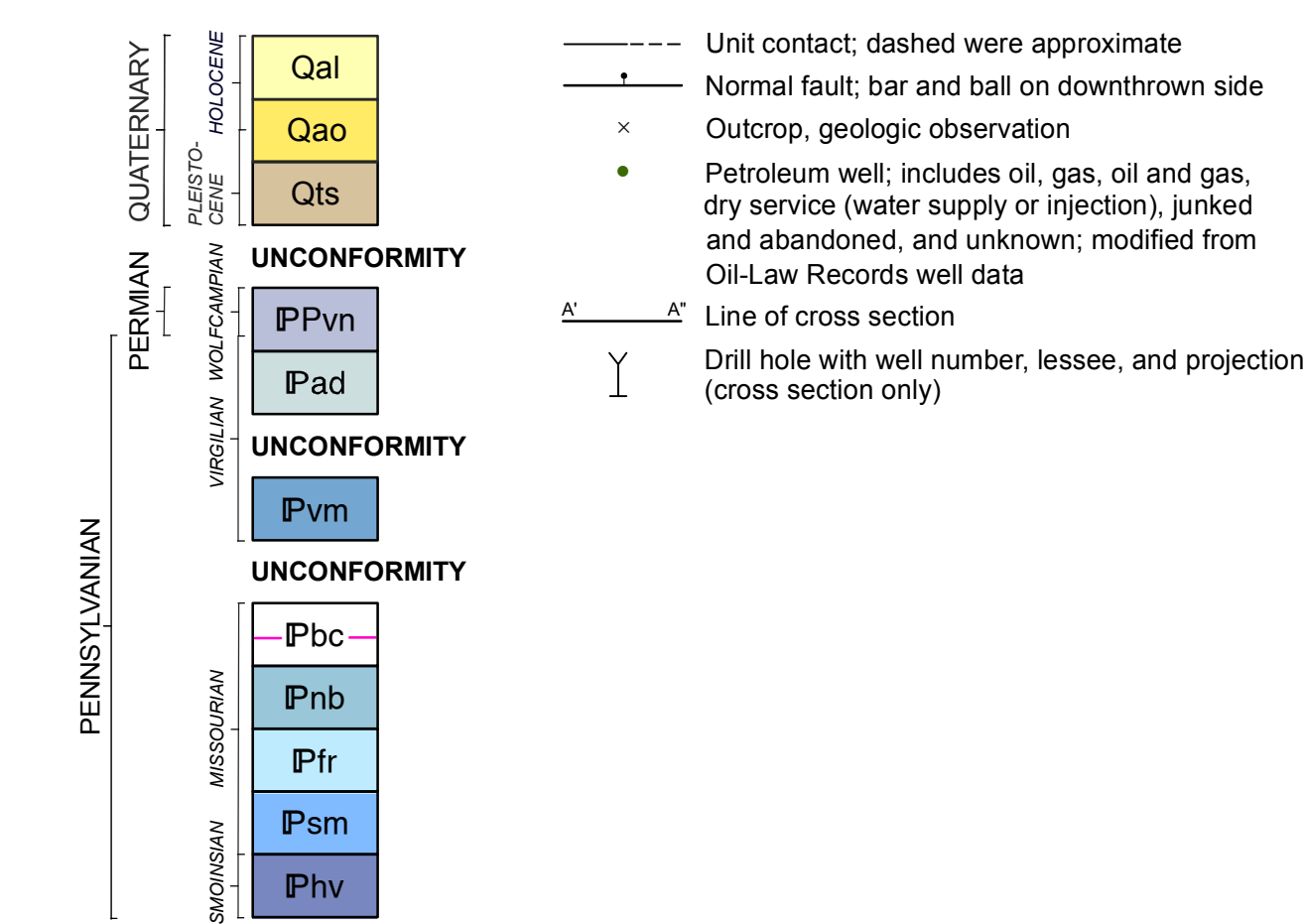


CORRELATION OF MAP UNITS



SYMBOLS

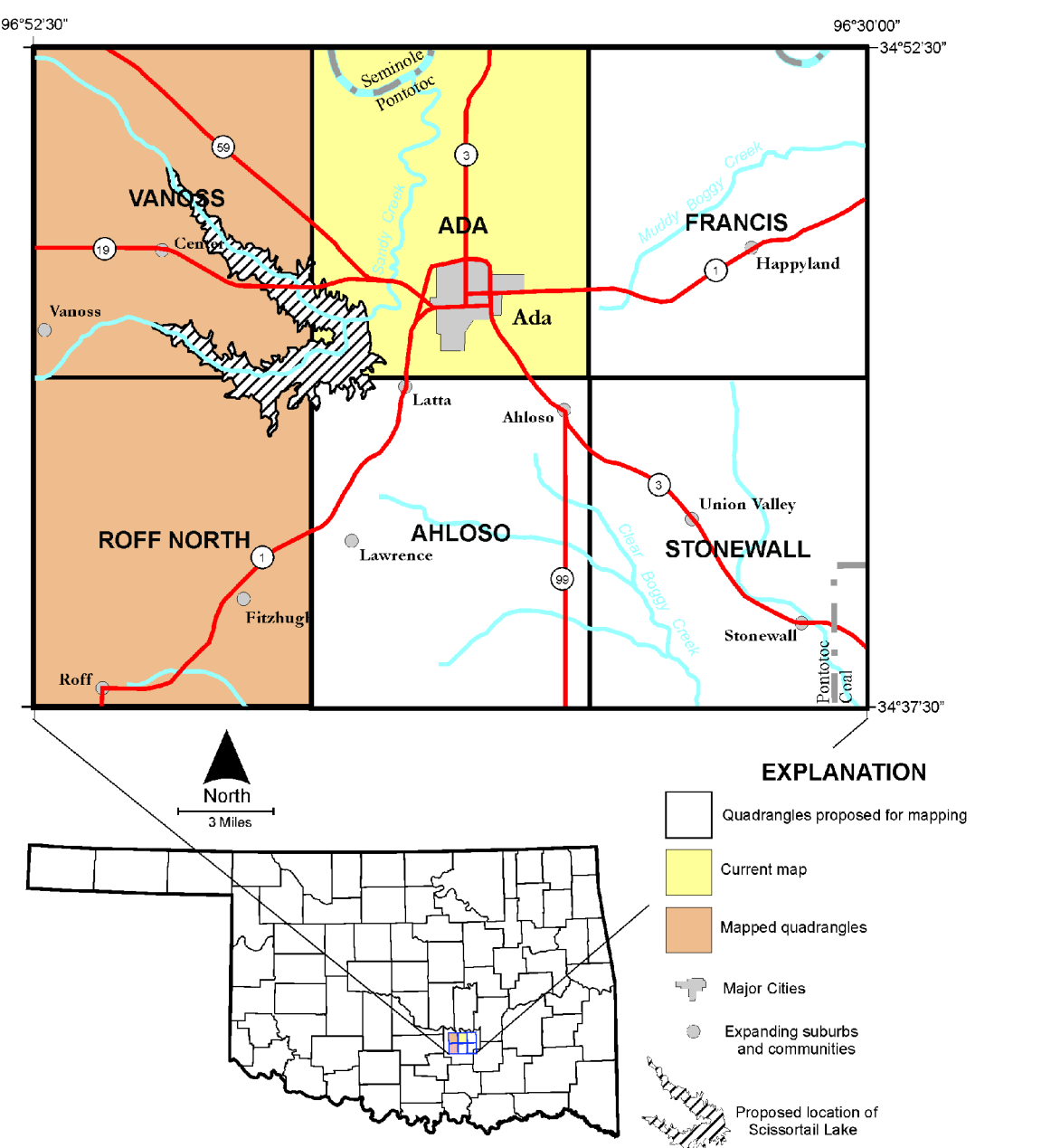
- Unit contact; dashed were approximate
- Normal fault; bar and ball on downthrown side
- Outcrop, geologic observation
- Petroleum well; includes oil, gas, oil and gas, dry service (water supply or injection), junked and abandoned, and unknown; modified from Oil-Law Records well data
- Line of cross section
- Drill hole with well number, lessee, and projection (cross section only)

DESCRIPTION OF UNITS

- Qal** ALLUVIUM (Holocene) - Clay, silt, sand, and gravel in channels and on flood plains of modern streams. Includes terrace deposits of similar composition located directly above and adjacent to modern channels and flood plains. Thickness: 0 feet to about 30 ft.
- Qao** OLDER ALLUVIUM (Holocene, Pleistocene) - Clay, silt, sand, and gravel located ~10 to 20 ft above modern flood plains. Thickness: 0 to about 20 ft.
- Qts** TERRACE SANDS (Pleistocene) - Mapped as the Guertie sand by Morgan (1924). Consists of unconsolidated, locally and distally(?) derived, light-colored, fine- to very fine-grained sand, mixed with some silt-sized sediment. Basal 5 to 10 feet of unit composed of a medium- to coarse-grained pebbly sand; granule- to rarely cobble-sized material makes up about 10 to 15% of deposit; composition of gravel is mostly light gray chert and medium to dark gray limestone, but pink granite and white vein quartz are also present. Thickness: 0 ft to as much as 50 ft.
- PPvn** VANCOSS FORMATION (Upper Pennsylvanian - Lower Permian, Virgilian - Wolfcampian) - Consists primarily of arkoses interbedded with thin limestones, shales, and conglomerates. Colors include yellowish gray (5Y 7/2), grayish orange (10YR 7/4), pale yellowish orange (10YR 8/6), very pale orange (10YR 8/2), and pale yellowish brown (10YR 6/2). Arkoses are heterogeneous and vary in grain size; they contain fine- to cobble-sized grains. Arkoses are calcareous and generally friable. They contain pink K-feldspar, white plagioclase, quartz, and biotite. Biotite is locally abundant. Yellow clay grains are also common locally and likely represent altered feldspar. Arkoses may contain zones of conglomerate or grade laterally into conglomerates. Conglomerate clasts include subangular to subrounded chert, quartz, limestone, and yellow clay. The rocks may be bedded or cross-bedded. Thin limestones within the Vancoss Formation are silty, unfossiliferous, mudstones. They are well indurated and often contain small calcite veins and/or calcite-lined vugs. Where observed, the limestone is yellowish gray (5Y 7/2) to grayish yellow (5Y 8/4). In one location, biotite is abundant along lamination planes. In another, the limestone contains zones that are slightly conglomeratic, containing pink K-feldspar pebbles, biotite grains, and a small (1 cm wide) oval yellowish gray (5Y 7/2) limestone clast. This limestone is underlain by a gray clay. Thickness: ~70 ft is exposed in the Ada 7.5' quadrangle; in most places, the thickness is less because the formation is covered by terrace sands.
- Pad** ADA FORMATION (Upper Pennsylvanian, Virgilian) - Consists primarily of interbedded sandstone, shale, and mudstone, with lesser amounts of conglomerate and limestone. Sandstones within the Ada Formation are grayish orange (10YR 7/4), pale yellowish brown (10YR 6/2), light olive gray (5Y 6/2), olive gray (5Y 4/1), light brown (5Y 5/6), pale yellowish orange (10YR 8/6), very pale orange (10YR 8/2), dusky yellow (5Y 6/4), moderate yellowish brown (10YR 5/4), and dark yellowish orange (10YR 6/6). They are commonly fine- to very fine-grained, although they may be medium- to coarse-grained as well. They are sometimes silty. Sandstones are generally calcareous, sometimes grading laterally to sandy limestone. Sandstones are non-arkosic, containing predominantly rounded to subangular quartz, as well as biotite and rare white feldspar. Some sandstones are asphaltic. In one area, the sandstone has flaser-looking bedding, with dark areas containing asphalt. Rocks range from friable to very well indurated, with asphaltic rocks being relatively friable. Sandstones may be laminated or cross-bedded or contain asymmetric ripples, parting lineations, or graded bedding. In some areas, sandstone grades to conglomerate containing coarse sand- to cobble-sized clasts. Composition of the clasts are subangular to rounded limestone, with striking similarities to Arbuckle Group carbonates. Mudstone is calcareous and clayey, with colors including yellowish gray (5Y 7/2), light olive gray (5Y 5/2), and moderate brown (5YR 4/4). Thin limestones within the Ada Formation are indurated unfossiliferous, carbonate mudstones. Some limestones appear to be silty. The limestones are commonly yellowish gray (5Y 7/2) in color, with some containing alternating olive gray (5Y 4/1) and dark yellowish orange (10YR 6/6) laminations. Some limestones contain biotite flakes, black dendrites, and/or small vugs filled with calcite. In the northern part of the Ada 7.5' quadrangle, sandstones and conglomerates of the Ada Formation contain appreciable white chert. Asphalt appears to be present in both the Seminole Formation, below the Ada, and possibly in the Vancoss, above the Ada. Thickness: ~120 ft.
- Pvm** VAMOOSA FORMATION (Upper Pennsylvanian, Virgilian) - The Vamoosa Formation is present in the northern part of the Ada 7.5' quadrangle and is composed of sandstone and chert conglomerate. The Vamoosa and Ada Formations were differentiated based on the presence of asphalt within the Ada Formation. Sandstones are very pale orange (10YR 8/2) to grayish orange (10YR 7/4) and may or may not contain abundant white chert. Some sandstones display graded bedding. Chert conglomerate and paraconglomerate within the Vamoosa Formation are dense and poorly sorted. Clasts are generally pebble- to cobble-sized and may be rounded to angular. Thickness: ~60 ft.
- Pbc** BELLE CITY FORMATION (Upper Pennsylvanian, Missourian) - The Belle City Limestone is present in the northeastern part of the Ada 7.5' quadrangle. Where observed, the limestone is well-indurated, pale yellowish brown (10YR 6/2), and displays wackestone to packstone textures. Fossils observed include abundant fusulinids and sporadic crinoid ossicles. The Belle City and older formations are truncated to the south by overlapping Ada beds. Thickness: ~15 ft.
- Pnb** NELLIE BLY FORMATION (Pennsylvanian, Missourian) - Consists primarily of sandstones, siltstones, silty clayshales, and mudshales. Colors include yellowish gray (5Y 7/2), very pale orange (10YR 8/2), grayish orange (10YR 7/4), and dark yellowish orange (10YR 6/6). Most rocks are well- (sometimes moderately-) indurated, calcareous, fine- to very fine-grained sandstones and siltstones, or silty limestones. Other sandstones are fine-grained, non- to slightly- calcareous, and friable to moderately friable. They contain mostly quartz grains and some white chert grains. Some contain orange to tan spots of clay or brown Fe-oxide staining. One contained a fair amount of biotite that was rusting on the edges. Asymmetric ripples were observed in some rocks. Thickness: ~100-110 ft.
- Pfr** FRANCIS FORMATION (Pennsylvanian, Missourian) - The Francis Formation is predominantly a medium gray, laminated, highly fossiliferous clayshale. It is one of the more fossiliferous shale formations in Oklahoma, containing a well-preserved and diverse Pennsylvanian-age fauna. The base of the Francis Formation in the southern part of the Ada 7.5' quadrangle is represented by the DeNay Limestone. In the quad, the limestone is variable in composition. In one area, it is a moderately indurated, fossiliferous packstone containing abundant crinoids and other fossils. It is light olive gray (5Y 6/1) and 0.5 ft thick. More commonly, the rock lacks fossils and is sandier, being a calcareous sandstone or sandy limestone. Some of these sandier rocks are very fine-grained, moderately indurated, and have irregular, sometimes wedge-like, bedding. Beds are generally 2-3 cm thick. Bedding is defined by color, with some being yellowish gray (5Y 8/1) and others being very pale orange (10YR 8/2). In one area, the limestone grades upward to a very fine-grained, non-calcareous sandstone. The sandstone is dusky yellow (5Y 6/4) and contains predominantly quartz. The top of the Francis Formation in the north was mapped as the top of a distinct chert conglomerate. The rocks are poorly sorted, ranging from very fine- to fine-grained sandstone and to conglomerates containing cobble and pebble clasts. The sandstones are cross-bedded in some areas. These are probably lobes of conglomerate debris shed off the Arbuckle highlands during orogenesis, and interfingering with the marine shales of the Francis Formation. The Francis Formation becomes the Coffeyville Formation where it interfingering with non-marine sandstones and shales north of the Ada 7.5' quadrangle. Thickness: ~50-60 ft.
- Psm** SEMINOLE FORMATION (Pennsylvanian, Missourian) - Consists of sandstone, calcareous sandstone, sandy limestone, siltstone, shale, and chert conglomerate. Colors for the rocks include grayish orange (10YR 7/4), yellowish gray (5Y 7/2), light brown (5YR 5/6), moderate yellowish brown (10YR 5/4), dark yellowish orange (10YR 6/6), and dark yellowish brown (10YR 4/2). Sandstones are commonly fine-grained but range from very fine-grained to coarse-grained. They may contain zones of conglomerate. Conglomerates contain pebble- and cobble-sized white chert clasts. Sandstone and conglomerate within the Seminole Formation generally contain rounded quartz and variable, commonly abundant, amounts of angular white chert. The chert may be concentrated along bedding planes as basal, depositional lag deposits. Some rocks have black oxidation spots. The rocks vary from friable to well-indurated, but are more commonly friable. Some rocks contain cross-bedding, petrified wood, and/or asphalt. Exposures can be relatively thick, with some outcrops being 10+ ft thick. Thickness: ~100 ft.
- Phv** HOLDENVILLE FORMATION (Pennsylvanian, Desmoisian) - Predominantly a medium gray (N5) to medium light gray (N6), laminated, slightly silty and calcareous clayshale interbedded with sandstones and a two prominent limestone beds: the upper Sasakwa Limestone and lower Homer School Limestone. The Sasakwa Limestone occurs about 30 to 40 feet below the top of the formation and represents a medium gray (N5) fossiliferous carbonate mudstone to wackestone; fossils typically fragmented and dominated by crinoid ossicles and plates. Average thickness of the Sasakwa about 1.5 feet. The Homer School Limestone occurs about 60 to 70 feet below the Sasakwa Limestone, and represents a light olive gray (5Y 6/1) to medium dark gray (N4), whole fossil wackestone to skeletal packstone; fossils include Chaetetes in significant numbers locally. Mesolobus and productid brachiopods, as well as crinoid debris. Thickness varies from 1 foot to as much as 5 feet in the far eastern part of its exposure. Sandstone lithologies interbedded with the Holdenville shales tend to be more common between the two limestone members and consist of grayish orange (10YR 6/2) to pale yellowish brown (10YR 6/2), thin-bedded to laminated, slightly calcareous, fine-grained quartz arenites. Thickness: Only the upper 140 feet is exposed in the Ada quadrangle.
- Pzun** UNDIFFERENTIATED PALEOZOIC ROCKS - Sandstones, shales, carbonate rocks of Upper Pennsylvanian, and older ages. Seen only in subsurface.

REFERENCES CITED:

Morgan, G.D., 1924. Geology of the Stonewall Quadrangle, Oklahoma: Bureau of Geology Bulletin 2, Oklahoma Geological Survey, 248 p.



GEOLOGIC MAP OF THE ADA 7.5-MINUTE QUADRANGLE,  
PONTOTOC AND SEMINOLE COUNTIES, OKLAHOMA

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2016