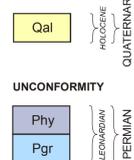


CORRELATION OF MAP UNITS

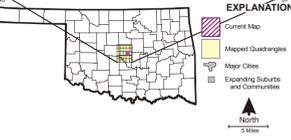
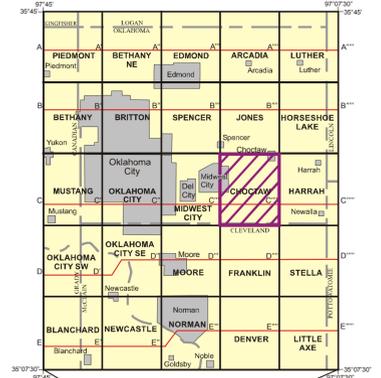


DESCRIPTION OF UNITS

- 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 to about 30 ft
- Phy** HENNESSEY FORMATION (Permian)—Shale and siltstone, poorly exposed, mostly moderate reddish brown (10R4/6), moderate red (5R4/6), to moderate reddish orange (10R6/6) with conspicuous light greenish gray (5GY8/1) iron-reduction spots. The lower 20-30 ft is predominantly a blocky-weathering silty shale and clay shale that exhibits good paleosol development; locally with lenticular beds of sandstone conglomerate and fine- to very fine grained sandstone. A dusky yellow (5Y6/4) to moderate orange pink (10R8/2) dolomitic siltstone bed, 3-5 in. thick, may be found locally near contact with the Garber Formation. Above the lower part, thin-bedded to laminated siltstones and very fine grained sandstones are common. Occurs on tops of hills and ridges, generally expressed as highly weathered, muddy soil. Thickness: 0-100 ft, top eroded
- Pgr** GARBER FORMATION (Permian)—Sandstone, mostly fine-grained to less commonly very fine to medium-fine-grained; appears to be very fine grained near base; moderate reddish brown (10R4/6), moderate reddish orange (10R6/6), moderate red (5R5/4), light brown (5YR5/6), and dark yellowish orange (10YR6/6); minor siltstone, shale, and siltstone-pebble conglomerate. Sandstone typically porous and friable. Commonly weathers to smooth, rounded outcrops; locally with platy to flaggy to rarely slabby appearance. Locally weathers to hard, dark-colored (grayish black [N2]) beds completely cemented with hematite, calcite, and/or silica. Dark-colored sandstone blocks locally form lag deposit over weathered outcrops. Large- and small-scale crossbeds, trough crossbeds common; many outcrops characterized by inclined beds and channelform deposits, although plane-parallel stratification also present. Shale and/or siltstone rip-up clasts uncommon, burrows extremely rare. Sandstone locally color-banded (e.g., moderate reddish brown (10R4/6), grayish red purple (5RP4/2), and grayish yellow green (5GY7/2)) or with mottled appearance. Small calcareous and iron-oxide spherules occur locally on weathered surfaces. Circular iron-reduction spots very rare. Siltstone and shale sandy, colored-banded (e.g., moderate reddish brown (10R4/6) and yellowish gray (5Y7/2)), stratified to unstratified, and with uncooled iron-reduction spots as large as 2 in. in diameter. Typically soft, weather to "badlands"-type topography. Siltstone and shale common near base and top of formation. In places, siltstone and shale contain evidence of paleosol development such as blocky weathering, fractures with fracture surfaces marked by small slickensides, through-going curved fractures, and calcareous concretions. Barle roses (Oklahoma rose rock) common on west side of area. South of Spencer in secs. 5-8, T. 11 N., R. 1 W., and in secs. 1 and 12, T. 11 N., R. 2 W., the Garber sandstones are deeply weathered and large areas are covered with a thick sandy soil, some of which may include a thin veneer of wind-blown sand. Thickness: about 650 ft, based on cross section

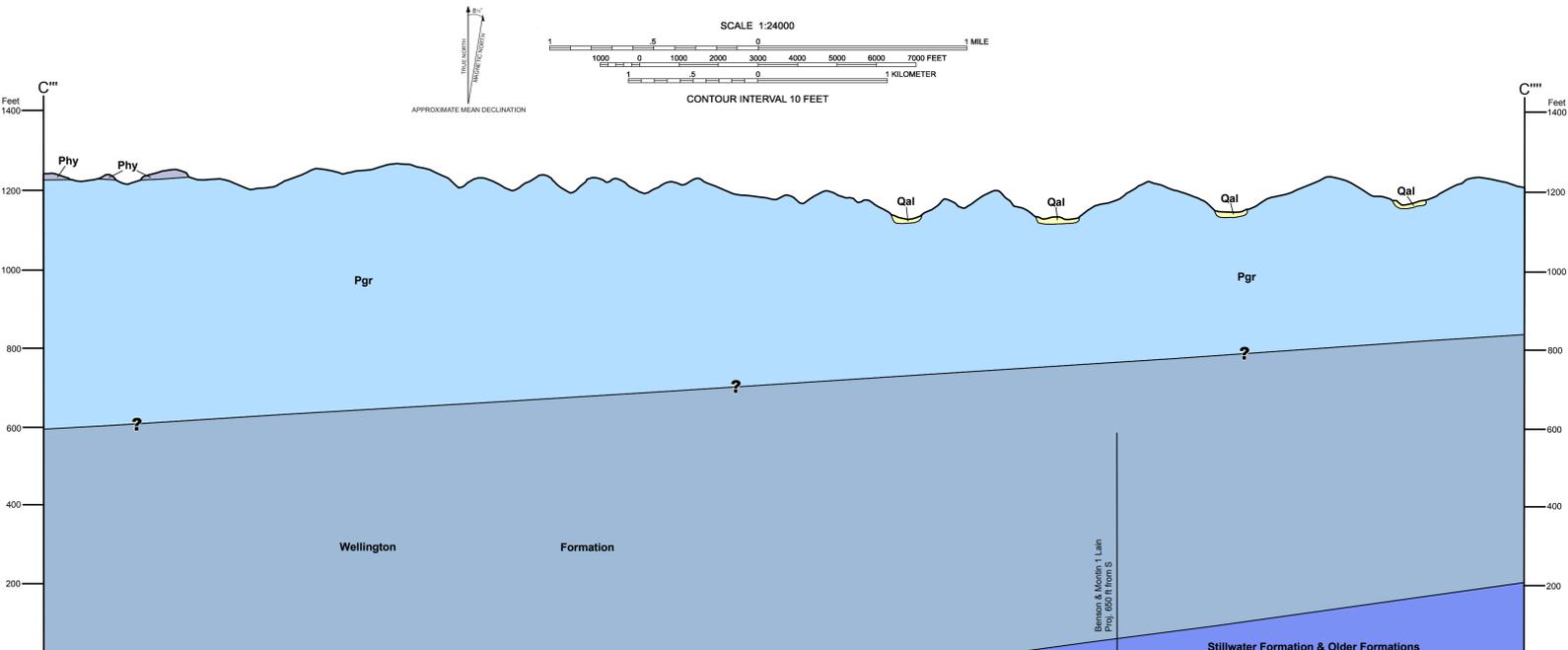
SYMBOLS

- Unit contact; dashed where approximate
- x Outcrop, geologic observation
- Petroleum well. Includes oil, gas, oil and gas, dry, service (water supply or injection), junked and abandoned, unknown. Modified from Natural Resources Information System database
- o Municipal water well



Base Map Credits
The base map was compiled by the U.S. Geological Survey, topography from aerial photographs by photogrammetric methods and by planimetric surveys 1956. Aerial photographs taken 1954, photorevised 1969 and 1975. Universal Transverse Mercator (UTM) projection, 1927 North American Datum, 10,000-foot grid based on Oklahoma coordinate system, north and south zones, 1,000-meter UTM grid, zone 14.

Geologic Map Credits
Geology by Thomas M. Stanley and Neil H. Suneson, 1999-2000. Assisted by W. Aaron Searles, 1999. Research supported by the U.S. Geological Survey, National Cooperative Geologic Mapping Program, under Assistance Award Number 99HQAG0017. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government. Published originally as Open-File Report 4-2000 as an author-prepared, black-and-white paper map. Digitally reproduced in color as Open-File Report OF3-2004. Map revised and published as OGQ-47. Cartography and layout prepared by G. Russell Standridge, 2002.



GEOLOGIC MAP OF THE CHOCTAW 7.5' QUADRANGLE, OKLAHOMA AND CLEVELAND COUNTIES, OKLAHOMA
Thomas M. Stanley and Neil H. Suneson
2000

10x vertical exaggeration.
Formation contacts based on wireline-log interpretations by N.H. Suneson and surface mapping by the authors. Vertical lines show logs used in interpretations. Special thanks to C. Scott Bowen, Geologist - Project Manager, Environmental Restoration Division, for drillhole data at Tinker Air Force Base.