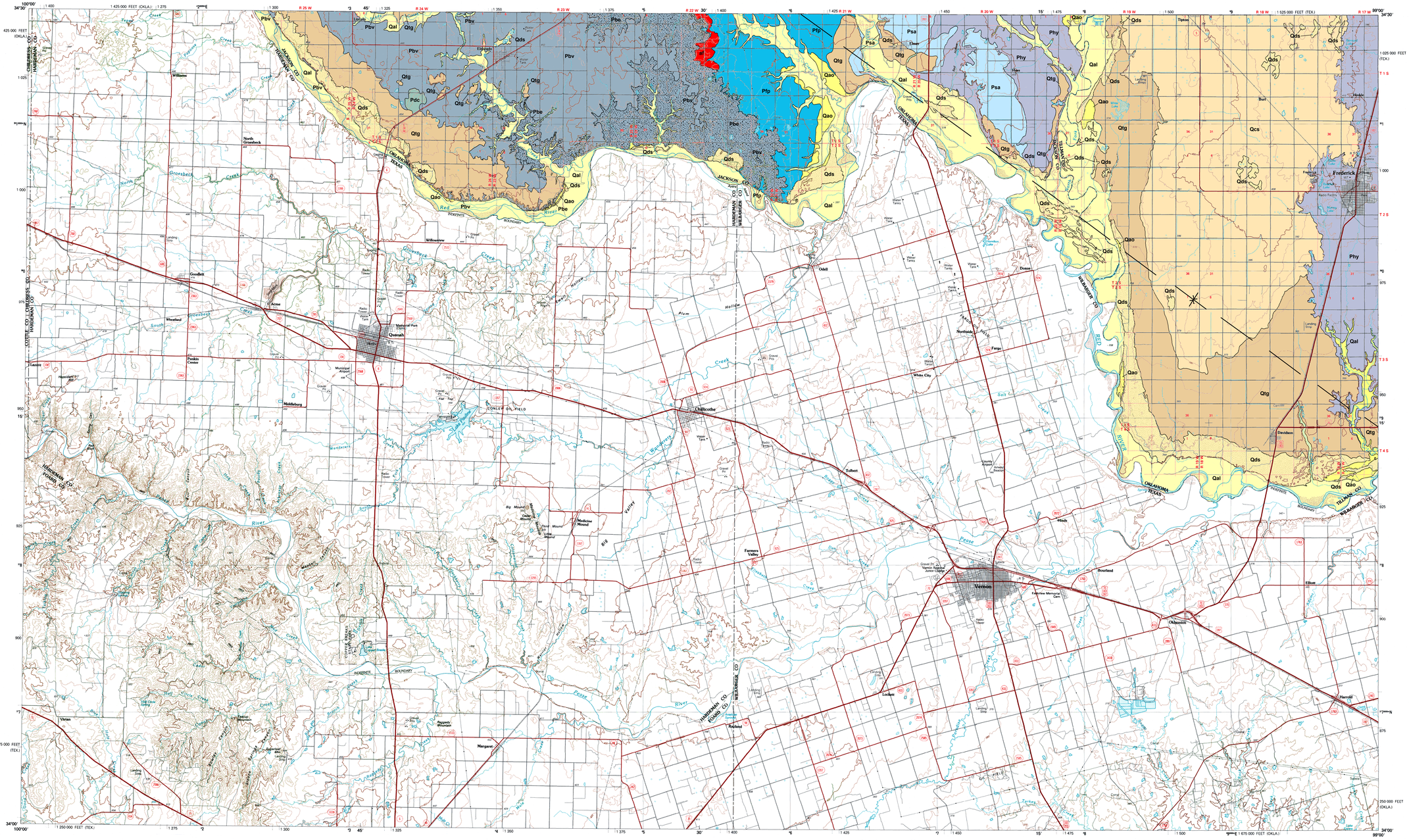
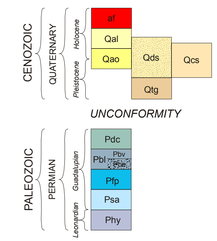
OKLAHOMA GEOLOGICAL SURVEY
Charles J. Mankin, *Director*

USGS
science for a changing world

Oklahoma Geologic Quadrangle **OGQ-60**
Geologic Map of the Vernon
30´X 60´ Quadrangle



CORRELATION OF UNITS



DESCRIPTION OF UNITS

af — ARTIFICIAL FILL—Natural or artificial talus, slumps, and tailings covering formally exposed areas around active and inactive mining operations

Qal — ALLUVIUM—Unconsolidated sand, silt, clay, and gravel in stream and river channels on modern flood plains

Qao — OLDER ALLUVIUM—Unconsolidated sand, silt, clay, and gravel in stream and river channels, mainly between 0–12 m above modern flood plains

Qds — DUNE SAND—Unconsolidated windblown sand formed into definite dune structures and ridges

Qcs — COVER SHEET SAND—Featureless sheet of windblown silt and sand

Qtg — TERRACE GRAVEL—Unconsolidated gravel, sand, silt, and clay laid down at several levels along former courses of present-day rivers and streams

UNCONFORMITY

EL RENO GROUP

Pdc — DOG CREEK SHALE—Reddish-brown, silty shale. Contains thin interbeds of greenish-gray shale. Less than 5 meters exposed.

Pbl / Ptv / Pbe — BLAINE FORMATION—Nine thick beds of white, massive gypsum, each typically underlain by a thin bed of dolomite and thin to thick beds of reddish-brown shale. Typically 45–55 meters thick. Formation divided into the lower Elm Fork Member (Pbe) and the upper Van Vacter Member (Ptv)

VAN VACTER MEMBER—Six beds of gypsum, each typically 1–5 m thick (each is thinner or absent to east). Dolomite and shale beds are 3 cm to 1.2 m thick. Total thickness is 20–25 meters. Base mapped at the base of the Mangum Dolomite Bed

ELM FORK MEMBER—Three beds of gypsum, each typically 1.5–10 m thick (each is thinner to east). Dolomite beds typically 3 cm to 1 m thick; shale intervals typically 3–10 m thick. Total thickness is 25–30 meters. Base mapped at the base of the Haystack Gypsum Bed

Pfp — FLOWERPOT SHALE—Reddish-brown, silty shale. Contains thin interbeds of greenish-gray shale and several thin layers of gypsum and dolomite in the upper part; thickness, about 30-40 meters

Psa — SAN ANGELO SANDSTONE—Light-gray to reddish-brown, fine-grained, cross-bedded sandstone, with local interbeds of yellowish-gray and reddish-brown shale; thickness, about 20–30 meters

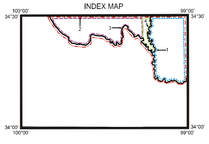
Phy — HENNESSEY FORMATION—Reddish-brown shale, with some reddish-brown siltstone beds. Top 15–45 meters are exposed

SYMBOLS

Unit contact; approximately located

Axial trace of synclinal structure, dashed where approximate

INDEX MAP



MAP REFERENCES

1. Barclay, J.E.; and Burton, L.C., 1953, Ground-water resources of the terrace deposits and alluvium of western Tillman County, Oklahoma: Oklahoma Planning and Resources Board, Division of Water Resources Bulletin, 12, 71p.
2. Havens, J.S., 1977, Reconnaissance of the water resources of the Lawton Quadrangle, southwestern Oklahoma: Oklahoma Geological Survey Hydrologic Atlas, HA-5, 1:250,000, 4 sheets.
3. Johnson, K.S.; and Ham, W.E., 1966, Geology and mineral resources of the Permian Blaine Formation and associated strata in southwestern Oklahoma: Oklahoma Geological Survey unpublished maps.
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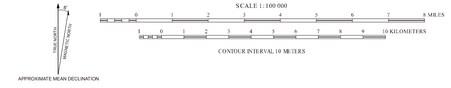

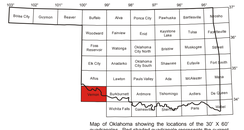

Map of Oklahoma showing the locations of the 30´ X 60´ quadrangles. Red shaded quadrangle represents the current map

Base Map Credits

The base map was compiled by the U.S. Geological Survey from 1:24,000-scale topographic maps dated 1983-1985. Planimetry revised from aerial photographs taken 1984. Map edited 1986. Universal Transverse Mercator (UTM) projection. 1927 North American Datum. 25,000-foot grid ticks based on Oklahoma coordinate system, north zone. 10,000-meter UTM grid, zone 14.

Geologic Map Credits

Geology compiled and field checked by Thomas M. Stanley, 2003. Research supported by the U.S. Geological Survey, National Cooperative Geologic Mapping Program, under assistance award number 1434-HQ-97-AG-01944. 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. Originally published as Open-File Report OF6-2005. Map revised and published as OGQ-60. Cartography and layout prepared by G. Russell Standridge, 2004.

GEOLOGIC MAP OF THE OKLAHOMA PART OF THE VERNON 30´ X 60´ QUADRANGLE, JACKSON AND TILLMAN COUNTIES, OKLAHOMA

Compiled by Thomas M. Stanley
Cartography by G. Russell Standridge

2004