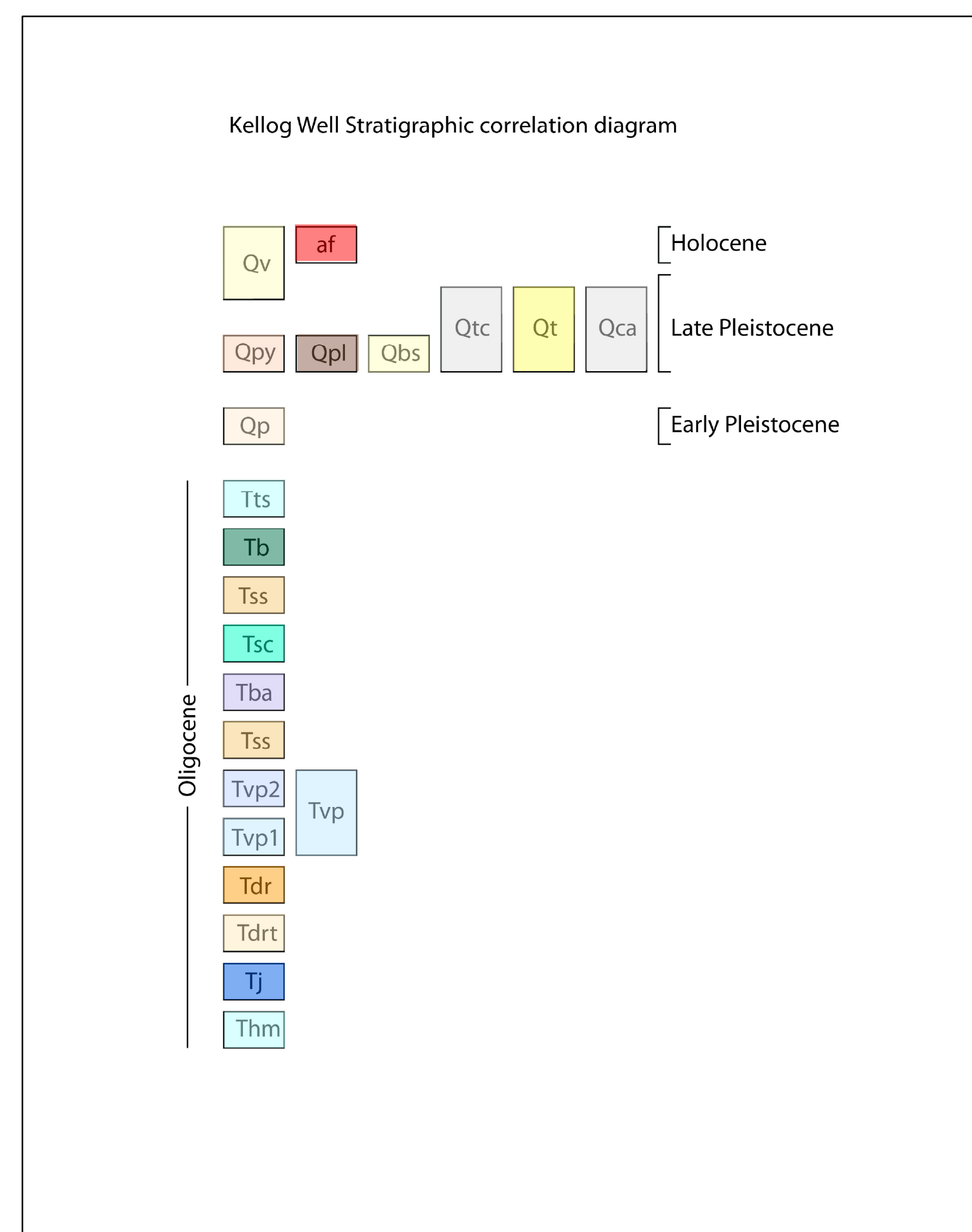


Kellogg Well Unit Descriptions

- af Man-made deposits (Holocene) – Earthen dams for tanks along active gulleys or valleys.
- Qbs Beach sand (Quaternary) – Fine- to medium-grained, moderately well-sorted sand in beach ridges.
- Qv Valley alluvium (Holocene) – Active alluvium in valleys, gulleys, and along active stream beds, generally incised <3m.
- Qt Terrace deposits (Quaternary) – Terrace deposits composed of alluvium incised more than 3m above nearby active alluvial deposits.
- Qca Colluvium and alluvium (Holocene – Quaternary)
- Qtc Talus and colluvium (Holocene - Quaternary)
- Qpl Lacustrine deposits (Quaternary) – Clay, silt, and fine-grained sandy playa deposits.
- Qpy Younger Piedmont deposits (Quaternary) – Sand and gravel deposited in alluvial fans.
- Qp Piedmont deposits (Quaternary) – Sand and gravel deposited in alluvial fans.
- QTsf Santa Fe Group (Pleistocene – Miocene) – Conglomerate and sandstone, typically volcaniclastic and moderately indurated. Thickness: 0-25m.
- Tts Turkey Springs Tuff (Oligocene) - Welded to non-welded rhyolite ash-flow tuff containing 2-20% (increasing upwards) phenocrysts of quartz, sanidine, plagioclase, and biotite. The tuff is typically light gray to pink and contains up to 20% pumice lapilli, and 5-10% lithic lapilli. Thickness: 0-10m.
- Tb Basaltic lava (Oligocene) – Mafic lava containing up to 10% 1-2mm pyroxene and/or olivine phenocrysts and lesser plagioclase phenocrysts up to 3mm. Thickness: 0-160m.
- Tss Volcaniclastic sandstone (Oligocene) – Sandstone and minor conglomerate. Thickness: 0-30m.
- Tsc2 Lithic-rich South Canyon Tuff (Oligocene) – Rhyolite ash-flow tuff containing 5-15% phenocrysts of plagioclase, sanidine, quartz, and biotite and ≥ 15% lithic lapilli. Thickness: 0-50m.
- Tsc South Canyon Tuff (Oligocene) – Rhyolite ash-flow tuff containing 4-10% phenocrysts of plagioclase, sanidine, quartz, and biotite. Lithic-lapilli are generally <5%, and pumice lapilli 5-25%. Thickness: 0 - >300m.
- Tba Basaltic andesite lava (Oligocene) – Mafic lava containing up to 10% 1-3mm plagioclase phenocrysts and/or olivine.
- Tvp2 Upper Vicks Peak Tuff (Oligocene) – Densely welded rhyolitic ash-flow tuff containing 10-15% phenocrysts, chiefly sanidine up to 4mm, lesser plagioclase up to 2mm, and sparse pyroxene, hornblende, and biotite <2mm. The tuff contains 10-25% strongly flattened pumice lapilli up to 1m long, and sparse <10m lithic lapilli. The upper Vicks Peak Tuff grades down into the less welded lower member. Thickness: up to 35m.
- Tvp1 Lower Vicks Peak (Oligocene) – Poorly welded rhyolitic ash-flow tuff containing 1-10% phenocrysts, chiefly sanidine up to 4mm, lesser plagioclase up to 2mm, and sparse pyroxene, hornblende, and biotite <2mm. Thickness: up to 65m.
- Tvp Vicks Peak Tuff, undifferentiated (Oligocene) – Poorly to densely welded rhyolitic ash-flow tuff containing 1-15% phenocrysts, chiefly sanidine up to 4mm, lesser plagioclase up to 2mm, and sparse pyroxene, hornblende, and biotite <2mm. The tuff contains 2-25% strongly flattened pumice lapilli up to 1m long, and up to 5% lithic lapilli. The tuff is typically light gray and the pumice lapilli are commonly recessive on weathered surfaces. Thickness: up to 90m.
- Tdr Rhyolite of Durfee Canyon (Oligocene) – Moderately phenocryst-poor (2-7%) rhyolite lava containing feldspar (presumably mostly sanidine) up to 5mm, biotite up to 2mm, and sparse quartz up to 2mm. Thickness: 0 - >200m.
- Tdrt Rhyolite tuff of Durfee Canyon (Oligocene) – Mostly nonwelded, rhyolitic ash-flow tuff, and ash-fall tuff, locally containing up to 30% lithic lapilli. The unit may also include minor volcaniclastic sandstone and conglomerate in some areas. Thickness: 0-100m.
- Tj La Jencia Tuff (Oligocene) – Densely welded rhyolitic ash-flow tuff containing 2-10% phenocrysts of sanidine (1-4mm) and plagioclase (1-2mm), and minor biotite, pyroxene, and hornblende, and quartz. The tuff is generally light to dark gray and contains 5-15% strongly flattened pumice lapilli up to 1m long, and up to 5% lithic lapilli. Thickness: up to 120m.
- Thm Hells Mesa Tuff (Oligocene) – Densely welded phenocryst-rich rhyolitic to trachytic ash-flow tuff containing 20-45% phenocrysts of plagioclase (≤3mm), sanidine (≤3mm), quartz (≤4mm), hornblende (≤2mm), and biotite (≤2mm). The tuff is reddish brown to orange in color and contains sparse lithic lapilli and generally <10% pumice lapilli <10cm long. Thickness: at least 25m.



Base map from U.S. Geological Survey 1965, from photographs taken 1960 and planimetric surveys 1965. 1927 North American datum. Topographic projection. Resampled to UTM projection - zone 12N. 1000-meter Universal Transverse Mercator grid, zone 13, shown in red.

1:24,000

1 0.5 0 0.5 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0.5 0 0.5 1 KILOMETER

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

New Mexico Bureau of Geology and Mineral Resources
Open-file Geologic Map 64

**Geologic map of the Kellogg Well
7.5-Minute Quadrangle, Catron and
Socorro Counties, New Mexico**

June 2010
by
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QUADRANGLE LOCATION

This draft geologic map is preliminary and will undergo revision. It was produced from either scans of hand-drafted originals or from digitally drafted original maps and figures using a wide variety of software, and is currently in cartographic production. It is being distributed in this draft form as part of the bureau's Open-file map series (OFOM), due to high demand for current geologic map data in these areas where STATEMAP quadrangles are located, and it is the bureau's policy to disseminate geologic data to the public as soon as possible.

After this map has undergone scientific peer review, editing, and final cartographic production adhering to bureau map standards, it will be released in our Geologic Map (GM) series. This final version will receive a new GM number and will supersede this preliminary open-file geologic map.

DRAFT

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This and other STATEMAP quadrangles are (or soon will be) available for free download in both PDF and ArcGIS formats at:
<http://geoinfo.nmt.edu/publications/maps/geologic/fgm/home.html>

COMMENTS TO MAP USERS

A geologic map displays information on the distribution, nature, orientation, and age relationships of rock and deposits and the occurrence of structural features. Geologic and fault contacts are irregular surfaces that form boundaries between different types or ages of units. Data depicted on this geologic quadrangle map may be based on any of the following: reconnaissance field geologic mapping, compilation of published and unpublished work, and photogeologic interpretation. Locations of contacts are not surveyed, but are plotted by interpretation of the position of a given contact onto a topographic base map; therefore, the accuracy of contact locations depends on the scale of mapping and the interpretation of the geologist(s). Any enlargement of this map could cause misunderstanding in the detail of mapping and may result in erroneous interpretations. Site-specific conditions should be verified by detailed surface mapping or subsurface exploration. Topographic and cultural changes associated with recent development may not be shown.

Cross sections are constructed based upon the interpretations of the author made from geologic mapping, and available geophysical, and subsurface (drillhole) data. Cross-sections should be used as an aid to understanding the general geologic framework of the map area, and not be the sole source of information for use in locating or designing wells, buildings, roads, or other man-made structures.

The map has not been reviewed according to New Mexico Bureau of Geology and Mineral Resources standards. The contents of the report and map should not be considered final and complete until reviewed and published by the New Mexico Bureau of Geology and Mineral Resources. 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 State of New Mexico, or the U.S. Government.

Kellogg Well Cross Sections

