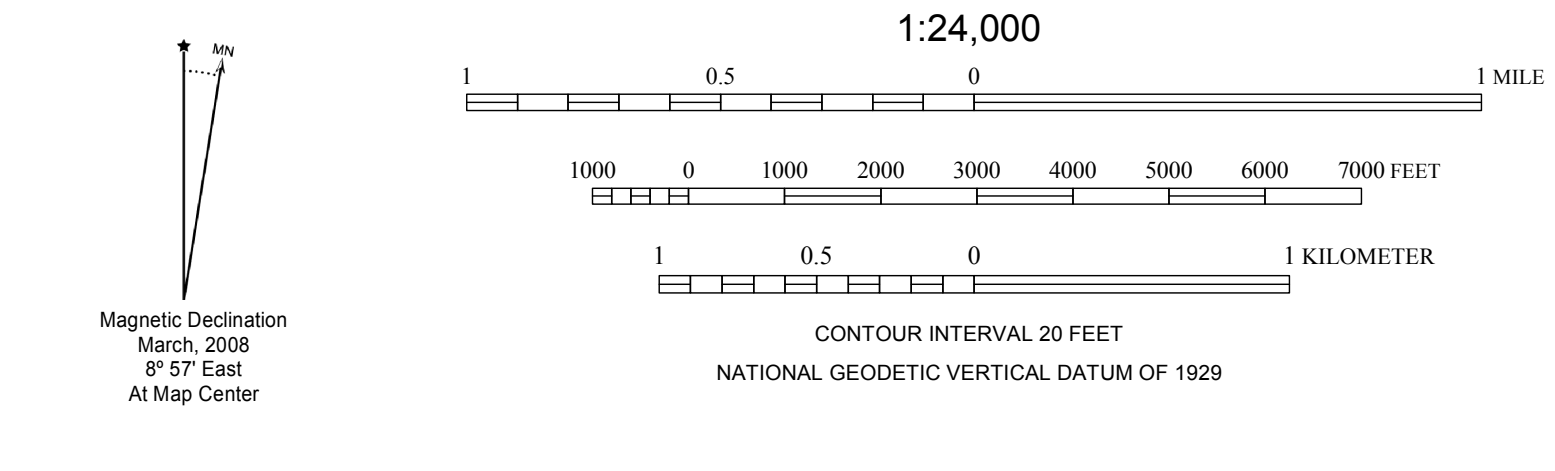
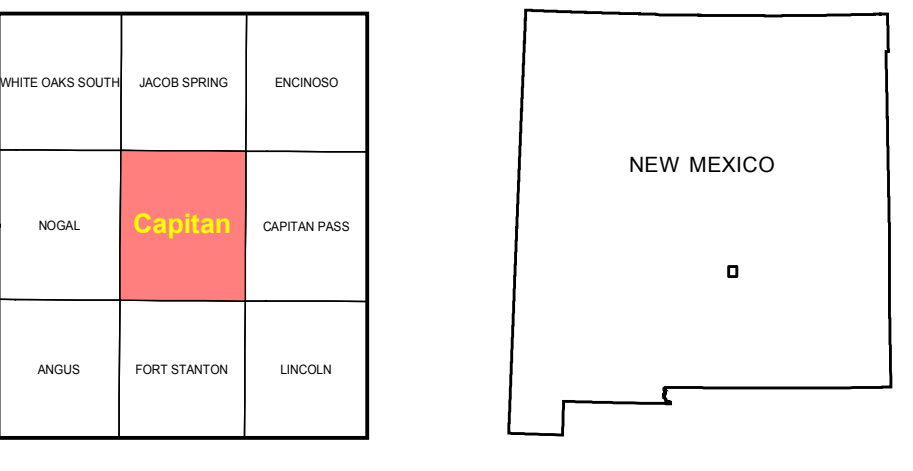


Base map from U.S. Geological Survey 1973 from photographs taken 1971. Red checked in 1973. 1927 North American datum, New Mexico coordinate system, central zone, reprojected to UTM projection - zone 12N. 100000meters Universal Transverse Mercator grid zone 12, shown in red.



Geologic map of the Capitan quadrangle, Lincoln County, New Mexico

June 2010

by Geoffrey Rawling

New Mexico Bureau of Geology and Mineral Resources, Socorro, NM, 87801

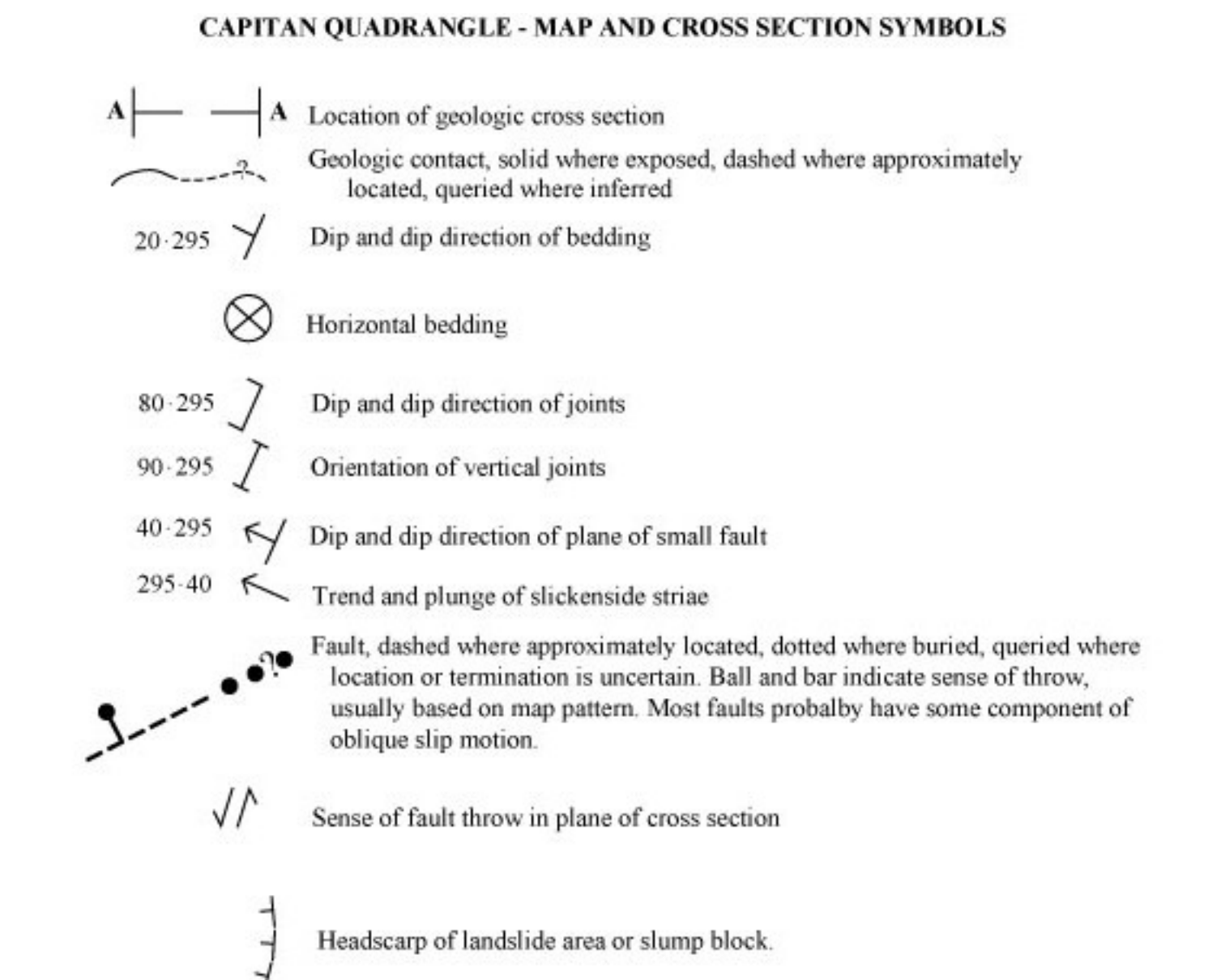
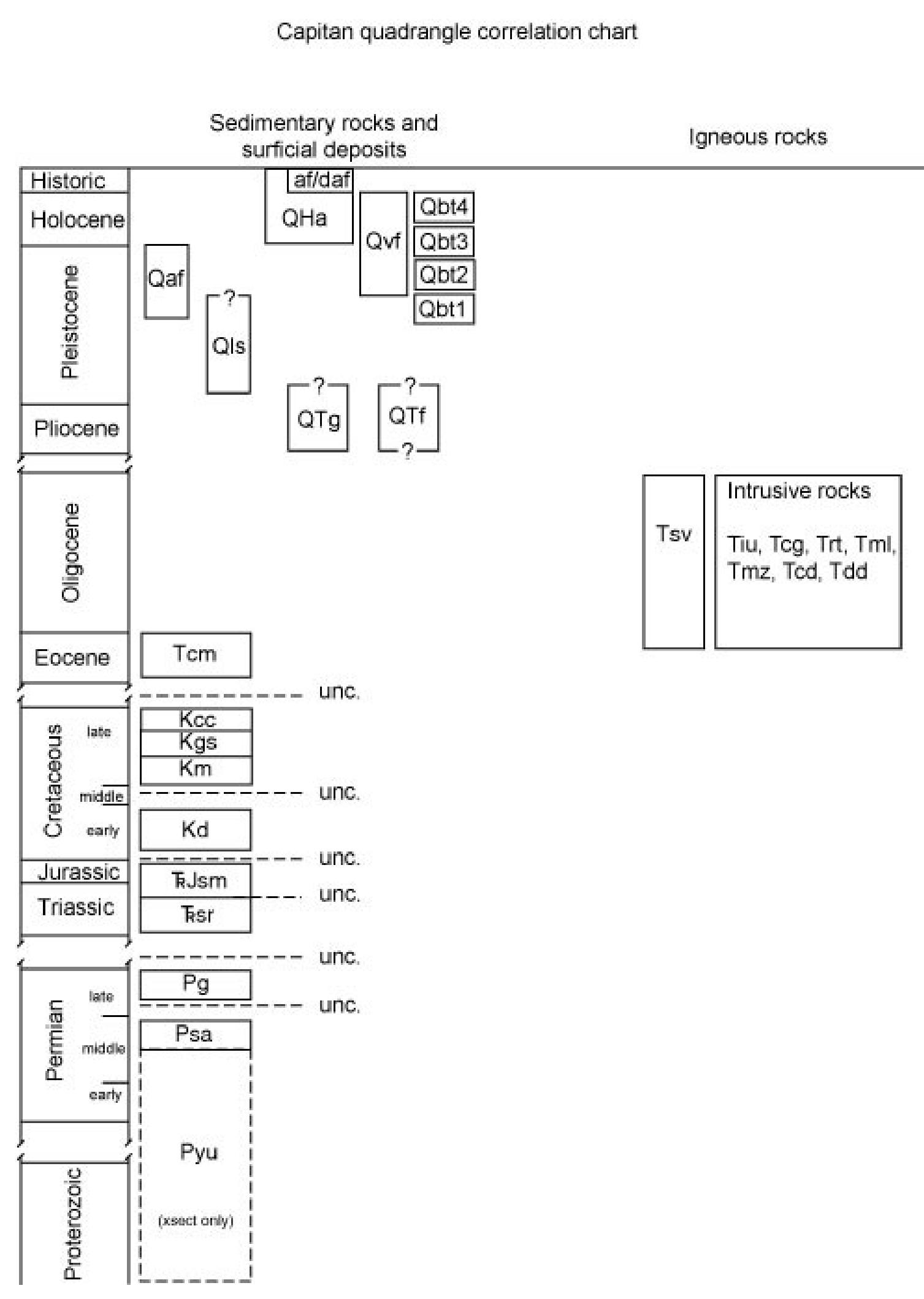
New Mexico Bureau of Geology and Mineral Resources Open-file Map Series OFGM 196

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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/ofgm/home.html

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 (OFGM), due to high demand for current geologic map data in those 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 the preliminary open-file geologic map.



Anthropogenic Deposits
af - Artificial fill for stock tanks and highway embankments.
daf - Heavily disturbed land around the Capitan iron mine.
Quaternary and Tertiary Surficial Deposits
Qf - Valley fill (upper Pleistocene to Holocene) - Unlithified gravel and poorly to moderately sorted clay, silt, sand in active stream channels and ephemeral arroyos.
Qf1 - Alluvial fan deposits (middle to upper Pleistocene) - Alluvial fans composed of poorly sorted cobbles, boulders, sand, silt, and clay.
Qf2 - Landslide deposits (lower to middle Pleistocene) - Intact, back-rotated tereva blocks and irregular slumps and rubble piles of Dakota Sandstone and Gallup Sandstone.
Qf3 - Lowest terrace deposit of Rio Bonito (Holocene) - Poorly to well-sorted alluvial deposits composed of interstratified fine to coarse tan sand and sandy cobble to boulder gravel.
Qf4 - Intermediate terrace deposit of Rio Bonito (Uppermost Pleistocene to Holocene) - Poorly to well-sorted alluvial deposits composed of interstratified fine to coarse tan sand and sandy cobble to boulder gravel.
Qf5 - Highest terrace deposit of Rio Bonito (Middle Pleistocene) - Poorly to well-sorted alluvial deposits composed of interstratified fine to coarse tan sand and sandy gravel of rounded cobbles and boulders.
Qf6 - Pediment gravel deposits (Pliocene to lower Pleistocene) - Moderately lithified, crudely bedded pebble to boulder gravel with reddish clayey sand matrix and local lenses of sand and sandy clay.
Qf7 - Alluvial fans of the Capitan Mountains (Pliocene (?) to middle Pleistocene (?)) - Coarsened alluvial fans on the south flank of the Capitan mountains composed of ~95% Capitan granite (Tg).
Cenozoic Igneous Rocks
Tm - undetermined igneous rocks, undivided (Oligocene) - comprises dikes identified on aerial photos, probably largely Tdd, the most common dike rock observed in the field.
Tdd - Diabase/diorite and associated rocks, undivided (Oligocene) - Aphanitic to very fine-grained phenaritic and phenaritic-porphyrific mafic igneous rocks forming dikes, sills, and less commonly, irregular intrusive masses.
Tm1 - Monzonite/laitite and associated rocks (Oligocene) - Tan to brown aphanitic to very fine-grained phenaritic igneous rocks forming dikes, sills and irregular intrusive masses.
Tdd - Diorite of Champ Hill (Oligocene) - Dark gray to grayish-brown fine-grained phenaritic diorite with 10-35% phenocrysts of augite up to several centimeters across.
Tmz - Monzonite (Oligocene) - Medium to fine-grained monzonite. Composed of approximately equal amounts of white feldspar and tan to brown mafic minerals with little or no quartz.
Tr - Rhyolite/Trachyte and associated rocks (Oligocene) - White to pale orange, aphanitic and usually aphyric igneous rocks forming dikes, sills and irregular igneous masses.

flow-banding, and vesicles are common. Thickness: dikes are < 1 to 5 meters; base and top of larger igneous masses are not exposed.
Tg - Capitan granite (Oligocene) - White to pale orange, sugary-textured, very fine-grained alaskite granite. Mafic minerals are sparse, generally less than 5% of biotite and locally 7-8% of biotite and magnetite. Thickness: base and top of the intrusion are not exposed, several hundred meters are present in the northeast corner of the quadrangle.
Tsv - Sierra Blanca volcanic rocks (upper Eocene to Oligocene) - Walker andesite breccia of Thompson (1972). Interbedded dark purple, purplish-red, red, and light to dark gray and gray-green volcanic flow breccias, volcanic debris flows, shallow intrusive sills, lahars, and volcanoclastic sedimentary rocks from the Sierra Blanca volcanic center.
Tcm - Cub Mountain Formation (Eocene) - White to tan sandstones, dark red sandy mudstones, and purplish-red silt mudstones. Sandstones are medium- to thick-bedded, cross-bedded, medium-grained, and arkosic to volcanoclastic.
Qk - Crevasse Canyon Formation (upper Cretaceous) - Interbedded olive drab to gray to buff medium- to fine-grained sandstone, gray to black fissile carbonaceous shale, and coal.
Kgs - Gallup Sandstone (upper Cretaceous) - Pale lavender to pale gray to tan, medium- to very thick-bedded, trough cross-bedded, clean quartz sandstone and minor chert and quartzite pebble conglomerate.
Km - Mancos Shale (middle to upper Cretaceous) - Black to purplish gray laminated fissile shale.
Kd - Dakota Sandstone (lower to middle Cretaceous) - Gray to tan to light purple sandstone and minor black shale.
Tj - Morrison Formation (Jurassic) and San Pedro Arroyo Formation (upper Triassic, undivided) - These two units are both very poorly exposed (usually buried by colluvium, alluvium or landslide deposits from the overlying Dakota Sandstone) and are thus grouped together.
Trs - Santa Rosa Formation (upper Triassic) - Medium brown, yellowish-brown, and orange to tan sandstone, conglomerate, and conglomeratic sandstone.
Pg - Grayburg Formation (upper Permian) - White, pale orange, and tan fine- to very fine-grained friable clean quartz sandstone and subordinate siltstone.
Psa - San Andres Formation (middle to upper Permian) - Light to dark gray and bluish-gray thin- to very thick-bedded limestone and dolomite.
Pya - Yeso Formation and older rocks, undivided - cross-section only

