

EXPLANATION OF MAP UNITS

Qal – Alluvium – Holocene and older stream and minor terrace deposits. This unit fills valley floors and active stream channels and is characterized as a silty, sandy gravel composed of mainly carbonate and minor quartz sandstone clasts.

Psa - San Andres Formation (middle to upper Permian) - Light to dark gray and bluish or brownish gray limestone and dolomite. This unit occurs on slopes and ridge tops across map area. Limestones and dolomites range from thin to very thick bedded, and are carbonate mudstones, wackestones, and grainstones. Freshly broken surfaces are darker gray than weathered surfaces and occasionally fetid. Beds are often silty or sandy. Dark brown irregular chert nodules are sparse. Fossils are sparse and are dominantly crinoid stem fragments and ammonites. Intraformational solution breccias and paleokarst features such as collapsed caves occur in this unit, but are more common to the north in the Ruidoso area. They are characterized by red soil and red and yellow stained breccia fragments. Delineation of the San Andres into the lower thick-bedded Rio Bonito member and upper thin-bedded Bonney Canyon member (Kelley, 1971) was not possible due to steep topography, heavy vegetation, and sparse outcrop.

Near the base of the San Andres Formation occur lenses of fine-medium grained rusty quartz arenite sandstone, believed to be equivalent to the Gloriaeta sandstone (Kelly, 1978). The Gloriaeta sandstone is not entirely continuous, but it can generally be found along strike within 500 feet of where it pinches out. As this is the only documented and recognized non-carbonate lithology within the San Andres formation, it was generally utilized to map the contact between San Andres and carbonate-bearing Yeso formation. The Gloriaeta sandstone commonly occurs 60-120 feet (20-40 m) above the base of the San Andres formation (Pray, 1961). As little outcrop occurs in much of the map area, the location of this contact was generally estimated relative to the highest float blocks of Gloriaeta sandstone. The entire section of the San Andres formation is not exposed in these quadrangles, yet its thickness is estimated at ~700 feet (Kelley, 1978).

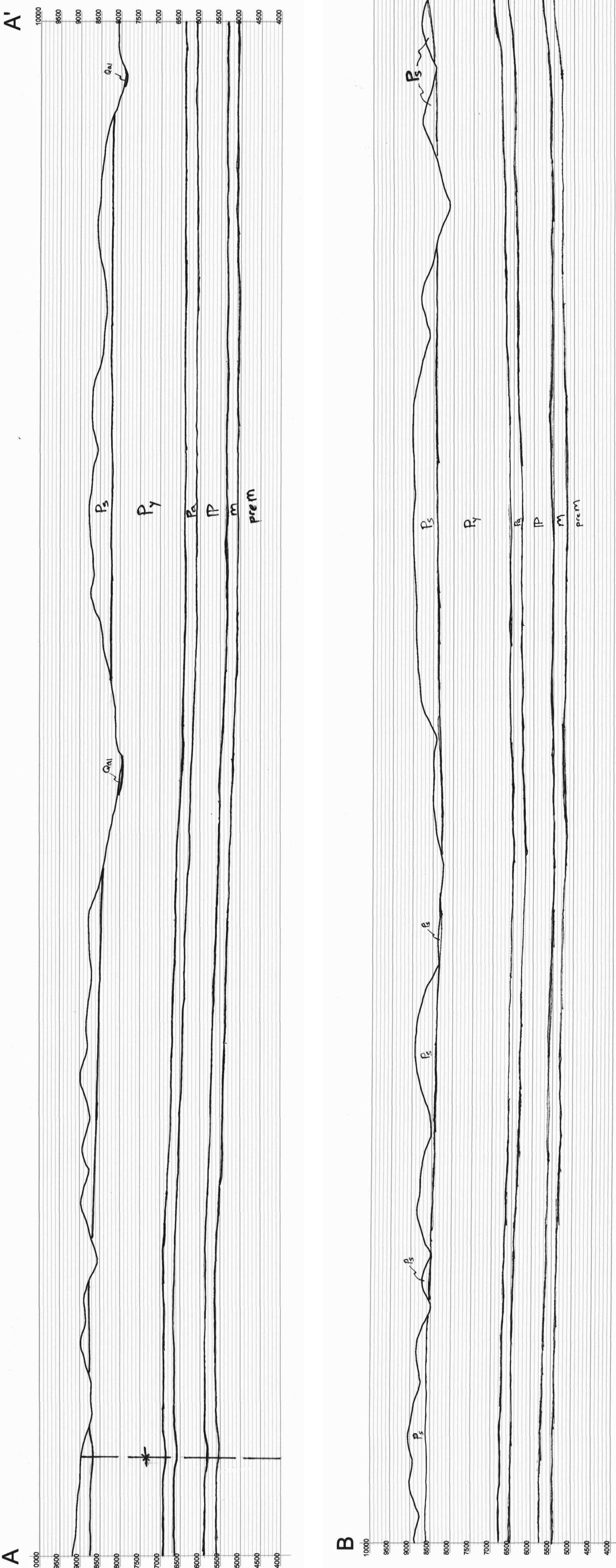
Py – Yeso Formation (middle Permian) - A very thick and heterogeneous unit of mudstone, fine sandstone, limestone, dolomite, and evaporates. The Yeso occurs mainly in canyon bottoms and lower slopes across the map area. Yellow to tan siltstone and fine sandstone, red to pink muddy siltstone and fine sandstone, gray to tan silty limestone and dolomite, and white to gray gypsum. Siltstone and sandstones are thin to medium bedded and friable. Muddy siltstones and sandstones are laminated to very thin bedded. Limestones are very thin to thin bedded, rarely medium to thick bedded. In general, they are thinner bedded than overlying basal San Andres beds. Meter scale interbedding of carbonate, siltstone, and sandstone is common. Evaporite lithologies, mainly gypsum in surface exposures, are less common in the upper part of the Yeso exposed in canyon bottoms across the map area. Evaporites are prevalent in the lower part of the full Yeso section exposed only in the southwestern part of the Rogers Ruins quadrangle. Bedding dips are commonly chaotic due to dissolution of gypsum and (and carbonates?) and individual beds are generally not traceable laterally for more than a few 10's of meters in more mudstone-rich parts of the Yeso. Exposures are poor and the upper contact is usually mantled by colluvium from overlying San Andres Formation. Thickness: ~1800 feet (~550 meters) based well data from Cloudcroft Unit #1 well (1991) in northwestern Bluff Springs quadrangle.

REFERENCES CITED

Kelley, V. C., 1971, Geology of the Pecos Country, Southeastern New Mexico: New Mexico Bureau of Mines and Mineral Resources Memoir 24, 75 p.

Kelley, V.C., 1978

Pray, L. C., 1961, Geology of the Sacramento Mountains Escarpment, Otero County, New Mexico: New Mexico Bureau of Mines and Mineral Resources Bulletin 35, 144 p.



Geologic map of the Cloudcroft quadrangle, Otero County, New Mexico.

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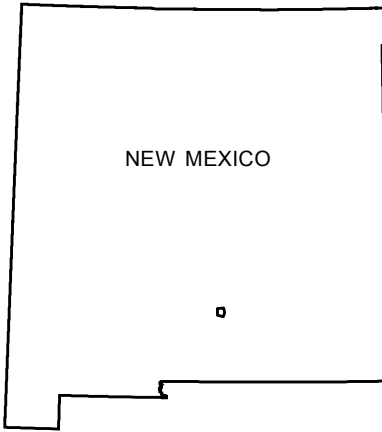
COMMENTS TO MAP USERS

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.

DOMINGO PLATE	FRANK CANYON	ELK SILVER
HIGH ROLLS	MAJESTY RANGE	
SACRAMENTO PLATE	BLUFF SPRINGS	SACRAMENTO

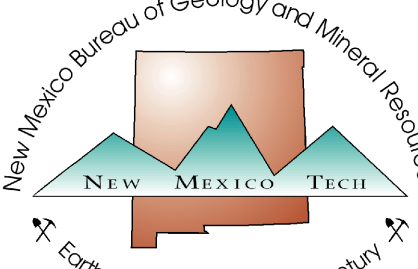


QUADRANGLE LOCATION

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 (OFGM), 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



New Mexico Bureau of Geology and Mineral Resources
Open-file Geologic Map 135

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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>