

Figure 1. Geologic section of the Rosilla Peak 7.5-minute quadrangle, Santa Fe & San Miguel counties, New Mexico. by Erwin Melis.

**Rosilla Peak 7.5-minute Quadrangle Unit Descriptions**

**QUATERNARY**

- Qal Alluvium, that ranges from less than 1m to 6 m thick. Predominately sand and silt with local gravel or clay-rich beds. Some deposits are cobble-rich.
- Qc Colluvium, <1 to 8 m thick, including debris flows, slumps, and landslides. Deposits are coarse-grained, poorly sorted, and poorly stratified.

**TERTIARY**

- Erd Latest Eocene (35.05 +/- 0.53 Ma, <sup>40</sup>Ar/<sup>39</sup>Ar date on biotite, this study) rhyolite-dacitic intrusive igneous rock, with flow-aligned phenocrysts of biotite, plagioclase feldspar, and rounded quartz. Plagioclase feldspar is clustered in glomerocysts. Crystalline matrix consists of biotite, plagioclase and quartz. Commonly contains broken xenocrysts of muscovite. Rock is white very well lithified, and weathers to tabular blocks.

**PALEOZOIC**

- Pu Undifferentiated Pennsylvanian and Permian sedimentary rocks that unconformably overlie the Proterozoic basement, and are mostly fault blocks along the Picuris-Pecos fault.
  - Pa Alamitos formation. Dominated by arkosic limestone, with significant portions of sandstone and shale of latest Desmoinesian - Virgilian age (Miller et al., 1963).
  - Pip La Pasada formation. Dominated by cyclic limestones, with lesser mudstone and quartz sandstone of Morrowan to middle Desmoinesian age (Miller et al., 1963).
  - Map Arroyo Penasco group. Made up of the Espiritu Santo formation (Osagean) and the Terero formation (Meramecian and Chesterian) and consisting of sandstones, limestones and local coarse quartzites (Armstrong and Mamm, 1990). Often covered by slope debris and talus and up to 30 m thick locally.
- PROTEROZOIC**
- Yp Pegmatite and apite dikes, with a cooling age of 1.334 ± 0.001 Ga (<sup>40</sup>Ar/<sup>39</sup>Ar date on coarse-grained muscovite, this study). Dikes have a simple

quartz-feldspar-muscovite mineralogy, are generally subvertical, and are at most 1-2 meters thick.

Ygm Macho Creek granite. Megacrystic K-feldspar granite, dated by Bowling and Conde (1982) at ca. 1.48 Ga (U-Pb zircon crystallization age). The Macho Creek granite is peraluminous, with ~10% muscovite, ~10% biotite, and rare garnet. Major phases are microcline, plagioclase and quartz. The rock varies from nonfoliated to locally well foliated. Iron oxide staining and orange weathering are typical.

Xgl Indian Creek granite. Fine grained, equigranular, weakly to moderately well foliated K-feldspar granite, dated by Bowling and Conde (1982) at ca. 1.65 Ga (U-Pb zircon crystallization age). Rock is composed of biotite, quartz and K-feldspar. It weathers to orange and reddish-pink rounded blocks.

Xgf Felsite and fine-grained granite. Mainly composed of quartz, K-feldspar and minor biotite, with minor sodic plagioclase.

Xgp Pecos granodiorite. A coarse-grained, equigranular granodiorite, containing about 15% quartz, 30% plagioclase, 30% K-feldspar, and 10-15% hornblende and biotite. Hornblende is commonly altered to chlorite.

Xgw Windy Bridge tonalite, dated at 1.718 +/- 0.005 Ga (Condie and Bowling, 1982, U-Pb zircon crystallization age). This unit is distinguished by quartz porphyroclasts up to 2-3 cm long, which compose as much as 35% of the rock, and locally gneissic fabric. Other minerals include plagioclase, which is a fine-grained, matrix-forming phase, and biotite after hornblende. Plagioclase is commonly sericitized, and epidote alteration is locally evident. Amphibolite xenoliths aligned in the plane of the foliation are common. The tonalite weathers to an orange-brown color.

Xam Amphibolite and mafic schist. Dark green to black, variably foliated, coarse- to fine-grained rock consisting largely of amphibole and plagioclase. Also contains sphene +/- epidote +/- garnet +/- biotite. Chlorite has locally replaced biotite.

Xmv Metavolcanic unit. Includes rocks of the Jones Rhyolite complex, dated by Bowling and Conde (1982) at 1.720 +/- 0.015 Ga (U-Pb zircon crystallization age). This unit consists mainly of metarhyolites, but also includes metamorphosed basalts, metasedimentary rocks, and banded iron formations. Commonly grey to orange in outcrop, the metarhyolite preserves relict quartz and plagioclase feldspar phenocrysts. Alteration to a quartz-muscovite schist is locally extensive; degree of fabric development varies. Often contains extensive mineralized zones with sulfides and iron oxides in large portions.

Xg Biotite granite-granodiorite in Cueva Canyon. Equigranular and unfoliated, with biotite, plagioclase- and K-feldspar, quartz as main mineral phases.

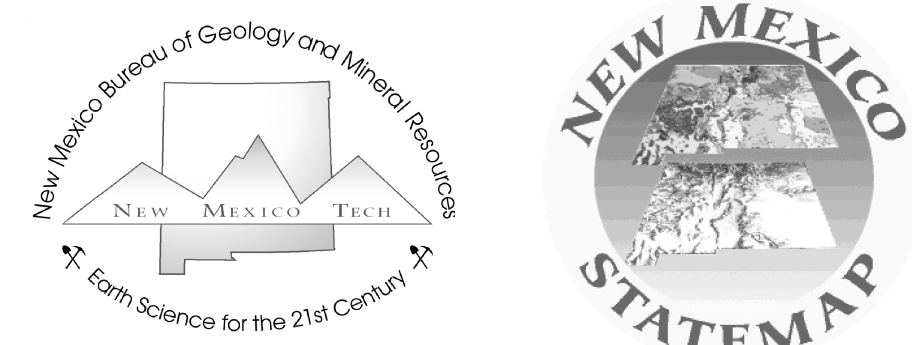
Base from U.S. Geological Survey 1984. From photographs taken 1976 and field checked in 1976. Map edited in 1984. 1983 North American datum, UTM projection, zone 13. 1000-meter Universal Transverse Mercator grid, zone 13, shown in red.

**Geologic Map of the Rosilla Peak 7.5 - minute quadrangle**  
by  
**Erwin A. Melis, Paul W. Bauer, Laurel B. Goodwin and S. Baer**

June 2002

1:24,000

Magnetic Declination  
July, 2003  
10° 25' East  
At Map Center



**DRAFT**  
NMBGMR OF-GM 31

**COMMENTS TO MAP USERS**

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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.

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