

Geologic Map of the Veguita Quadrangle, Valencia and Socorro Counties, New Mexico

By

Dave Love

May, 1999

**New Mexico Bureau of Geology and Mineral Resources
*Open-file Digital Geologic Map OF-GM 028***

Scale 1:24,000

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Veguita 7.5' Quadrangle
OF-DM 28

GEOLOGIC MAP OF VEGUITA QUADRANGLE, SOCORRO AND VALENCIA COUNTIES, NEW MEXICO

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COMMENTS TO MAP USERS

Mapping of this quadrangle was funded by a matching-funds grant from the 1998 STATEMAP program of the U.S. Geological Survey, National Cooperative Geologic Mapping Program, under USGS award number 1434-HQ-97-AG-01781, to the New Mexico Bureau of Mines and Mineral Resources (Dr. Charles E. Chapin, Director; Dr. Paul W. Bauer, P.I. and Geologic Mapping Program Manager).

This quadrangle map has been Open-Filed in order to make it available as soon as possible. The map has not been reviewed according to NMBMMR standards, and due to the ongoing nature of work in the area, revision of this map is likely. As such, dates of revision are listed in the upper right corner of the map and on the accompanying report. *The contents of the report and map should not be considered final and complete until it is published by the NMBMMR.*

A geologic map graphically displays information on the distribution, nature, orientation, and age relationships of rock and surficial units and the occurrence of structural features such as faults and folds. Geologic contacts are irregular surfaces that form boundaries between different types or ages of units. Data depicted on this geologic map are based on field geologic mapping, compilation of published and unpublished work, and photogeologic interpretation.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. Significant portions of the study area may have been mapped at scales smaller than the final map; therefore, the user should be aware of potentially significant variations in map detail. 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 everywhere.

Any enlargement of this map could cause misunderstanding in the detail of mapping and may result in erroneous interpretations. The information provided on this map cannot be substituted for site-specific geologic, hydrogeologic, or geotechnical investigations. The use of this map to precisely locate buildings relative to the geological substrate is not recommended without site-specific studies conducted by qualified earth-science professionals.

The cross-sections in this report are constructed based on surficial geology, and where available, subsurface and geophysical data. The cross sections are interpretive and should be used as an aid to understand the geologic framework and not used as the sole source of data in locating or designing wells, buildings, roads, or other structures.

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Preliminary Geologic Map of Veguita Quadrangle

Mapped and compiled by David W. Love

EXPLANATION OF MAP UNITS

Rock colors are by comparison with the rock-color chart by Goddard and others (1948).

Qfw Historic floodway of Rio Grande, including channel and adjacent floodplain contained between artificial barriers such as levees and irrigation and drainage ditch banks. Channel consists of pebbly sand in dune and ripple bedforms and larger longitudinal, transverse, and attached bars. Waning-flow deposits consist of laminated sand, silt and clay. Less than 5 m thick.

Qfp Historic floodplain of Rio Grande between artificial barriers and valley margins. Consists of silt and clay overlying sandy overbank and channel deposits. Commonly disturbed by agricultural fields and subdivisions. Less than 5 m thick.

Qr Late Pleistocene and Holocene fill of Rio Grande valley shown in cross section only. Primarily pebbly sand, silt and clay. At valley margins, interfingers with Qae and Qvya. About 25 m thick.

Qapc Historic active sandy channel and inner floodplain of Rio Puerco. Channel within arroyo box is predominantly sand with rare pebbles. Floodplain is sand, silt, and clay up to 10 m thick.

Qvyp Holocene valley fill of the Rio Puerco. Sand, silt, and clay dominate the fill with pebbly sand tongues from the valley margins. Radiocarbon contained in the upper 4 m ranges from 2,000 to 12,000 years old. At least 10 m exposed; total thickness to 43 m.

Qaac Historic sandy channel of Abo Arroyo. Channel within arroyo box is predominantly pebbly sand with clasts to boulder size. Less than 10 m thick.

Qvya Late Pleistocene and Holocene valley fill of Abo Arroyo. Sand and silt dominate the fill with 10 R hues, but cobble and boulder gravel lenses form coarser deposits and bar and swale topography locally at surface. At least 5 m exposed; as much as 25 m thick.

Qed Late Holocene eolian deposits with recent dune form development. Light brown (5YR6/4), grayish orange (10YR7/4), to very pale orange (10YR8/2), unconsolidated, fine grained, angular to well rounded, well sorted sand composed mostly of quartz. Up to 4 m thick.

Qedi Holocene eolian deposits with older dune form development. Commonly overridden or reworked into Qed. Light brown (5YR6/4), grayish orange (10YR7/4), to very pale orange (10YR8/2), unconsolidated, fine grained, angular to well rounded, well sorted

sand composed mostly of quartz. Up to 3 m thick.

Qe Holocene and Pleistocene eolian sheet deposits with subdued or no dune forms. Light brown (5YR6/4), grayish orange (10/YR7/4) to very pale orange (10YR8/2), unconsolidated, fine grained, well rounded, well sorted sand composed mostly of quartz. Commonly deposits have one or more episodes of soil development beneath the surface. Up to 3 m thick. Qe/ units indicate where Qe overlies subjacent unit; for example Qe/Qad. Qe/lda are eolian sand sheets overlying Llano de Albuquerque (lda, see TQsp explanation below).

Qae Holocene and Late Pleistocene sandy and pebbly alluvium and eolian deposits in alluvial aprons along valley margins. Sand is unconsolidated, yellowish gray (5Y7/2) to grayish gray (5Y8/4).

Qaeo Older Quaternary alluvium along valley margins derived from ancestral Rio Puerco deposits within Santa Fe Group basin fill. Consists of pebbly sand with uncommon cobbles. Qae is inset against these older deposits.

Qgf Historic, Holocene and Pleistocene alluvial, eolian and playa deposits along graben-floor drainages. Deposits are sand, silty sand, and clay. Sandy lunettes poorly developed downwind of playas to northeast.

Qag Late Quaternary short, sandy, alluvial aprons and sand ramps downslope from faults on scarps cutting Llano de Albuquerque.

Qad Late Quaternary alluvial apron and eolian sand reworked from Abo terrace Qta and graded primarily to Rio Grande terrace Qtr. Less than 5 m thick.

Qtr Quaternary terrace of Rio Grande 30 to 35 m above Rio Grande floodplain on eastern margin of quadrangle. Unit as mapped includes tongues of alluvium of Abo Arroyo (Qta in cross section). Cuts and overlies older (Pliocene?) cemented sands and pebbly sands of the ancestral Rio Grande (TQsr). Sands are very pale orange to grayish orange (10 YR 8/2 to 10 YR 7/4). Gravel ranges in size to small cobbles, and consists of well-rounded, resistant rock types such as quartzites, gneisses, a wide range of volcanic and plutonic rocks, siliceous sediments and silicified wood. Contains obsidian (Rabbit Mountain) and pumice from the Jemez Mountains. Up to 20 m thick.

Qta Quaternary terrace deposits of Abo Arroyo 30 to 45 m above adjacent Rio Grande floodplain on extreme southeastern margin of map. Sands, silts and clays derived from Permian redbeds in headwaters are moderate reddish orange (10 R 6/6). Includes 2 m tongues of fine sand, silt, and clay of Qtr. Gravel ranges in size to 40-cm-cobbles of subrounded limestones, sandstones, granite, quartzites, schists and gneisses. At least 25 m thick to east.


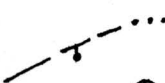



TQsp Late Tertiary and early Pleistocene (?) basin fill of Santa Fe Group deposited by ancestral Rio Puerco and inter-channel eolian and pedogenic processes. Exposed along

west valley margin of Rio Grande, along fault scarps of Llano de Albuquerque, and along Rio Puerco valley margin. Sediments consist of pebbly sand, silt and clay with predominantly 7.5 YR pale hues. Pebbles appear to be bimodal in size with ninety-five percent less than 3 cm in length, with remaining 5 percent ranging from about 10 to 50 cm in length. The small pebbles are predominantly well rounded siliceous pebbles such as quartzites, jaspers, cherts, and petrified wood. Larger pebbles and cobbles are predominantly subrounded basalt, granitic rocks, carbonate-cemented sandstones (recycled from Santa Fe Group), Pedernal chert, other sedimentary rocks and rare intermediate and siliceous volcanic rocks. Upper 20 m contains rare pebbles of 3-Ma Grants obsidian. Contains Blancan fauna. Lowest exposures along Rio Grande valley may contain ancestral Rio Grande pebbly sands. Also includes laterally continuous sandy and clayey soils, and cross-bedded and sheet eolian sands. Top of unit is a geomorphic surface of maximum basin aggradation known as Llano de Albuquerque (lda) and is delineated by northwest-trending diagonal bars. White (N9) to bluish-white (5B9/11) thick (up to 3 m), stage III-IV (Birkeland, 1984; Machette, 1985) pedogenic calcic horizon has developed at the top of the unit beneath the Llano de Albuquerque and is delineated by northeast-trending short hachures where exposed.

TQsr Late Tertiary and early Pleistocene (?) deposits of the ancestral Rio Grande within the Santa Fe Group basin fill. In the southeastern corner of the map, these cross-bedded pebbly sands, silts and clays are well cemented. Exposures are poor. Subsurface thickness unknown, but presumably hundreds to thousands of meters. Interfingers to west with TQsp and to east with TQsa.

TQsa Late Tertiary and early Pleistocene (?) deposits of Abo Arroyo within the Santa Fe Group basin fill. Not exposed on this quadrangle; shown in cross section combined with TQsr, the equivalent facies of the ancestral Rio Grande. This unit consists of red (10 R 6/6) sands, silts and clays derived from the Permian-redbed headwaters of Abo Arroyo and coarse lenses of subrounded pebbles to cobbles of limestone, sandstone, granites, and metamorphic rocks (quartzites, metarhyolites, schists). Assumed to be hundreds to thousands of meters thick.

SYMBOLS

-  Contact, dashed where approximate, dotted where concealed.
-  Normal fault, bar on down-thrown side; dashed where approximate, dotted where buried
-  Horizontal beds
-  Short, northeast-trending hachures: exposed calcic horizons developed at top of TQsp beneath Llano de Albuquerque
-  Northwest-trending diagonal bars: Llano de Albuquerque geomorphic surface of maximum aggradation