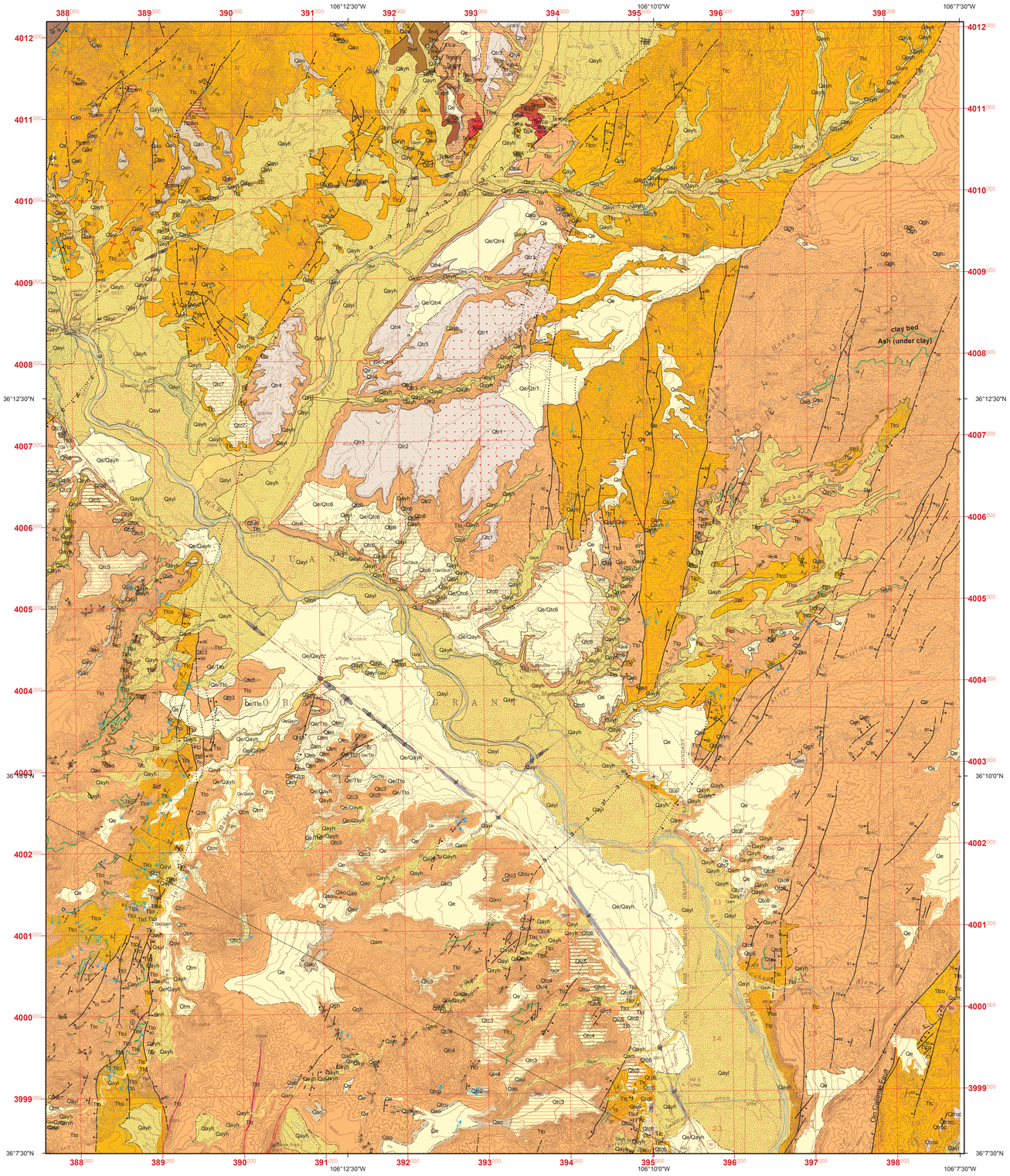
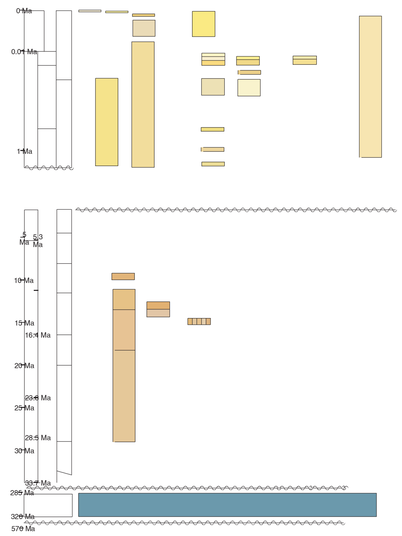
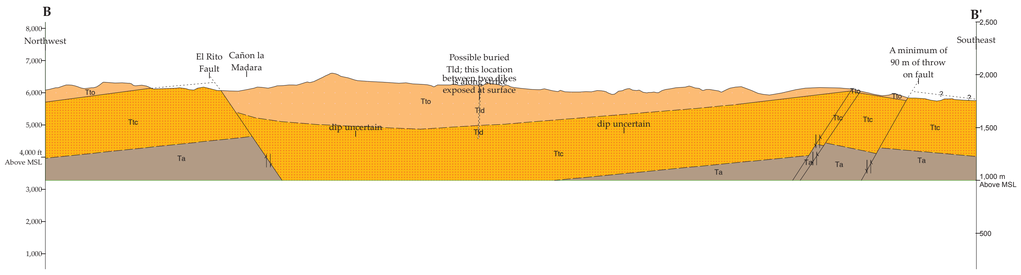






Explanation of Map

- 1.1.1 Contact—Identity and existence certain, location
- 1.1.3 Contact—Identity and existence certain, location
- 1.1.4 Contact—Identity or existence questionable, location
- 1.1.7 Contact—Identity and existence certain, location
- 1.1.8 Contact—Identity or existence questionable, location
- 1.1.9 Internal contact—Identity and existence certain, location
- 1.3.1 Dike (1st option)—Identity and existence certain, location
- 2.1.1 Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity and existence certain, location accurate
- 2.1.2 Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity or existence questionable, location accurate
- 2.1.3 Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity and existence certain, location approximate
- 2.1.4 Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity or existence questionable, location approximate
- 2.1.7 Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity and existence certain, location concealed
- 2.1.8 Fault (generic; vertical, subvertical, or high-angle; or unknown or unspecified orientation or sense of slip)—Identity or existence questionable, location concealed
- 2.14.1 Ductile shear
- 1.2.1 Key bed—Identity and existence certain, location
- 1.2.11 Clay bed—Identity and existence certain, location
- 1.2.3 Key bed—Identity and existence certain, location
- 1.2.9 Clay bed—Identity and existence certain, location
- 1.3.1 Dike (1st option)—Identity and existence certain, location
- 5.5.1 Syncline (1st option)—Identity and existence certain, location
- 5.9.1 Monocline (1st option)—Identity and existence certain, location
- 12.5 Fluvial transport
- 16.9 Direction of sediment transport, determined from eolian crossbedding in vertical or near-vertical section
- 2.11.1 Ball and bar [notation on fault showing local normal offset]
- 2.11.9 Inclined fault (2nd option)
- 6.1 Horizontal
- 6.2 Inclined
- 31.10 Cross section

Description of Map

CMUMapUnitPolys

Symbol

02.01—Unit—Qe—Aeolian sand deposits —Yellowish brown to light yellowish brown (10YR 5-6/4) silty very fine- to fine-grained sand and fine to medium sand. This unit is generally massive and commonly overlies Pleistocene and Holocene alluvial deposits. *

03.01—Unit—Qpl—Lagunita playa deposit—Light brownish gray (10YR 6/2) silt and mud. Hard when dry and well consolidated. Organic rich below about 10 cm. Light yellowish brown (10YR 5/4) silt and very fine sand is prevalent towards the margins of the l*

04.01—Unit—Qam—Modern alluvium—Sand and gravel that occupies active arroyos. Sand is generally planar-laminated or in planar-very thin beds. Gravel is in very thin to thin, lenticular to broadly lenticular beds. Texture composition of the sediment re*

04.02—Unit—Qayl—Younger alluvium occupying a low topographic position in valley bottoms —Sand and gravel that occupy floodplains or slightly elevated (less than 2 m) areas adjacent to active arroyos. Sand is generally planar-laminated or in planar-very*

04.03—Unit—Qayi—Younger alluvium occupying an intermediate topographic position in valley bottoms—This unit occupies an intermediate position in valleys between that of units Qayh and Qayl. Its sediment is similar to these other two units, and in many *

04.04—Unit—Qayh—Younger alluvium occupying a high topographic position in valley bottoms —Sand and gravel that form low, stable terrace deposits on the floors of valleys or arroyos. It is composed of sand with subordinate pebbly sand and sandy pebbles.*

04.05—Unit—Qao—High-level gravel deposits —Sandy gravel generally deposited by tributaries to the Rio Chama and El Rito.

04.06—Unit—Qgh—High-level gravel deposits —Sandy gravel preserved on the tops of ridges. These are only 1-2 m thick and their identification with current drainages are uncertain. This unit correlates with Qgth on the Lyden quadrangle to the east.

05.01—Unit—Qtm—Terrace deposits along Cañon la Madera—Sand and gravel deposited along Cañon la Madera in the southwest portion of the quadrangle. Sand is laminated or in very thin to medium, planar to lenticular beds. Sand is subrounded to rounded and*

06.01—Unit—Qtroc—Terrace deposits along the Rio Ojo Caliente —Sand and gravel deposited along the Rio Ojo Caliente in the extreme southeastern part of the quadrangle. No good exposure of the sediment. Gravel is predominately quartzite, but volcanic cl*

07.02—Unit—Qtc7—Lowermost terrace deposit of the Rio Chama —The sediment deposited by the axial Rio Chama consists of sandy gravel channel deposits in addition to subordinate floodplain deposits of silt and very fine sand. The gravel consists of pebble*

07.03—Unit—Qtc6—Lower terrace deposit of the Rio Chama —The sand associated with the axial deposits is generally pale brown, fine-upper to very coarse- upper, subangular to rounded, poorly sorted, and a mix of volcanic sand and sand similar to that in t*

07.04—Unit—Qtc5—Lower-middle terrace deposit of the Rio Chama —

07.05—Unit—Qtc4—Middle terrace deposit of the Rio Chama —Tributary deposits are mostly fluvially reworked Ojo Caliente Sandstone (fine- to coarse-grained, subrounded to rounded, well sorted). There are subordinate medium to thick, lenticular beds of sa*

07.06—Unit—Qtc3—Upper-middle terrace deposit of the Rio Chama —

07.07—Unit—Qtc2—Upper terrace deposit of the Rio Chama —Note: Much previous work has been done on these terrace deposits and the Quaternary incisional history of the Rio Grande; pertinent publications include Dethier et al. (1988), Dethier and McCoy (19*

07.08—Unit—Qtc1—Uppermost terrace deposit of the Rio Chama —

08.01—Unit—Qtr4—Lower terrace deposit of El Rito —The strath of this deposit is 18-24 m above the modern El Rito channel. Maximum clast sizes 4 km from the mouth of El Rito are: 29x18, 33x20, 33x19, 27x12, and 28x27 (a and b axes of quartzite clasts, i*

08.02—Unit—Qtr3—Lower-middle terrace deposit of El Rito—The strath of this deposit is 40-43 m above the modern El Rito channel. This may correlate with the Qtc5 terrace based on projections of the strath and height above the modern channel. If this is*

08.03—Unit—Qtr2—Upper-middle terrace deposit of El Rito —The strath of this strath terrace is approximately 60 m above the modern El Rito channel. It may possibly correlate with the Qtc4 terrace based on projections of the strath. The terrace may also *

08.04—Unit—Qtr1—Upper terrace deposit of El Rito —The strath of this deposit is 60-75 m above the modern El Rito channel, and 10-15 m above the strat of Qtr1. It may correlate with the Qtc4 terrace based on projections of the strath. It probably does*

09.01.01—Unit—Tto—Ojo Caliente Member of the Tesuque Formation —Extensively cross-stratified sand. Sand is generally very pale brown (10YR 8/2 to 7/3) to white (10YR 8/1), fine-upper to coarse-lower in grain size, subrounded to rounded (minor subangula*

09.01.02—Unit—Ttoi—Ojo Caliente Member of the Tesuque Formation —Locally, the unit label on the map carries an "i" subscript. This is used to signify where the Ojo Caliente Sandstone is likely interbedded with or within the Chama-El Rito Member.

09.01.04—Unit—Ttc—Chama-El Rito Member, Tesuque Formation —Fine sand and minor mud to clay that is interbedded with subordinate coarser channel deposits of volcanic gravel and sand. The sand in the finer sediment is generally pink (7.5YR 7/3-4), with m*

09.01.05—Unit—Ttci—Chama-El Rito Member, Tesuque Formation —Locally on the map, this unit carries a subscript of "i" (Ttci). This is used to denote where the authors believe a certain interval to be interbedded with or within Oj Caliente Sandstone. Wh*

09.01.06—Unit—Ttce—Chama-El Rito Member mixed with volcanic detritus from the El Rito vents —Olive to pale olive (5Y 4-6/3) pebble conglomerate in very thin to medium, tabular to irregular beds. Clasts are matrix-supported, subrounded, and poorly sorte*

10.01—Unit—Tea—Basaltic agglutinate—Welded lapilli and ash; basaltic.

10.02—Unit—Tep—Basaltic phreatomagmatic deposits—Poorly sorted deposits comprised of basalt detritus.

10.03—Unit—Tev1—Basaltic volcanic deposits consisting primarily of pyroclastic tuff breccia—Basaltic volcanic deposits consisting primarily of pyroclastic tuff breccia

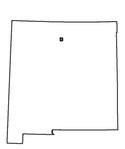
10.04—Unit—Tev2—Basaltic volcaniclastic tuff and lapilli tuff—

11.01—Unit—Tld—Dikes of basalt to basaltic andesite(?) —Dikes of dark gray to very dark gray to dark greenish gray (N3-4 to 10Y 4/1) basalt to basaltic andesite(?). Dikes are 0.5-3.0 m wide and commonly discontinuous at 100-103 m scale. These locally *

12.01—Unit—Ta—Abiquiu Formation —White (2.5Y 8/1) fine-grained sandstone with subordinate medium to very coarse sand. Bedding is generally medium (minor thick) and tabular. Well consolidated but generally no effervescence when HCl is applied. The whi*

13.01—Unit—Pzu—Undivided Paleozoic strata —Limestone, sandstone, siltstone, and shale.

Base from U.S.Geological Survey 1984, from photographs taken 1976 and field checked in 1976.
Map edited in 1994
1927 North American datum, UTM projection -- zone 13N
1000--meter Universal Transverse Mercator grid, zone 13, shown in red



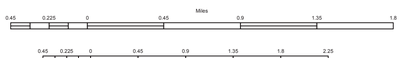
Geologic Map of the Medanales 7.5 - minute Quadrangle

by

Daniel J. Koning, Judson May, Scott Aby, and Robert Horning

May 2004

1:24,000



CONTOUR INTERVAL 20 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

This work was performed under the STATEMAP component of the USGS National Cooperative Geologic Mapping Program. Funding for geological mapping was provided by the U.S. Geological Survey and the New Mexico Bureau of Geology and Mineral Resources, a division of New Mexico Tech. The New Mexico Office of the State Engineer is providing funding for the compilation effort as well as the hydrologic investigation underway.

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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.

DRAFT

NMBGMR OF-GM 89

This draft geologic map was produced from scans of hand-drafted originals from the author(s). It is being distributed in this form because of the demand for current geologic mapping in this important area. The final release of this map will be made following peer review and redrafting in color using NMBGMR cartographic standards. The final product will be made available on the internet as a PDF file and in a GIS format.