Preliminary Geologic Map of the Ojo Hedionda Quadrangle, Santa Fe County, New Mexico

By

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New Mexico Bureau of Geology and Mineral Resources
Open-file Digital Geologic Map OF-GM 39

Scale 1:24,000

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LITHOLOGIC UNITS

IGNEOUS ROCKS (Oligocene?)

Tcp **Cerro Pelon laccolith**: Porphyritic, fine-grained, biotite, hornblende diorite. Magma for the approximately 400 foot thick body was apparently fed from the Ortiz intrusive center to west, based on hornblende orientations.

Td **Dike**: Leucite bearing, microdiorite: Dark gray, very fine grained, salt and pepper appearing mixture of intermediate plagioclase, titan-augite, titaniferous biotite, and magnetite. Weathers dark brown or grayish brown and stands as wall-like rampart to 22 ft thick.

SEDIMENTARY ROCKS

QUATERNARY

Qa **Alluvium:** Cobbles, sand, silt, and clay transported by seasonal flooding or in active channels. Coarser clasts are dominated by quartz and granitic material.

Qca **Colluvium/alluvium:** Sand, silt and clay in abandoned stream channels, flood plains, and lower valley slopes.

Qt **Terrace gravel:** Rounded pebbles and cobbles of variable composition including Precambrian granite, Phanerozoic chert and sandstone, and Tertiary igneous clasts, in a sand or silt matrix.

Qc: **Colluvium:** Unconsolidated sand, silt and clay deposits along upper hill slopes or broad, flat hill crests. A few feet in maximum thickness.

Qp: Pediment deposits: cobble, pebble, sand and silt deposits lying at the base of upland areas.

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Qtt **Tuerto Gravels:** Buff to moderate orange pink and grayish pink, generally poorly sorted and poorly consolidated beds of sand, gravel and cobbles. Derived from two sources: 1) Ortiz Tertiary igneous complex and associated Tertiary and Cretaceous sedimentary units; 2) Precambrian granitic and metamorphic and Paleozoic sedimentary terrains in the Sangre de Cristo Mountains. Strongly cemented by caliche. Thickness to 60 ft.

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TERTIARY (Late Paleocene -- Eocene)

Tdt Diamond Tail Formation: Variegated sandstone, conglomerate, mudstone and local limestone beds. Sandstone beds are massive, friable, usually cross bedded and composed of medium- to coarse-grained, subrounded, poorly sorted quartz and lesser chert. Kaolin, limonite, or calcite commonly constitute the matrix. Colors are tan, brown, orange, pink, red and white. Mudstones are gray to red in color and poorly exposed. A thin, basal conglomeratic zone containing brightly colored chert is commonly present. Maximum thickness approximately 300 ft.

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CRETACEOUS

Mesaverde Group

Kmf Menefee Formation: Sandstone, carbonaceous shale, claystone (mined), and coal. Thickness 0-280 ft. Pebble-sized siderite concretions in basal portion of section.

Kmv Point Lookout Sandstone: Dark brown to olive, fine- to medium-grained, massive bedded sandstone and fossiliferous brown mudstone containing calcite-cemented concretions. Thickness 0-400 ft beneath unconformity.

Mancos Group?

Kn Niobrara Formation: Comprised of three shale and two sandstone and sandy-shale sections. Shale is medium-gray calcareous and weathers olive-brown. Poorly exposed, mostly in arroyos. The uppermost shale section (Kn3) contains abundant concretions and is gradation to the Point Lookout Sandstone. Thickness of the entire section cannot be determined directly, but probably exceeds 1,500 ft

Kns2 Sandstone member: Light yellowish gray, even bedded, fine-grained sandstone and interbedded shale. Thickness is approximately 80 ft.

Kns1 Sandstone member: Light yellowish gray, even bedded, fine-grained sandstone and interbedded shale Base lies approximately 300 ft above lower contact of formation. Thickness approximately 100 ft.

Km Kc Carlisle Shale: Dark gray to black, laminated shale. Weathers to yellow-brown color. Poorly exposed Thickness approximately 300 ft

Kcc Codell Sandstone Member: A 28 ft thick exposure along Gaviso Arroyo consists of: 1) A basal, 15 ft thick section of fine- to very-fine grained, grayish-yellow to brownish-yellow, fining upward, bioturbated, cross-bedded sandstone: 2) 3 feet of brownish-gray, non-calcareous, argillaceous sandstone with gypsum

crystals and yellowish iron encrustations, and; 3) an upper, 7 foot thick, fining upward section of very fine grained sandstone and siltstone interbeds.

Kcj Juana Lopez Member: Brown-gray platy, fossiliferous, arenaceous, crystalline limestone and calcareous gray shale and gray shale. Limestone is commonly composed of needle-like fragments of *Inoceramus* shells. Ratio of carbonate to sand varies greatly along strike. Thickness 20 ft.

Kg Greenhorn Limestone: Alternating beds of dark gray argillaceous micrite and medium- to dark-gray calcareous shale. Beds are usually less than 1.5 ft thick. Weathers light-gray and forms a low ridge. Imprints of *Inoceramus labiatus* are common as are foraminifera. Thickness 49 ft.

Kgr Graneros Shale. Tan, gray, and black, calcareous shale and thin lenses of fine-grained, calcareously cemented, tan and brown sandstone. Alternations of gray and brown shale and sandstone give outcrops in arroyos banded appearance. A zone of calcareous concretions to 3 ft diameter is present in the basal portion. Thickness is 183 ft. along east side of Arroyo de la Jara. The Two Wells Sandstone member (23 ft thick) begins 83 feet above basal contact.

Kd Dakota Formation: Tan to orange-brown, fine- to medium-grained quartz arenite and carbonaceous shale. Gray shale and highly carbonaceous black shale are interbedded with thin lenses of tan sandstone, commonly containing fragments of coal. Thickness is 96 in Hub Mesa.

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JURASSIC

Jm Morrison Formation: Variegated shale, tan and light red-brown sandstone and lenses of tan and white pebble conglomerate. Sandstone is fine grained, subangular to subrounded quartz and minor chert and feldspar. Bedding is platy to massive and cross beds are common. Green, gray and maroon mudstone and interbedded tan sandstone are common in the upper portion of the section although a persistent, white kaolin-bearing sandstone underlies the upper contact. Thickness approximately 900 feet in the Transoceanic-McKee No. 1 well just north of quadrangle..

San Raphael Group

Jt Todilto Formation: Light grayish-brown limestone: laminated and crenulated with fetid odor on fresh surface. Overlain by thin bedded, dark-gray limestone containing red jasper nodules. Thickness ▒ ft along south side of Hub Mesa.

Je Entrada Formation: Buff, cross-bedded, quartz arenite. Extremely friable. Thickness approximately 100 ft along south side of Hub Mesa.

The following units are not exposed or only partially exposed in the quadrangle. Thicknesses are taken from a log of the Trans-Ocean, McKee #1 well and from Booth (1977). Descriptions of the units are from Booth (1977) and Bachman (1979). Some units combined in cross sections.

TRIASSIC
Chinle Group ((Dockum Group??))

Tr: **Undifferented**: Red-orange, dark brown, purplish gray and green, thick bedded mudstone, buff to dark red brown, cross bedded sandstone and limestone pebble conglomerate. Thickness +

Not exposed within quadrangle but shown on geologic sections:

PERMIAN

Pb **Bernal Formation**: Yellowish gray to reddish purple sandstone and siltstone and brown limestone pebble conglomerate. 50 to 110 ft thick.

Psa **San Andres Limestone**: Medium to light gray, fine grained, fetid limestone and interbedded calcareous sandstone. 16 to 40 ft.

Pg **Glorieta Sandstone:** Medium to light gray, medium to fine grained, well sorted sandstone. 65 to 110 ft.

Py **Yeso Formation:** Medium reddish brown to red mudstone, siltstone, fine grained sandstone and pale greenish purple limestone. 70 to 140 ft.

Psc **Sangre de Cristo Formation**: Medium brown to dark reddish brown mudstone and buff to dark brown, conglomeratic arkose. 300 to 3,000 ft thick in the Canoncito area north of Lamy along Tijeras-Canoncito accommodation zone.

PENNSYLVANIAN

I Pm **Madera Formation:** Gray to light brown, thick bedded limestone, gray to brown calcareous sandstone and buff and dark brown fossiliferous arkose. 820 ft.

Ms **Sandia Formation:** Buff to brown sandstone, interbedded gray shale and argillaceous limestone. 160 ft.

Mt **Terrero Formation:** Buff to dark brown, thick bedded, coarse grained limestone breccia in calcareous arkose matrix. 30 ft.

PRECAMBRIAN BASEMENT: Proterozoic granite and mica schist.

Symbols

25 Dip and strike of bedding

Dip and strike of flow foliation

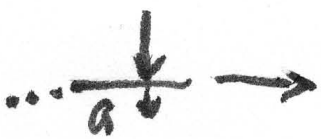
Dip of fault or dike

Contact: dashed where inferred, dotted where covered

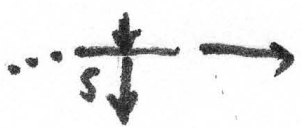
Fault: dashed where inferred, dotted where covered

Plunging anticline

Plunging syncline



Anticlinal flexure



Synclinal flexure

Line of cross section