



EXPLANATION

Symbol queried on map where identification uncertain

Quaternary

- Surficial deposits
- Intrusive rocks
- Sheet eruptive rocks
- Location of volcanic vents on lava flows indicated by *
- Porphyritic andesite
- Location of volcanic vents on lava flows indicated by *
- Rhyolite, trachyte, and latite series
- Location of volcanic vents on lava flows indicated by *

Tertiary

- Menefee Formation

Cretaceous

- Crevasse Canyon Formation and Mancos Shale
- Kcg, Gibson Coal Member of Crevasse Canyon Formation
- Kcd, Dalton Sandstone Member of Crevasse Canyon Formation
- Kmm, Mulatto Tongue of Mancos Shale
- Kcdc, Dileo Coal Member of Crevasse Canyon Formation
- Gallup Sandstone
- Mancos Shale
- Dakota Sandstone

Jurassic

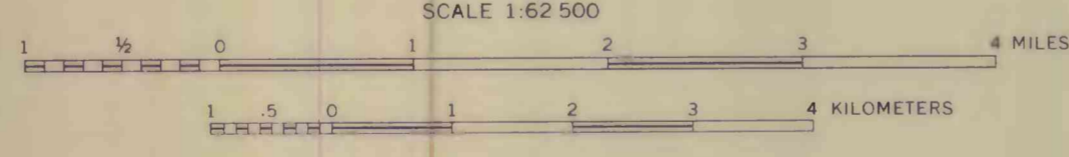
- Morrison Formation
- Bluff Sandstone

Geological symbols and features:

- Contact (Dashed where approximately located)
- Trace of resistant or conspicuous bed within a formation
- Fault (Dashed where approximately located; queried where probable; dotted where concealed; U, upthrown side; D, downthrown side)
- Linear feature (Geologic significance uncertain from photointerpretation)
- Strike and dip of beds (Based on field measurement; Strike and dip of beds Computed by photogrammetric methods)
- Approximate strike and dip of beds (Based on photointerpretation)
- Inferred strike and dip of beds (Based on photointerpretation of areas where bedding is obscure)
- Reservation boundary
- Primary road
- Secondary road
- Trail
- Intermittent pond

**PHOTOGEOLOGIC MAP
OF THE
GRANTS 4 QUADRANGLE
VALENCIA COUNTY, NEW MEXICO**

By
A. S. Knox



Geologic and geographic data from U.S. Geol. Survey Bull. 860-B, 1936; U.S. Geol. Survey Prof. Paper 189, 1938; U.S. Geol. Survey Misc. Geol. Inv. Map 1-224, 1957.

This map has been compiled mainly from photogeologic data and has not been checked in the field.

Geologic photointerpretation from aerial photographs taken in January and May 1954. Mapped in 1959.

* May include some of Menefee Formation in the northwest part of the quadrangle.

The Stray sandstone of local usage is mapped with the Dileo.

CHACO CANYON 2 1-315 1960		CHACO CANYON 3 OPEN FILE 1967		CABEZON 3 1-317 1960	
GOAT MOUNTAIN GO-518 1966	AMBROSIA LAKE GO-515 1966	SAN LUCAS DAM GO-516 1966	EAST HALF GRANTS GO-517 1967	LAGUNA 2 OPEN FILE 1967	LAGUNA 1 OPEN FILE 1967
BLUE-WATER GO-679 1967	LOS LOMAS GO-680 1967	SAN MATEO GO-517 1966	OPEN FILE 1967	LAGUNA 2 OPEN FILE 1967	LA GOTA GO-311 1965
GRANTS GO-681 1967	GRANTS GO-682 1967	GRANTS 4 OPEN FILE 1967	SEBOVETA GO-207 1963	MOQUINO GO-209 1963	ARCH MESA GO-211 1963
			LAGUNA GO-208 1963	MESITA GO-210 1963	EAST HALF LAGUNA 4 OPEN FILE 1967
			SOUTH BUTTE GO-358 1964	DOUGH MOUNTAIN GO-354 1964	

INDEX TO MAPS ISSUED BY THE U.S. GEOLOGICAL SURVEY, SHOWING SERIES DESIGNATION (GO, GEOLOGIC QUADRANGLE), MISCELLANEOUS GEOLOGIC INVESTIGATIONS, OPEN FILE, AND DATE OF RELEASE