DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

BULLETIN 1733–E
PLATE 1

APPROXIMATE BOUNDARY OF THE LA LENA WILDERNESS STUDY AREA (NM-010-063A)

APPROXIMATE BOUNDARY OF THE EMPEDRADO WILDERNESS STUDY AREA (NM-010-063)

APPROXIMATE BOUNDARY OF THE CHAMISA WILDERNESS STUDY AREA (NM-010-021)

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## EXPLANATION OF MINERAL RESOURCE POTENTIAL

- Area underlain by subeconomic coal resources; less than 500 ft overburden, includes measured and indicated resources
- **H/D** — Geologic terrane having high energy resource potential for coal, with certainty level D
- **M/C** — Geologic terrane having moderate energy resource potential for coal, with certainty level C—Applies to small area in Chamisa Wilderness Study Area
- **M/B** — Geologic terrane having moderate energy resource potential for oil and gas, with certainty level B—Applies to entire acreage of all three study areas
- **L/C** — Geologic terrane having low resource potential for coal (except as noted above), humate, all metals (except uranium), including barite, strontium, zinc, silver, molybdenum, and titanium, and geothermal energy—Applies to entire acreage of all three study areas except as noted
- **L/B** — Geologic terrane having low mineral resource potential for uranium, with certainty level B—Applies to entire acreage of all three study areas

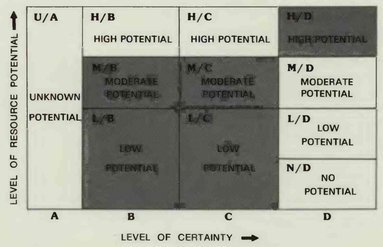
## CORRELATION OF MAP UNITS

| | | |
|---|---|---|
| Qal, Qt | | QUATERNARY |
| unconformity | | |
| Tb, Ti | | TERTIARY |
| unconformity | | |
| Kmfa, Kmfc | | CRETACEOUS |
| Kpl, Kms, Kph | Upper Cretaceous | CRETACEOUS |
| Kcc, Kmm, Kg | Upper Cretaceous | CRETACEOUS |

## LIST OF MAP UNITS

| | |
|---|---|
| Qal | Alluvium (Quaternary) |
| Qt | Talus (Quaternary) |
| Tb | Basalt flows (Tertiary) |
| Ti | Basalt dikes and plugs (Tertiary) |
| | Mennefee Formation (Upper Cretaceous) |
| Kmfa | Allison Member |
| Kmfc | Cleary Coal Member |
| Kpl | Point Lookout Sandstone (Upper Cretaceous) |
| Kms | Satan Tongue of the Mancos Shale (Upper Cretaceous) |
| Kph | Hosta Tongue of the Point Lookout Sandstone (Upper Cretaceous) |
| Kcc | Crevasse Canyon Formation (Upper Cretaceous) |
| Kmm | Mulatto Tongue of the Mancos Shale (Upper Cretaceous) |
| Kg | Gallup Sandstone (Upper Cretaceous) |

- Contact, dashed where inferred
- Fault, dashed where inferred; ball and bar on downthrown side
- Adit (on Tachias coal property, in private inholding)
- X — Titaniferous sandstone deposit (in private inholding)
- Oil and gas drill hole (dry hole with show of oil)




### LEVELS OF RESOURCE POTENTIAL

- **H** High mineral resource potential
- **M** Moderate mineral resource potential
- **L** Low mineral resource potential
- **U** Unknown mineral resource potential
- **N** No known mineral resource potential

### LEVELS OF CERTAINTY

- **A** Available data not adequate
- **B** Data indicate geologic environment and suggest level of resource potential
- **C** Data indicate geologic environment, give good indication of level of resource potential, but do not establish activity of resource-forming processes
- **D** Data clearly define geologic environment and level of resource potential and indicate activity of resource-forming processes in all or part of the area

Diagram showing relationships between levels of mineral resource potential and levels of certainty. Shading shows levels that apply to this study area

Base from U.S. Geological Survey, 1:24,000, Guadalupe, 1961, Cerro Parido, 1961, Arroyo Empedrado, 1961, Canada Calladita, 1961

APPROXIMATE MEAN DECLINATION, 1975

SCALE 1:50 000

1 ½ 0 1 2 3 MILES

1 .5 0 1 2 3 KILOMETERS

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

NEW MEXICO

Geology modified from Tabet and Frost (1979b); with additional mapping in south and east by P.J. Modreski in 1987-88

# MAP SHOWING IDENTIFIED RESOURCES, MINERAL AND ENERGY RESOURCE POTENTIAL, AND GEOLOGY FOR THE CHAMISA, EMPEDRADO, AND LA LENA WILDERNESS STUDY AREAS, SANDOVAL AND McKINLEY COUNTIES, NEW MEXICO