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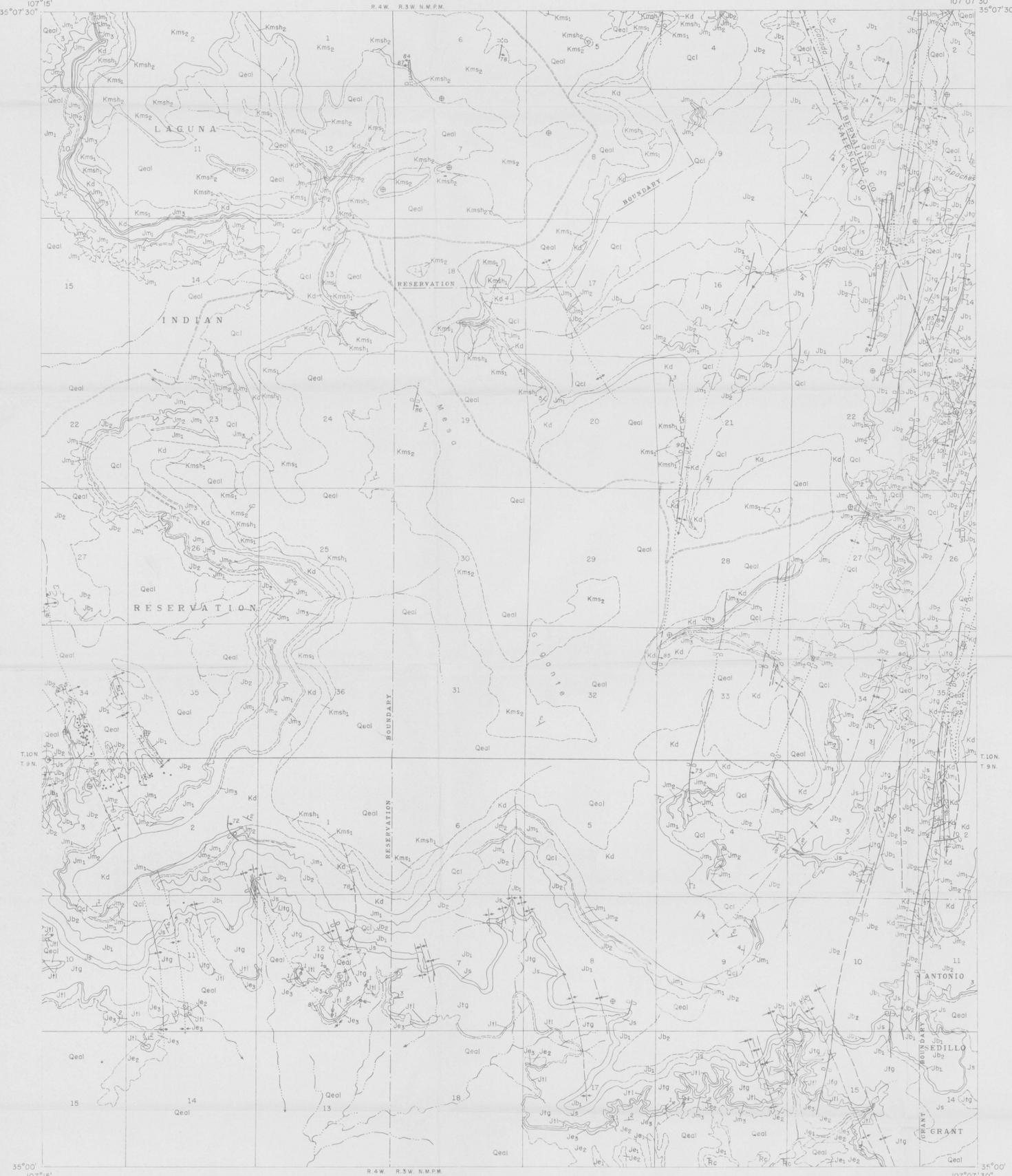


EXPLANATION

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

THIS MAP CONCERNS WORK DONE BY THE U.S.
GEOLOGICAL SURVEY ON BEHALF OF THE DIVISION OF
RAW MATERIALS OF THE U.S. ATOMIC ENERGY COMMISSION

TRACE ELEMENTS
MEMORANDUM REPORT 919

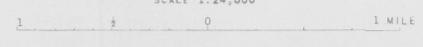


- Qeal**
Eolian and alluvial sand and silt on benches and mesa tops, in places forming dunes; valley fill and stream deposits.
- Qcl**
Colluvial deposits
- UNCONFORMITY**
- Kms2**
Kms1
Kms2
Kms1
Manco shale
Interbedded sandstones and shales near the bottom of the Manco shale. Kms1, Kms2 - gray and black shale, local tan siltstone, slope-forming; as much as 30 feet thick; Kms3, thin to the south. Kms1, Kms2 - tan fine- to medium-grained flat-bedded bench-forming sandstone; as much as 50 feet thick; Kms2 generally forms a double bench and is thereby easily recognized.
- Kd**
Dakota sandstone
Tan fine- to coarse-grained crossbedded well indurated cliff-forming sandstone and local conglomerate. Two or more beds of sandstone or conglomerate are prominent; these are interbedded with beds of black shale. The formation thickens from about 35 feet in the northern part of Laguna 4 NW to more than 80 feet in the southern part of Laguna 4 SW.
- UNCONFORMITY**
- Jm3**
Jm2
Jm1
Morrison formation
Jm1 - variegated gray-green sandstone containing lenses of limestone and green sandstone. Near the bottom the unit grades downward into interbedded gray-green shale and maroon siltstone from 20 to 60 feet thick, which may be the Becapure member. Jm2 - gray or tan crossbedded arkosic sandstone and local conglomerate containing abundant clay galls; ranges up to 60 feet in thickness, and occurs in layers and lenses throughout Jm1. Jm3 - white or light-gray crossbedded arkosic sandstone containing thin lenses of gray-green shale and local conglomerate; ranges up to 125 feet in thickness. The Morrison formation ranges from 105 feet in thickness in the southeastern part of Laguna 4 SW to about 350 feet in the northeastern part of Laguna 4 NW. The Jm3 unit is present only where the Morrison formation exceeds 230 feet in thickness. Small uranium deposits are present in the sandstones of Jm2.
- Jb2**
Jb1
Bluff formation
Jb1 - red fine- to medium-grained crossbedded cliff-forming sandstone. Jb2 - light-tan fine- to medium-grained crossbedded cliff-forming sandstone. Near the top the crossbedding is planar and pyrite-hematite concretions are abundant. The boundary between Jb1 and Jb2 cuts across the bedding so that Jb1 is locally missing. The formation is 135 to 240 feet thick.
- Js**
Summerville formation
Interbedded siltstone and fine- to medium-grained sandstone; red on weathered surfaces, red or white on fresh surfaces, flat-bedded. Forms cliffs and slopes below cliffs formed by Bluff formation. The formation is 60 to 120 feet thick.
- Jt1**
Jt2
Tollito formation
Jt1 - gray, alabby to thinly fissile limestone, 5 to 15 feet thick. Jt2 - gypsum, as much as 80 feet thick.
- Je3**
Je2
Je1
Entrada formation
Je1 - thin-bedded red and gray siltstone of undetermined stratigraphic affinity, placed here for convenience; about 20 feet thick. Je2 - red, fine- to medium-grained crossbedded sandstone, about 125 feet thick. Je3 - white fine- to medium-grained crossbedded sandstone, about 30 feet thick.
- UNCONFORMITY**
- Rc**
Chinle formation
Maroon and tan fine- to coarse-grained arkosic sandstone, local lenses of maroon siltstone and conglomerate containing limestone pebbles and clay galls; petrified wood is locally abundant; thickness unknown. About 1 mile south of the quadrangle boundary the sandstone is 90 feet thick and is underlain by maroon siltstone and shale at least 30 feet thick.
Sandstone pipes in Bluff and Summerville formation; down faulted vertical cylinders of sandstone as much as 100 feet in diameter.
- Contact**
(Dashed where approximately located, dotted where concealed)
- Fault, showing dip**
(Dashed where approximately located)
- High angle fault**
(Dashed where approximately located, dotted where concealed; U, upthrown side; D, downthrown side)
- Anticline**
Showing trace of axial plane. (Dashed where approximately located, dotted where concealed)
- Syncline**
Showing trace of axial plane and direction of plunge of axis. (Dashed where approximately located, dotted where concealed)
- Anticlinal bend of monocline**
Showing trace of axial plane; long arrow indicates horizontal or flatter limb; short arrow indicates steeper limb. (Dashed where approximately located, dotted where concealed)
- Synclinal bend of monocline**
Showing trace of axial plane; long arrow indicates horizontal or flatter limb; short arrow indicates steeper limb. (Dashed where approximately located, dotted where concealed)
- Plunge of minor anticline**
- Plunge of minor asymmetric anticline**
- Strike and dip of beds**
- Horizontal beds**
- Alt or prospect in uranium deposit**
- X**
Open prospect in uranium deposit

MAPPED ON AERIAL PHOTOGRAPHS AND COMPILED WITH THE AID OF ARMY MAP SERVICE MAPS; SCALE NOT EXACT; LAND NET APPROXIMATE

GEOLOGY BY R.H. MOENCH AND W.P. PUFFETT, 1955

PRELIMINARY GEOLOGIC MAP OF THE LAGUNA 4 SW QUADRANGLE, VALENCIA AND BERNALILLO COUNTIES, NEW MEXICO
SCALE 1:24,000



QUATERNARY

CRETACEOUS

JURASSIC

TRIASSIC