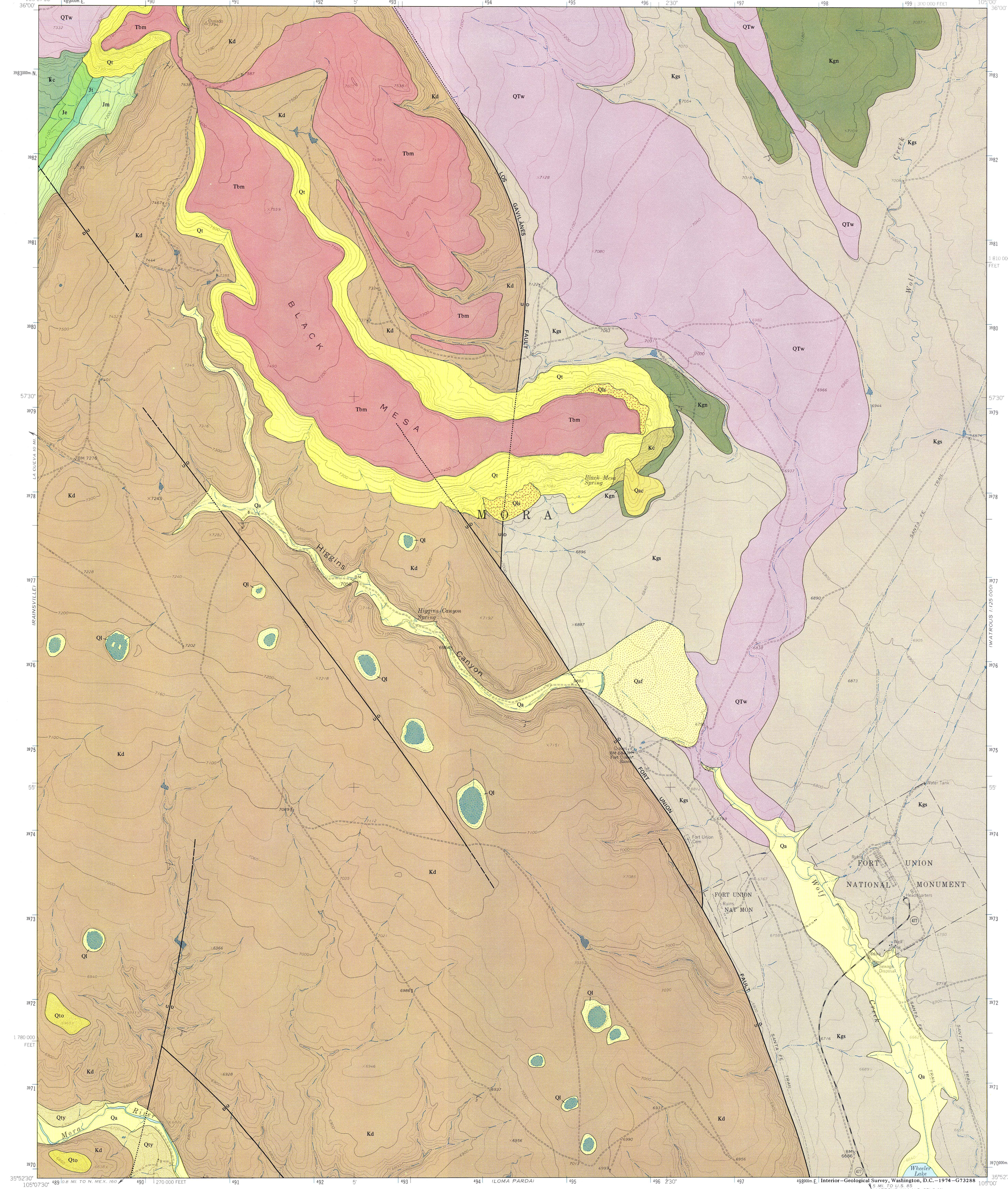


DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

**GEOLOGIC MAP OF THE FORT UNION QUADRANGLE,
MORA COUNTY, NEW MEXICO**

By Ross B. Johnson

GEOLOGIC QUADRANGLE MAP
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CORRELATION OF MAP UNITS

Qa	Ql	Qt	Qac	Qaf
Qty		Qts		
		Qto		
Unconformity				
QTW				
Tbm				
Unconformity				
Kc				
Kgn				
Kgs				
Kd				
Unconformity				
Jm				
Jt				
Je				
Unconformity				
Kc				

Holocene

Pleistocene

Pleistocene(?) and Pliocene

Pliocene

Upper Cretaceous

Lower Cretaceous

Upper Jurassic

Upper Triassic

QUATERNARY

QUATERNARY(?) AND TERTIARY

CRETACEOUS

JURASSIC

TRIASSIC

- DESCRIPTION OF MAP UNITS
- Qa

ALLUVIUM (HOLOCENE) – Unconsolidated stream-deposited gravel, sand, silt, and clay along major streams
- Ql

LAKE DEPOSITS (HOLOCENE) – Thin veneer of mixed clay, calcium carbonate, and carbonaceous material
- Qt

TALUS (HOLOCENE AND PLEISTOCENE) – Colluvial veneer of broken blocks of basalt mainly on slopes of Black Mesa
- Qac

ALLUVIAL CONE DEPOSITS (HOLOCENE) – Unconsolidated mass of basalt and shale fragments on southeast slope of Black Mesa
- Qaf

ALLUVIAL FAN DEPOSITS (HOLOCENE) – Unconsolidated stream-deposited gravel, sand, silt, and clay at the mouth of Higgins Canyon
- Qty

YOUNGER TERRACE DEPOSITS (PLEISTOCENE) – Unconsolidated stream-deposited gravel and sand along Mora River
- Qts

LANDSLIDE DEPOSITS (PLEISTOCENE) – Rotational block-slide landslides of basalt resting on Carlile Shale
- Qto

OLDER TERRACE DEPOSITS (PLEISTOCENE) – Semiconsolidated stream-deposited gravel and sand above the valley of Mora River
- QTW

BASALT OF WOLF CREEK (PLEISTOCENE? AND PIOCENE) – Locally vesicular; contains scattered phenocrysts of olivine. May be more than 80 feet thick
- Tbm

BASALT OF BLACK MESA (PIOCENE) – Locally vesicular; contains scattered phenocrysts of olivine. May be more than 120 feet thick
- Kc

CARLILE SHALE (UPPER CRETACEOUS) – Gray shale. Base poorly exposed to covered. More than 200 feet thick
- Kgn

GREENHORN LIMESTONE (UPPER CRETACEOUS) – Light-gray limestone containing interbedded gray calcareous shale. Base poorly exposed to covered. 40–60 feet thick
- Kgs

GRANEROS SHALE (UPPER CRETACEOUS) – Dark-gray shale and some interbeds of silty and sandy shale and a few thin beds of bentonite. Thickness indeterminate, perhaps as much as 150 feet
- Kd

DAKOTA SANDSTONE (LOWER CRETACEOUS) – Upper part is tan to brown sandstone with thin gray shale; middle part is black carbonaceous and locally coaly shale with thin interbeds of shale and siltstone; lower part is tan to brown, locally conglomeratic sandstone. Base poorly exposed in northwest corner of quadrangle. More than 200 feet thick. Forms prominent fault scarp west of Fort Union
- Jm

MORRISON FORMATION (UPPER JURASSIC) – Upper part is greenish-gray siltstone and shale with thin to thick beds of reddish-gray sandstone and conglomeratic sandstone and a few thin beds of limestone; middle part is buff to light-red sandstone with interbedded red, purple, and gray shale; lower part is a thin green to red sandy shale with nodules of jasper, and may be equivalent to the Upper Jurassic Ralston Creek(?) Formation of southern Colorado. Base poorly exposed. About 400 feet thick
- Jt

TODILTO LIMESTONE (UPPER JURASSIC) – Gray, bituminous, and slightly sandy limestone containing some gypsum. Base poorly exposed. About 25 feet thick
- Je

ENTRADA SANDSTONE (UPPER JURASSIC) – Buff to gray sandstone. Base poorly exposed. About 100 feet thick
- Kc

CHINLE FORMATION (UPPER TRIASSIC) – Red shale, tan to red sandstone, and a few thin limestone lenses and limestone pebbles. Base does not crop out within quadrangle. Less than 500 feet thick

CONTACT

U

D

FAULT – Dashed where inferred; dotted where concealed. U, upthrown side; D, downthrown side

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STRIKE AND DIP OF BEDS

Base from U.S. Geological Survey, 1963
10,000-foot grid based on New Mexico coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks, zone 13, shown in blue

SCALE 1:24 000

1 1/2 0 1 MILE

1 5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT 10-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

QUADRANGLE LOCATION

NEW MEXICO

Interior—Geological Survey, Washington, D.C.—1974—G-73288
Geology mapped in 1967–72