U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Prepared in cooperation with the
MONTANA BUREAU OF MINES AND GEOLOGY

OPEN-FILE REPORT 88-623

Base from U. S. Geological Survey

Geology mapped in 1980 and 1981

SCALE 1:24 000

1 ½ 0 1 MILE

1 .5 0 1 KILOMETER

CORRELATION OF MAP UNITS

Qal	Qac	Qbf ?	Qg ?	Holocene Pleistocene	QUATERNARY
Tpg				Pliocene	TERTIARY
Unconformity					
Tfu				Paleocene	

DESCRIPTION OF MAP UNITS

Qal **Alluvium (Holocene)**--Light-brown and gray, well-stratified and well-sorted clay, silt, sand, and gravel. Thickness ranges from as much as 6 m (20 ft) under the flood plain of Redwater River to less than a few meters under flood plains of tributary streams. Unit limited to areas characterized by meander or braided patterns on aerial photographs. Surface of unit may be subject to occasional flooding

Qac **Alluvium and colluvium (Holocene)**--Light-brown and gray, poorly sorted and poorly stratified clay, silt, sand, and gravel deposited by slope wash and gravity processes. The color and texture of the colluvium reflect the parent material upslope. May interfinger with alluvium; includes alluvial fans and thin veneer of windblown clay, silt, and sand. As much as 10 m (33 ft) thick, but generally less than 5 m (16 ft). Soil profiles range from well-developed to poorly developed

Qbf **Baked and fused bedrock (clinker) (Holocene to Pleistocene)**--Red to orange baked shale, sandstone, and siltstone of the Fort Union Formation that was heat-metamorphosed by combustion of lignite. Hard, dense, metamorphosed sediments are known as porcellanite; locally, sediments fused and melted to form black, vesicular, glassy, scoriaceous rock called buchite, which forms linings of chimneys and veins in porcellanite. As much as 12 m (39 ft) thick, but generally less than 5 m (16 ft)

Qg **Sand and gravel, undivided (Holocene to Pleistocene)**--Light-brown to light-gray, well-stratified to poorly stratified and well-sorted to poorly sorted sand and gravel. Thickness as much as 5 m (16 ft), but generally less than 3 m (10 ft)

Tpg **Sand and gravel, undivided (Pliocene)**--Light-brown to light-gray, well-stratified, and well-sorted to poorly sorted sand and gravel. As much as 10 m (33 ft) thick, but generally less than 3 m (10 ft). May include some Pleistocene sand and gravel

Tfu **Tongue River Member (Collier and Knechtel, 1939) of Fort Union Formation (Paleocene)**--Yellowish- or light-brown shale and sandstone containing numerous lignite beds. Thickness estimated to be more than 100 m (330 ft)

af **Artificial fill**

w **Water**

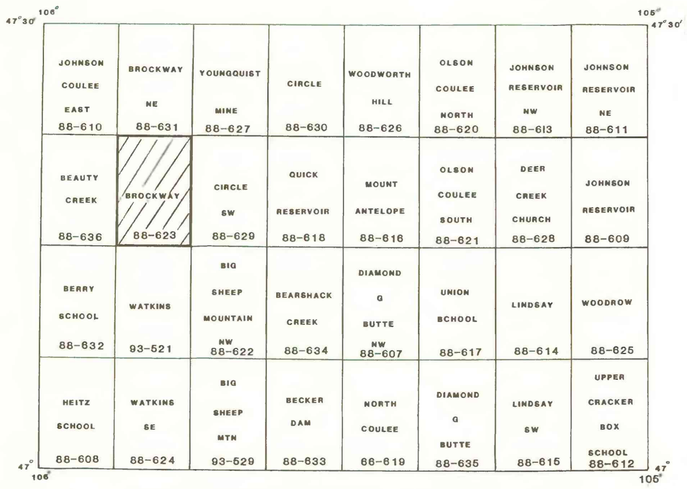
—— **Contact**--Dashed where approximately located

Scarp--Hachures on lower side

Abandoned coal mine

REFERENCE

Collier, A.J., and Knechtel, M.N., 1939, The coal resources of McCone County, Montana: U.S. Geological Survey Bulletin 905, 80 p.



INDEX TO QUADRANGLES IN THE CIRCLE 30' x 60' QUADRANGLE. MAPPED QUADRANGLE SHOWN BY STRIPES; NUMBERS ARE OPEN-FILE NUMBERS

GEOLOGIC MAP OF THE BROCKWAY QUADRANGLE, McCONE COUNTY, MONTANA

By

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