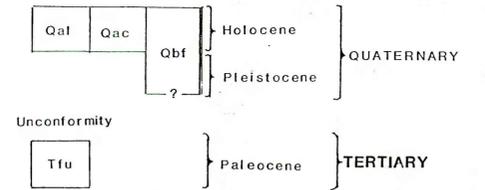




**CORRELATION OF MAP UNITS**



**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 3 m (10 ft) or less under flood plains of tributaries. 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 local alluvial fans and much 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 10 m (33 ft) thick, but generally less than 5 m (16 ft).
- Tfu Tongue River Member (Collier and Knechtel, 1939) of Fort Union Formation (Paleocene)**--Yellowish- and light-brown shale and sandstone containing numerous lignite beds. Estimated exposed thickness in quadrangle is 125 m (425 ft).
- w Water**

--- Contact--Dashed where approximately located  
**REFERENCE**

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

JOHNSON COULEE EAST 88-610	BROCKWAY NE 88-631	YOUNGQUIST MINE 88-627	CIRCLE 88-630	WOODWORTH HILL 88-626	OLEON COULEE NORTH 88-620	JOHNSON RESERVOIR NW 88-613	JOHNSON RESERVOIR NE 88-611
BEAUTY CREEK 88-636	BROCKWAY SW 88-623	CIRCLE 88-629	QUICK RESERVOIR 88-618	MOUNT ANTELOPE 88-616	OLEON COULEE SOUTH 88-621	DEER CREEK CHURCH 88-628	JOHNSON RESERVOIR 88-609
HEITZ SCHOOL 88-632	WATKINS SE 93-521	BIG SHEEP MOUNTAIN NW 88-622	BEARSHACK CREEK 88-634	DIAMOND BUTTE NW 88-607	UNION SCHOOL 88-617	LINDSAY 88-614	WOODROW 88-625
HEITZ SCHOOL 88-608	WATKINS SE 88-624	BIG SHEEP MTH 93-529	BECKER DAM 88-633	NORTH COULEE 88-619	DIAMOND BUTTE 88-635	LINDSAY SW 88-615	UPPER CRACKER BOX SCHOOL 88-612

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

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American stratigraphic code. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

**GEOLOGIC MAP OF THE HEITZ SCHOOL QUADRANGLE,  
PRAIRIE AND MCCONE COUNTIES, MONTANA**

By

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