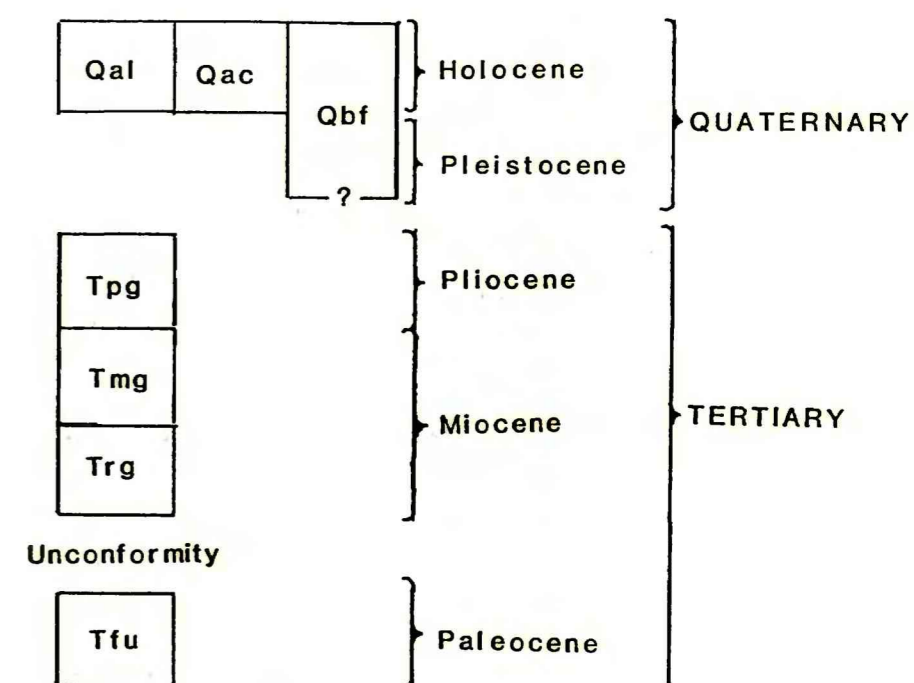


CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

- Qal Alluvium (Holocene)**—Light-brown and gray, well-stratified and well-sorted clay, silt, sand, and gravel. Unit limited to areas characterized by meander or braided patterns on aerial photographs. Surface of unit may be subject to occasional flooding. As much as 6 m (20 ft) thick under the flood plain of creeks to less than 3 m (10 ft) under flood plains of tributaries.
- Qac Alluvium and colluvium (Holocene)**—Light-brown and gray, poorly sorted and well-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 much windblown clay, silt, and sand. Soil profiles range from well-developed to poorly developed. As much as 10 m (33 ft) thick, but generally less than 5 m (16 ft).
- 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. Clinker is as much as 6 m (20 ft) thick, but generally less than 3 m (10 ft).
- Tpg Sand and gravel, undivided (Pliocene)**—Light-brown to light-gray, well-stratified and well-sorted sand and gravel. May contain some Pleistocene sand and gravel. Base of unit generally limited to altitudes less than 915 m (3,000 ft). Thickness is as much as 10 m (33 ft), but generally less than 3 m (10 ft).
- Tmg Sand and gravel, undivided (Miocene)**—Light-brown to light-gray, well-stratified to poorly stratified, and well-sorted to poorly sorted sand and gravel. May include some Pliocene sand and gravel. Unit generally limited to altitudes between 970 m (3,180 ft) and 915 m (3,000 ft). Thickness is as much as 10 m (33 ft), but generally less than 6 m (20 ft).
- Trg Rimroad Formation of Howard (1960) (Miocene)**—Light-brown to gray, well-sorted to poorly sorted, and well-stratified to poorly stratified sand and gravel. Unit may contain some small thin Pliocene sand and gravel deposits. The Rimroad Gravel of Howard (1960) contains volcanic ash 7.1±1.4 million years old and much sand, silt, and clay in addition to gravel. Therefore, the name is revised to Rimroad Formation and the age is limited to Miocene. The age of the volcanic ash was determined by counting fission tracks in zircons from the ash by Nancy B. Naeser (Colton, Naeser, and Wilcox, 1983). The base of the formation is at an altitude of approximately 970 m (3180 ft) altitude. Remnants are present only in southwest part of quadrangle and are generally less than 6 m (20 ft) thick. Maximum thickness is approximately 6 m (20 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 thickness of remaining Tongue River Member is approximately 305 m (1,000 ft).

- w Water
- Contact—Dashed where approximately located

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GEOLOGIC MAP OF THE JOHNSON RESERVOIR NW
QUADRANGLE, DAWSON COUNTY, MONTANA

By

R.B. Colton, J.P. McGraw, and D.K. Bozeman

1994

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

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