UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Geologic Map of the Becker Dam Quadrangle, Prairie County, Montana

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DESCRIPTION OF MAP UNITS

Qal **Alluvium (Holocene)**--Light-brown and gray, generally 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 Cedar Creek to less than 3 m (10 ft) 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 gravity and slope wash. 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. 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

Qe **Eolium (Holocene and Pleistocene)**--Light- to moderate-brown, windblown sand and silt deposits. As much as 3 m (10 ft) thick, but generally less than 2 m (6 ft)

Tpg **Sand and gravel, undivided (Pliocene)**--Light-brown to light-gray, well-stratified, and well-sorted to poorly sorted sand and gravel. Thickness as much as 10 m (33 ft), but generally less than 3 m (10 ft). Unit generally limited to altitudes of less than 945 m (3,100 ft). Map unit may include some sand and gravel of Pleistocene age

Tmg **Sand and gravel (Miocene)**--Light-brown to light-gray, well stratified to poorly stratified, and well-sorted to poorly sorted sand and gravel. Thickness as much as 10 m (33 ft), but generally less than 6 m (20 ft). Unit generally limited to altitudes between 1,020 m (3,350 ft) and 945 m (3,100 ft). May include some Pliocene and Pleistocene sand and gravel

Trg **Rimroad Formation (Howard, 1960) (Miocene)**--Light-brown to gray, poorly sorted, and well-stratified to poorly stratified sand, gravel, and volcanic ash 4 m (14 ft) thick. Total thickness 45 m (148 ft), comprised of diamicton 1 m (3 ft) thick, of sand and gravel overlying 4.3 m (14 ft) of volcanic ash[1] and 34 m (111 ft) of sand and gravel; most remnants are generally less than 20 m (66 ft) thick. The base of the unit is at approximately 1,050 m (3,350 ft) altitude in this quadrangle. Map unit may include some small thin Pliocene sand and gravel deposits

--A-- **Volcanic ash bed**

Tfu **Fort Union Formation (Paleocene) Tongue River(?) Member (Collier and Knechtel, 1939)**--Yellowish- or light-brown shale and sandstone containing numerous lignite beds. Estimated thickness approximately 306 m (1,000 ft)

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[1]The Rimroad Gravel of Howard (1960) contains volcanic ash 7.1±1.4 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).

Contact--Dashed where approximately located

w **Water**

Abandoned coal mine

Gravel pit

REFERENCES CITED

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

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Howard, A.D., 1960, Cenozoic history of northeastern Montana and northwestern North Dakota with emphasis on the Pleistocene: U.S. Geological Survey Professional Paper 326, 107 p.

CORRELATION OF MAP UNITS