Preliminary Geologic Map of the Culbertson 30' x 60' Quadrangle, Northeastern Montana and Northwestern North Dakota

Robert N. Bergantino

and

Edith M. Wilde

1998

Map Revised: 2007

MBMG 359

CULBERTSON 30' x 60' QUADRANGLE

DESCRIPTION AND AGE OF MAP UNITS

Symbol	Age	Description
Qal	Holocene	Alluvium; deposits of gravel, sand, silt or clay on flood plains
Qgi	Pleistocene	Glacial ice-contact deposits; kames, kame terraces, eskers
Qg	Pleistocene	Glacial drift (generally till, but may include glacial lake deposits and outwash deposits); formation shown principally in the area east of the last major ice advance
Qac	Quaternary	Alluvium-colluvium includes deposits in alluvial fans, on alluvial terraces, also may include glacial outwash
Tf	Miocene-Pliocene	Flaxville Formation; may include extensive sands and gravels of Pleistocene age
Tfsb	Paleocene	Fort Union Formation, Sentinel Butte Member The contact between the Tongue River Member and Sentinel Butte Member is exposed for a few miles on either side of the Montana-North Dakota border on both sides of the Missouri River. Test wells drilled in Divide and Williams Counties, North Dakota (see Hanson, 1967), however, provide enough control points to draw this contract as approximate in that area. Between the area of outcrop and these control points the contact was derived by use of structure contours. The contact is shown as approximate except near the Missouri River.
Tftr	Paleocene	Fort Union Formation, Tongue River Member The Tongue River Member has been extensively evaluated for coal resources especially on the Fort Peck Indian Reservation; consequently its contact with the Lebo Member is better delimited than that between the Lebo and Tullock members. Nevertheless, the Tongue River-Lebo contact is shown on this map as approximate only. Maximum thickness is about 250 meters (800 feet).
Tfle	Paleocene	Fort Union Formation, Lebo Member In 1939, Collier and Knechtel mapped the Tullock and Lebo members in the McCone County portion of the Wolf Point 30' x 60' quadrangle, about 10 miles (15 km) west of the Culbertson 30' x 60' quadrangle. These members have not been mapped in this 30' x 60' quadrangle. Their contact on this map has been derived from a few measurements of their thickness and from structure contours on the top of the Bearpaw Shale and base of the Tongue River Member. The contact between these members is shown as approximate. The Lebo Member is about 100 meters (300 feet) thick.
Tft	Paleocene	Fort Union Formation, Tullock Member For contact with overlying Lebo Member, see Lebo. The Tullock Member is about 60 meters (200 feet) thick.
Khc	Upper Cretaceous	Hell Creek Formation; from 70 to 85 meters (230-280 feet) thick.
Kfh	Upper Cretaceous	Fox Hills Sandstone; maximum thickness 45 meters (150 feet).
Kb	Upper Cretaceous	Bearpaw Shale; 330 meters (1100 feet) thick, but only the upper part is present in this quadrangle.
W		Water body; includes reservoirs and rivers.

CULBERTSON 30' x 60' QUADRANGLE

MAP SYMBOLS

Contact; dashed where approximate, dotted where concealed

Fault; approximate location, dotted where concealed

Approximate trace of northeast-trending Weldon-Brockton-Froid zone; relative movement of faults(?) within the zone is unknown

Possible northeast extention of the Weldon-Brockton-Froid zone

Approximate axis of latest pre-diversion (pre-glacial) Missouri River

Significant break between two levels of alluvium-colluvium

SOURCES OF GEOLOGIC MAP DATA

1. Colton, R.B. 1963. Geologic map of the Brockton quadrangle, Roosevelt and Richland counties, Montana. U.S. Geological Survey Miscellaneous Geologic Investigations Map I-362. Scale 1:62,500.

2. Colton, R.B. 1979. Geologic map of the Bainville SW quadrangle, Roosevelt and Richland counties, Montana. U.S. Geological Survey Miscellaneous Field Studies Map MF-1110. Scale 1:24,000.

3. Colton, R.B. 1979. Geologic map of the Three Buttes quadrangle, Richland and Roosevelt counties, Montana. U.S. Geological Survey Miscellaneous Field Studies Map MF-1111. Scale 1:24,000.

4. Colton, R.B. 1979. Geologic map of the Bainville SE quadrangle, Roosevelt and Richland counties, Montana. U.S. Geological Survey Miscellaneous Field studies Map MF-1112. Scale 1:24,000.

5. Colton, R.B. 1979. Geologic map of the Dugout Creek quadrangle, Richland and Roosevelt counties, Montana. U.S. Geological Survey Miscellaneous Field Studies Map MF-1113. Scale 1:24,000.

6. Colton, R.B. 1982. Geologic map of the Twomile Creek quadrangle, Richland and Roosevelt counties, Montana. U.S. Geological Survey Miscellaneous Field Studies Map MF-1413. Scale 1:24,000.

7. Colton, R.B. 1982. Geologic map of the Cedar Coulee quadrangle, Roosevelt and Richland counties, Montana. U.S. Geological Survey Miscellaneous Field Studies Map MF-1414. Scale 1:24,000.

8. Witkind, I.J. 1959. Quaternary geology of the Smoke Creek-Medicine Lake-Grenora area, Montana and North Dakota. U.S. Geological Survey Bulletin 1073, 80 pp. Plate 1, Scale 1:62,500.

CULBERTSON 30' X 60' QUADRANGLE
INDEX MAP OF SOURCES
OF GEOLOGIC MAP DATA