

GEOLOGIC MAP OF THE TERRY 30' x 60' QUADRANGLE EASTERN MONTANA

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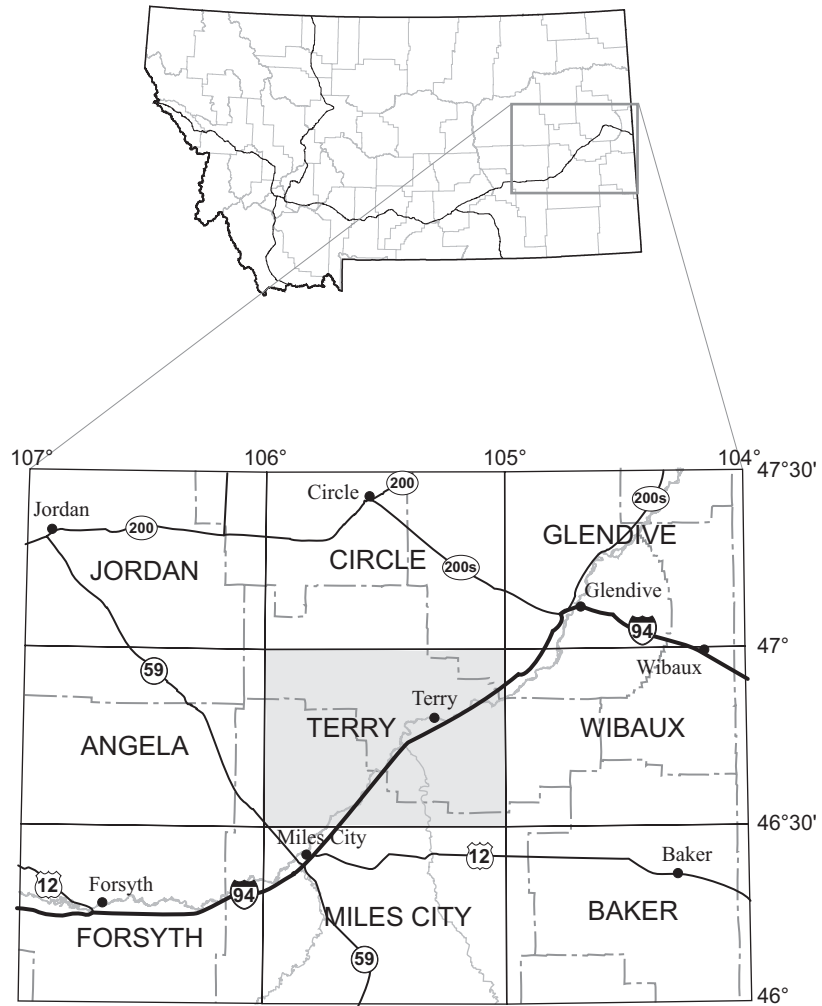
¹Montana Bureau of Mines and Geology

²U.S. Geological Survey

Map revised: 2007

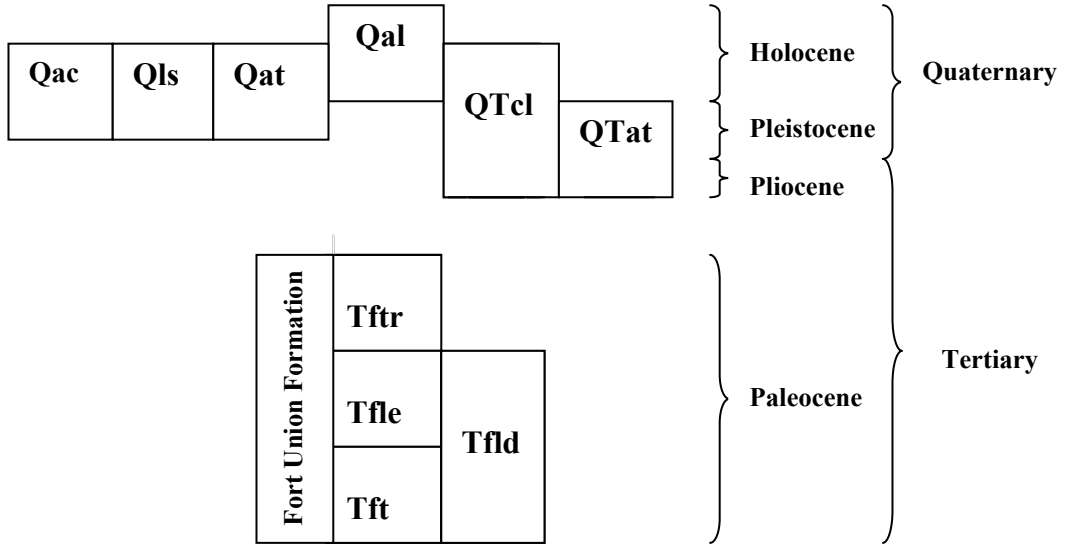
This report has been reviewed for conformity with Montana Bureau of Mines and Geology technical and editorial standards.

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Location of Terry 30'x60' quadrangle and adjacent geologic maps published by MBMG.

CORRELATION DIAGRAM
TERRY 30' x 60' QUADRANGLE



DESCRIPTION OF MAP UNITS
TERRY 30' x 60' QUADRANGLE

Note: Thicknesses are given in feet because original field maps were on 7.5' quadrangles with topographic contour intervals in feet. To convert feet to meters (the contour interval unit on this map), multiply feet x 0.3048.

Qal ALLUVIUM (HOLOCENE)—Light-brown and gray, moderately to well-sorted and stratified clay, silt, sand and gravel. As much as 100 ft thick under floodplain of the Yellowstone River and as much as 25 ft thick under tributaries of the Yellowstone River.

Qac ALLUVIUM AND COLLUVIUM (HOLOCENE AND PLEISTOCENE)—Brown to gray, poorly stratified clay, silt, and sand deposited by sheetwash on slopes. Color and texture of colluvium reflect parent sediment. Thickness as much as 35 ft but generally less than 15 ft.

Qls LANDSLIDE DEPOSIT (HOLOCENE AND PLEISTOCENE)—Slump, rock fall, or earthflow deposit. Color and composition reflect that of parent material. Clast size ranges from clay and silt to blocks of sandstone several feet in diameter. Probably less than 50 ft thick.

Qat ALLUVIAL TERRACE DEPOSIT (HOLOCENE AND PLEISTOCENE)—Light-gray to light-brown, stratified, moderately well-sorted sand and gravel at elevations above present floodplain. Thickness as much as 100 ft in alluvial fill terrace deposit south of the Yellowstone River in the Terry and Fallon area, but generally less than 30 ft.

QTcl CLINKER (HOLOCENE, PLEISTOCENE, AND PLIOECENE?)—Red, pink, orange, black, and yellow, resistant metamorphosed sandstone, siltstone, and shale of the Fort Union Formation. Bedrock was baked by natural burning of underlying coal bed. Locally, baked rock was melted and fused to form buchite, a black, glassy, vesicular or scoriaceous rock. Thickness as much as 60 ft.

QTat ALLUVIAL TERRACE DEPOSIT (PLEISTOCENE AND PLIOECENE?)—Light-gray, gray, and light-brown, stratified to poorly stratified, moderately to poorly sorted sand and gravel. Locally, basal part is well cemented with calcium carbonate. Thickness as much as 50 ft, but generally less than 30 ft.

FORT UNION FORMATION (PALEOCENE)
Tftr Tongue River Member—Yellow, orange, or tan, fine-grained sandstone with thinner interbeds of yellowish-brown, orange, or tan siltstone, and light-yellow or light-tan mudstone and clay. Clay dominantly nonswelling. In

part of the map area (shown with hachure pattern) the lower part of the member contains a paleosol unit characterized by thin, orange, silty limestone beds that form caprocks, and light-colored siltstone and mudstone beds that locally contain white- or light-gray-weathered silcrete and other paleosols. The silcrete and other paleosols may contain molds of plant stems and roots, and range from 1 to 6 inches thick. The upper part of the member was removed by erosion in the map area. Thickness of as much as 400 ft exposed in map area.

Tfld Ludlow Member—Gray and grayish-brown fine-grained sandstone, siltstone, smectitic mudstone, and carbonaceous shale interbedded with thinner yellow or orange, fine-grained sandstone beds. Facies change from Lebo and Tullock Members of the Fort Union Formation to the Ludlow Member is indicated in the eastern part of the map area. Thickness of member about 460 ft.

Tfle Lebo Member—Dark- to light-gray, smectitic shale and mudstone interbedded with less dominant lenticular to tabular beds of yellow, brown, and gray sandstone, gray siltstone, and carbonaceous shale. Sandstone channels are present locally. The U coal bed (Rogers, 1911; Heffern, 1981; Gassaway and others, 1987) is typically present in the basal part of the Lebo Member as a single bed or an interval of splits from that bed. The Lebo-Tullock contact is associated with the U coal bed or beds. Thickness of member 200–340 ft.

Tft Tullock Member—Light-yellow, gray, and light-brown, planar-bedded, very fine- to medium-grained sandstone interbedded with less dominant gray, dark-gray, and greenish-gray shale and mudstone, and locally, with brownish-gray, well-indurated argillaceous limestone beds that may contain plant fragment molds. A ledge-forming sandstone occurs at the top of the member in much of its exposure. Base of member not exposed. Maximum exposed thickness 50 ft.

MAP SYMBOLS
TERRY 30' x 60' QUADRANGLE



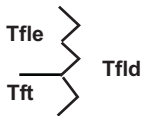
Contact—Dotted where concealed



Paleosol unit—Zone of thin orange limestone beds, light-colored beds, and paleosol beds, including silcrete. Unit occurs within the lower Tongue River Member in the map area.



Silcrete bed—Light-gray siliceous paleosol bed with casts of roots and stems.



Facies change—From Ludlow east of symbol to Lebo and Tullock west of symbol.

GEOLOGIC MAP SOURCES AND INDEX OF 7.5' QUADRANGLES
TERRY 30'x 60' QUADRANGLE

106°								105°
47°	Combs Ranch	Little Sheep Mountain	South Fork Reservoir 6	McCloud 6	Papps Reservoir 6	Diamond G Creek 6	Hendrickson Coulee 6	Fallon NE
	Twin Buttes School 5, 6	Morehouse Creek 4, 6	Physic Creek 1, 6	McClure Reservoir 1, 3, 6	Calypso 1, 2, 3, 6	Terry 2, 3	Fallon SW 2	Fallon 2
	Horse Creek Hill	Coal Bank Spring	Kinsey NW	Kinsey NE 1, 3	Zero 1, 2, 3	Zero NE 2	Flat Top Butte 2	Flat Top Butte NE 2
46°30'	Deadman Creek	Noble Reservoir	Kinsey	Shirley	Corral Butte	Spring Draw 2	Flat Top Butte SW 2	Little Whitney Creek 2

Numbers above correspond with reference list below.

1. Gassaway, J.S., and others, 1987, scale 1:50,000.
2. Herald, F.A., 1912, scale 1:125,000.
3. Heffern, E.L., 1981, scale 1:24,000.
4. McKay, E.J., and Mason, F.W., 1975a, scale 1:24,000.
5. McKay, E.J., and Mason, F.W., 1975b, scale 1:24,000.
6. Rogers, G.S., 1911, scale 1:125,000.

Entire quadrangle

- Stoner, J.D., and Lewis, B.D., 1980, scale 1:500,000.
Vuke, S.M., and Colton, R.B., 1989, scale 1:100,000.

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- Vuke, S.M., and Colton, R.B., 1989, Preliminary geologic map of the Terry 30x60-minute quadrangle: Montana Bureau of Mines and Geology Open File Report MBMG 284, scale 1:100,000. (superseded by this map)
- Vuke, S.M., Luft, S.J., Colton, R.B., and Heffern, E.L., 2001, Geologic map of the Miles City 30' x 60' quadrangle, eastern Montana: Montana Bureau of Mines and Geology Open File Report MBMG 426, scale 1:100,000. [adjacent to south of Terry 30'x 60' quadrangle]
- Vuke, S.M., Wilde, E.M., Colton, R.B., and Stickney, M.S., 2003, Geologic map of the Wibaux 30' x 60' quadrangle, eastern Montana and adjacent North Dakota: Montana Bureau of Mines and Geology Open File Report MBMG 465, scale 1:100,000. [adjacent to east of Terry 30'x 60' quadrangle]