MISSISSIPPI OFFICE OF GEOLOGY
OPEN–FILE REPORT 77

GEOLOGIC MAP
of the
GRENADA QUADRANGLE
Grenada and Yalobusha
Counties, Mississippi

Geology by Stephen L. Ingram, RPG

1999

DESCRIPTION OF MAP UNITS

QUATERNARY
HOLOCENE

Qal

ALLUVIUM

Sand, flood plain sands and silts.

KOSCIUSKO FORMATION

Tk

Sand, white to yellow to orange, fine- to very fine-gained quartz, cross-bedded to massive, mica and heavy minerals common, quartzitic sandstone in southwest corner. The contact of the Kosciusko and the underlying Zilpha is unconformable.

TERTIARY
EOCENE
CLAIBORNE GROUP

WINONA FORMATION-ZILPHA SHALE

Twn-Tz

Zilpha Shale, chocolate brown to tan, laminated, intercalated with very fine-grained sand, carbonaceous, lignitic, occasionally glauconitic. The underlying Zilpha-Winona contact is conformable, while the overlying Kosciusko cuts out the Zilpha in places and lies directly upon the Winona.

Winona Sand, dark red to brown ochre, fine-gained quartz, clay laminae common, occasionally glauconitic, ironstone common. Sedimentary deposits of the Winona Formation are poorly developed and/or appear to be absent in the outcrop. The contact of the Winona and the underlying Tallahatta is unconformable.

TALLAHATTA FORMATION

Tt

Sand, orange to yellow to white, fine- to medium-grained quartz, cross-bedded, clay drapes and clay ripple laminae common, thin clay stringers common, occasionally glauconitic, 'Ophiomorpha' burrows common, petrified wood rare, quartzitic sand lenses may develop locally. This sand is equivalent in part to the Neshoba Sand Member. Clay, medium gray to medium brown, weathers light gray to buff to orange brown, laminated, occasionally kaolinized, intercalated with very fine-grained sand, silicic claystone in places, quartzitic sand lenses may develop locally. This clay is equivalent in part to the Basic City Shale Member. A dark brown to chocolate brown zone of very carbonaceous clay with comminuted plant debris developed at Futheyville. The contact of the Basic City Shale and the underlying Meridian Sand is transitional, due in part to the development of sand in the lower unit of the Basic City Shale Member.

STRUCTURE

The south half of the quadrangle is a structural area related to deformation and uplift of Kilmichael Dome, 21 miles to the southeast. Structural contours on the top of the Meridian Sand show a strong southeast-trending structural re-entrant. Outcrops of the Kosciusko and Zilpha formations and the apparent absence of a well developed Winona Formation may indicate faulting in the southwest quarter of the quadrangle.

GEOLOGIC MAP

GRENADA QUADRANGLE

Grenada and Yalobusha
Counties, Mississippi

N
W E
S

SCALE 1:24 000

1 .5 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

Geology field checked in 1998 using the Provisional Edition 1983 U.S. Geological Survey 7.5-minute topographic quadrangle, 1927 North American datum, contour interval 20 feet, supplementary contour interval 5 feet.

Mississippi Transverse Mercator projection. 1983 North American datum. GRS80 spheroid. 1000-meter Universal Transverse Mercator grid ticks, zone 16; 1983 datum shown in red, 1927 datum shown in blue.

Sources: Road and water features, USGS Digital Line Graph data, 1:100,000 scale. Public Land Survey System, Mississippi Automated Resource Information System (MARIS), 1:24,000 scale. Geographic Information System by Daniel W. Morse.