

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

OFFICE OF GEOLOGY

OPEN-FILE REPORT 258

GEOLOGIC MAP

of the

CHUNKY QUADRANGLE

Newton and Lauderdale Counties,
Mississippi



Geology by David E. Thompson, RPG

2013

DESCRIPTION OF MAP UNITS

QUATERNARY
HOLOCENE

Qal
ALLUVIUM
Sand, flood plain sands, and silts.

Tco
COCKFIELD FORMATION
Sand, gray to light olive gray, weathers reddish orange to pale yellowish brown, very fine to very coarse-grained, quartzose, silty, clayey, carbonaceous; typically shaly in upper portions. The thickness is approximately 180 feet; however, only the lower 50 feet or so are exposed in the southwestern portion of the quadrangle. Constitutes the Cockfield Aquifer.

Tcm
COOK MOUNTAIN FORMATION
Upper beds are termed the Gordon Creek Shale: Silt, dark yellowish-brown, carbonaceous, clayey, glauconitic, micaceous, sandy. Lower beds are termed the Potterchitto: Sand, light gray to grayish-brown, fine- to coarse-grained, quartzose, fossiliferous, silty, clayey, micaceous, carbonaceous; shaly in upper portions, cross bedded in lower portions. The thickness of the Cook Mountain interval is approximately 100 feet.

Tk
KOSCIUSKO FORMATION
Sand, gray to light olive gray, weathers reddish orange to pale yellowish brown, massive to crossbedded, very fine- to very coarse-grained, quartzose, micaceous, locally exhibits scattered weak ledges of limonitic sandstone; interbedded to interlamated with silt and clay, light olive gray to brownish gray, locally carbonaceous. Locally unconformable at base. The thickness is estimated to be 300 feet. Constitutes the Sparta Aquifer.

TERTIARY
EOCENE
CLAIBORNE GROUP

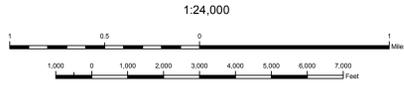
Twn-Tz
ZILPHA and WINONA FORMATIONS
Zilpha - Clay, gray to brownish black, carbonaceous to lignitic, weathers light gray to reddish pink to white, massive and homogeneous or interbedded to interlamated with silt and sand, gray to light olive gray, quartzose, micaceous, carbonaceous, locally glauconitic; concretions of siderite and limonite; near surface exposures may exhibit jointing with selenite or limonite infilling. The thickness is variable from a few feet to 60 feet.
Winona - Sand, gray to green, weathers very light gray to reddish orange or dark red, fine- to coarse-grained, quartzose, micaceous, typically glauconitic to very glauconitic, carbonaceous, silty, locally fossiliferous with thin marine shell beds and prints. Surface exposures commonly weather to distinctive contorted, concretionary, limonitic sandstone and sandy ironstone; concretionary siderite, especially near top. Approximately 60 feet thick.
The maximum thickness of the Zilpha/Winona interval is approximately 120 feet, but this is as little as 50 feet due to overlap or incision by the overlying Kosciusko Formation.

Tbc
TALLAHATTA FORMATION
Basic City Member
Clay, silt, claystone, and quartzitic siltstone and sandstone, olive gray to brownish gray, weathers yellowish gray to very light gray or white, carbonaceous with leaf and plant impressions; faunal structures are common, locally exhibits marine fossil prints, near surface exposures may exhibit jointing with limonite infilling; claystones typically weather to lightweight and brittle rock with a subconchoidal fracture; interbedded to interlamated with sand, gray to very light gray, weathers pale yellowish orange to reddish orange, very fine- to medium-grained, unconsolidated, massive to cross-bedded, quartzose, micaceous, carbonaceous, pyritic; also greenish yellow to buff, fine-grained, semi-consolidated, siliceous, glauconitic, and silty. The base is marked by a sandy interval, approximately 20 feet thick, which in outcrop exposures may exhibit quartzitic sandstone characteristics. Unconsolidated sands in the upper 20 feet or so are termed the Nesheba Sand Member. The maximum total thickness is approximately 220 feet; however, only the upper 110 feet or so are exposed in the northeastern portion of the quadrangle.

M-009
● Drill-hole locality and identification number



GEOLOGIC MAP
CHUNKY QUADRANGLE
Newton and Lauderdale Counties,
Mississippi



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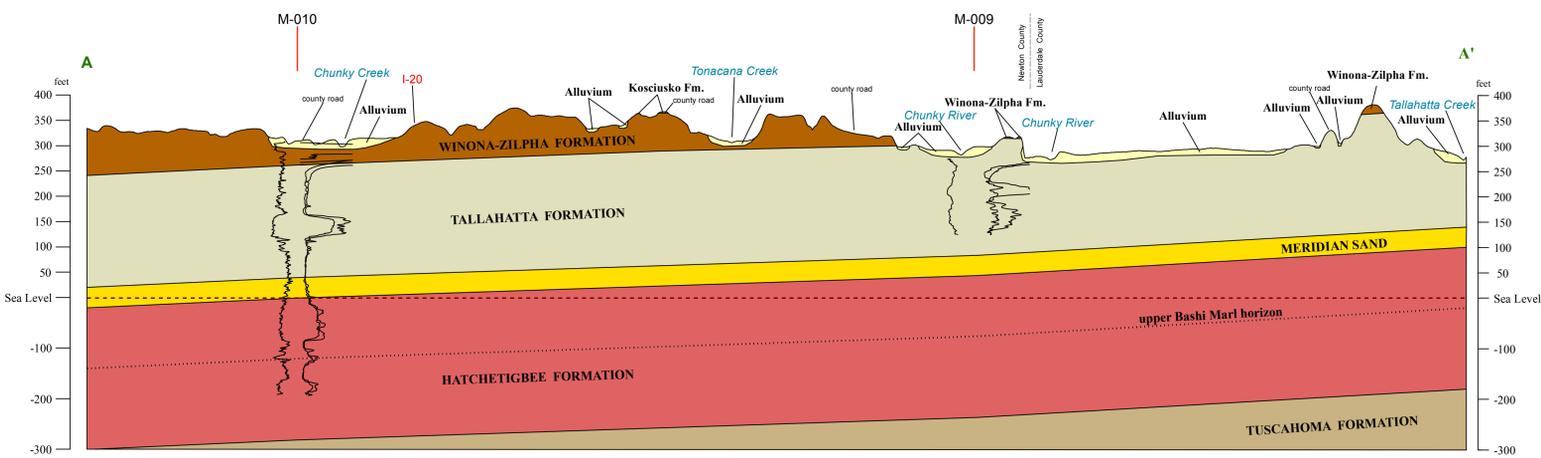
Geology field checked in 2012 using the PROVISIONAL EDITION 1983, U.S. Geological Survey 7.5-minute topographic quadrangle, Universal Transverse Mercator projection, 1927 North American datum, Contour Interval 20 feet and supplemental contour interval 10 feet, Universal Transverse Mercator projection, NADCOM, 1983 North American datum, GRS80 spheroid, 1000-meter Universal Transverse Mercator 1983 datum grid ticks, zone 16, shown in red. January 2013, magnetic north declination in quadrangle center is 1°21' west of true north, changing by 0°7' west per year.

Sources: The base map is derived from the digital 2012 USTOPO; contour Mylar separate of the USGS 1983 topographic quadrangle; railroad features from the Federal Railroad Administration (FRA), 2002 edition, 1:100,000 scale; Public Land Survey System from Mississippi Automated Resource Information System (MARIS), 1:24,000 scale. Declination, National Oceanic and Atmospheric Administration (NOAA).

Geographic Information System by Daniel W. Morse, MDEQ does not warrant the accuracy or completeness of the source data. Geologic maps are only a guide to current understanding and do not eliminate the need for detailed investigations of specific sites for specific purposes.

This map was produced by the Mississippi Office of Geology in cooperation with the United States Geological Survey, National Geologic Mapping Program, under STATEMAP grant IG12AC20232.

Structural Cross-Section of the Chunky 7.5-Minute Geologic Quadrangle



Vertical Exaggeration X 15

