

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY  
 OFFICE OF GEOLOGY  
 OPEN-FILE REPORT 241  
**GEOLOGIC MAP**  
 of the  
**PLATTSBURG QUADRANGLE**  
 Winston and Neshoba  
 Counties, Mississippi

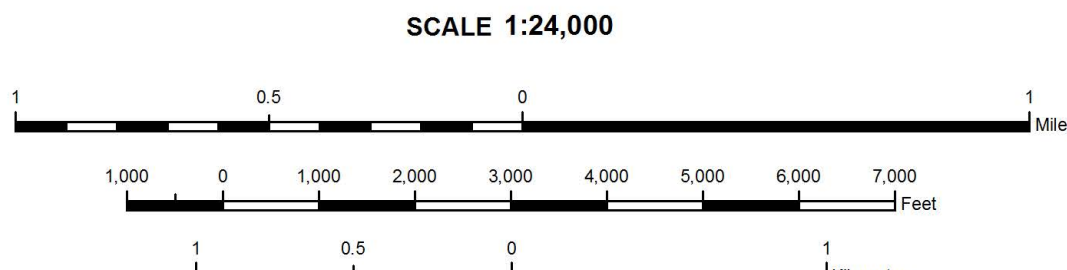
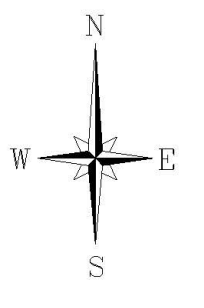
Geology by David E. Thompson, RPG

2011

- DESCRIPTION OF MAP UNITS**
- QUATERNARY HOLOCENE**
- Qal** ALLUVIUM  
Sand, flood plain sands and silts.
- ZILPHA and WINONA FORMATIONS**
- Twm-Tz** Zilpha - Clay, gray to brownish black, carbonaceous to lignitic, weathers light gray to reddish pink to white, massive and homogeneous or interbedded to interlaminated with silt and sand, gray to light olive gray, quartzose, micaceous, carbonaceous, locally glauconitic; concretionary 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 grints. Surface exposures commonly weather to distinctive contorted, concretionary, limonitic sandstone and sandy ironstone; concretionary siderite, especially near top. Approximately 60 feet thick.
- The total thickness of the Zilpha/Winona interval is approximately 120 feet; however, only the basal 50 feet or so of the Winona interval are exposed along the western portion of the quadrangle as hilltop outcrops.
- TERTIARY**
- CLAIBORNE GROUP**
- Tt** TALLAHATTA FORMATION  
Basic City Member  
Clay, silt, claystone, and quartzite siltstone and sandstone, olive gray to brownish gray; weathers yellowish gray to very light gray or white, carbonaceous with leaf and plant impressions, faucoidal structures are common, near surface exposures may exhibit jointing with limonite infilling; claystone typically weathers to lightweight and brittle rock with a subconchoidal fracture; interbedded to interlaminated 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 30 to 60 feet are termed the Neshoba Sand Member. The total thickness is approximately 220 feet. Additionally, the unit thins to as little as 80 feet in the northern area of the quadrangle due to apparent overlap of marine Winona lithologies.
- WILCOX GROUP**
- Tmr** MERIDIAN SAND  
Sand, gray to very light gray, weathers yellowish gray to reddish orange, very fine- to very coarse-grained, typically fining upward, quartzose, micaceous, locally carbonaceous or slightly glauconitic, pyritic, interbedded to interlaminated with silt, siltstone, and clay, dark gray to white, carbonaceous; the upper beds are typically silty or argillaceous. The maximum thickness is approximately 100 feet. Locally, and especially in down-dip exposures, the Meridian Sand is very thin and limited to a foot or so in thickness. The unconformity at base. The Meridian Sand constitutes the upper portion of the Meridian/Upper Wilcox Aquifer.
  - Th** HATCHETIGBEE FORMATION  
Sand, gray to light gray, weathers reddish orange to pale yellowish orange, very fine- to very coarse-grained, quartzose, micaceous, pyritic, clay clast conglomeratic, especially sandy and coarse-grained at base; interbedded to interlaminated with clay, gray to brownish gray, weathers very light gray to white; silty, carbonaceous to lignitic, especially argillaceous in the upper beds of the formation; lignite. The basal 50 feet or so represent a non-marine equivalent to the fossiliferous, marine, Bashi Formation of east-central Mississippi, mark the Paleocene/Eocene unconformity, and consist of sand, gray to light gray, weathers reddish orange to pale yellowish orange, very fine- to very coarse-grained, quartzose, micaceous, carbonaceous, slightly pyritic, clay clast conglomerate. The thickness is approximately 220 to 310 feet, being thickest in down-dip areas where the Meridian Sand is thin. The Hatchetigbee Formation constitutes the basal portion of the Meridian/Upper Wilcox Aquifer.
  - Tu** TUSCAHOMA FORMATION  
Sand, dark greenish gray to light gray, weathers reddish orange to pale yellowish orange, very fine- to coarse-grained, quartzose, micaceous, carbonaceous, slightly glauconitic. Interbedded to interlaminated with clay and silt, light olive gray to brownish black, weathers to various shades of red, gray, brown, or white; lignite, contains Red Hills Mine equivalent lignite seams H through L, along with several stratigraphically higher upper Tusahoma lignite seams. Total thickness is approximately 430 feet; however, only the upper 60 feet are exposed in the quadrangle, which tends to be predominantly argillaceous.
- PALEOCENE**
- O-1** Drill-hole locality and identification number



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Geology field checked in 2011 using the 1972, U.S. Geological Survey 7.5-minute topographic quadrangle, 1983 North American datum, contour interval 10 feet, 1000-meter Universal Transverse Mercator grid ticks, zone 16; 1983 datum shown in red; January 2011, magnetic north declination in quadrangle center is 11° west of true north.

Source: The base map is derived from a Digital Raster Graphic of the USGS topographic quadrangle map, Declaration, 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 #G10AC00294.

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**Structural Cross-Section of the Plattsburg 7.5-Minute Geologic Quadrangle**

