MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

OFFICE OF GEOLOGY

OPEN-FILE REPORT 271

GEOLOGIC MAP

of the

SABLE QUADRANGLE

Clarke and Lauderdale Counties, Mississippi

Geology by David E. Thompson, RPG

2015

DESCRIPTION OF MAP UNITS

QUATERNARY
HOLOCENE

Qal — ALLUVIUM

Sand, flood plain sands, and silts.

TERTIARY
EOCENE
CLAIBORNE GROUP

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 interlaminated with silt and clay, light olive gray to brownish gray, locally carbonaceous. Locally unconformable at base. The thickness is estimated to be 170 feet; however, only the lower 100 feet or so is exposed in the southwestern portion of the quadrangle. Constitutes the Sparta Aquifer.

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 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 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 thins to as little as 50 feet due to overlap or incision by the overlying Kosciusko Formation.

Tt — 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, fucoidal 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 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. The total thickness is approximately 120 to 200 feet. Only the upper approximately 180 feet are exposed in the northeastern portion of the quadrangle.

C-1 — Drill-hole locality and identification number

GEOLOGIC MAP

SABLE QUADRANGLE

Clarke and Lauderdale Counties, Mississippi

N W E S

1:24,000

1 0.5 0 1 Miles

1,000 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

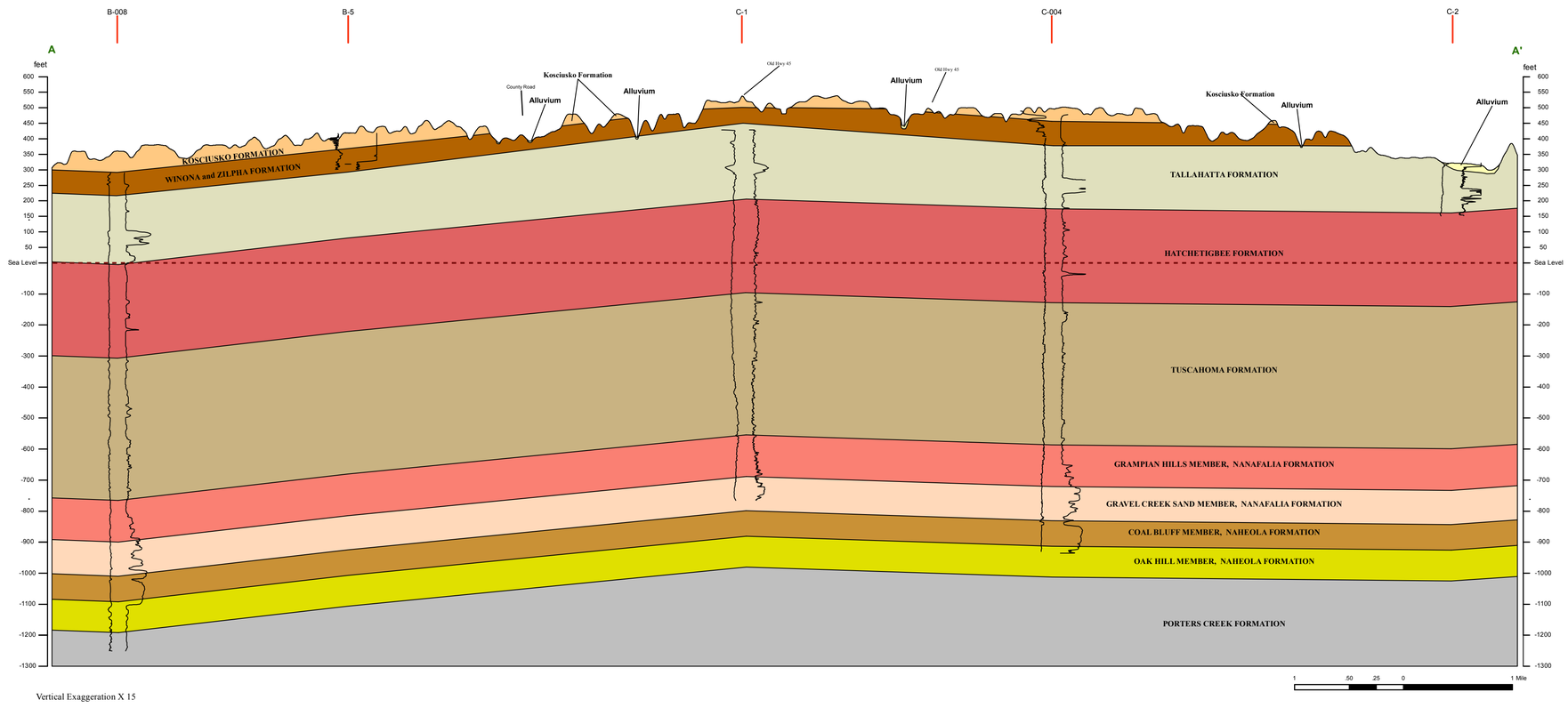
Geology field checked in 2014 using the PROVISIONAL EDITION 1983, U.S. Geological Survey 7.5-minute topographic quadrangle, Universal Transverse Mercator projection, 1927 North American datum, Contour Interval 20 feet. Universal Transverse Mercator projection, 1983 North American datum, GRS80 spheroid.1000-meter Universal Transverse Mercator 1983 datum grid ticks, zone 16, shown in red. January 2015, magnetic north declination in quadrangle center is 1°44'34" west of true north, changing by 0°6.9' west per year.

Sources: Contours derived from Mississippi Automated Resource Information System (MARIS) vectorizing the mylar separate of the USGS 1983 topographic quadrangle, updated coding in 2014; Public Land Survey System, 1:24,000 scale, from MARIS; water features derived from the 7.5 minute Digital 2012 USTOPO; railroad features, from Federal Railroad Administration (FRA), edition 2002, 1:100,000 scale; road features derived from the Mississippi Digital Earth Model (MDEM); 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 #G14AC00223.

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



Vertical Exaggeration X 15