MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

OFFICE OF GEOLOGY

OPEN-FILE REPORT 242

GEOLOGIC MAP

of the

EDINBURG QUADRANGLE

Neshoba and Leake Counties, Mississippi

Geology by David E. Thompson, RPG

2011

DESCRIPTION OF MAP UNITS

QUATERNARY — HOLOCENE

ALLUVIUM

Qal — Sand, flood plain sands and silts.

TERTIARY — EOCENE — CLAIBORNE GROUP

KOSCIUSKO FORMATION

Tk — Sand, gray to light olive gray, weathers reddish orange to pale yellowish brown, massive to cross-bedded, 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 300 feet; however, only the lower 100 feet or so are exposed in the northwestern and southwestern portions of the quadrangle. Constitutes the Sparta Aquifer.

ZILPHA and WINONA FORMATIONS

Twn-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 prints. 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.

TALLAHATTA FORMATION

Basic City Member

Tt — 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, 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. 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 approximately 200 feet in the eastern area of the quadrangle due to apparent overlap of marine Winona lithologies.

MERIDIAN SAND

Tmr — 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. Unconformity at base. The Meridian Sand constitutes the upper portion of the Meridian/Upper Wilcox Aquifer.

WILCOX GROUP

HATCHETIGBEE FORMATION

Th — Sand, gray to light gray, weathers reddish orange to pale yellowish orange, very fine- to very coarse-grained, quartzose, micaceous, pyritic, clay clast conglomerate, 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; however, only the upper 40 feet or so are exposed in the northeastern portion of the quadrangle. The Hatchetigbee Formation constitutes the basal portion of the Meridian/Upper Wilcox Aquifer.

H-0058 — Drill-hole locality and identification number

GEOLOGIC MAP

EDINBURG QUADRANGLE

Neshoba and Leake Counties, Mississippi

SCALE 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

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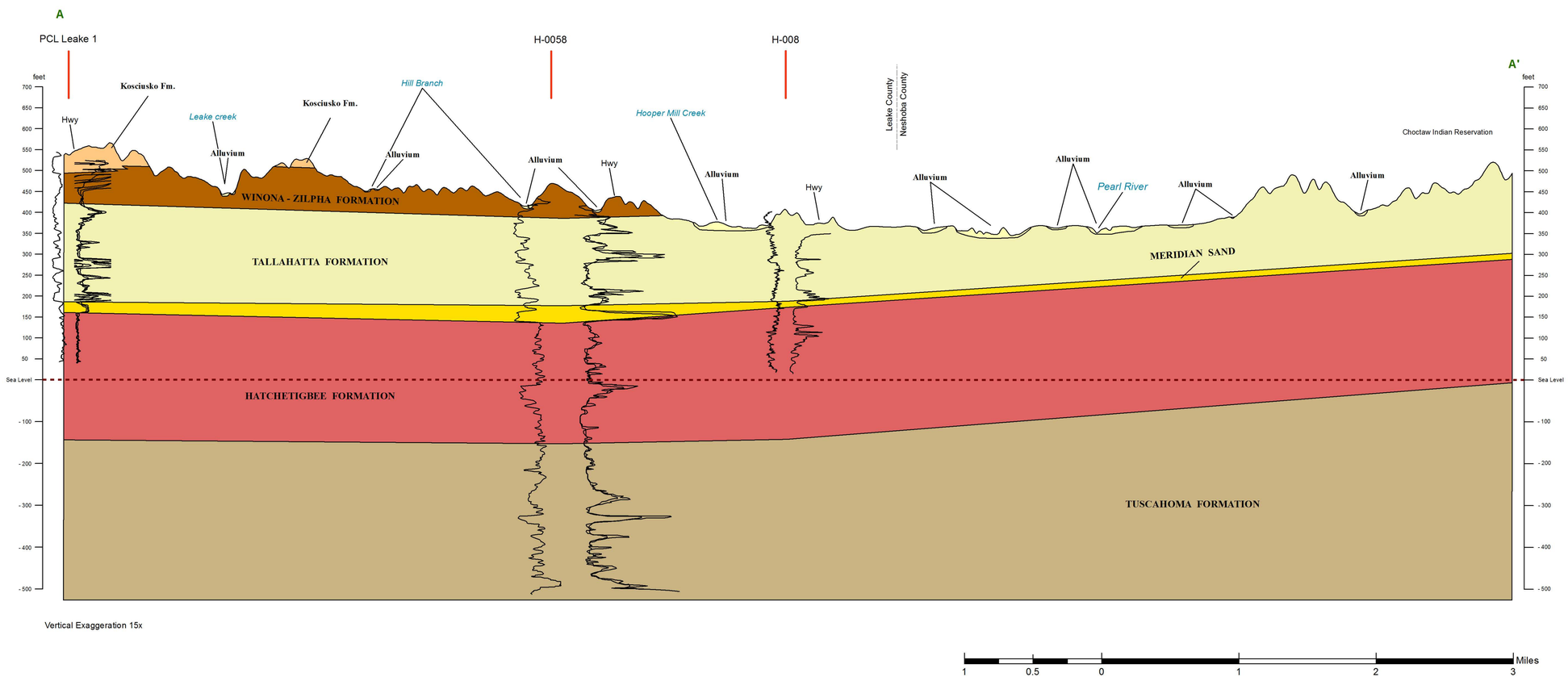
Geology field checked in 2011 using the 1989, U.S. Geological Survey 7.5-minute topographic quadrangle, 1983 North American datum, contour interval 10 feet.
1000-meter Universal Transverse Mercator grid ticks, zone 16; 1983 datum shown in red;
January 2011, magnetic north declination in quadrangle center is 0°54' west of true north.

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

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



Vertical Exaggeration 15x

1 0.5 0 1 2 3 Miles