MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

OFFICE OF GEOLOGY

OPEN-FILE REPORT 266

GEOLOGIC MAP

of the

WHYNOT QUADRANGLE

Lauderdale County, Mississippi

Geology by David E. Thompson, RPG

2014

DESCRIPTION OF MAP UNITS

QUATERNARY
HOLOCENE

Qal — ALLUVIUM

Sand, flood plain sands, and silts.

TERTIARY
EOCENE
WILCOX GROUP

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 conglomerate; 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 150 feet or so are equivalent to the Bashi Formation of east-central Mississippi. The Bashi interval contains at least three distinct green sand marl intervals, with the most notable being the uppermost; a fossiliferous, boulder-bearing horizon at Meridian (designated by a green dashed-line on the geologic map). Sand, gray to light gray, weathers reddish orange to pale yellowish orange, very fine- to very coarse-grained, quartzose, glauconitic, micaceous, carbonaceous, slightly pyritic, locally exhibits fossil prints and/or calcareous fossil remains, commonly weathers to large, limonitic, concretionary masses. The uppermost, fossiliferous, boulder-bearing interval is thought to mark the Paleocene/Eocene unconformity. The green sand marls are typically bounded by silt, clay, or lignite lithologies. The total thickness of the Hatchetigbee interval is approximately 320 feet. The upper 100 feet of the formation may be very sandy locally, and constitutes the basal portion of the Meridian/Upper Wilcox Aquifer.

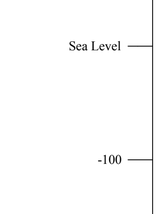
Ttu — TUSCAHOMA FORMATION

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 Tuscahoma lignite seams. Total thickness is approximately 430 feet; however, only the upper 40 or 50 feet are exposed in the northeastern region of the quadrangle.

An informal boundary which divides the clays and silts at the top of the middle Tuscahoma beds from the overlying basal sands of the upper Tuscahoma Formation. The upper Tuscahoma, which may be predominantly sandy locally, is approximately 140 feet thick. Argillaceous beds generally persist at the top.

An informal boundary which marks the top of the J seam, Red Hills Mine equivalent. While the lignite seam is not always present, clay, silt, and lignite at that horizon are typically overlain by basal sands of the middle Tuscahoma. The thickness of the J seam lignite, when present, is up to 4.5 feet. Middle Tuscahoma beds, estimated at 160 feet thick, contain Greggs and Bells Landing equivalent units. The lower Tuscahoma beds, which contain lignite seams H through J along with the Middle Wilcox Aquifer, are estimated to be 130 feet thick.

P2 — Drill-hole locality and identification number



GEOLOGIC MAP

WHYNOT QUADRANGLE

Lauderdale County, Mississippi

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 1978, 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, 1983 North American datum. GRS80 spheroid. 1000-meter Universal Transverse Mercator 1983 datum grid ticks, zone 16, shown in red. January 2014, magnetic north declination in quadrangle center is 1°48'52" west of true north, changing by 0°6.9' west per year.

Sources: The base map is derived from the Digital 2012 USTOPO, USGS 1978 contour mylar separate of the USGS topographic quadrangle map, railroad feature, Federal Railroad Administration (FRA), edition 2002, 1:100,000 scale, Public Land Survey System, 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 #G13AC00234.

Structural Cross-Section of the Why Not 7.5-Minute Geologic Quadrangle