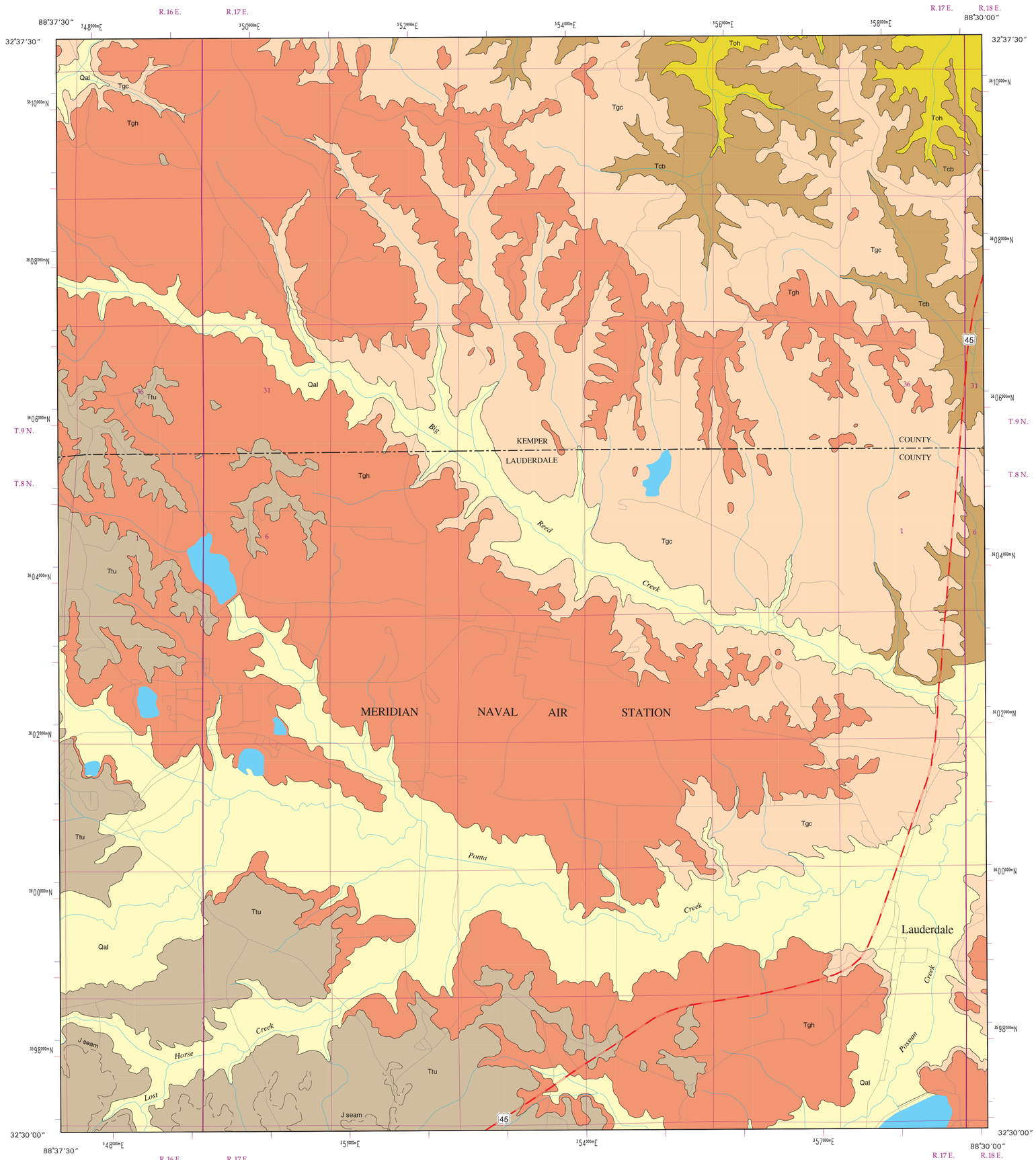

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF GEOLOGY
OPEN–FILE REPORT 27

GEOLOGIC MAP
of the
LAUDERDALE QUADRANGLE
Lauderdale and Kemper Counties, Mississippi

Geology by David E. Thompson

2001

DESCRIPTION OF MAP UNITS

QUATERNARY — HOLOCENE

Qal — ALLUVIUM

Sand, flood plain sands and silts.

TERTIARY — PALEOCENE — WILCOX GROUP

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, 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. Total thickness is approximately 400 feet; however, the maximum thickness present in the quadrangle is about 230 feet in the southwest corner. The basal sandy interval constitutes the Middle Wilcox Aquifer.

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 the Greggs and Bells Landing equivalent units from Alabama; only the lower 100 feet of middle Tuscahoma beds are exposed in the southwest corner of the quadrangle. The Lower Tuscahoma beds, which contain lignite seams H through J along with the Middle Wilcox Aquifer, are estimated to be 130 feet thick.

NANAFALIA FORMATION

Tgh — Grampian Hills Member

Clay and silt, medium gray to pale green, weathers to various shades of red, brown, and gray, carbonaceous, lignitic, contains Red Hills Mine equivalent lignite seams C through G; interbedded to interlaminated with sand, dark greenish gray to medium gray, weathers reddish orange to pale yellowish orange, very fine- to medium-grained, quartzose, micaceous, carbonaceous, glauconitic. Locally, may contain a couple of fossiliferous, marine marl beds which contain the Nanafalia guide fossil Ostrea arrosis. These marine beds have been noted downdip in test holes in the upper and lower portions of the Grampian Hills, and are approximately 10 feet thick. Basal portion is typically sandy. Thickness is 130 feet.

Tgc — Gravel Creek Sand Member

Sand, medium gray to very light gray, weathers reddish orange to pale yellowish orange, very coarse- to fine-grained, typically fining upward, quartzose, micaceous, clay clast conglomerate; upper portion consists of clay, dark gray to light gray, typically dense, occasionally silty, carbonaceous to lignitic. Thickness is 80 to 110 feet. Unconformity at base. The basal sandy interval (along with the underlying Coal Bluff sand) constitutes the Lower Wilcox Aquifer.

NAHEOLA FORMATION

Tcb — Coal Bluff Member

Sand, dark gray to light gray, weathers pale yellowish orange to reddish orange, very fine- to very coarse-grained, sometimes pebbly, typically fining upward, quartzose, very micaceous, carbonaceous, clay clast conglomerate; interbedded to interlaminated with clay and silt, dark gray to light gray, carbonaceous, lignitic, especially argillaceous at the top. The lower sands may contain kaolinitic to bauxitic clay clasts or beds. The thickness is 70 to 80 feet. Unconformity at base. Along with the overlying Gravel Creek sand, constitutes the Lower Wilcox Aquifer.

TERTIARY — PALEOCENE — MIDWAY GROUP

Toh — Oak Hill Member

Clay, brownish black to medium gray, weathers grayish brown to white, silty, carbonaceous, lignitic, kaolinitic to bauxitic; interbedded to interlaminated with sand, dark gray to greenish gray, weathers reddish orange to light yellowish orange, fine- to coarse-grained, quartzose, very micaceous, carbonaceous, locally glauconitic. The Oak Hill is locally predominantly sandy. The thickness is approximately 100 feet; however, only the upper 80 to 90 feet are exposed in the northeastern portion of the quadrangle.

GEOLOGIC MAP
LAUDERDALE QUADRANGLE
Lauderdale and Kemper Counties, Mississippi

N W E S

SCALE 1:24 000

1 .5 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

Geology field checked in 2001 using the 1962 (photorevised 1985) U.S. Geological Survey 7.5-minute topographic quadrangle, 1927 North American datum, contour interval 20 feet.

Mississippi Transverse Mercator projection. 1983 North American datum. GRS80 spheroid.
1000-meter Universal Transverse Mercator grid ticks, zone 16; 1983 datum shown in red, 1927 datum shown in blue.

Sources: Road and water features, USGS Digital Line Graph data, 1:100,000 scale. Public Land Survey System, Mississippi Automated Resource Information System (MARIS), 1:24,000 scale.

Geographic Information System by Daniel W. Morse.

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