



MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY  
OFFICE OF GEOLOGY  
OPEN-FILE REPORT 123  
**GEOLOGIC MAP**  
of the  
**PUSKUS LAKE QUADRANGLE**  
Lafayette and Marshall Counties,  
Mississippi

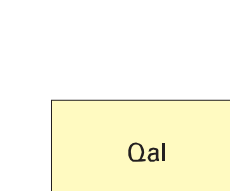


Geology by David E. Thompson

2002

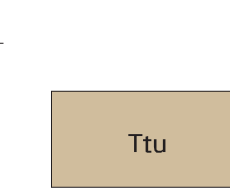
**DESCRIPTION OF MAP UNITS**

QUATERNARY  
HOLOCENE



**ALLUVIUM**

Sand, flood plain sands and silts.



**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 interlaminate with clay and silt, light olive gray to brownish black, weathers to various shades of red, gray, brown, or white; contains correlative Red Hills Mine lignite seams H through L. Total thickness is 400 to 430 feet; however, the maximum thickness present in the quadrangle is approximately 300 feet. Basal sandy interval constitutes the Middle Wilcox Aquifer.

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An informal boundary which divides the clays and silts at the top of the middle Tusahoma beds from the overlying basal sands of the upper Tusahoma Formation. The upper Tusahoma, which may be predominantly sandy locally, is 110 to 140 feet thick.

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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 Tusahoma. The thickness of the J seam lignite, when present, is up to 6 feet. The middle Tusahoma, estimated at 160 feet thick, contains beds of green to greenish gray, fine-grained sand and silt which may be correlative to the Greggs and Bells Landing equivalent units from Alabama. The lower Tusahoma beds, which contain lignite seams H through J along with the Middle Wilcox Aquifer, are estimated to be 130 feet thick.

TERTIARY  
PALEOCENE  
WILCOX GROUP

**NANAFALIA FORMATION**

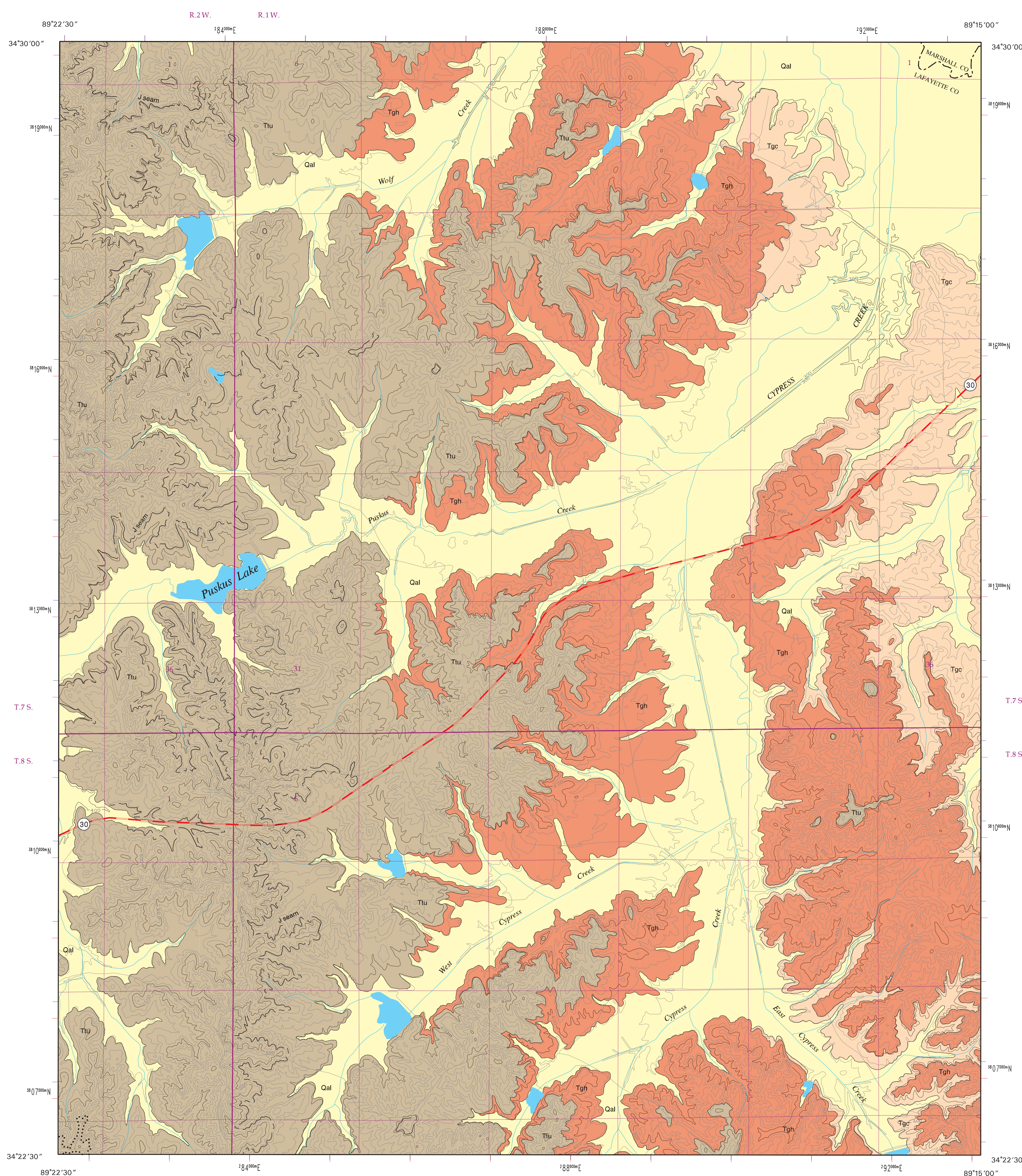
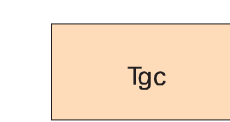
**Grampian Hills Member**

Clay and silt, medium gray to pale green, weathers to various shades of red, brown, and gray, carbonaceous, lignitic, contains correlative Red Hills Mine lignite seams C through G, interbedded to interlaminate with sand, dark greenish gray to medium gray, weathers reddish orange to pale yellowish orange, very fine- to medium-grained, quartzose, micaceous, carbonaceous, and slightly glauconitic. Basal portion is typically sandy. In the northern half of the quadrangle, the typical silty clay and lignite sequence in the upper two thirds of the Grampian Hills is represented by a channel sequence of clay clast ripups and fine- to very coarse-grained sand. Total thickness is 130 feet.

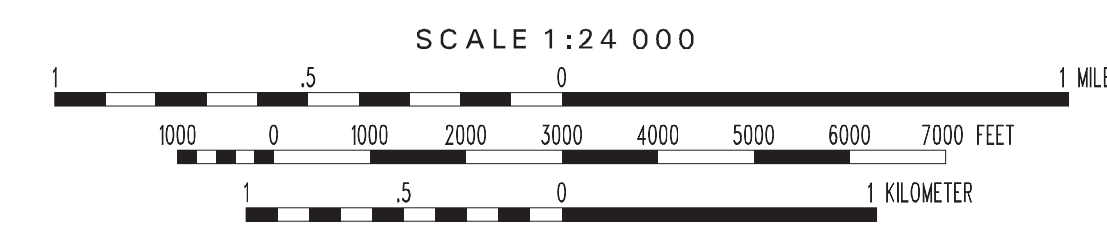
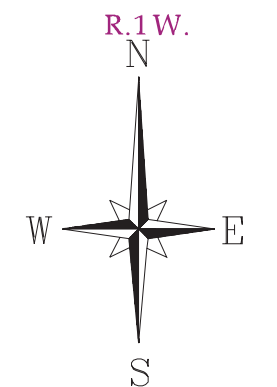


**Gravel Creek Sand Member**

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



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Geology field checked in 2002 using the 1980 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, GR580 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 and contours, Mississippi Automated Resource Information System (MARIS), 1:24,000 scale.  
Geographic Information System by Daniel W. Morse. This map was produced by the Mississippi Office of Geology in cooperation with the U.S. Geological Survey, National Geologic Mapping Program, under STATEMAP grant #01HQAG0043.

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