

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY  
 OFFICE OF GEOLOGY  
 OPEN-FILE REPORT 222  
**GEOLOGIC MAP**  
 of the  
**RUTH QUADRANGLE**

Lincoln County, Mississippi



Geology by D. Kenneth Davis  
 and James E. Starnes, GIT

2008

**DESCRIPTION OF MAP UNITS**

- |            |                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------|-----------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| QUATERNARY | HOLOCENE        |  | <b>ALLUVIUM</b><br>Flood plain sands, silts, gravels, and clays.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|            | PLIO-PLISTOCENE |  | <b>CITRONELLE FORMATION</b><br>Sand, yellow, orange, purple, red, pink, fine- to coarse-grained, predominantly quartzose, cross-bedded- to massive, graveliferous, pea- to cobble-size; predominantly chert with lesser amounts of vein quartz, metaquartzite, agate, and sandstone; clay, kaolinitic, pink- to white, generally occurring as discontinuous lenses in the upper portions and as rip-up clasts in the basal portions; clasts may be up to boulder-size. Conglomeratic ironstone ledges are common in the graveliferous sands at the base of the formation, which unconformably overlie the Hattiesburg Formation. At elevations approaching 500 feet MSL, the formation fines to a brown- to reddish-brown silty, fine-sandy loam that often contains a hardpan which consists of a mineralized soil horizon of limonite nodules. Remnants of the Citronelle alluvial surface may exist in flat areas at or just above elevations of 500 feet MSL, in Sections 19, 22, 23, 26, 27 and 34 of Township 6 North, Range 9 East. |
| TERTIARY   | MIOCENE         |  | <b>HATTIESBURG FORMATION</b><br>Clay, green, gray, brown, weathers white- to brown, silty- to fine-sandy, locally carbonaceous; sand, gray, pale- yellow- to white, fine- to coarse-grained, cross-bedded- to massive.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

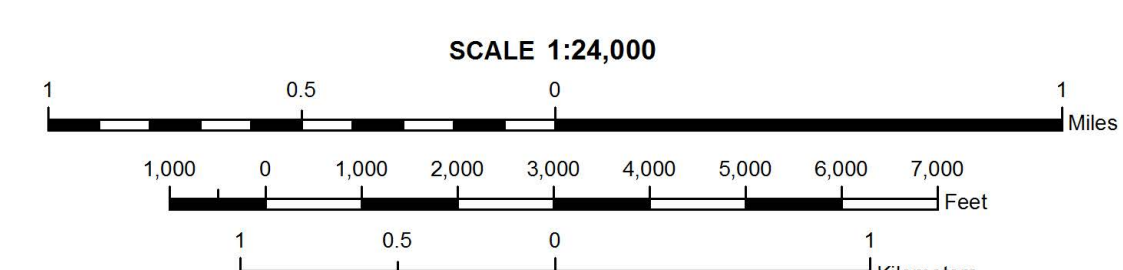
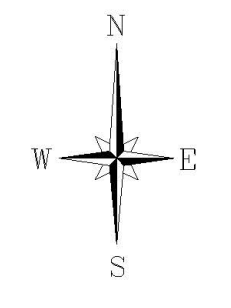


**RUTH DOME**  
 Centered in the northwest 1/4 of Section 22, Township 5 North, Range 9 East, in southeastern quarter of the quadrangle, a roughly circular area approximately 1 mile in diameter is elevated above the local Citronelle alluvial surface, with a central hilltop reaching an elevation of just above 570 feet MSL, 70 feet above the local Citronelle alluvial surface. Gravity and seismic data center this feature directly above Ruth Salt Dome, a shallow piercement-type salt dome. Radial drainage above the salt dome and structurally-high outcrops of Late Pliocene-age Citronelle coarse sand and gravel indicate relatively recent uplift of the underlying salt diapir.

R - 0046  
 Drill-hole locality and identification number



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 Lincoln County, Mississippi



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Geology field checked in 2007 using the 1972, U.S. Geological Survey 7.5-minute topographic quadrangle, 1927 North American datum, contour interval 10 feet.  
 Universal Transverse Mercator projection, 1983 North American datum, GR80 spheroid, 1000-meter Universal Transverse Mercator grid ticks, zone 15, 1983 datum shown in red.  
 January 2008, magnetic north declination in quadrangle center is 0°18' east of true north.  
 Sources: Road features, USGS Digital Line Graph data, 1:100,000 scale. Water features, USGS National Hydrography Dataset, 1:24,000 scale. Public Land Survey System and contours, 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 #07HQAG0066.

**Structural Cross-Section of the Ruth 7.5-Minute Geologic Quadrangle**

