

**POTENTIOMETRIC MAP OF THE RIPLEY AQUIFERS IN
NORTHEASTERN MISSISSIPPI, FALL 1982**

The U.S. Geological Survey, in cooperation with the Mississippi Department of Natural Resources, Bureau of Land and Water Resources, has prepared a series of maps of major aquifers in Mississippi to show the availability of ground water for municipal and industrial use and to show the effects of withdrawal on the aquifers. This map, the second in a series for the Ripley aquifers, follows a map that delineates the potentiometric surface of the aquifers in 1978 (Wasson, 1980). The present potentiometric map is based on water-level measurements made in November and December 1982 in about 40 wells in the Ripley aquifers and on the altitudes of water surfaces in some streams. The difference in head between the Ripley aquifers is minimal and they are mapped as a single unit.

The Ripley Formation of Cretaceous age ranges in thickness from about 40 feet in Kemper County to about 400 feet in Tippah County. The Ripley aquifers consist of sand beds in the McNairy Sand Member of the Ripley Formation which occurs in and to the north and west of Tippah County, and in the overlying Chiwapa Member, which occurs in and to the north and west of Chickasaw County. Another sand bed of limited extent occurs in the lower part of the Ripley Formation in the subsurface of Calhoun, Pontotoc, and Lafayette Counties. The Ripley does not include aquifers south of Clay County, Mississippi.

Precipitation recharges the Ripley aquifers in the outcrop area in Alcorn, Prentiss, Tippah, Union, Pontotoc, Chickasaw, and Clay Counties. The regional ground-water movement is westward into the subsurface. As water moves downdip from the outcrop, mineralization increases and the approximate downdip extent of freshwater in the aquifers marks a boundary of this map.

The Ripley aquifers contain freshwater (less than 1,000 milligrams per liter of dissolved solids) in nine counties where they are the source of water for small municipal wells and many domestic and stock wells. In and near the outcrop area, water levels in the Ripley aquifers have remained stable since 1978. Elsewhere, withdrawals have resulted in water-level declines of about one-half foot per year, and have slightly modified contours in the potentiometric surface.

ADDITIONAL INFORMATION

This map showing the results of the fall 1982 water-level measurements for the Ripley aquifers is the second map showing ground-water levels in the aquifer. These maps are part of a series of maps that show water levels in the major aquifers in Mississippi. Data describing the individual wells used in this study may be obtained from the following:

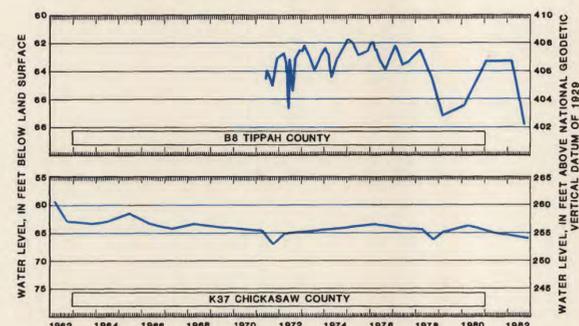
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Black and white copies of this report can be purchased from:

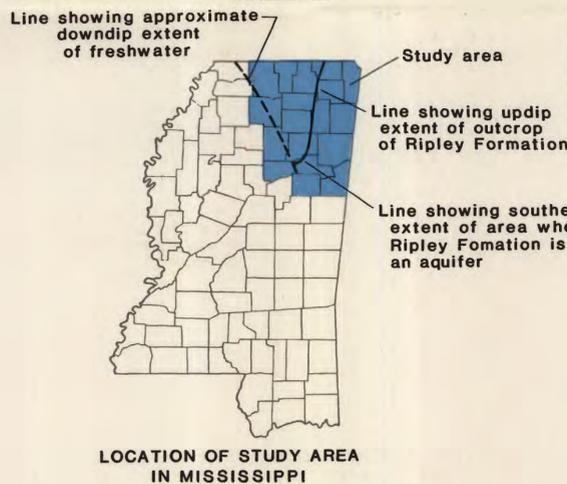
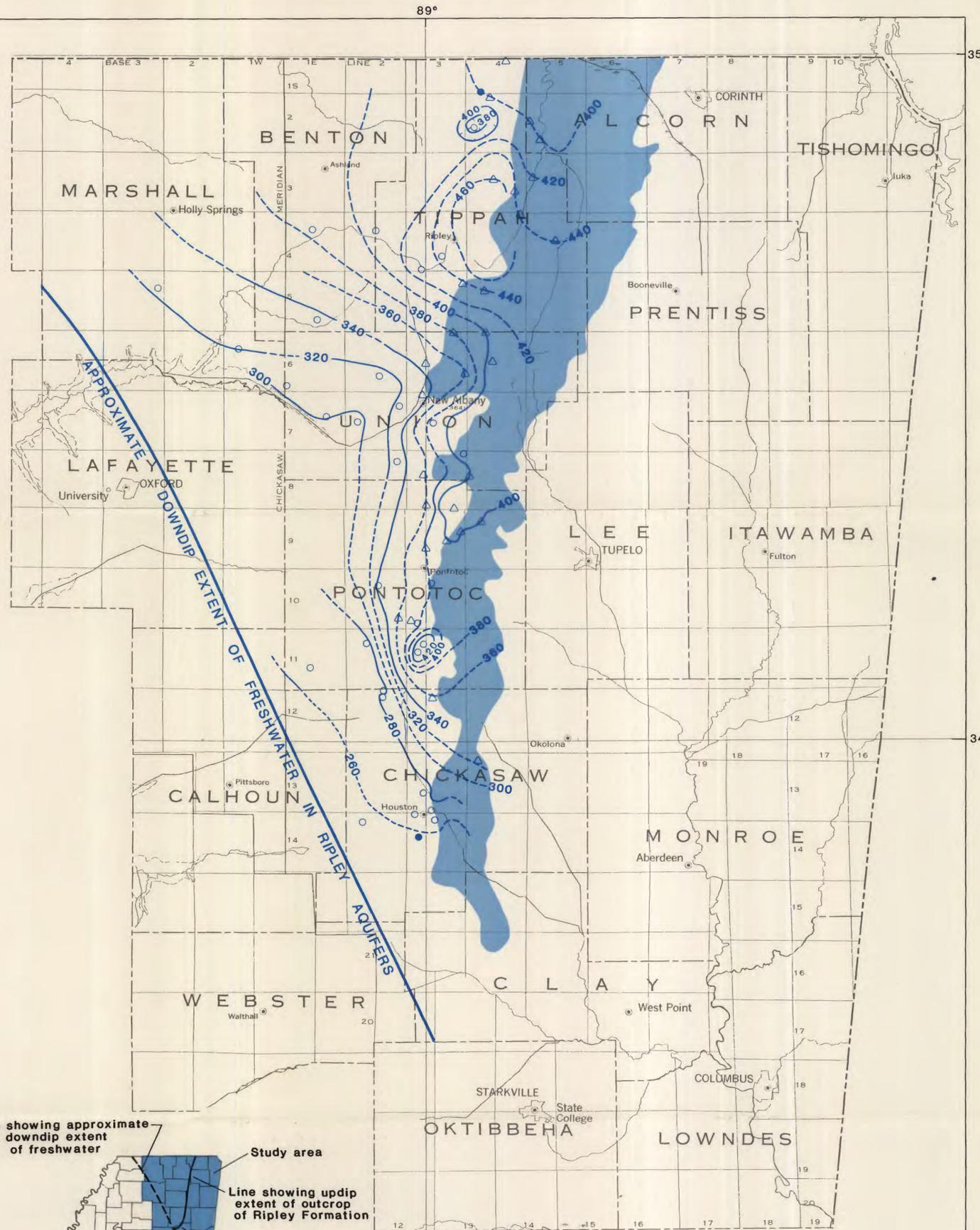
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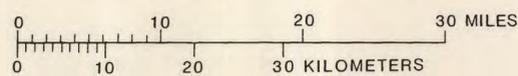
- Belt, W. E., and others, 1945, Geologic map of Mississippi: Mississippi Geological Society, Jackson, Mississippi.
- Boswell, E. H., 1963, Cretaceous aquifers of northeastern Mississippi: Mississippi Board of Water Commissioners Bulletin 63-10, 202 p.
- 1979, The Coffee Sand and Ripley aquifers in Mississippi: U.S. Geological Survey Water-Resources Investigations Report 78-114, map.
- Wasson, B. E., 1980, Potentiometric map of the Ripley aquifer in northeastern Mississippi, October and November 1978: U.S. Geological Survey Water-Resources Investigations Report 79-1585, map.



HYDROGRAPHS OF WATER LEVELS IN RIPLEY AQUIFERS



**LOCATION OF STUDY AREA
IN MISSISSIPPI**



EXPLANATION

- AREA OF OUTCROP OF RIPLEY FORMATION (Ripley aquifers)
- 280-- POTENTIOMETRIC CONTOUR--Shows altitude at which water level would have stood in tightly cased wells. Dashed where approximately located. Contour interval is 20 feet. Datum is National Geodetic Vertical Datum of 1929. Based on measurements of water-level altitudes in wells and water-surface altitudes of streams in and near outcrop area
- OBSERVATION WELL AND NUMBER--Wells are numbered alpha-numerically by county
- OBSERVATION WELL FOR WHICH HYDROGRAPH IS SHOWN
- POINT AT WHICH ALTITUDE OF WATER SURFACE IN STREAM WAS USED TO DEFINE THE POTENTIOMETRIC SURFACE OF AQUIFER

Base map modified from U.S. Geological Survey
State base map, 1972

Geology modified from Belt and others (1945)

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By
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