

**CONVERSION FACTORS**

For use of readers who prefer to use metric (International System) units, rather than the inch-pound units used in this report, the following conversion factors may be used:

Multiply inch-pound unit	By	To obtain metric unit
Foot (ft)	0.3048	meter (m)
gallon per minute (gal/min)	0.06308	liter per second (L/s)
million gallons per day	0.04381	cubic meter per second (Mgal/d)

**Sea level:** In this report, "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called "sea level Datum of 1929."

**LONG-TERM HYDROGRAPHS**

Hydrographs for three wells in the alluvial aquifer in Lonoke, Mississippi, and Poinsett Counties illustrate water-level changes since 1962. The wells in Lonoke and Poinsett Counties are in areas of large withdrawals and the respective hydrographs show nearly continuous water-level declines that averaged 1.0 to 1.4 feet per year. The hydrograph for the well in Mississippi County indicates no long-term change or trend in water levels for the last 20 years, but shows small yearly fluctuations which probably are related to stages in the Mississippi River.

**DEPTH-TO-WATER MAP**

Water levels in the alluvial aquifer are shallowest near the Fall Line and near large streams, such as the Arkansas, Mississippi, and White Rivers, that are in hydraulic connection with the aquifer. The water levels are shallow (less than 20 feet below land surface) along the Fall Line because the aquifer is near the surface in this area. Water levels are shallow near large streams for two reasons: (1) decreased use of surface water, and (2) recharge to the aquifer by water from the stream. Water levels more than 100 feet below land surface occur in two areas: the first area is located in Arkansas, Lonoke, and Prairie Counties; the second area is in Cross and Poinsett Counties adjacent to Crowley's Ridge. Both of these areas have large ground-water withdrawals.

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**POTENTIOMETRIC SURFACE MAPS 1987**

**EXPLANATION**

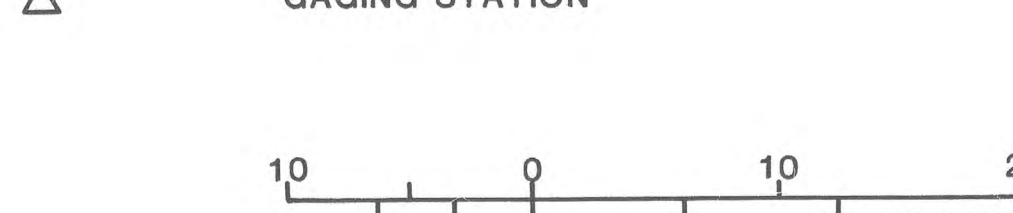
150 --- POTENTIOMETRIC CONTOUR--Shows altitude at which water level would have stood in tightly cased wells that penetrate the alluvial aquifer. The spring map reflects conditions prior to the seasonal withdrawals for irrigation and is based on measurements made in 1995 wells by the U.S. Geological Survey and by U.S. Soil Conservation Service personnel between February and June 1987. The fall map reflects post-pumping conditions and is based on measurements made by U.S. Soil Conservation Service personnel in 482 wells between August and November 1987. Both potentiometric-surface maps include stage measurements at streams and rivers in hydraulic connection with the aquifer. These measurements were made by personnel of the U.S. Geological Survey and the U.S. Army Corps of Engineers.

● POTENTIOMETRIC-SURFACE MAPS

○ U.S. GEOLOGICAL SURVEY NETWORK WELL

△ U.S. SOIL CONSERVATION SERVICE NETWORK WELL

□ GAGING STATION



For additional information write to:  
 U.S. Geological Survey  
 Water Resources Division  
 2301 Federal Office Building  
 Little Rock, Arkansas 72201

For purchase write to:  
 U.S. Geological Survey  
 Books and Open-File Reports  
 Federal Center, Building 810  
 Box 2425  
 Denver, Colorado 80225



LOCATION OF STUDY AREA IN EASTERN ARKANSAS

**WATER-LEVEL CHANGE MAP SPRING 1982 TO SPRING 1987**

**EXPLANATION**

■ GREATER THAN 6-FOOT RISE

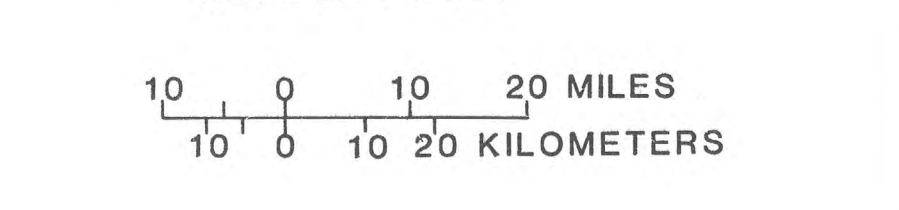
▨ 2- TO 6-FOOT RISE

□ LESS THAN 2-FOOT CHANGE

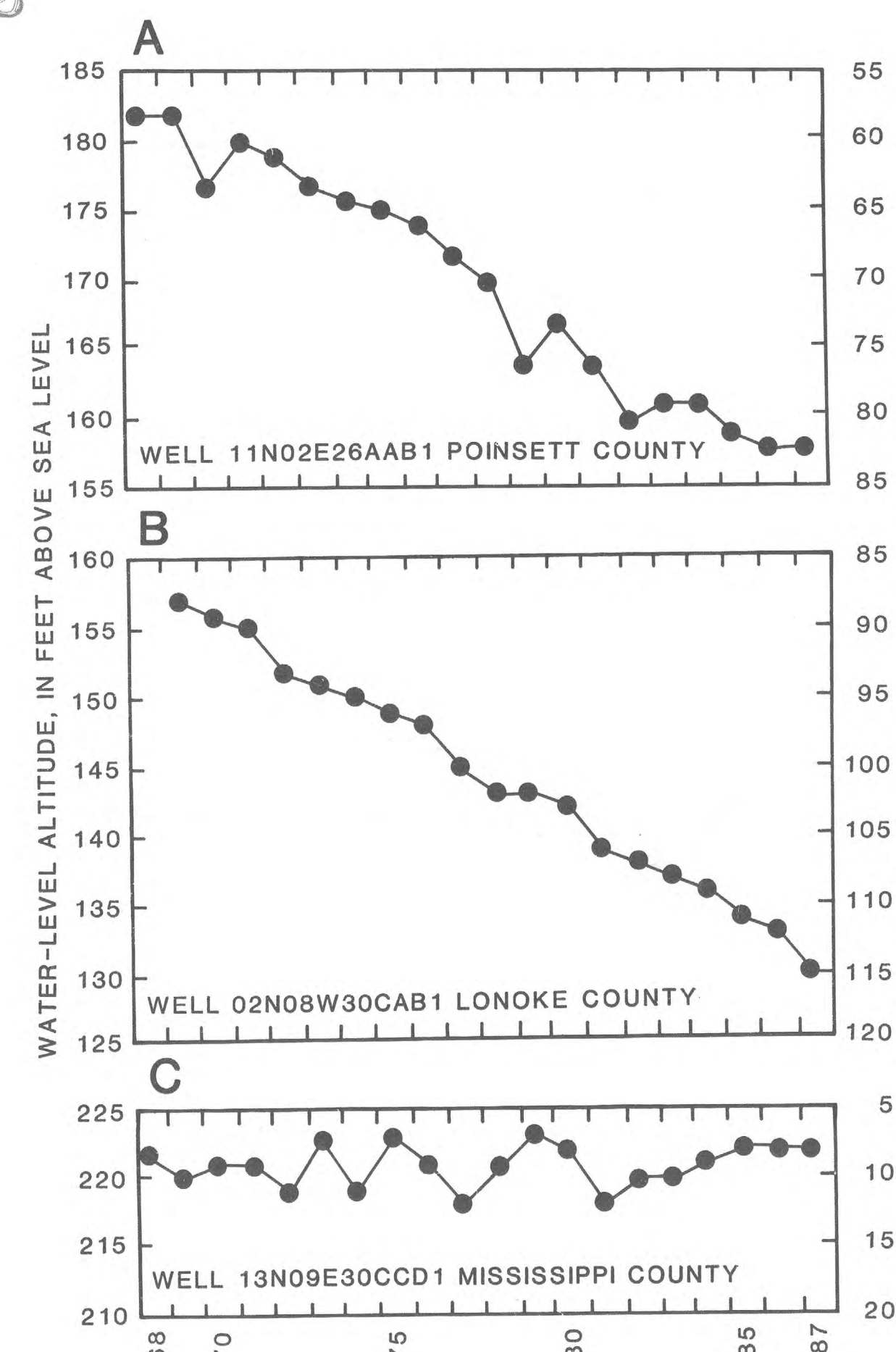
▩ 2- TO 6-FOOT DECLINE

■ GREATER THAN 6-FOOT DECLINE

● U.S. GEOLOGICAL SURVEY NETWORK WELL



Base from U.S. Geological Survey State base map, 1:1,000,000, 1967



HYDROGRAPHS OF SPRING WATER-LEVEL MEASUREMENTS FOR WELLS COMPLETED IN THE ALLUVIAL AQUIFER

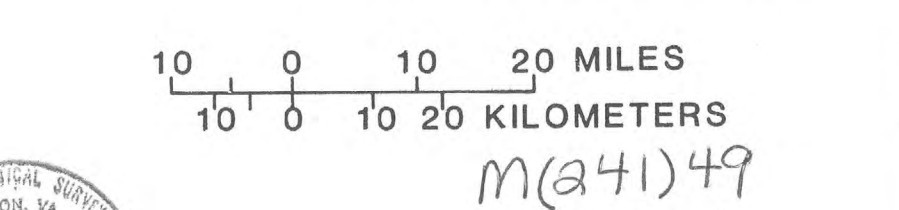
**SPRING 1987 DEPTH-TO-WATER MAP**

**EXPLANATION**

100 --- LINE OF EQUAL DEPTH TO WATER--Interval 20 feet. Datum is land surface.

● U.S. GEOLOGICAL SURVEY NETWORK WELL

○ U.S. SOIL CONSERVATION SERVICE NETWORK WELL



Base from U.S. Geological Survey State base map, 1:1,000,000, 1967

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