Figure 2. Potentiometric surface of the Chicot equivalent aquifer system, February through March 1991.

INTRODUCTION

The Chicot equivalent aquifer system is an important source of water for the area of southern Louisiana known as the Floridian Plateaus. The area of investigation for this report covers the eastern part of the Floridian Plateaus in St. Helena, Tangipahoa, St. Tammany, St. Charles, and St. James parishes in Louisiana. This part of the Chicot equivalent aquifer system is the primary source of freshwater for domestic supply in the areas of southern Louisiana. In 1966, nearly 70% of the state's water supply came from this aquifer system. The potentiometric surface of the aquifer system is the primary source of freshwater for domestic supply in the area of southern Louisiana.

Additional knowledge about ground-water flow and the effects of withdrawals on the Chicot equivalent aquifer system is needed for assessment of ground-water development potential and protection of the resource. To meet this need, the potentiometric surface of the aquifer system and water-level changes at various locations are measured as part of the U.S. Geological Survey's cooperative program with the Louisiana Department of Transportation and Development.

The map in this report can be used for determining distance of ground-water flow, hydrologic gradients, and effects of withdrawals on the ground-water system. The map of ground-water movement can be estimated from the gradient of the hydraulic conductivity of the aquifer.

HYDROGEOLOGY

The Chicot equivalent aquifer system consists of vadose zone deposits of sand, silt, and clay, separated by discontinuous soils of clay and sandy clay. These deposits are underlain by a extensive flow-through sandstone, shale, and sandstone and siltstone at the bottom of the formations. The aquifer system is underlain by a extensive flow-through sandstone, shale, and sandstone and siltstone at the bottom of the formations. The aquifer system is underlain by a extensive flow-through sandstone, shale, and sandstone and siltstone at the bottom of the formations. The aquifer system is underlain by a extensive flow-through sandstone, shale, and sandstone and siltstone at the bottom of the formations. The aquifer system is underlain by a extensive flow-through sandstone, shale, and sandstone and siltstone at the bottom of the formations.

The potentiometric surface of the Chicot equivalent aquifer system (fig. 2) was constructed using water level data from wells completed to aquifers in the system. During February and March of 1991, water levels in the aquifer system ranged from 1.5 feet below sea level in the St. Tammany Parish, in the extreme northern part of the study area, to more than 300 feet above sea level along the northern edge of the study area in St. Helena and Washington Parishes (table 1). Ground water flows from areas of higher to lower levels, and the direction of flow is perpendicular to the potentiometric surface. In the study area, ground water is generally to the south along the dips of the aquifer.

GROUND WATER MAP No. 7

POTENTIOMETRIC SURFACE, 1991, OF THE CHICOT EQUIVALENT AQUIFER SYSTEM IN SOUTHEASTERN LOUISIANA

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1995