

# A PRELIMINARY EXAMINATION OF THE HYDROGEOLOGY OF THE CHICOT AQUIFER

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## ABSTRACT

The Chicot aquifer of southwestern Louisiana is the state's largest source of groundwater. This study is part of the Chicot aquifer groundwater modeling study, which will be a detailed large-scale examination of this aquifer. This study's focus is Acadia, Calcasieu and Jefferson Davis parishes. Results from about 600 specific capacity tests indicate that there is a fairly systematic variation of hydraulic properties of this aquifer as a function of both vertical and lateral positions. Geologic properties of the aquifer also vary in a systematic manner; for example in Acadia Parish the sands in the Chicot aquifer are shown to have a zone of intermittent clay dividing the aquifer into an upper and lower zone. This intermittent clay zone tends to gradually disappear into Jefferson Davis Parish as undifferentiated nearly continuous sand. On the western side of Jefferson Davis Parish it appears that there is a gradual transition from the single continuous sand to a three-layer division of the Chicot sands in central Calcasieu Parish. In central Calcasieu Parish, the Chicot aquifer can be divided into three sands with intervening clay zones. From initial examination of hundreds of hydraulic conductivity and porosity values, both hydraulic conductivity and porosities appear to be different for these three sand layers. In addition to noting spatial variation of the hydraulic properties of the Chicot aquifer there will be an examination of possible effects of scaling on hydraulic conductivity and a consideration of how geologic properties of the Chicot sands may influence the resulting hydraulic properties observed.