General Hydrogeology

The Middle and Upper Cretaceous aquifer systems are part of the Cretaceous aquifer system, which comprises almost alluvial and floodplain deposits and the overlying, mostly unconsolidated sands of the Cretaceous aquifer system in the eastern United States. This system is overlain by the Eocene-aged Floridan aquifer system, which is composed of sands and clays and is stratigraphically the oldest major aquifer system in the eastern United States. The Cretaceous aquifer system is divided into two major parts: the Upper Cretaceous and Lower Cretaceous. The Upper Cretaceous comprises the Upper Midville and Upper Dublin aquifers, and the Lower Cretaceous comprises the Lower Midville and Lower Dublin aquifers. These aquifers are overlying the Floridan aquifer system, which is the oldest and most productive aquifer system in the eastern United States.

Midville Aquifer System

The Midville aquifer system is composed of unconfined sands and gravel, and is underlain by the basal Cretaceous confining unit. This system is thickest in the extreme southern part of Richmond County. The Midville aquifer system consists of the Upper and Lower Midville aquifers, which are separated by the Upper Midville confining unit. The Upper Midville aquifer is about 180 ft thick, and the Lower Midville aquifer is about 170 ft thick. The Upper Midville aquifer is composed of about 50 ft of loose, medium-to-coarse sand and gravel, clayey sand, sand with clay layers, and massive hard clay. This aquifer system is confined by the Lower Midville confining unit, which is 27 ft thick near county well field #1, 19 ft thick near county well field #2, and 19 ft thick near county well field #3. The Lower Midville aquifer is composed of about 170 ft of loose, medium-to-coarse sand and gravel, and is underlain by the basal Cretaceous confining unit.

Dublin Aquifer System

The Dublin aquifer system is composed of unconfined sands and clays, and is underlain by the basal Cretaceous confining unit. This system is thickest in the extreme southern part of Richmond County. The Dublin aquifer system consists of the Upper and Lower Dublin aquifers, which are separated by the Upper Dublin confining unit. The Upper Dublin aquifer is about 140 ft thick, and the Lower Dublin aquifer is about 100 ft thick. The Upper Dublin aquifer is composed of about 140 ft of sand and clay, but is not a continuous aquifer system. The Lower Dublin aquifer is composed of about 100 ft of sand and clay, and is underlain by the basal Cretaceous confining unit.

References Cited


Floyd, D.B., Keen, L.R., and Smith, V.L., 1971, Geological and hydrogeologic map and data of Richmond County, Georgia: Georgia Department of Natural Resources, Division of Water Resources, map scale 1:24,000.

References to Previous USGS Publications

Summary

Ground-water data, including potentiometric-level and water-quality data, were collected from observation wells and water-level monitoring wells throughout Richmond County. These data were used to construct a potentiometric-surface map for the area, which is used to better understand ground-water movement in the county. The potentiometric-surface map was updated and compared to previous maps to better define the hydrogeologic units underlying the area and to update the potentiometric-surface map. The potentiometric-surface map was also used to identify areas where ground-water levels are lower than normal, which can be indicative of overpumping or other issues that may affect ground-water resources.

Introduction

The Middle and Upper Cretaceous aquifer systems are part of the Cretaceous aquifer system, which comprises almost alluvial and floodplain deposits and the overlying, mostly unconsolidated sands of the Cretaceous aquifer system in the eastern United States. This system is overlain by the Eocene-aged Floridan aquifer system, which is composed of sands and clays and is stratigraphically the oldest major aquifer system in the eastern United States. The Cretaceous aquifer system is divided into two major parts: the Upper Cretaceous and Lower Cretaceous. The Upper Cretaceous comprises the Upper Midville and Upper Dublin aquifers, and the Lower Cretaceous comprises the Lower Midville and Lower Dublin aquifers. These aquifers are overlying the Floridan aquifer system, which is the oldest and most productive aquifer system in the eastern United States.

The potentiometric-surface map was updated and compared to previous maps to better define the hydrogeologic units underlying the area and to update the potentiometric-surface map. The potentiometric-surface map was also used to identify areas where ground-water levels are lower than normal, which can be indicative of overpumping or other issues that may affect ground-water resources.

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