

POTENTIOMETRIC SURFACE OF THE FLORIDAN AQUIFER

INTRODUCTION

The configuration of the potentiometric surface of the Floridan aquifer and the water table in the surficial aquifer in parts of west-central Florida in the vicinity of well fields used for public supply are shown on sheets 1 and 2, respectively. The maps encompass land areas of about 1,200 mi² and include parts of Hillsborough, Pinellas, Pasco, and Sarasota Counties. The maps are prepared semiannually by the U.S. Geological Survey in cooperation with the Southwest Florida Water Management District and local agencies. Water levels generally are lowest in May and highest in September; in contrast, pumpage is highest in May and lowest in September. The surficial aquifer consists of unconsolidated, fine-grained sediment as much as 80 feet thick. In most areas, the surficial aquifer is underlain by clay that forms a leaky confining layer separating the surficial aquifer from the underlying limestone of the Floridan aquifer. In southern Hillsborough County and Sarasota County, confining beds separate the Floridan aquifer from overlying artesian aquifers. The Floridan aquifer consists of limestone and dolomite beds about 1,000 feet thick. Sixteen well-field areas were mapped: Brandon, Clearwater, Dunedin, Belleair, Come, Cross-Bar Ranch, Cypress Creek, East Lake, Eldridge-Wilde, Morris Bridge, Pasco County, Riverview, Section 21, Starkey, Sun City, and Verna. The well fields supply water to the urban and suburban areas of Brandon, Belleair, Clearwater, Dunedin, St. Petersburg, Sarasota, and Tampa, and Pinellas and southern Hillsborough Counties.

SUMMARY OF CONDITIONS

In September 1979, water levels in most observation wells in the surficial and Floridan aquifers were higher than those measured in May 1979 and higher than the average September levels. Seasonal and year-to-year fluctuations of water levels in the surficial and Floridan aquifers, and their relationships at each well field, are shown by hydrographs (table 2). The September 1979 potentiometric surface of the Floridan aquifer at most well fields was generally much higher than September 1978, the exception being Cypress Creek well field. Change of water levels ranged from a decrease of 9 feet at Verna well field to an increase of 15 feet at Come well field. Change of water levels in the surficial aquifer ranged from a decrease of 4 feet at Cypress Creek well field to an increase of 6 feet at Morris Bridge well field. Water levels in both aquifers were about 1 to 4 feet higher in September than in May 1979 in most well fields, exceptions being Sun City, Riverview, Pasco County, and Verna. Heavy rainfall during September resulted in selected well fields rising above their normal levels in portions of northwest Hillsborough County. On September 18, 1979, the total pumpage from the producing wells was 133.7 Mgal, 4.2 Mgal less than that recorded on September 26, 1978 (table 2). Most well fields pumped less water on September 18 than the previous September, excluding Cypress Creek, Starkey, Morris Bridge, and Brandon well fields where pumpage was greater.

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TABLE 1.—Pumpage and water levels in selected well fields, September 1979

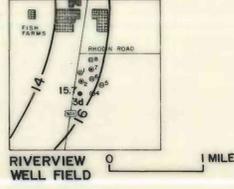
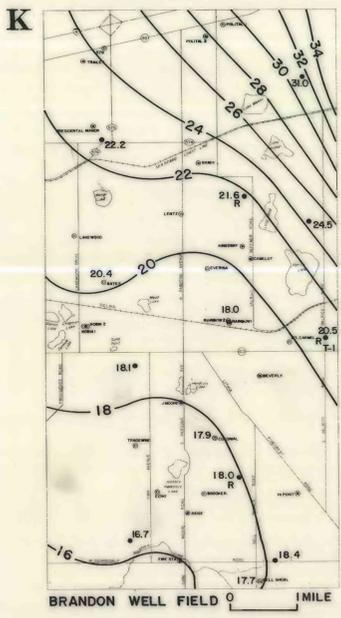
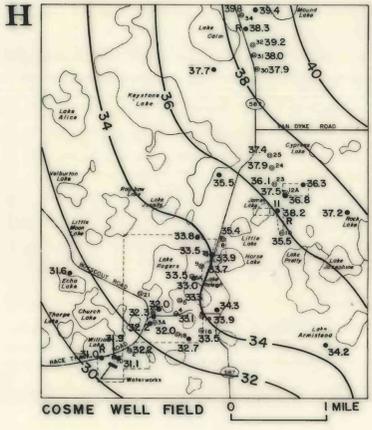
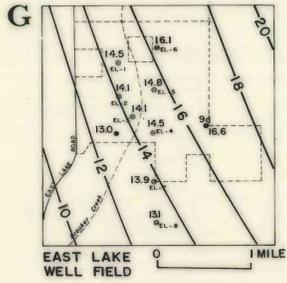
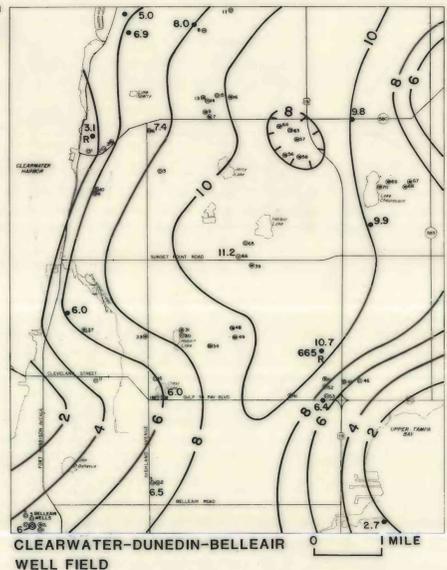
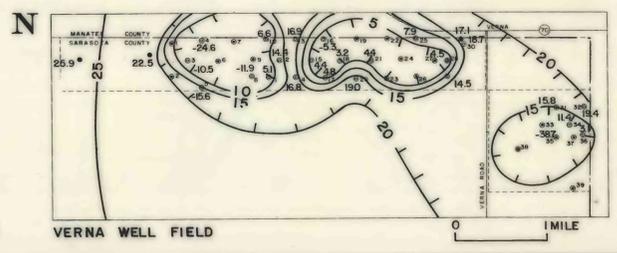
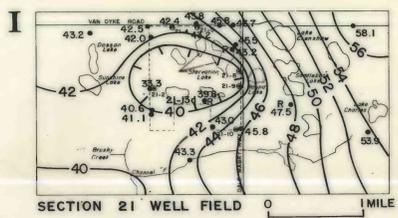
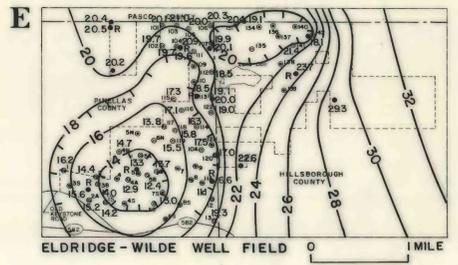
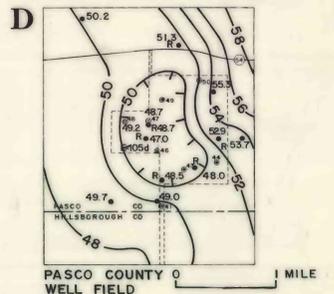
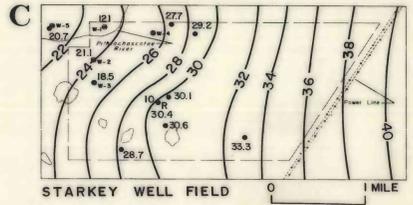
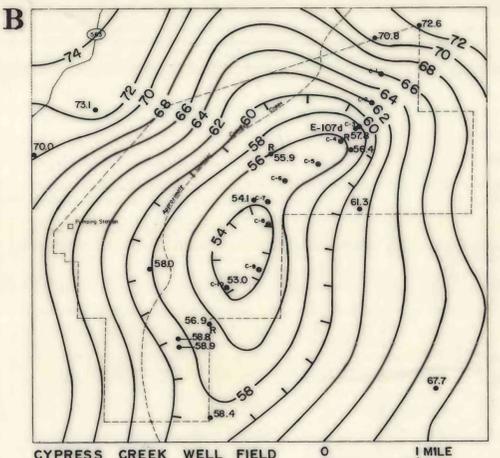
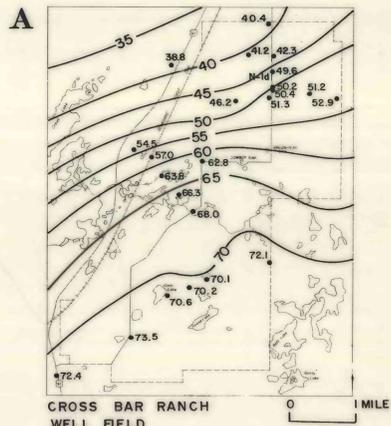
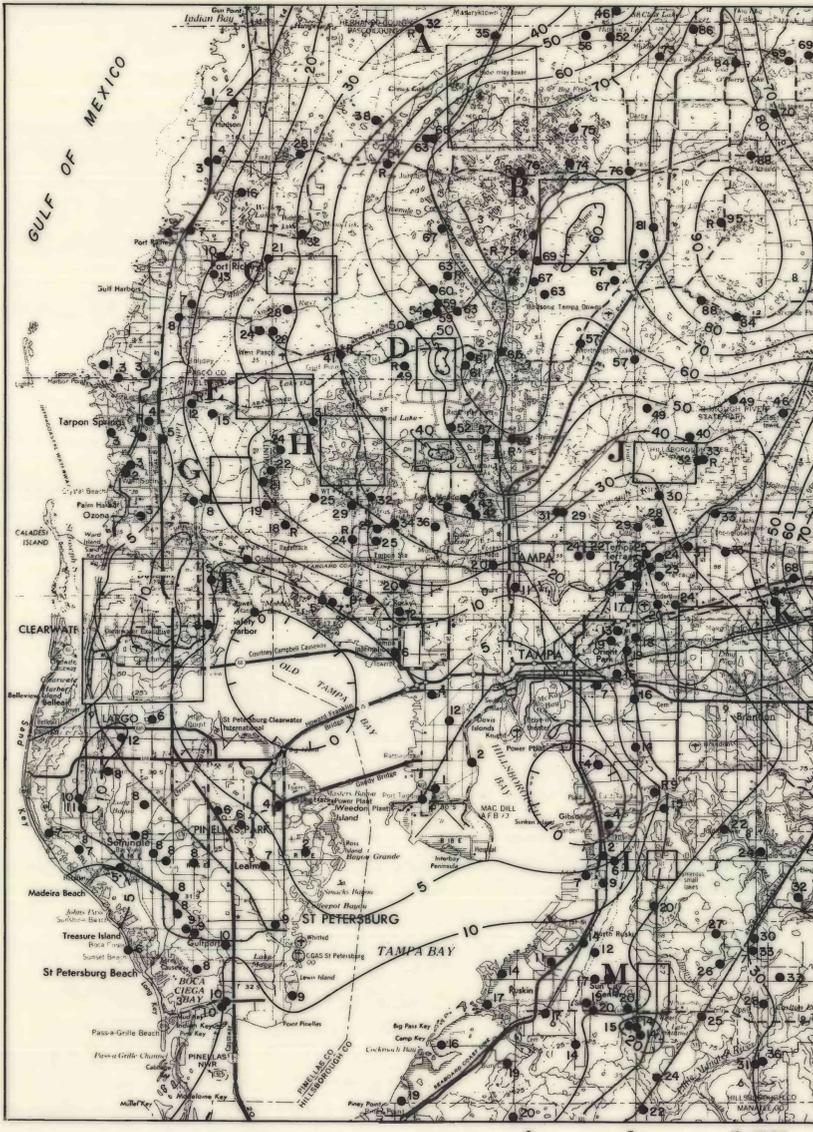
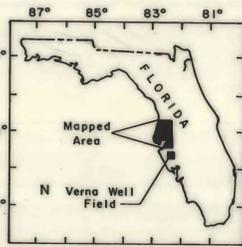
Well field	Number of wells	Total pumpage (Mgal)	Water level (ft)
Brandon	1	1.0	30.0
Belleair	1	1.0	30.0
Cypress Creek	1	1.0	30.0
Clearwater	1	1.0	30.0
Dunedin	1	1.0	30.0
East Lake	1	1.0	30.0
Eldridge-Wilde	1	1.0	30.0
Section 21	1	1.0	30.0
Starkey	1	1.0	30.0
Sun City	1	1.0	30.0
Verna	1	1.0	30.0
Total	16	133.7	30.0

TABLE 2.—Pumpage and water levels in selected well fields, September 1979

Well field	Number of wells	Total pumpage (Mgal)	Water level (ft)
Brandon	1	1.0	30.0
Belleair	1	1.0	30.0
Cypress Creek	1	1.0	30.0
Clearwater	1	1.0	30.0
Dunedin	1	1.0	30.0
East Lake	1	1.0	30.0
Eldridge-Wilde	1	1.0	30.0
Section 21	1	1.0	30.0
Starkey	1	1.0	30.0
Sun City	1	1.0	30.0
Verna	1	1.0	30.0
Total	16	133.7	30.0

EXPLANATION

- WELL-FIELD BOUNDARY— Shows generalized boundary of well-field area.
- POTENTIOMETRIC CONTOUR— Shows altitude of potentiometric surface. Contour interval 2, 5, and 10 feet. Barches indicate depressions. Datum is National Geodetic Vertical Datum of 1929.
- 33 @ Mile ECHO Pumping
- E-107 ● OBSERVATION WELL— Shows location of well data point. Well number indicates hydrograph shown on well-field figures.
- R WATER-LEVEL RECORDER— Shows location of water-level recorder.
- K Letter refers to hydrograph and corresponding well-field identification letter.



GROUND-WATER LEVELS IN SELECTED WELL FIELDS AND IN WEST-CENTRAL FLORIDA, SEPTEMBER 1979

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