

INTRODUCTION

The configuration of the water table in the surficial aquifer and of the potentiometric surface of the Floridan aquifer in the vicinity of well fields in parts of west-central Florida are shown on sheets 1 and 2, respectively. The mapped areas encompass a total land area of about 1,700 mi² and include all or parts of Hernando, Hillsborough, Manatee, Pasco, Pinellas, and Sarasota Counties. The maps were prepared jointly by the U.S. Geological Survey in cooperation with the Southwest Florida Water Management District and local governmental agencies. Annual water levels are generally lowest in May at the end of the dry season and highest in September at the end of the wet season; pumping is typically highest in May and lowest in September.

Water levels are mapped for the following 16 well-field areas: Cross Bar Ranch, Cypress Creek, Starkey, Pasco County, Eldridge-Wilde, Clearwater-Dunedin, Belleair, East Lake Road, Cosme, Section 21, Morris Bridge, Brandon, Riverview, Sun City, and Verna. The well fields supply water to urban and suburban areas of Hillsborough, Pasco, Pinellas, and Sarasota Counties.

The surficial aquifer generally consists of unconsolidated, fine-grained sediment that is as much as 80 feet in thickness. In most areas, the surficial aquifer underlies by clay that acts as a leaky confining layer that separates the surficial aquifer from the underlying Floridan aquifer. In southern Hillsborough County and at the Verna well field in Sarasota County, a sequence of intermediate aquifers and confining beds lies between the surficial and Floridan aquifers. The Floridan aquifer, consisting of limestone and dolomite beds, has an average thickness of about 1,000 feet.

SUMMARY OF CONDITIONS

Rainfall during the 1982 water year (October 1981 through September 1982) was about 20 percent greater than the 1941-70 normal. The area had above-normal rainfall in December, January, March, April, May, June, and September and below-normal rainfall in October, November, February, July, and August (table 1). Rainfall during the 1982 dry season (October through May) averaged about 20 percent above normal; rainfall during the 1982 wet season (June through September) averaged about 17 percent above normal.

Pumping and water-level data used within the 16 well fields were collected on September 13, 1982 (table 2). Pumpage data were obtained from personnel at the individual well fields. Water-level data were collected by USGS personnel. Table 2 also shows data from two hydrograph reporting dates. On September 13, 1982, the total pumpage from the well fields was 116.8 million gallons (MGal); 21.3 MGal less than on September 21, 1981. Total pumpage less than on May 10, 1982. Five well fields, Cross Bar Ranch, Cypress Creek, Section 21, Morris Bridge, and Verna pumped less water on September 13, 1982, than on September 21, 1981. Pumpage ranged from 0.5 to 19.8 MGal less. The remaining nine well fields pumped more water on September 13, 1982, than on September 21, 1981, with pumpage ranging from 0.2 to 3.9 MGal more.

Seasonal and year-to-year fluctuation of water levels in the surficial and Floridan aquifers for selected well-field wells are shown by hydrographs on sheet 2. In September 1982, ground-water levels in the surficial and Floridan aquifers were generally higher than in May 1982. Water levels measured in September 1982 were usually higher than in September 1981. These increases were due to above-normal rainfall in the 1982 water year and reduced pumpage.

The water table in September 1982 averaged about 1.8 feet higher than in September 1981 and about 3.6 feet higher than in May 1982. Water levels ranged from 1.0 foot to 7.6 feet higher in September 1982 than in May 1982. The September 1981 to September 1982 change of water levels ranged from a decrease of 2.2 feet at the Riverview well field to an increase of 6.7 feet at the Cross Bar Ranch well field.

Potentiometric levels of the Floridan aquifer in September 1982 averaged about 9.5 feet higher than those in May 1982, ranging from 1.3 to 24.4 feet higher. Potentiometric levels in September 1982 averaged about 2.9 feet higher than levels measured in September 1981 and ranged from a decrease of 0.7 foot at the East Lake Road well field to an increase of 11.1 feet at the Cross Bar Ranch well field.

SELECTED REFERENCES

- Barr, G. L., 1982, Ground-water levels in selected well fields and in west-central Florida, May 1982: U.S. Geological Survey Open-File Report 82-867.
- Yoklavich, R. W., and Barr, G. L., 1982, Ground-water levels in selected well fields and in west-central Florida, September 1981: U.S. Geological Survey Open-File Report 82-261.

WATER TABLE IN THE SURFICIAL AQUIFER

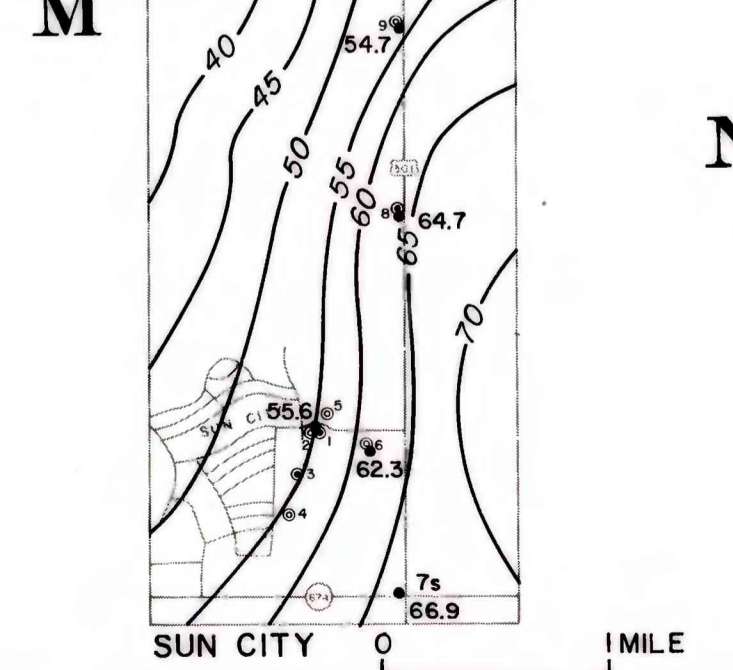
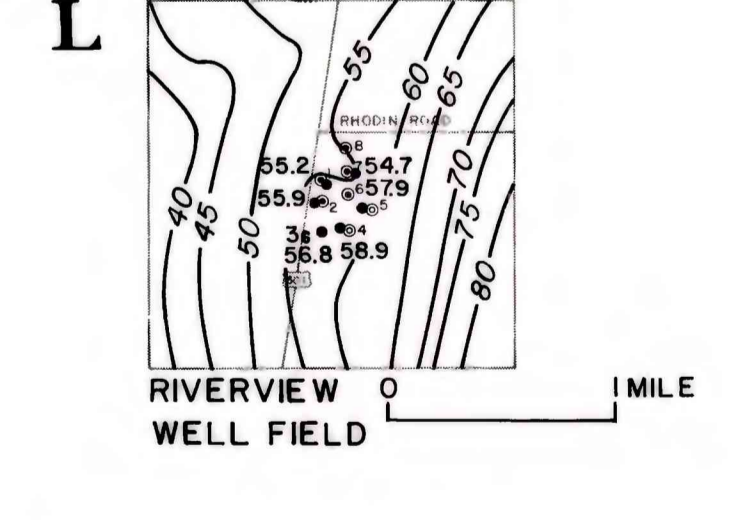
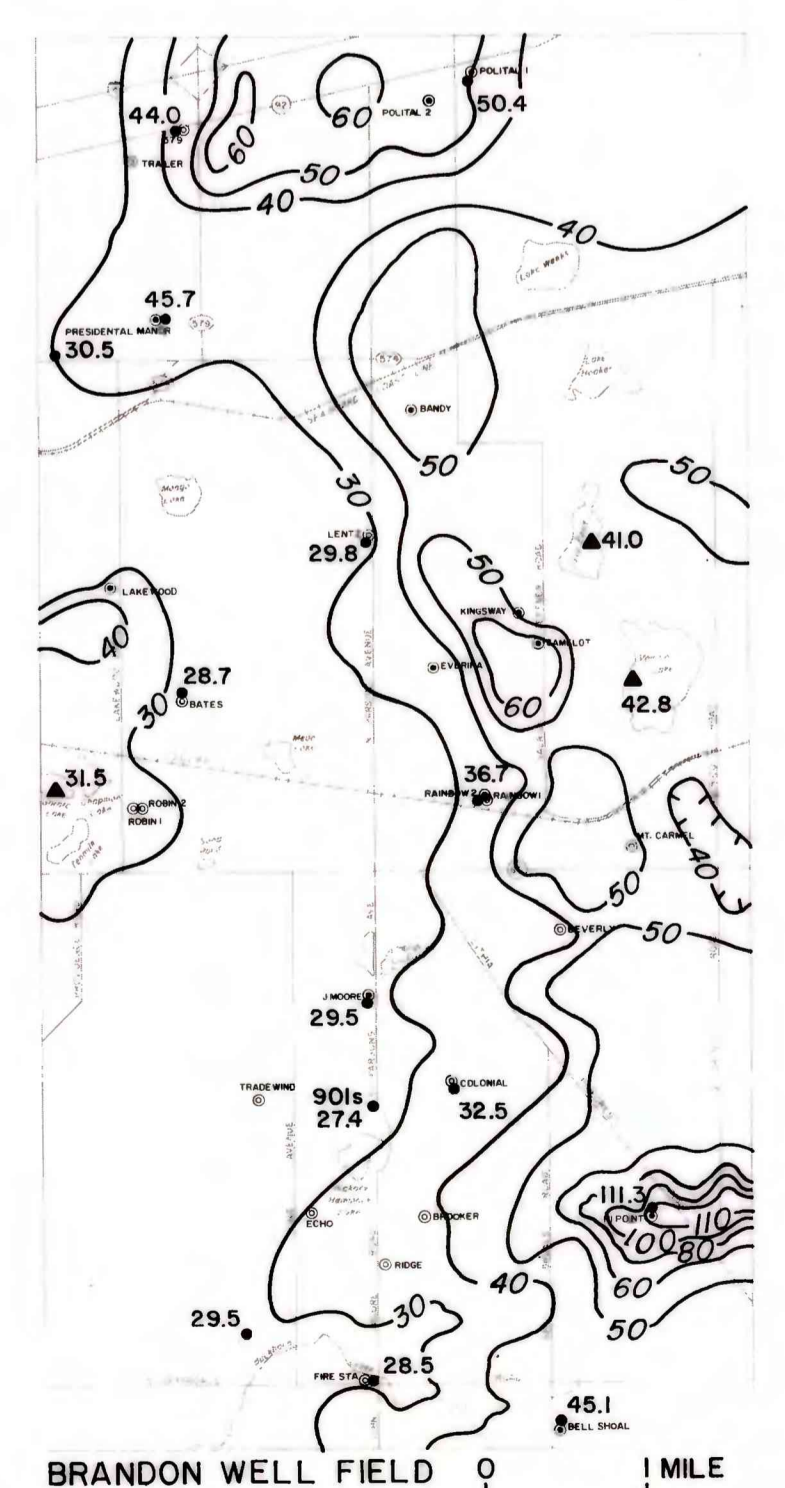
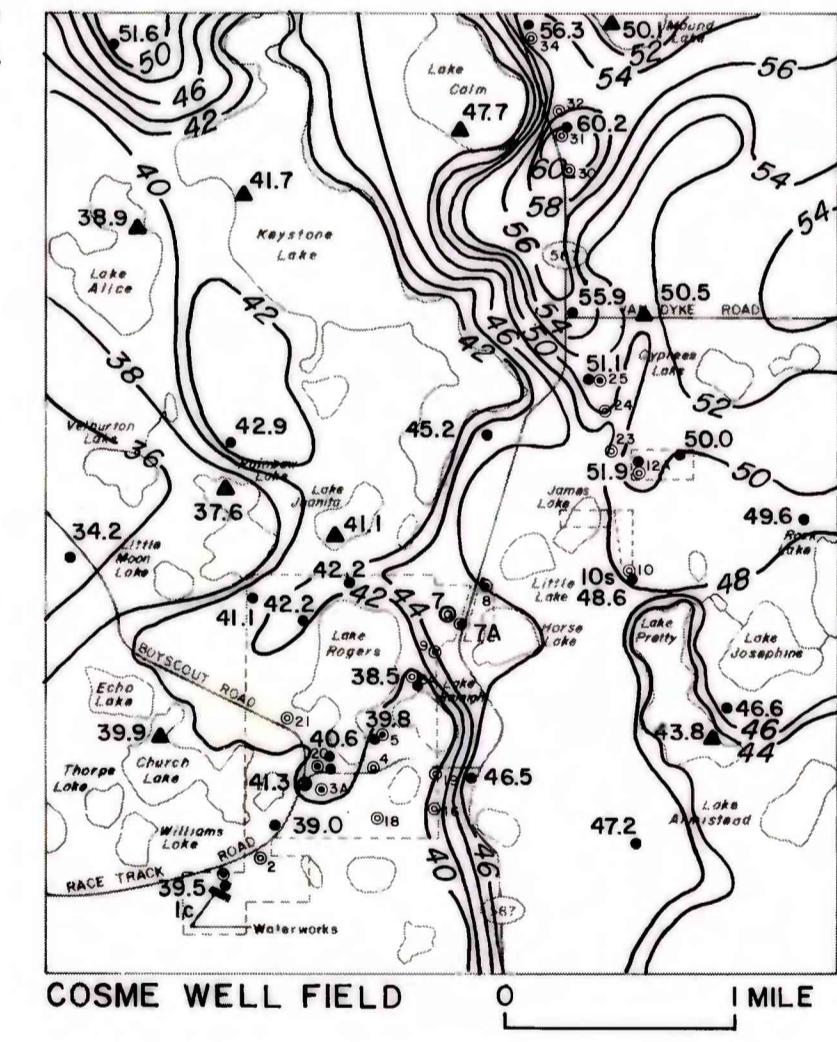
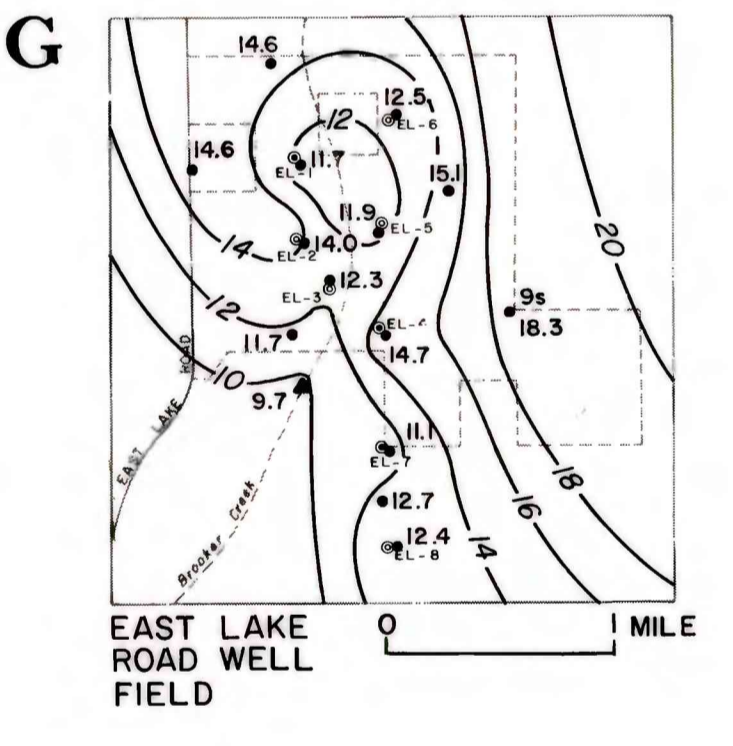
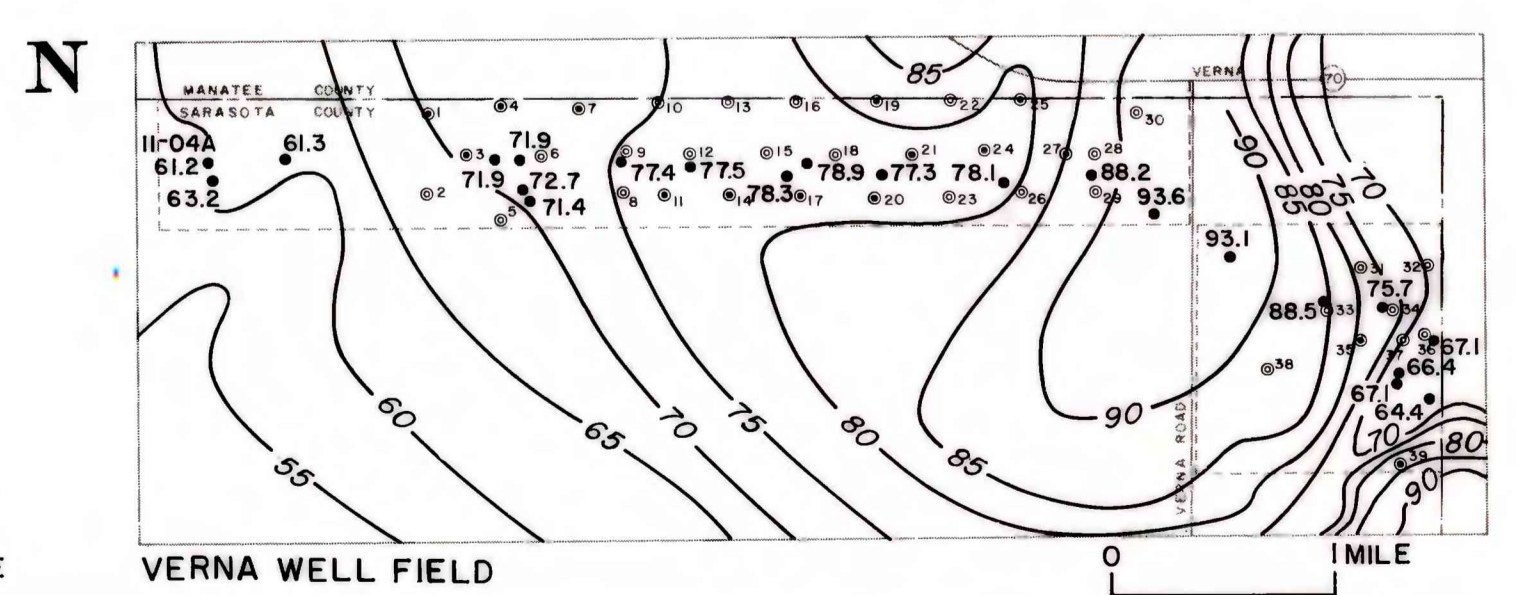
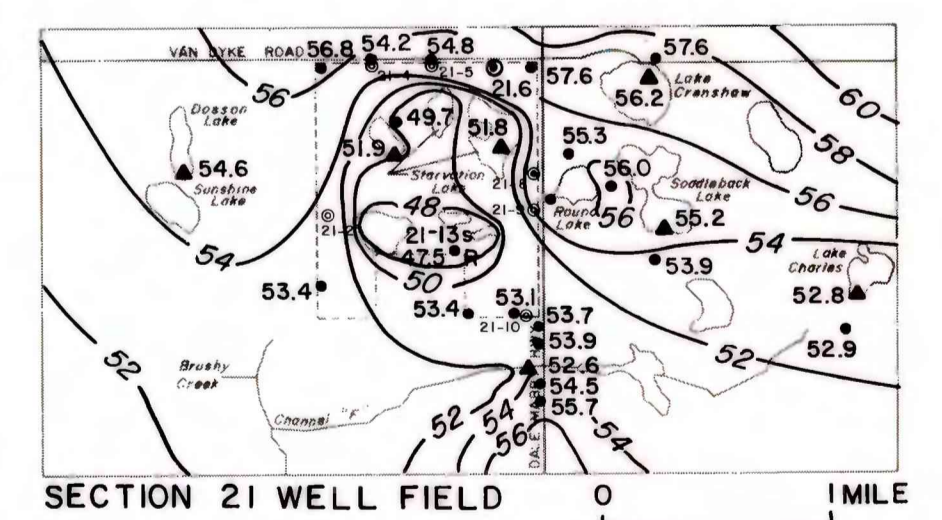
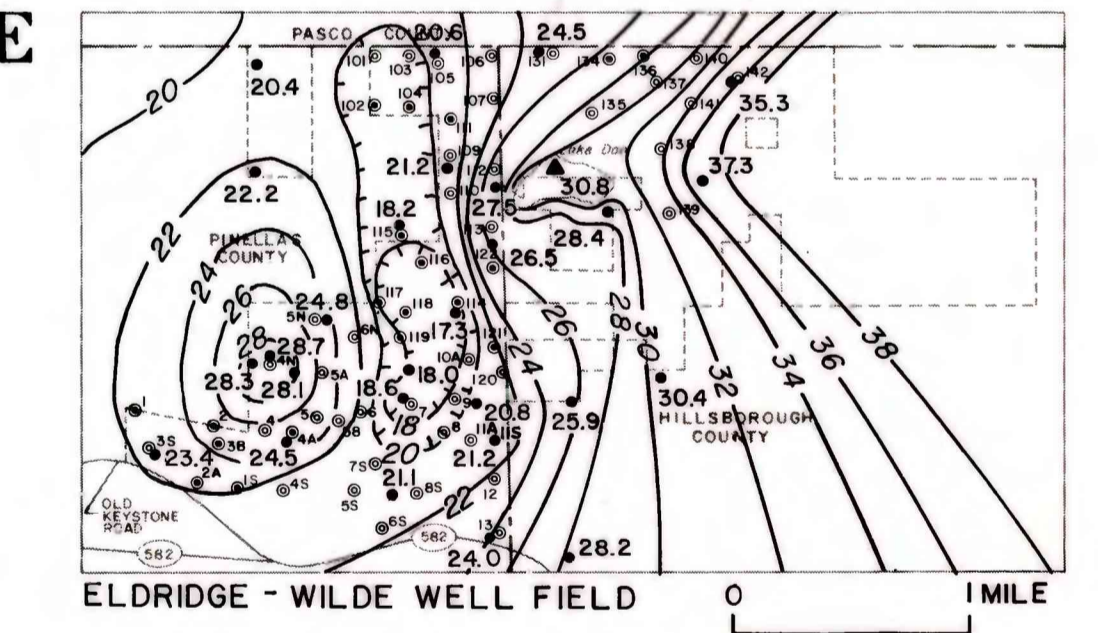
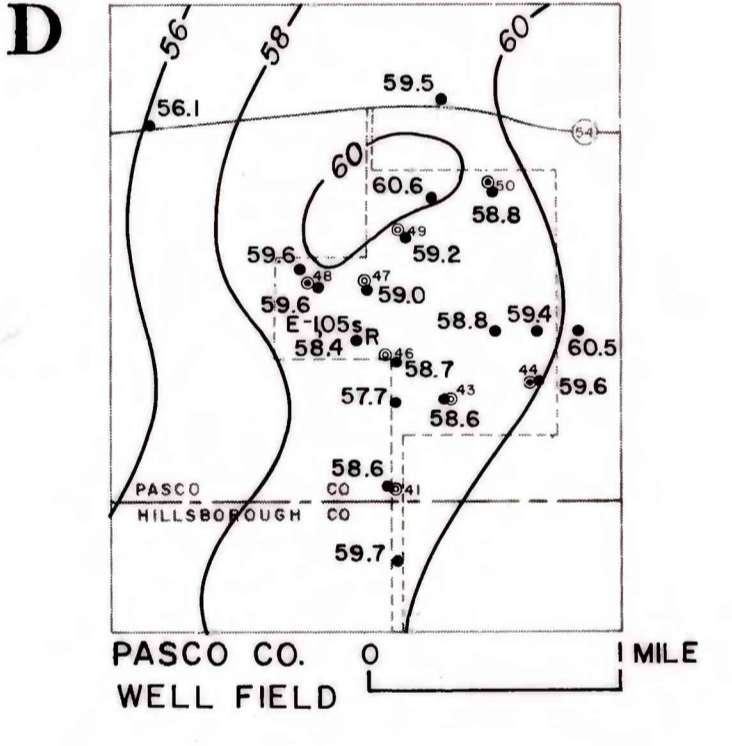
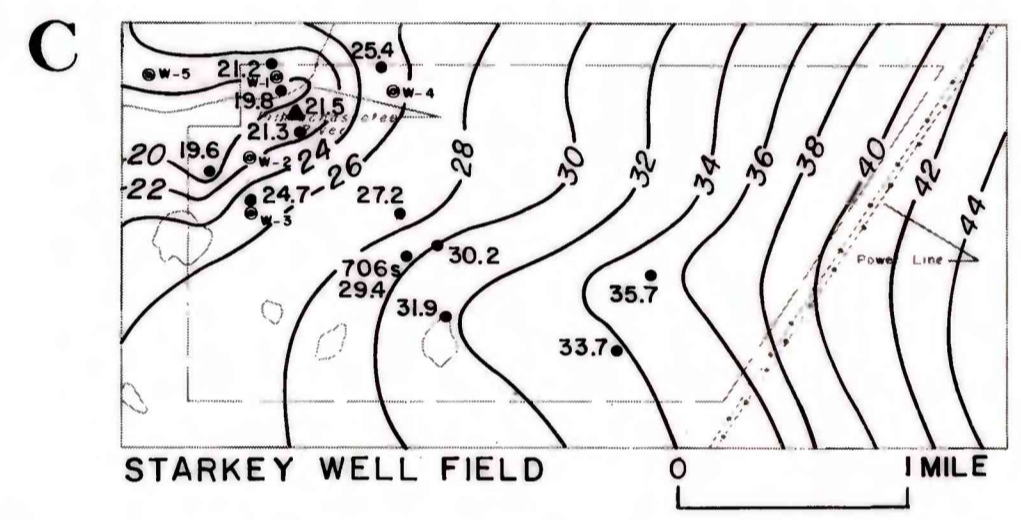
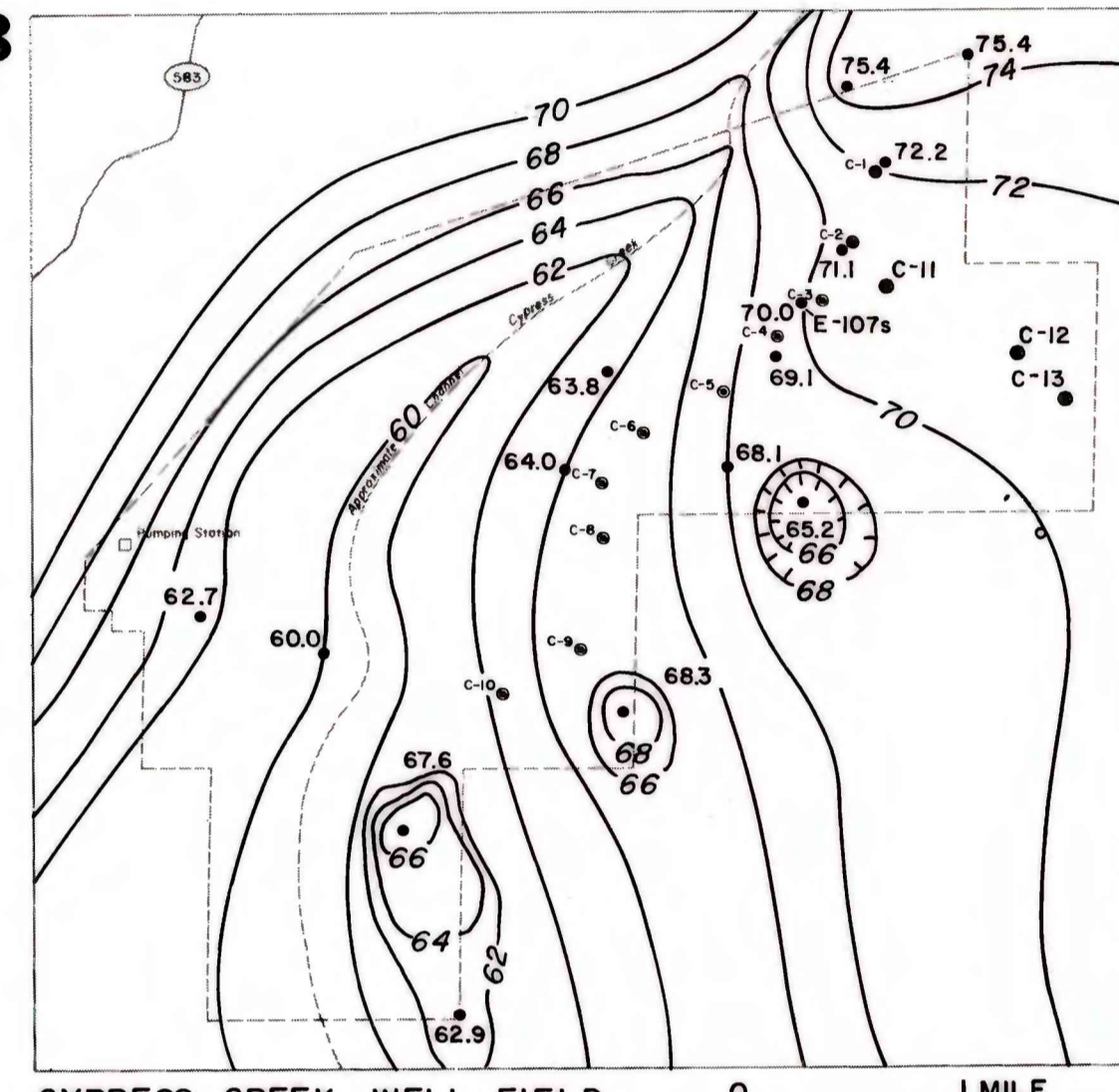
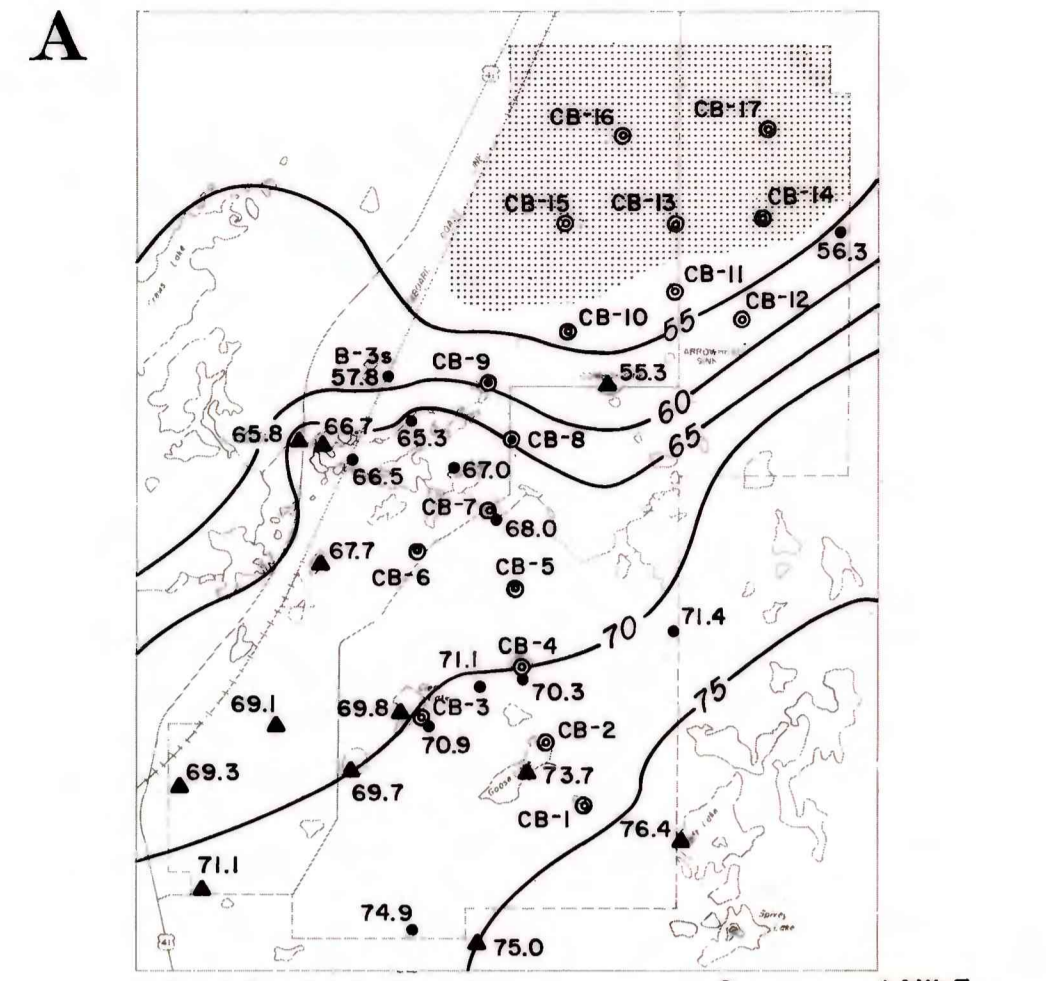
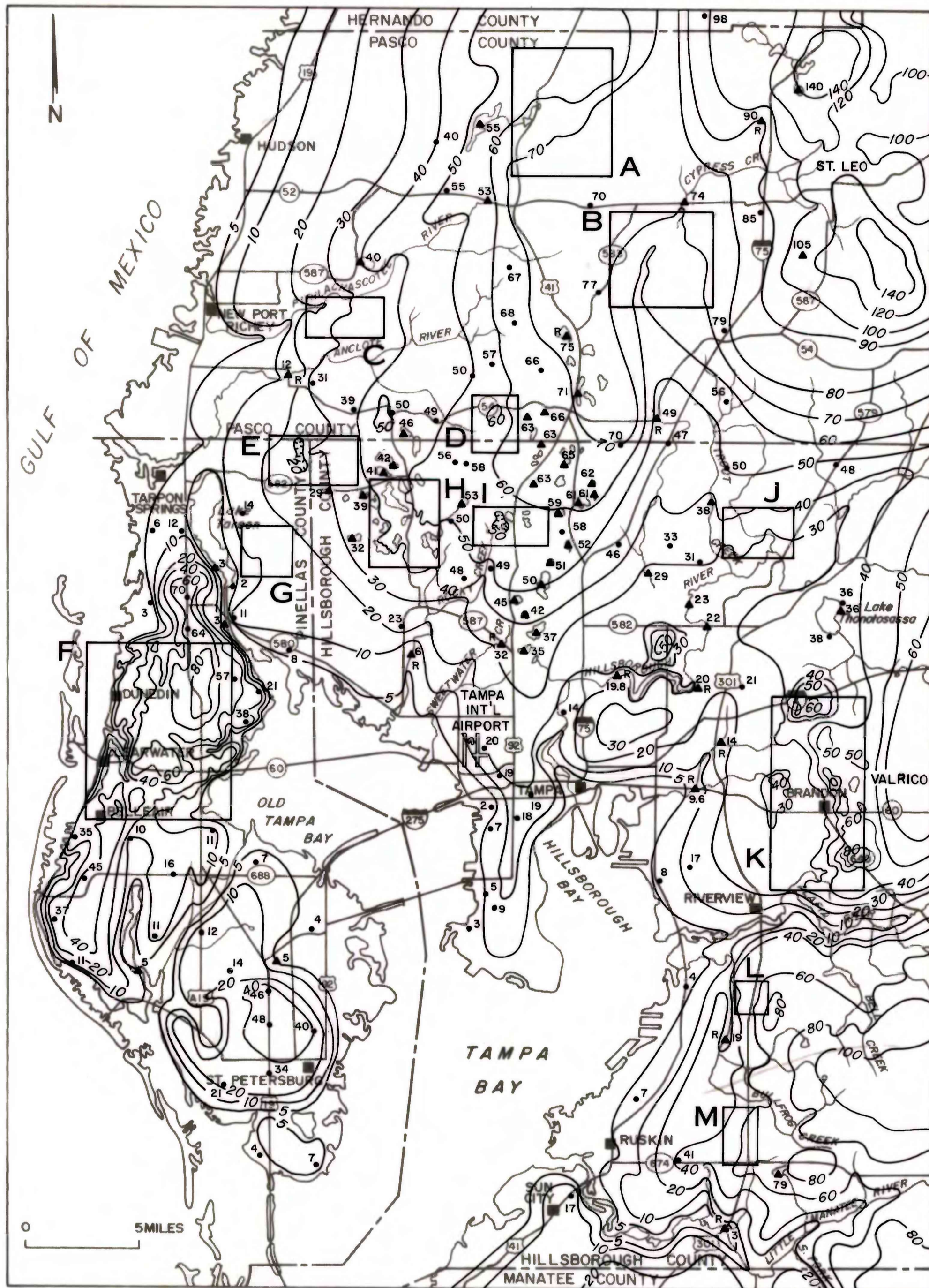
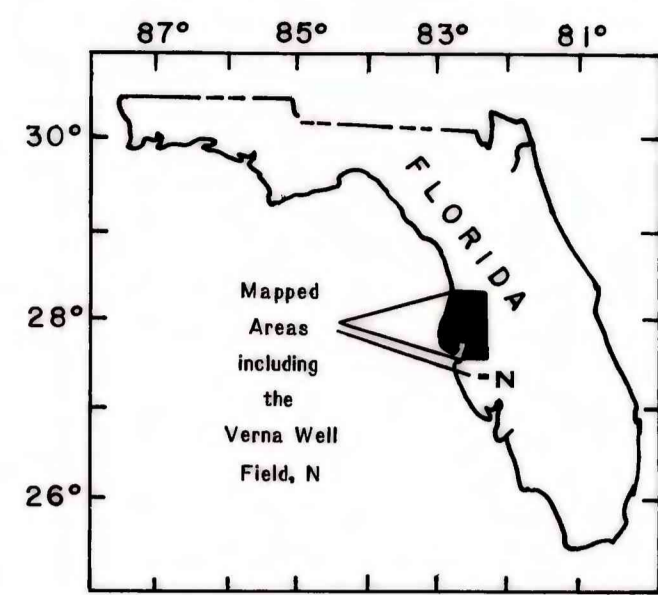


TABLE 1.—Monthly rainfall, monthly and annual totals, and percent deviation from the 1941-70 normal, for the 1982 water year (October 1981 through September 1982) in the mapped area, west-central Florida.

Month	1982 (inches)	1941-70 normal (inches)	Percent deviation
October	4.8	4.2	+14
November	4.2	4.5	-7
December	5.2	4.8	+8
January	5.8	5.0	+16
February	3.8	4.2	-10
March	5.5	4.8	+15
April	5.2	4.8	+8
May	5.8	5.0	+16
June	6.2	5.5	+13
July	5.8	5.2	+12
August	4.2	4.8	-13
September	5.5	4.8	+15
Annual total	54.2	50.8	+7

TABLE 2.—Pumpage and water-level data for selected well fields in west-central Florida, September 13, 1982, and for two hydrograph reporting dates.

Well field	Reporting date	Pumpage (MGal)	Water level (feet above MVD)
Cross Bar Ranch	09/13/82	19.8	68.5
	05/10/82	18.5	65.0
Cypress Creek	09/13/82	1.5	62.0
	05/10/82	1.2	60.0
Starkey	09/13/82	0.5	65.0
	05/10/82	0.4	63.0
Pasco Co.	09/13/82	2.5	58.0
	05/10/82	2.2	56.0
Eldridge-Wilde	09/13/82	3.5	55.0
	05/10/82	3.2	53.0
Section 21	09/13/82	1.5	52.0
	05/10/82	1.2	50.0
Morris Bridge	09/13/82	0.5	50.0
	05/10/82	0.4	48.0
Brandon	09/13/82	2.5	45.0
	05/10/82	2.2	43.0
Riverview	09/13/82	1.5	42.0
	05/10/82	1.2	40.0
Sun City	09/13/82	0.5	40.0
	05/10/82	0.4	38.0
Verna	09/13/82	3.5	35.0
	05/10/82	3.2	33.0
East Lake Road	09/13/82	0.5	30.0
	05/10/82	0.4	28.0
Cosme	09/13/82	1.5	25.0
	05/10/82	1.2	23.0

EXPLANATION

- 20— WATER-TABLE CONTOUR—Shows altitude of water table, September 13-17, 1982. Contour interval 2, 5, 10, and 20 feet. Dashed lines indicate depressions. Datum is National Geodetic Vertical Datum of 1929 (NGVD). Some contours are highly generalized and are based on surface-drainage features in areas where water-level measurements are not available.
- 67 @ MUNICIPAL SUPPLY WELLS—Shows location and number or name of well. Open symbol indicates well was idle. Solid symbol indicates well was pumped during most of year.
- 31.5 327 OBSERVATION WELL—Shows location of well and water level in feet above or below NGVD. Well number, where shown, indicates hydrograph shown in this report.
- 275 ▲ SURFACE-WATER GAGE—Shows location of surface-water gage and water level in feet above NGVD.
- R WATER-LEVEL RECORDER—Shows location of water-level recorder.
- WELL-FIELD BOUNDARY—Shows generalized boundary of well-field area.
- PROPERTY BOUNDARY—Shows boundary of property owned by operating agency.

F Well-field identification letter.

GROUND-WATER LEVELS IN SELECTED WELL FIELDS AND IN WEST-CENTRAL FLORIDA, SEPTEMBER 1982

By
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1982

Copies of this map can be purchased from
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