

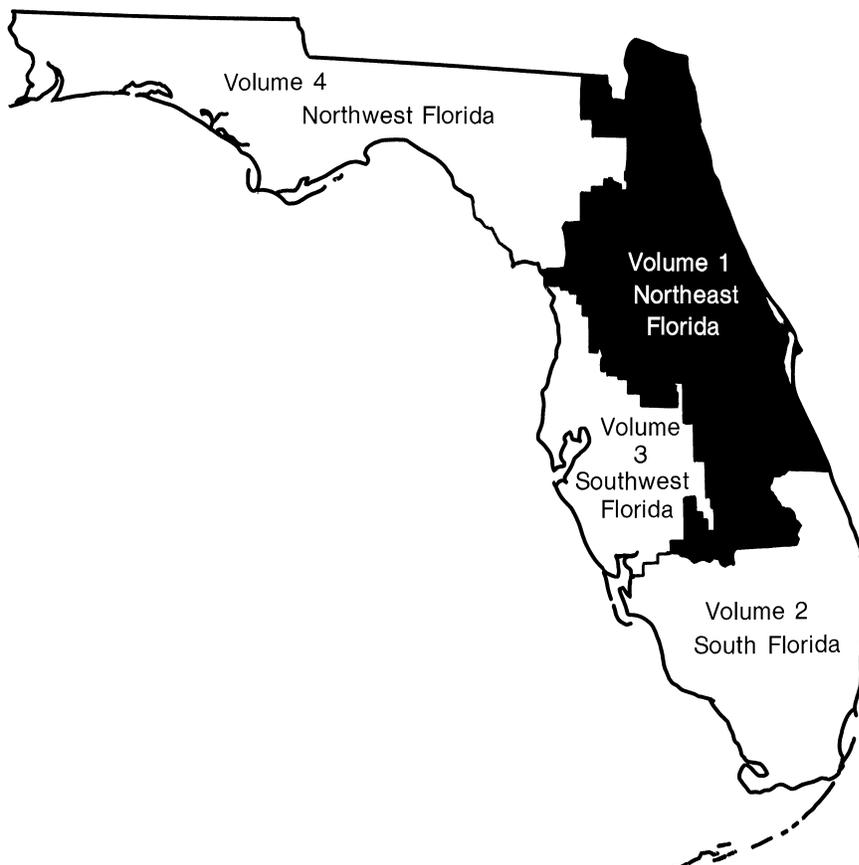
U.S. Department of the Interior  
U.S. Geological Survey

# Water Resources Data Florida Water Year 2003

## Volume 1B. Northeast Florida Ground Water

By H. G. George, A. P. Nazarian, S. M. Dickerson

Water-Data Report FL-03-1B



Prepared in cooperation with the State of Florida  
and with other agencies or cooperators



UNITED STATES DEPARTMENT OF THE INTERIOR

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Prepared in cooperation with the  
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## PREFACE

This volume of the annual hydrologic data report of Florida is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources. Hydrologic data for Florida are contained in four volumes:

Volume 1. Northeast Florida

Volume 2. South Florida

Volume 3. Southwest Florida

Volume 4. Northwest Florida

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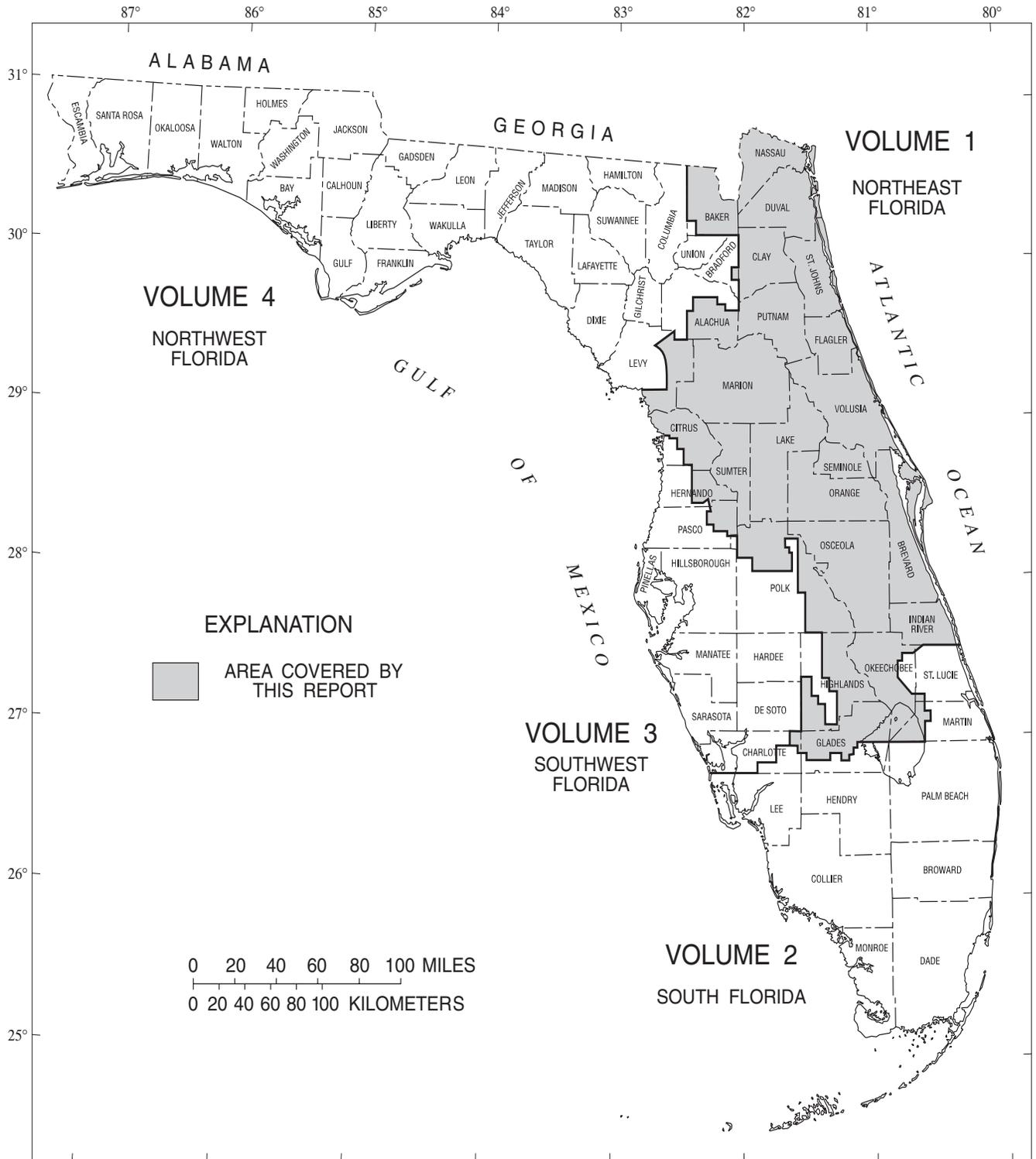


Figure 1.--Geographic area covered by this report.



## CONTENTS

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	Page
Preface .....	iii
Introduction .....	1
Cooperation .....	1
Summary of hydrologic conditions .....	2
Special networks and programs .....	5
Latitude-longitude system .....	6
Records of ground-water levels .....	7
Data collection and computation .....	7
Data presentation .....	7
Records of ground-water quality .....	8
Data collection and computation .....	8
Data presentation .....	8
Remark codes .....	9
Rounding clarification .....	9
Access to USGS water data .....	9
Definition of terms .....	10
Techniques of Water-Resources Investigations .....	27
Well descriptions and ground-water data .....	31
Alachua County, miscellaneous water level measurements .....	32
Baker County .....	34
Miscellaneous water level measurements .....	37
Brevard County .....	38
Miscellaneous water level measurements .....	41
Citrus County .....	42
Miscellaneous water level measurements .....	47
Clay County .....	48
Miscellaneous water level measurements .....	52
Duval County .....	54
Miscellaneous water level measurements .....	96
Flagler County .....	98
Miscellaneous water level measurements .....	101
Glades County .....	102
Miscellaneous water level measurements .....	105
Hernando County .....	106
Miscellaneous water level measurements .....	109
Highlands County .....	110
Indian River County .....	114
Miscellaneous water level measurements .....	117
Lake County .....	118
Miscellaneous water level measurements .....	126
Miscellaneous wetlands water level measurements .....	128
Levy County .....	134
Miscellaneous water level measurements .....	140

## CONTENTS--Continued

	Page
Well descriptions and ground-water data--Continued	
Marion County . . . . .	142
Miscellaneous water level measurements . . . . .	152
Nassau County . . . . .	154
Miscellaneous water level measurements . . . . .	159
Okeechobee County . . . . .	160
Miscellaneous water level measurements . . . . .	163
Orange County . . . . .	164
Miscellaneous water level measurements . . . . .	187
Miscellaneous water-quality records . . . . .	188
Osceola County . . . . .	198
Miscellaneous water level measurements . . . . .	211
Pasco County . . . . .	212
Miscellaneous water level measurements . . . . .	215
Polk County . . . . .	216
Miscellaneous water level measurements . . . . .	225
Miscellaneous water-quality measurements . . . . .	226
Putnam County . . . . .	246
Miscellaneous water level measurements . . . . .	249
St Johns County . . . . .	250
Miscellaneous water level measurements . . . . .	255
Seminole County . . . . .	256
Miscellaneous water level measurements . . . . .	259
Sumter County . . . . .	260
Miscellaneous water level measurements . . . . .	265
Miscellaneous water-quality measurements . . . . .	267
Volusia County . . . . .	270
Miscellaneous water level measurements . . . . .	273
Miscellaneous wetlands water level measurements . . . . .	275
Index to introductory text . . . . .	281

---

 TABLES
 

---

Table 1. Summary of water levels at selected wells for the period of record and water-year 2003. . . . .	3
--	---

## ILLUSTRATIONS

---

	Page
Figure 1. Geographic area covered by this report . . . . .	v
Figure 2. Map showing location of long-term hydrographs . . . . .	4
Figure 3. System for numbering wells and miscellaneous sites (latitude and longitude) . . . . .	6
Figure 4. Baker County . . . . .	35
Figure 5. Brevard County . . . . .	39
Figure 6. Citrus County . . . . .	43
Figure 7. Clay County . . . . .	49
Figure 8. Duval County . . . . .	55
Figure 9. Flagler County . . . . .	99
Figure 10. Glades County . . . . .	103
Figure 11. Hernando County . . . . .	107
Figure 12. Highlands County . . . . .	111
Figure 13. Indian River County . . . . .	115
Figure 14. Lake County . . . . .	119
Figure 15. Levy County . . . . .	135
Figure 16. Marion County . . . . .	143
Figure 17. Nassau County . . . . .	155
Figure 18. Okeechobee County . . . . .	161
Figure 19. Orange County . . . . .	165
Figure 20. Osceola County . . . . .	199
Figure 21. Pasco County . . . . .	213
Figure 22. Polk County . . . . .	217
Figure 23. Putnam County . . . . .	247
Figure 24. St. Johns County . . . . .	251
Figure 25. Seminole County . . . . .	257
Figure 26. Sumter County . . . . .	261
Figure 27. Volusia County . . . . .	271



## INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with State agencies, obtains a large amount of data pertaining to the water resources of Florida each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data - Florida."

This report series includes records of stage, discharge, and water quality of streams, stage, contents, water quality of lakes and reservoirs, and water levels and water quality of ground-water wells. Volume 1B contains records for continuous ground-water elevations at 50 wells; periodic ground-water elevations at 126 wells; miscellaneous ground-water elevations at 421 wells; and water-quality at 113 ground-water sites. The area encompassed in this report is shown in figure 1. The data presented here represent part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Florida.

This series of annual reports for Florida began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one volume, data on quantities of surface water, quality of surface and ground water, and ground-water levels.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Florida were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from Distribution Branch, Text Products Section, U.S. Geological Survey, Books and Open-File Reports, Federal Center, Building 41, Box 25425, Denver, CO 80225.

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report FL-03-1B." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Office at the address given on the back of the title page or by telephone (407)865-7575.

## COOPERATION

The U.S. Geological Survey and agencies of the State of Florida have had cooperative agreements for the collection of water-resource records since 1930. Organizations that assisted in collecting the data in this report through cooperative agreement with the Survey are:

U.S. Army Corps of Engineers, Jacksonville District	City of Cocoa
Florida Department of Environmental Protection	City of Jacksonville
St. Johns River Water Management District	Jacksonville Electric Authority
South Florida Water Management District	Lake County Water Authority
Southwest Florida Water Management District	Nassau County
Reedy Creek Improvement District	Seminole County

Organizations that provided data are acknowledged in station descriptions.

**SUMMARY OF HYDROLOGIC CONDITIONS**

**RAINFALL:** Rainfall during the 2003 water year was above normal. Based on rainfall data at six National Oceanic and Atmospheric Administration stations, the rainfall for the 12-month period, from October 2002 through September 2003, ranged from 17.22 in. above normal at Orlando to 4.75 in. below normal at Vero Beach. The departure from the 30-year average rainfall in 2003 for the six rainfall stations presented in the table below averaged 7.2 inches above normal. The change in average departure for these six rainfall stations from 2002 to 2003 was 2.9 inches (from an average surplus of 3.3 inches in 2002 to an average surplus of 7.2 inches in 2003 from the 30-year average). The following summary lists departure from the 30-year (1971-2000) normal for each of the stations.

Departure from the 30-year normal rainfall (1971-2000)

Station	October-December		January-March		April-June		July-September		Water Year	
	Total		Total		Total		Total		Total	
	Rainfall	Departure	Rainfall	Departure	Rainfall	Departure	Rainfall	Departure	Rainfall	Departure
Jacksonville AP	10.67	1.83	15.44	4.67	11.92	-.07	12.20	-8.54	50.23	-2.11
Ocala	11.13	3.30	17.29	6.61	13.48	-.05	15.55	-2.09	57.45	7.77
Daytona Beach	14.40	4.18	16.25	6.54	8.82	-2.67	18.00	.13	57.47	8.18
Orlando	18.69	11.33	7.66	-.66	13.31	-.20	25.91	6.75	65.57	17.22
Winter Haven	20.03	12.73	13.05	4.73	16.96	4.16	17.14	-4.66	67.18	16.96
Vero Beach AP	8.89	-1.38	5.93	-3.61	15.72	3.01	16.64	-2.77	47.18	-4.75

**GROUND-WATER LEVELS:** Figure 2 shows the locations of 15 selected ground-water wells which provide a general summary of hydrologic conditions in the the Upper Floridan aquifer in north-central Florida. Mean water levels and the range of water levels for the current water year and for the period of record are listed in table 1.

The average length of record for all 15 selected wells in this summary is 42 years (table 1). The longest period of record among the 15 wells is 68 years (USGS Flagler 14 well in Flagler County, table 1 and fig. 2, map no. 10)). The record for three other wells begins as early as the late 1930's and early 1940's. The shortest period of record in this summary is for Well RD-77 near Orange Springs in Putnam County (table 1 and fig. 2, map no. 11), which includes 22 years of record starting in 1982.

**Seasonal Patterns:** Water levels in the 15 wells presented in table 1 historically had a mean annual range of about 4.6 ft. The largest range of water levels (7.9 ft) during the period of record was in well OR-47 in Orange County (table 1 and fig. 2, map no. 4); the smallest range (1.6 ft) was in well RD-77-G in Putnam County (table 1 and fig. 2, map no. 11). The ranges in water levels in the 15 wells during the current water year averaged 4.6 feet.

Historically, throughout most of the area covered by this report, seasonal water-level maximums are observed in the months of September and October each year and seasonal minimums are observed in the months of May and June. Water levels in wells in the northeast counties included here (table 1 and fig. 2, map nos. 10-15) tend toward seasonal maximums in the months of December through April and seasonal minimums in the later months of summer and early fall (July through October).

**Annual Patterns:** Over the period of record, the typical altitude of water levels for all 15 selected wells averages about 46.4 ft above the National Geodetic Vertical Datum of 1929 (NGVD of 1929) and ranges from a high of about 127 ft above NGVD of 1929 for the Lake Alfred Deep well in Polk County (table 1 and fig. 2, map no. 1), and to a low of about 15 ft above NGVD of 1929 for the USGS Flagler-14 well in Flagler County (table 1 and fig. 2, map no. 10). Generally, water levels in wells in the Upper Floridan aquifer are highest in an area encompassing the northern part of Polk County, the southern part of Lake and Sumter Counties, and the western part of Orange County; levels are lowest in Flagler and Putnam Counties, and northern Lake County.

Average water levels for the current year were higher than averages for the period of record at 9 of the 15 wells shown. Annual water levels for all 15 wells averaged 46.2 ft NGVD of 1929 for the current year, which is lower than the average for the period of record. Water levels in the 15 selected ground-water wells showed an increase from 2002 levels. All of the 15 wells presented were above the previous water-year mean.

Table 1: Summary of water levels at selected wells for the period of record and water-year 2003. [ft, feet; msl, mean sea level]

Map No.	Well Number and Name	Period of Record				Water-Year 2003			Departure from Period of Record Mean (ft)
		Beginning Year	Mean Water Level (ft msl)	Mean Annual Range (ft)	Mean Water Level (ft msl)	Range (ft)	Change From Previous Year (ft)		
<b>Continuous water- level monitoring</b>									
1.	281008081441801 Lake Alfred Deep Well near Lake Alfred (Polk)	1959	127.1	5.4	129.0	4.0	2.4	1.9	
2.	281714081093001 Lake Joel Well near Ashton (Osceola)	1973	43.5	5.1	44.2	4.0	1.7	0.7	
3.	283249081053201 Bithlo-1 Well at Bithlo (Orange)	1960	35.9	4.8	36.2	3.6	1.7	0.2	
4.	283253081283401 OR-47 Well at Orlo Vista (Orange)	1947	61.4	7.9	59.8	7.2	5.4	-1.6	
5.	284842081533001 College Street Well at Leesburg (Lake)	1973	64.2	5.7	67.0	4.5	3.4	2.8	
6.	285102082204001 DOT-41 Observation Well at Inverness (Citrus)	1961	29.9	4.1	30.6	7.0	5.5	0.7	
<b>Periodic water- level monitoring</b>									
7.	271150081054401 GL-155 Well near Brighton (Glades)	1971	47.0	4.3	47.7	2.5	0.9	0.6	
8.	273127080481401 OK-1 Well at Fort Drum (Okeechobee)	1977	43.8	4.1	44.3	3.6	0.9	0.5	
9.	274607080493001 IR-189 Well near Yeehaw Junction (Indian River)	1976	41.8	4.4	42.6	3.5	1.2	0.8	
10.	292750081152001 USGS Flagler 14 at Bunnell (Flagler)	1936	14.9	2.5	14.2	2.4	0.9	-0.7	
11.	292948081503001 Well RD-77-G near Orange Springs (Putnam)	1982	19.5	1.6	20.5	1.5	1.6	1.0	
12.	300656081463401 Local Number C-94 USGS Test Well near Orange Park (Clay)	1974	34.8	5.7	34.4	6.5	4.6	-0.4	
13.	300758081230501 Local Number SJ-5. G. Oesterreicher Well near Palm Valley (St. Johns)	1944	37.1	5.0	32.3	7.0	2.0	-4.8	
14.	301535082162001 Local Number B-11 USGS Well at Sanderson (Baker)	1963	54.1	3.8	52.3	6.8	4.1	-1.8	
15.	302304081383202 Local Number D-122A City of Jacksonville Panama Park Well at Jax (Duval)	1940	40.8	3.8	37.5	4.6	4.5	-3.3	

WATER RESOURCES DATA FOR FLORIDA, 2003  
Volume 1B: Northeast Florida Ground Water

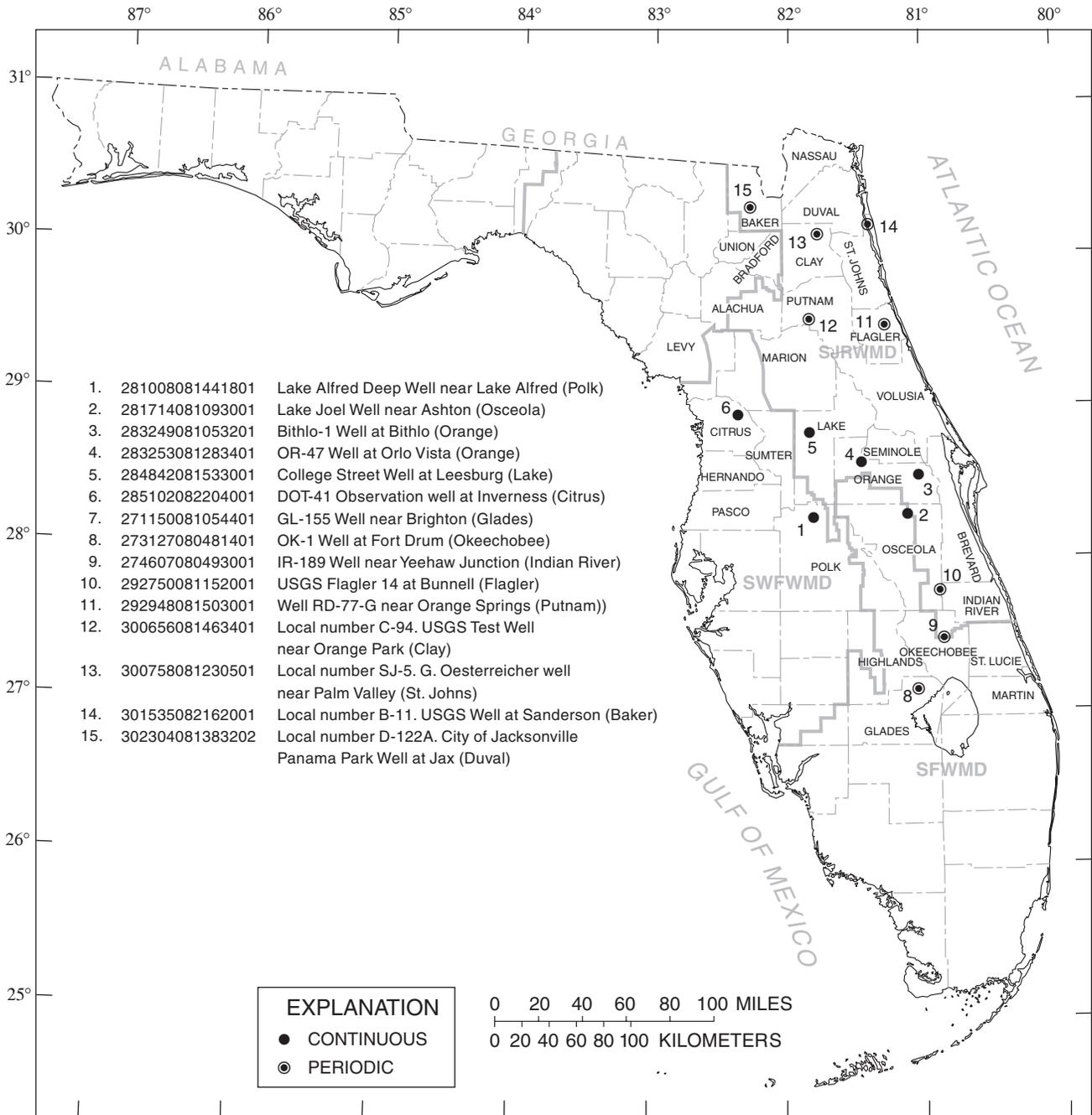


Figure 2.--Location of wells for long-term hydrographs.

## SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of 61 sites in small drainage basins in 39 States that was established in 1963 to provide consistent streamflow data representative undeveloped watersheds nationwide, and from which data could be analyzed on a continuing basis for use in comparison and contrast with conditions observed in basins more obviously affected by human activities. At selected sites, water-quality information is being gathered on major ions and nutrients, primarily to assess the affects of acid deposition on stream chemistry. Additional information on the Hydrologic Benchmark Program can be found at <http://water.usgs.gov/hbn/>.

National Stream-Quality Accounting Network (NASQAN) is a network of sites used to monitor the water quality of large rivers within the Nation's largest river basins. From 1995 through 1999, a network of approximately 40 stations were operated in the Mississippi, Columbia, Colorado, and Rio Grande. For the period 2000 through 2004, sampling was reduced to a few index stations on the Colorado and Columbia Rivers so that a network of 5 stations could be implemented on the Yukon River. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment Program (NAWQA); (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals. Additional information about the NASQAN Program can be found at <http://water.usgs.gov/nasqan/>.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) is a network of monitoring sites that provide continuous measurement and assessment of the chemical constituents in precipitation throughout the United States. As the lead federal agency, the USGS works together with over 100 organizations to provide a long-term, spatial and temporal record of atmospheric deposition generated from a network of 250 precipitation chemistry monitoring sites. The USGS supports 74 of these 250 sites. This long-term, nationally consistent monitoring program, coupled with ecosystem research, provides critical information toward a national scorecard to evaluate the effectiveness of ongoing and future regulations intended to reduce atmospheric emissions and subsequent impacts to the Nation's land and water resources. Reports and other information on the NADP/NTN Program, as well as all data from the individual sites, can be found at <http://bqs.usgs.gov/acidrain/>.

The USGS National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, representative part of the Nation's ground- and surface-water resources; to provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and to provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 42 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for water-resources managers to use in making decisions and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Communication and coordination between USGS personnel and other local, State, and federal interests are critical components of the NAWQA Program. Each study unit has a local liaison committee consisting of representatives from key federal, State, and local water resources agencies, Indian nations, and universities in the study unit. Liaison committees typically meet semiannually to discuss their information needs, monitoring plans and progress, desired information products, and opportunities to collaborate efforts among the agencies. Additional information about the NAWQA Program can be found at <http://water.usgs.gov/nawqa/>.

**EXPLANATION OF THE RECORDS**

The ground-water records published in this report are for the 2003 water year that began October 1, 2002, and ended September 30, 2003. A calendar of the water year is provided on the inside of the front cover. The records contain ground water-quality and water-level data. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

**Station Identification Numbers**

Each data station, whether streamsite or well, in this report is assigned a unique identification number. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for wells and for surface-water stations where only miscellaneous observations are made.

**Latitude-Longitude System**

The identification numbers for wells are assigned according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a 1-second grid. This site-identification number, once assigned, is a pure number and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description. (See figure 3.)

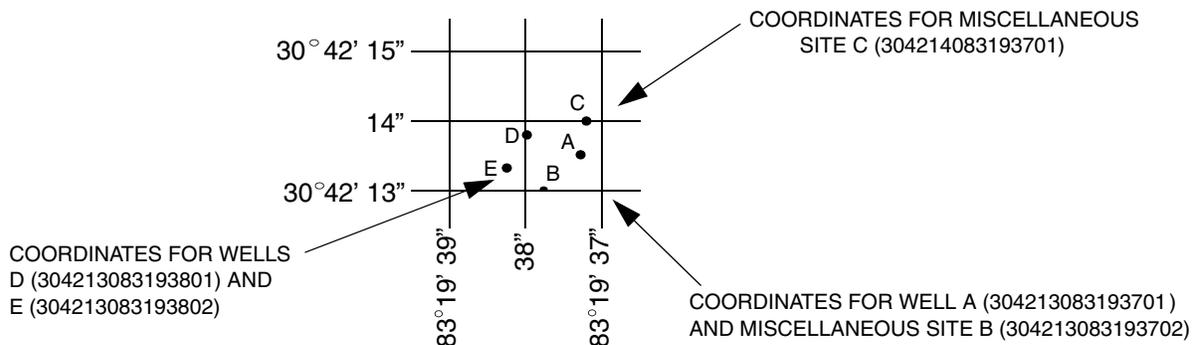


Figure 3.--System for numbering wells and miscellaneous sites. (latitude and longitude)

A second well-numbering system used in Florida utilizes 7 1/2-minute quadrangles within the State. The quadrangles are numbered from west to east, and lettered from south to north, omitting the letters "I" and "O." The designation for each quadrangle is determined by the method "Read Right, Up." Wells are numbered serially within each quadrangle. This local well number is shown immediately after the primary well number.

Well records furnished by the State of Florida also include the well number that is based on an indexing system used by the State Water Control Board.

**Records of Ground-Water Levels**

Ground-water level data from a national network of observation wells are given in this report. The records include data from wells equipped with water-level recorders and data from wells where water levels are measured periodically.

### Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Tables of water-level data are presented by counties arranged in alphabetical order. The prime identification number for a given well is the 15-digit number that appears in the upper left corner of the table. The secondary identification number is the local well number, an alphanumeric number, derived from the township-range location of the well.

Water-level records are obtained from direct measurements with a steel tape, pressure gage, or an electronic water-stage recorder. The water-level measurements in this report are given in feet above National Geodetic Vertical Datum of 1929 or in some tables as feet below land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (EOM). Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

### Data Presentation

Each well record consists of two parts, the station description and the data table of water levels observed during the water year. The description of the well is presented first through use of descriptive headings preceding the tabular data. The following comments clarify information presented under the various headings.

**LOCATION.**--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); a landline location designation; the hydrologic-unit number; the distance and direction from a geographic point of reference; and the owner's name.

**AQUIFER.**--This entry designates by name (if a name exists) and geologic age the aquifer(s) open to the well.

**WELL CHARACTERISTICS.**--This entry describes the well in terms of depth, diameter, casing depth and/or screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

**INSTRUMENTATION.**--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on periodic or continuous record.

**DATUM.**--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above (or below) National Geodetic Vertical Datum of 1929 (NGVD of 1929); it is reported with a precision depending on the method of determination.

**REMARKS.**--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells, and may be used to acknowledge the assistance of local (non-Survey) observers.

**PERIOD OF RECORD.**--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

**EXTREMES FOR PERIOD OF RECORD.**--This entry contains the highest and lowest water levels of the period of published record, with reference to National Geodetic Vertical Datum of 1929 and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet above National Geodetic Datum of 1929 and all taped measurements of water level are listed. For wells equipped with recorders, only abbreviated tables are published; generally, maximums are listed for every fifth day and at the end of the month (EOM). The highest water level of the calendar and water year for complete record is shown on a line below the abbreviated table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level.

### **Records of Ground-Water Quality**

Records of ground-water quality in this report differ from other types of records in that, for most sampling sites, they consist of only one set of measurements for the water year. The quality of ground water ordinarily changes slowly; therefore, for most general purposes, one annual sampling, or only a few samples taken at infrequent intervals during the year, is sufficient. Frequent measurement of the same constituents is not necessary unless one is concerned with a particular problem, such as monitoring for trends in nitrate concentration. In the special cases where the quality of ground water may change more rapidly, more frequent measurements are made to identify the nature of the changes.

#### **Data Collection and Computation**

The records of ground-water quality in this report were obtained mostly as a part of special studies in specific areas. Consequently, a number of chemical analyses are presented for some counties but none are presented for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality Statewide. Such a view can be attained only by considering records for this year in context with similar records obtained for these and other counties in earlier years. Most methods for collecting and analyzing water samples are described in the "U.S. Geological Survey TWRI publications referred to in the "On-site Measurements and Sample Collection" and the "Laboratory Measurements" sections in this data report. In addition, the TWRI Book 1, Chapter D2, describes guidelines for the collection and field analysis of ground-water samples for selected unstable constituents. The values reported in this report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. These methods are consistent with ASTM standards and generally follow ISO standards. All samples were obtained by trained personnel. The wells sampled were pumped long enough to assure that the water collected came directly from the aquifer and had not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

#### **Data Presentation**

The records of ground-water quality are published in a section titled QUALITY OF GROUND WATER immediately following the ground-water-level records for each county. Data for quality of ground water are listed alphabetically by County, and are identified by well number. The prime identification number for wells sampled is the 15-digit number derived from the latitude-longitude locations. No descriptive statements are given for ground-water-quality records; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water. The REMARK codes listed for surface-water-quality records are also applicable to ground-water-quality records.

Remark Codes

The following remark codes may appear with the water-quality data in this section:

PRINT OUTPUT	REMARK
E	Estimated value.
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown.
M	Presence of material verified, but not quantified.
ND	Material specifically analyzed for but not detected.
K	Results based on colony count outside the acceptance range (non-ideal colony count).
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted).
D	Biological organism count equal to or greater than 15 percent (dominant).
V	Analyte was detected in both the environmental sample and the associated blanks
&	Biological organism estimated as dominant.
cl	Value qualifier code for holding time exceeded by the laboratory.

Rounding Clarification

Values for some constituents analyzed by routine methods are tabulated with extraneous trailing zeros that are not significant digits. Extraneous zeros result because data obtained from low-level methods that have better (lower) detection limits are stored under the same parameter code as data obtained by routine analytical methods. Precision varies for different analytical methods used to determine the same constituent. The presence of trailing zeroes after the decimal in values printed in this report does not necessarily indicate that the method used for the determination is as precise as the level implied by the rightmost zero.

**ACCESS TO USGS WATER DATA**

The USGS provides near real-time stage and discharge data for many of the gaging stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for most current or discontinued gaging stations through the world wide web (WWW). These data may be accessed at:

<http://water.usgs.gov>

Some water-quality and ground-water data also are available through the WWW. In addition, data can be provided in various machine readable formats on magnetic tape or 3-1/2 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division Offices (See address on the back of the title page).

. The first two digits of a numbered aroclor represent the molecular type, and the last two digits represent the percentage weight of the hydrogen-substituted chlorine.

**DEFINITION OF TERMS**

Specialized technical terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. Definitions of common terms such as algae, water level, and precipitation are given in standard dictionaries. Not all terms defined in this alphabetical list apply to every State. See also table for converting inch/pound units to International System (SI) units on the inside of the back cover.

**Acid neutralizing capacity** (ANC) is the equivalent sum of all bases or base-producing materials, solutes plus particulates, in an aqueous system that can be titrated with acid to an equivalence point. This term designates titration of an “unfiltered” sample (formerly reported as alkalinity).

**Acre-foot** (AC-FT, acre-ft) is a unit of volume, commonly used to measure quantities of water used or stored, equivalent to the volume of water required to cover 1 acre to a depth of 1 foot and equivalent to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters. (See also “Annual runoff”)

**Adenosine triphosphate** (ATP) is an organic, phosphate-rich compound important in the transfer of energy in organisms. Its central role in living cells makes ATP an excellent indicator of the presence of living material in water. A measurement of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter.

**Algal growth potential** (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample. (See also “Biomass” and “Dry weight”)

**Alkalinity** is the capacity of solutes in an aqueous system to neutralize acid. This term designates titration of a “filtered” sample.

**Annual runoff** is the total quantity of water that is discharged (“runs off”) from a drainage basin in a year. Data reports may present annual runoff data as volumes in acre-feet, as discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches.

**Annual 7-day minimum** is the lowest mean value for any 7-consecutive-day period in a year. Annual 7-day minimum values are reported herein for the calendar year and the water year (October 1 through September 30). Most low-flow frequency analyses use a climatic year (April 1-March 31), which tends to prevent the low-flow period from being artificially split between adjacent years. The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day, 10-year low-flow statistic.)

**Aroclor** is the registered trademark for a group of poly-chlorinated biphenyls that were manufactured by the Monsanto Company prior to 1976. Aroclors are assigned specific 4-digit reference numbers dependent upon molecular type and degree of substitution of the biphenyl ring hydrogen atoms by chlorine atoms. The first two digits of a numbered aroclor represent the molecular type, and the last two digits represent the percentage weight of the hydrogen-substituted chlorine.

**Artificial substrate** is a device that is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is collected. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hard-board) for benthic organism collection, and plexiglass strips for periphyton collection. (See also “Substrate”)

**Ash mass** is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500 °C for 1 hour. Ash mass of zooplankton and phytoplankton is expressed in grams per cubic meter ( $\text{g}/\text{m}^3$ ), and periphyton and benthic organisms in grams per square meter ( $\text{g}/\text{m}^2$ ). (See also “Biomass” and “Dry mass”)

**Aspect** is the direction toward which a slope faces with respect to the compass.

**Bacteria** are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, whereas others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

**Bankfull stage**, as used in this report, is the stage at which a stream first overflows its natural banks formed by floods with 1- to 3-year recurrence intervals.

**Base discharge** (for peak discharge) is a discharge value, determined for selected stations, above which peak discharge data are published. The base discharge at each station is selected so that an average of about three peak flows per year will be published. (See also "Peak flow")

**Base flow** is sustained flow of a stream in the absence of direct runoff. It includes natural and human-induced streamflows. Natural base flow is sustained largely by ground-water discharge.

**Bedload** is material in transport that is supported primarily by the streambed. In this report, bedload is considered to consist of particles in transit from the bed to an elevation equal to the top of the bedload sampler nozzle (ranging from 0.25 to 0.5 foot) that are retained in the bedload sampler. A sample collected with a pressure-differential bedload sampler also may contain a component of the suspended load.

**Bedload discharge** (tons per day) is the rate of sediment moving as bedload, reported as dry weight, that passes through a cross section in a given time. NOTE: Bedload discharge values in this report may include a component of the suspended-sediment discharge. A correction may be necessary when computing the total sediment discharge by summing the bedload discharge and the suspended-sediment discharge. (See also "Bedload," "Dry weight," "Sediment," and "Suspended-sediment discharge")

**Bed material** is the sediment mixture of which a stream-bed, lake, pond, reservoir, or estuary bottom is composed. (See also "Bedload" and "Sediment")

**Benthic organisms** are the group of organisms inhabiting the bottom of an aquatic environment. They include a number of types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are useful as indicators of water quality.

**Biochemical oxygen demand (BOD)** is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

**Biomass** is the amount of living matter present at any given time, expressed as mass per unit area or volume of habitat.

**Biomass pigment ratio** is an indicator of the total proportion of periphyton that are autotrophic (plants). This is also called the Autotrophic Index.

**Blue-green algae** (*Cyanophyta*) are a group of phytoplankton and periphyton organisms with a blue pigment in addition to a green pigment called chlorophyll. Blue-green algae can cause nuisance water-quality conditions in lakes and slow-flowing rivers; however, they are found commonly in streams throughout the year. The abundance of blue-green algae in phytoplankton samples is expressed as the number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter ( $\mu\text{m}^3/\text{mL}$ ). The abundance of blue-green algae in periphyton samples is given in cells per square centimeter ( $\text{cells}/\text{cm}^2$ ) or biovolume per square centimeter ( $\mu\text{m}^3/\text{cm}^2$ ). (See also "Phytoplankton" and "Periphyton".)

**Bottom material** (See "Bed material")

**Bulk electrical conductivity** is the combined electrical conductivity of all material within a doughnut-shaped volume surrounding an induction probe. Bulk conductivity is affected by different physical and chemical properties of the material including the dissolved solids content of the pore water and lithology and porosity of the rock.

**Cells/volume** refers to the number of cells of any organism that is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample volume, and are generally reported as cells or units per milliliter (mL) or liter (L).

**Cells volume** (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are frequently used in aquatic surveys as an indicator of algal production. However, cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume ( $\mu\text{m}^3$ ) is determined by obtaining critical cell measurements or cell dimensions (for example, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (for example, spheres, cones, or cylinders). Representative formulae used to compute biovolume are as follows:

$$\text{sphere } \frac{4}{3} \pi r^3 \quad \text{cone } \frac{1}{3} \pi r^2 h \quad \text{cylinder } \pi r^2 h.$$

pi ( $\pi$ ) is the ratio of the circumference to the diameter of a circle;  $\pi = 3.14159\dots$

From cell volume, total algal biomass expressed as biovolume ( $\mu\text{m}^3/\text{mL}$ ) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes for all species.

**Cfs-day** (See “Cubic foot per second-day”)

**Channel bars**, as used in this report, are the lowest prominent geomorphic features higher than the channel bed.

**Chemical oxygen demand** (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with BOD or with carbonaceous organic pollution from sewage or industrial wastes. [See also “Biochemical oxygen demand (BOD)”]

***Clostridium perfringens*** (*C. perfringens*) is a spore-forming bacterium that is common in the feces of human and other warm-blooded animals. Clostridial spores are being used experimentally as an indicator of past fecal contamination and presence of microorganisms that are resistant to disinfection and environmental stresses. (See also “Bacteria”)

**Coliphages** are viruses that infect and replicate in coliform bacteria. They are indicative of sewage contamination of water and of the survival and transport of viruses in the environment.

**Color unit** is produced by 1 milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

**Confined aquifer** is a term used to describe an aquifer containing water between two relatively impermeable boundaries. The water level in a well tapping a confined aquifer stands above the top of the confined aquifer and can be higher or lower than the water table that may be present in the material above it. In some cases, the water level can rise above the ground surface, yielding a flowing well.

**Contents** is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

**Continuous-record station** is a site where data are collected with sufficient frequency to define daily mean values and variations within a day.

**Control** designates a feature in the channel that physically affects the water-surface elevation and thereby determines the stage-discharge relation at the gage. This feature may be a constriction of the channel, a bedrock outcrop, a gravel bar, an artificial structure, or a uniform cross section over a long reach of the channel.

**Control structure**, as used in this report, is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of saltwater.

**Cubic foot per second** (CFS,  $\text{ft}^3/\text{s}$ ) is the rate of discharge representing a volume of 1 cubic foot passing a given point in 1 second. It is equivalent to approximately 7.48 gallons per second or approximately 449 gallons per minute, or 0.02832 cubic meters per second. The term “second-foot” sometimes is used synonymously with “cubic foot per second” but is now obsolete.

**Cubic foot per second-day** (CFS-DAY, Cfs-day, [(ft<sup>3</sup>/s)/d]) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.98347 acre-feet, 646,317 gallons, or 2,446.6 cubic meters. The daily mean discharges reported in the daily value data tables are numerically equal to the daily volumes in cfs-days, and the totals also represent volumes in cfs-days.

**Cubic foot per second per square mile** [CFSM, (ft<sup>3</sup>/s)/mi<sup>2</sup>] is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area. (See also “Annual runoff”)

**Daily mean suspended-sediment concentration** is the time-weighted concentration of suspended sediment passing a stream cross section during a 24-hour day. (See also “Sediment” and “Suspended-sediment concentration”)

**Daily-record station** is a site where data are collected with sufficient frequency to develop a record of one or more data values per day. The frequency of data collection can range from continuous recording to periodic sample or data collection on a daily or near-daily basis.

**Data collection platform** (DCP) is an electronic instrument that collects, processes, and stores data from various sensors, and transmits the data by satellite data relay, line-of-sight radio, and/or landline telemetry.

**Data logger** is a microprocessor-based data acquisition system designed specifically to acquire, process, and store data. Data are usually downloaded from onsite data loggers for entry into office data systems.

**Datum** is a surface or point relative to which measurements of height and/or horizontal position are reported. A vertical datum is a horizontal surface used as the zero point for measurements of gage height, stage, or elevation; a horizontal datum is a reference for positions given in terms of latitude-longitude, State Plane coordinates, or UTM coordinates. (See also “Gage datum,” “Land-surface datum,” “National Geodetic Vertical Datum of 1929,” and “North American Vertical Datum of 1988”).

**Diatoms** (*Bacillariophyta*) are the unicellular or colonial algae with a siliceous cell wall. The abundance of diatoms in phytoplankton samples is expressed as the number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter ( $\mu\text{m}^3/\text{mL}$ ). The abundance of diatoms in periphyton samples is given in cells per square centimeter (cells/cm<sup>2</sup>) or biovolume per square centimeter ( $\mu\text{m}^3/\text{cm}^2$ ). (See also “Phytoplankton” and “Periphyton”).

**Diel** is of or pertaining to a 24-hour period of time; a regular daily cycle.

**Discharge**, or **flow**, is the rate that matter passes through a cross section of a stream channel or other water body per unit of time. The term commonly refers to the volume of water (including, unless otherwise stated, any sediment or other constituents suspended or dissolved in the water) that passes a cross section in a stream channel, canal, pipeline, etc., within a given period of time (cubic feet per second). Discharge also can apply to the rate at which constituents, such as suspended sediment, bedload, and dissolved or suspended chemicals, pass through a cross section, in which cases the quantity is expressed as the mass of constituent that passes the cross section in a given period of time (tons per day).

**Dissolved** refers to that material in a representative water sample that passes through a 0.45-micrometer membrane filter. This is a convenient operational definition used by Federal and State agencies that collect water-quality data. Determinations of “dissolved” constituent concentrations are made on sample water that has been filtered.

**Dissolved oxygen** (DO) is the molecular oxygen (oxygen gas) dissolved in water. The concentration in water is a function of atmospheric pressure, temperature, and dissolved-solids concentration of the water. The ability of water to retain oxygen decreases with increasing temperature or dissolved-solids concentration. Photosynthesis and respiration by plants commonly cause diurnal variations in dissolved-oxygen concentration in water from some streams.

**Dissolved-solids concentration** in water is the quantity of dissolved material in a sample of water. It is determined either analytically by the “residue-on-evaporation” method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. In the mathematical calculation, the bicarbonate value, in milligrams

per liter, is multiplied by 0.4926 to convert it to carbonate. Alternatively, alkalinity concentration (as mg/L CaCO<sub>3</sub>) can be converted to carbonate concentration by multiplying by 0.60.

**Diversity index (H)** (Shannon index) is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^s \frac{n_i}{n} \log_2 \frac{n_i}{n},$$

where  $n_i$  is the number of individuals per taxon,  $n$  is the total number of individuals, and  $s$  is the total number of taxa in the sample of the community. Index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

**Drainage area** of a stream at a specific location is that area upstream from the location, measured in a horizontal plane, that has a common outlet at the site for its surface runoff from precipitation that normally drains by gravity into a stream. Drainage areas given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

**Drainage basin** is a part of the Earth's surface that contains a drainage system with a common outlet for its surface runoff. (See "Drainage area")

**Dry mass** refers to the mass of residue present after drying in an oven at 105 °C, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass. (See also "Ash mass," "Biomass," and "Wet mass")

**Dry weight** refers to the weight of animal tissue after it has been dried in an oven at 65 °C until a constant weight is achieved. Dry weight represents total organic and inorganic matter in the tissue. (See also "Wet weight")

**Embeddedness** is the degree to which gravel-sized and larger particles are surrounded or enclosed by finer-sized particles. (See also "Substrate embeddedness class")

**Enterococcus bacteria** are commonly found in the feces of humans and other warmblooded animals. Although some strains are ubiquitous and not related to fecal pollution, the presence of enterococci in water is an indication of fecal pollution and the possible presence of enteric pathogens. Enterococcus bacteria are those bacteria that produce pink to red colonies with black or reddish-brown precipitate after incubation at 41 °C on mE agar (nutrient medium for bacterial growth) and subsequent transfer to EIA medium. Enterococci include *Streptococcus feacalis*, *Streptococcus feacium*, *Streptococcus avium*, and their variants. (See also "Bacteria")

**EPT Index** is the total number of distinct taxa within the insect orders Ephemeroptera, Plecoptera, and Trichoptera. This index summarizes the taxa richness within the aquatic insects that are generally considered pollution sensitive; the index usually decreases with pollution.

**Escherichia coli** (*E. coli*) are bacteria present in the intestine and feces of warmblooded animals. *E. coli* are a member species of the fecal coliform group of indicator bacteria. In the laboratory, they are defined as those bacteria that produce yellow or yellow-brown colonies on a filter pad saturated with urea substrate broth after primary culturing for 22 to 24 hours at 44.5 °C on mTEC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also "Bacteria")

**Estimated (E) concentration value** is reported when an analyte is detected and all criteria for a positive result are met. If the concentration is less than the method detection limit (MDL), an 'E' code will be reported with the value. If the analyte is qualitatively identified as present, but the quantitative determination is substantially more uncertain, the National Water Quality Laboratory will identify the result with an 'E' code even though the measured value is greater than the MDL. A value reported with an 'E' code should be used with caution. When no analyte is detected in a sample, the default reporting value is the MDL preceded by a less than sign (<).

**Euglenoids** (*Euglenophyta*) are a group of algae that are usually free-swimming and rarely creeping. They have the ability to grow either photosynthetically in the light or heterotrophically in the dark. (See also “Phytoplankton”)

**Extractable organic halides** (EOX) are organic compounds that contain halogen atoms such as chlorine. These organic compounds are semivolatile and extractable by ethyl acetate from air-dried streambed sediment. The ethyl acetate extract is combusted, and the concentration is determined by microcoulometric determination of the halides formed. The concentration is reported as micrograms of chlorine per gram of the dry weight of the streambed sediment.

**Fecal coliform bacteria** are present in the intestines or feces of warmblooded animals. They often are used as indicators of the sanitary quality of the water. In the laboratory, they are defined as all organisms that produce blue colonies within 24 hours when incubated at 44.5 °C plus or minus 0.2 °C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also “Bacteria”)

**Fecal streptococcal bacteria** are present in the intestines of warmblooded animals and are ubiquitous in the environment. They are characterized as gram-positive, cocci bacteria that are capable of growth in brain-heart infusion broth. In the laboratory, they are defined as all the organisms that produce red or pink colonies within 48 hours at 35 °C plus or minus 1.0 °C on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also “Bacteria”)

**Fire algae** (*Pyrrhophyta*) are free-swimming unicells characterized by a red pigment spot. (See also “Phytoplankton”)

**Flow-duration percentiles** are values on a scale of 100 that indicate the percentage of time for which a flow is not exceeded. For example, the 90th percentile of river flow is greater than or equal to 90 percent of all recorded flow rates.

**Gage datum** is a horizontal surface used as a zero point for measurement of stage or gage height. This surface usually is located slightly below the lowest point of the stream bottom such that the gage height is usually slightly greater than the maximum depth of water. Because the gage datum itself is not an actual physical object, the datum usually is defined by specifying the elevations of permanent reference marks such as bridge abutments and survey monuments, and the gage is set to agree with the reference marks. Gage datum is a local datum that is maintained independently of any national geodetic datum. However, if the elevation of the gage datum relative to the national datum (North American Vertical Datum of 1988 or National Geodetic Vertical Datum of 1929) has been determined, then the gage readings can be converted to elevations above the national datum by adding the elevation of the gage datum to the gage reading.

**Gage height** (G.H.) is the water-surface elevation, in feet above the gage datum. If the water surface is below the gage datum, the gage height is negative. Gage height often is used interchangeably with the more general term “stage,” although gage height is more appropriate when used in reference to a reading on a gage.

**Gage values** are values that are recorded, transmitted, and/or computed from a gaging station. Gage values typically are collected at 5-, 15-, or 30-minute intervals.

**Gaging station** is a site on a stream, canal, lake, or reservoir where systematic observations of stage, discharge, or other hydrologic data are obtained.

**Gas chromatography/flame ionization detector** (GC/FID) is a laboratory analytical method used as a screening technique for semivolatile organic compounds that are extractable from water in methylene chloride.

**Geomorphic channel units**, as used in this report, are fluvial geomorphic descriptors of channel shape and stream velocity. Pools, riffles, and runs are types of geomorphic channel units considered for National Water-Quality Assessment (NAWQA) Program habitat sampling.

**Green algae** (*Chlorophyta*) are unicellular or colonial algae with chlorophyll pigments similar to those in terrestrial green plants. Some forms of green algae produce mats or floating “moss” in lakes. The abundance of green algae in phytoplankton samples is expressed as number of cells per milliliter (cells/mL) or biovolume in cubic micrometers per milliliter ( $\mu\text{m}^3/\text{mL}$ ). The abundance of green algae in periphyton samples is given in cells per square centimeter ( $\text{cells}/\text{cm}^2$ ) or biovolume per square centimeter ( $\mu\text{m}^3/\text{cm}^2$ ). (See also “Phytoplankton” and “Periphyton”).

**Habitat**, as used in this report, includes all nonliving (physical) aspects of the aquatic ecosystem, although living components like aquatic macrophytes and riparian vegetation also are usually included. Measurements of habitat are typically made over a wider geographic scale than are measurements of species distribution.

**Habitat quality index** is the qualitative description (level 1) of instream habitat and riparian conditions surrounding the reach sampled. Scores range from 0 to 100 percent with higher scores indicative of desirable habitat conditions for aquatic life. Index only applicable to wadable streams.

**Hardness** of water is a physical-chemical characteristic that commonly is recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations (primarily calcium and magnesium) and is expressed as the equivalent concentration of calcium carbonate (CaCO<sub>3</sub>).

**High tide** is the maximum height reached by each rising tide. The high-high and low-high tides are the higher and lower of the two high tides, respectively, of each tidal day. *See NOAA web site:*  
*<http://www.co-ops.nos.noaa.gov/tideglos.html>*

**Hilsenhoff's Biotic Index (HBI)** is an indicator of organic pollution that uses tolerance values to weight taxa abundances; usually increases with pollution. It is calculated as follows:

$$HBI = \sum \frac{(n)(a)}{N} ,$$

where  $n$  is the number of individuals of each taxon,  $a$  is the tolerance value of each taxon, and  $N$  is the total number of organisms in the sample.

**Horizontal datum** (See "Datum")

**Hydrologic index stations** referred to in this report are continuous-record gaging stations that have been selected as representative of streamflow patterns for their respective regions. Station locations are shown on index maps.

**Hydrologic unit** is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as defined by the former Office of Water Data Coordination and delineated on the State Hydrologic Unit Maps by the USGS. Each hydrologic unit is identified by an 8-digit number.

**Inch** (IN., in.), as used in this report, refers to the depth to which the drainage area would be covered with water if all of the runoff for a given time period were uniformly distributed on it. (See also "Annual runoff")

**Instantaneous discharge** is the discharge at a particular instant of time. (See also "Discharge")

**Island**, as used in this report, is a mid-channel bar that has permanent woody vegetation, is flooded once a year on average, and remains stable except during large flood events.

**Laboratory reporting level (LRL)** is generally equal to twice the yearly determined long-term method detection level (LT-MDL). The LRL controls false negative error. The probability of falsely reporting a nondetection for a sample that contained an analyte at a concentration equal to or greater than the LRL is predicted to be less than or equal to 1 percent. The value of the LRL will be reported with a "less than" (<) remark code for samples in which the analyte was not detected. The National Water Quality Laboratory (NWQL) collects quality-control data from selected analytical methods on a continuing basis to determine LT-MDLs and to establish LRLs. These values are reevaluated annually on the basis of the most current quality-control data and, therefore, may change. [Note: In several previous NWQL documents (NWQL Technical Memorandum 98.07, 1998), the LRL was called the nondetection value or NDV—a term that is no longer used.]

**Land-surface datum** (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

**Latent heat flux** (often used interchangeably with latent heat-flux density) is the amount of heat energy that converts water from liquid to vapor (evaporation) or from vapor to liquid (condensation) across a specified cross-sectional area per unit time. Usually expressed in watts per square meter.

**Light-attenuation coefficient**, also known as the extinction coefficient, is a measure of water clarity. Light is attenuated according to the Lambert-Beer equation:

$$I = I_o e^{-\lambda L} ,$$

where  $I_o$  is the source light intensity,  $I$  is the light intensity at length  $L$  (in meters) from the source,  $\lambda$  is the light-attenuation coefficient, and  $e$  is the base of the natural logarithm. The light-attenuation coefficient is defined as

$$\lambda = -\frac{1}{L} \log_e \frac{I}{I_o} .$$

**Lipid** is any one of a family of compounds that are insoluble in water and that make up one of the principal components of living cells. Lipids include fats, oils, waxes, and steroids. Many environmental contaminants such as organochlorine pesticides are lipophilic.

**Long-term method detection level (LT-MDL)** is a detection level derived by determining the standard deviation of a minimum of 24 method detection limit (MDL) spike sample measurements over an extended period of time. LT-MDL data are collected on a continuous basis to assess year-to-year variations in the LT-MDL. The LT-MDL controls false positive error. The chance of falsely reporting a concentration at or greater than the LT-MDL for a sample that did not contain the analyte is predicted to be less than or equal to 1 percent.

**Low tide** is the minimum height reached by each falling tide. The high-low and low-low tides are the higher and lower of the two low tides, respectively, of each tidal day. *See NOAA web site:*  
<http://www.co-ops.nos.noaa.gov/tideglos.html>

**Macrophytes** are the macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that usually are arranged in zones in aquatic ecosystems and restricted in the area by the extent of illumination through the water and sediment deposition along the shoreline.

**Mean concentration of suspended sediment** (Daily mean suspended-sediment concentration) is the time-weighted concentration of suspended sediment passing a stream cross section during a given time period. (See also “Daily mean suspended-sediment concentration” and “Suspended-sediment concentration”)

**Mean discharge (MEAN)** is the arithmetic mean of individual daily mean discharges during a specific period. (See also “Discharge”)

**Mean high or low tide** is the average of all high or low tides, respectively, over a specific period.

**Mean sea level** is a local tidal datum. It is the arithmetic mean of hourly heights observed over the National Tidal Datum Epoch. Shorter series are specified in the name; for example, monthly mean sea level and yearly mean sea level. In order that they may be recovered when needed, such datums are referenced to fixed points known as benchmarks. (See also “Datum”)

**Measuring point (MP)** is an arbitrary permanent reference point from which the distance to water surface in a well is measured to obtain water level.

**Membrane filter** is a thin microporous material of specific pore size used to filter bacteria, algae, and other very small particles from water.

**Metamorphic stage** refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

**Method detection limit (MDL)** is the minimum concentration of a substance that can be measured and reported with 99-percent confidence that the analyte concentration is greater than zero. It is determined from the analysis of a sample in a given matrix containing the analyte. At the MDL concentration, the risk of a false positive is predicted to be less than or equal to 1 percent.

**Methylene blue active substances (MBAS)** are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

**Micrograms per gram (UG/G,  $\mu\text{g/g}$ )** is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

**Micrograms per kilogram (UG/KG,  $\mu\text{g/kg}$ )** is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the constituent per unit mass (kilogram) of the material analyzed. One microgram per kilogram is equivalent to 1 part per billion.

**Micrograms per liter (UG/L,  $\mu\text{g/L}$ )** is a unit expressing the concentration of chemical constituents in water as mass (micrograms) of constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter. One microgram per liter is equivalent to 1 part per billion.

**Microsiemens per centimeter (US/CM,  $\mu\text{S/cm}$ )** is a unit expressing the amount of electrical conductivity of a solution as measured between opposite faces of a centimeter cube of solution at a specified temperature. Siemens is the International System of Units nomenclature. It is synonymous with mhos and is the reciprocal of resistance in ohms.

**Milligrams per liter (MG/L,  $\text{mg/L}$ )** is a unit for expressing the concentration of chemical constituents in water as the mass (milligrams) of constituent per unit volume (liter) of water. Concentration of suspended sediment also is expressed in milligrams per liter and is based on the mass of dry sediment per liter of water-sediment mixture.

**Minimum reporting level (MRL)** is the smallest measured concentration of a constituent that may be reliably reported by using a given analytical method.

**Miscellaneous site**, miscellaneous station, or miscellaneous sampling site is a site where streamflow, sediment, and/or water-quality data or water-quality or sediment samples are collected once, or more often on a random or discontinuous basis to provide better areal coverage for defining hydrologic and water-quality conditions over a broad area in a river basin.

**Most probable number (MPN)** is an index of the number of coliform bacteria that, more probably than any other number, would give the results shown by the laboratory examination; it is not an actual enumeration. MPN is determined from the distribution of gas-positive cultures among multiple inoculated tubes.

**Multiple-plate samplers** are artificial substrates of known surface area used for obtaining benthic invertebrate samples. They consist of a series of spaced, hardboard plates on an eyebolt.

**Nanograms per liter (NG/L,  $\text{ng/L}$ )** is a unit expressing the concentration of chemical constituents in solution as mass (nanograms) of solute per unit volume (liter) of water. One million nanograms per liter is equivalent to 1 milligram per liter.

**National Geodetic Vertical Datum of 1929 (NGVD of 1929)** is a fixed reference adopted as a standard geodetic datum for elevations determined by leveling. It was formerly called "Sea Level Datum of 1929" or "mean sea level." Although the datum was derived from the mean sea level at 26 tide stations, it does not necessarily represent local mean sea level at any particular place. See NOAA web site: <http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88> (See "North American Vertical Datum of 1988")

**Natural substrate** refers to any naturally occurring immersed or submersed solid surface, such as a rock or tree, upon which an organism lives. (See also "Substrate")

**Nekton** are the consumers in the aquatic environment and consist of large free-swimming organisms that are capable of sustained, directed mobility.

**Nephelometric turbidity unit (NTU)** is the measurement for reporting turbidity that is based on use of a standard suspension of formazin. Turbidity measured in NTU uses nephelometric methods that depend on passing specific light of a specific wavelength through the sample.

**North American Vertical Datum of 1988 (NAVD 1988)** is a fixed reference adopted as the official civilian vertical datum for elevations determined by Federal surveying and mapping activities in the United States. This datum was established in 1991 by minimum-constraint adjustment of the Canadian, Mexican, and United States first-order terrestrial leveling networks.

**Open or screened interval** is the length of unscreened opening or of well screen through which water enters a well, in feet below land surface.

**Organic carbon (OC)** is a measure of organic matter present in aqueous solution, suspension, or bottom sediment. May be reported as dissolved organic carbon (DOC), particulate organic carbon (POC), or total organic carbon (TOC).

**Organic mass or volatile mass** of a living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. Organic mass is expressed in the same units as for ash mass and dry mass. (See also "Ash mass," "Biomass," and "Dry mass")

**Organism count/area** refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter (m<sup>2</sup>), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

**Organism count/volume** refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

**Organochlorine compounds** are any chemicals that contain carbon and chlorine. Organochlorine compounds that are important in investigations of water, sediment, and biological quality include certain pesticides and industrial compounds.

**Parameter code** is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property.

**Partial-record station** is a site where discrete measurements of one or more hydrologic parameters are obtained over a period of time without continuous data being recorded or computed. A common example is a crest-stage gage partial-record station at which only peak stages and flows are recorded.

**Particle size** is the diameter, in millimeters (mm), of a particle determined by sieve or sedimentation methods. The sedimentation method utilizes the principle of Stokes law to calculate sediment particle sizes. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube, sedigraph) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

**Particle-size classification**, as used in this report, agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay	>0.00024 - 0.004	Sedimentation
Silt	>0.004 - 0.062	Sedimentation
Sand	>0.062 - 2.0	Sedimentation/sieve
Gravel	>2.0 - 64.0	Sieve
Cobble	>64 - 256	Manual measurement
Boulder	>256	Manual measurement

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. For the sedimentation method, most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

**Peak flow (peak stage)** is an instantaneous local maximum value in the continuous time series of streamflows or stages, preceded by a period of increasing values and followed by a period of decreasing values. Several peak values ordinarily occur in a year. The maximum peak value in a year is called the annual peak; peaks lower than the annual peak are called secondary peaks. Occasionally, the annual peak may not be the maximum value for the year; in such cases, the maximum value occurs at midnight at the beginning or end of the year, on the recession from or rise toward a higher peak in the adjoining year. If values are recorded at a discrete series of times, the peak recorded value may be taken as an approximation of the true peak, which may occur between the recording instants. If the values are recorded with finite precision, a sequence of equal recorded values may occur at the peak; in this case, the first value is taken as the peak.

**Percent composition or percent of total** is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, weight, mass, or volume.

**Percent shading** is a measure of the amount of sunlight potentially reaching the stream. A clinometer is used to measure left and right bank canopy angles. These values are added together, divided by 180, and multiplied by 100 to compute percentage of shade.

**Periodic-record station** is a site where stage, discharge, sediment, chemical, physical, or other hydrologic measurements are made one or more times during a year but at a frequency insufficient to develop a daily record.

**Periphyton** is the assemblage of microorganisms attached to and living upon submerged solid surfaces. Although primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton are useful indicators of water quality.

**Pesticides** are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

**pH** of water is the negative logarithm of the hydrogen-ion activity. Solutions with pH less than 7.0 standard units are termed "acidic," and solutions with a pH greater than 7.0 are termed "basic." Solutions with a pH of 7.0 are neutral. The presence and concentration of many dissolved chemical constituents found in water are affected, in part, by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms also are affected, in part, by the hydrogen-ion activity of water.

**Phytoplankton** is the plant part of the plankton. They are usually microscopic, and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and commonly are known as algae. (See also "Plankton")

**Picocurie (PC, pCi)** is one trillionth ( $1 \times 10^{-12}$ ) of the amount of radioactive nuclide represented by a curie (Ci). A curie is the quantity of radioactive nuclide that yields  $3.7 \times 10^{10}$  radioactive disintegrations per second (dps). A picocurie yields 0.037 dps, or 2.22 dpm (disintegrations per minute).

**Plankton** is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample.

**Polychlorinated biphenyls (PCBs)** are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

**Polychlorinated naphthalenes (PCNs)** are industrial chemicals that are mixtures of chlorinated naphthalene compounds. They have properties and applications similar to polychlorinated biphenyls (PCBs) and have been identified in commercial PCB preparations.

**Pool**, as used in this report, is a small part of a stream reach with little velocity, commonly with water deeper than surrounding areas.

**Primary productivity** is a measure of the rate at which new organic matter is formed and accumulated through photo-synthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated (carbon method) by the plants.

**Primary productivity (carbon method)** is expressed as milligrams of carbon per area per unit time [ $\text{mg C}/(\text{m}^2/\text{time})$ ] for periphyton and macrophytes or per volume [ $\text{mg C}/(\text{m}^3/\text{time})$ ] for phytoplankton. The carbon method defines the amount of carbon dioxide consumed as measured by radioactive carbon (carbon-14). The carbon-14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use with unenriched water samples. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

**Primary productivity (oxygen method)** is expressed as milligrams of oxygen per area per unit time [ $\text{mg O}/(\text{m}^2/\text{time})$ ] for periphyton and macrophytes or per volume [ $\text{mg O}/(\text{m}^3/\text{time})$ ] for phytoplankton. The oxygen method defines production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

**Radioisotopes** are isotopic forms of elements that exhibit radioactivity. Isotopes are varieties of a chemical element that differ in atomic weight but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus; for example, ordinary chlorine is a mixture of isotopes having atomic weights of 35 and 37, and the natural mixture has an atomic weight of about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron. There are 275 isotopes of the 81 stable elements, in addition to more than 800 radioactive isotopes.

**Reach**, as used in this report, is a length of stream that is chosen to represent a uniform set of physical, chemical, and biological conditions within a segment. It is the principal sampling unit for collecting physical, chemical, and biological data.

**Recoverable from bed (bottom) material** is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. (See also "Bed material")

**Recurrence interval**, also referred to as return period, is the average time, usually expressed in years, between occurrences of hydrologic events of a specified type (such as exceedances of a specified high flow or nonexceedance of a specified low flow). The terms "return period" and "recurrence interval" do not imply regular cyclic occurrence. The actual times between occurrences vary randomly, with most of the times being less than the average and a few being substantially greater than the average. For example, the 100-year flood is the flow rate that is exceeded by the annual maximum peak flow at intervals whose average length is 100 years (that is, once in 100 years, on average); almost two-thirds of all exceedances of the 100-year flood occur less than 100 years after the previous exceedance, half occur less than 70 years after the previous exceedance, and about one-eighth occur more than 200 years after the previous exceedance. Similarly, the 7-day, 10-year low flow ( $7Q_{10}$ ) is the flow rate below which the annual minimum 7-day-mean flow dips at intervals whose average length is 10 years (that is, once in 10 years, on average); almost two-thirds of the nonexceedances of the  $7Q_{10}$  occur less than 10 years after the previous nonexceedance, half occur less than 7 years after, and about one-eighth occur more than 20 years after the previous nonexceedance. The recurrence interval for annual events is the reciprocal of the annual probability of occurrence. Thus, the 100-year flood has a 1-percent chance of being exceeded by the maximum peak flow in any year, and there is a 10-percent chance in any year that the annual minimum 7-day-mean flow will be less than the  $7Q_{10}$ .

**Replicate samples** are a group of samples collected in a manner such that the samples are thought to be essentially identical in composition.

**Return period** (See "Recurrence interval")

**Riffle**, as used in this report, is a shallow part of the stream where water flows swiftly over completely or partially submerged obstructions to produce surface agitation.

**River mileage** is the curvilinear distance, in miles, measured upstream from the mouth along the meandering path of a stream channel in accordance with Bulletin No. 14 (October 1968) of the Water Resources Council and typically is used to denote location along a river.

**Run**, as used in this report, is a relatively shallow part of a stream with moderate velocity and little or no surface turbulence.

**Runoff** is the quantity of water that is discharged (“runs off”) from a drainage basin during a given time period. Runoff data may be presented as volumes in acre-feet, as mean discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches. (See also “Annual runoff”)

**Sea level**, as used in this report, refers to one of the two commonly used national vertical datums (NGVD 1929 or NAVD 1988). See separate entries for definitions of these datums. See conversion factors and vertical datum page (inside back cover) for identification of the datum used in this report.

**Sediment** is solid material that originates mostly from disintegrated rocks; when transported by, suspended in, or deposited from water, it is referred to as “fluvial sediment.” Sediment includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are affected by environmental and land-use factors. Some major factors are topography, soil characteristics, land cover, and depth and intensity of pre-cipitation.

**Sensible heat flux** (often used interchangeably with latent sensible heat-flux density) is the amount of heat energy that moves by turbulent transport through the air across a specified cross-sectional area per unit time and goes to heating (cooling) the air. Usually expressed in watts per square meter.

**Seven-day, 10-year low flow** ( $7Q_{10}$ ) is the discharge below which the annual 7-day minimum flow falls in 1 year out of 10 on the long-term average. The recurrence interval of the  $7Q_{10}$  is 10 years; the chance that the annual 7-day minimum flow will be less than the  $7Q_{10}$  is 10 percent in any given year. (See also “Annual 7-day minimum” and “Recurrence interval”)

**Shelves**, as used in this report, are streambank features extending nearly horizontally from the flood plain to the lower limit of persistent woody vegetation.

**Sodium adsorption ratio** (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Sodium hazard in water is an index that can be used to evaluate the suitability of water for irrigating crops.

**Soil heat flux** (often used interchangeably with soil heat-flux density) is the amount of heat energy that moves by conduction across a specified cross-sectional area of soil per unit time and goes to heating (or cooling) the soil. Usually expressed in watts per square meter.

**Soil-water content** is the water lost from the soil upon drying to constant mass at 105 °C; expressed either as mass of water per unit mass of dry soil or as the volume of water per unit bulk volume of soil.

**Specific electrical conductance (conductivity)** is a measure of the capacity of water (or other media) to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific electrical conductance is a function of the types and quantity of dissolved substances in water and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is from 55 to 75 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

**Stable isotope ratio** (per MIL) is a unit expressing the ratio of the abundance of two radioactive isotopes. Isotope ratios are used in hydrologic studies to determine the age or source of specific water, to evaluate mixing of different water, as an aid in determining reaction rates, and other chemical or hydrologic processes.

**Stage** (See “Gage height”)

**Stage-discharge relation** is the relation between the water-surface elevation, termed stage (gage height), and the volume of water flowing in a channel per unit time.

**Streamflow** is the discharge that occurs in a natural channel. Although the term “discharge” can be applied to the flow of a canal, the word “streamflow” uniquely describes the discharge in a surface stream course. The term “streamflow” is more general than “runoff” as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

**Substrate** is the physical surface upon which an organism lives.

**Substrate embeddedness class** is a visual estimate of riffle streambed substrate larger than gravel that is surrounded or covered by fine sediment (<2mm, sand or finer). Below are the class categories expressed as the percentage covered by fine sediment:

0 no gravel or larger substrate	3 26-50 percent
1 > 75 percent	4 5-25 percent
2 51-75 percent	5 < 5 percent

**Surface area of a lake** is that area (acres) encompassed by the boundary of the lake as shown on USGS topographic maps, or other available maps or photographs. Because surface area changes with lake stage, surface areas listed in this report represent those determined for the stage at the time the maps or photographs were obtained.

**Surficial bed material** is the upper surface (0.1 to 0.2 foot) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

**Suspended** (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is defined operationally as the material retained on a 0.45-micrometer filter.

**Suspended, recoverable** is the amount of a given constituent that is in solution after the part of a representative suspended water-sediment sample that is retained on a 0.45-micrometer membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the “total” amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. Determinations of “suspended, recoverable” constituents are made either by directly analyzing the suspended material collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total recoverable concentrations of the constituent. (See also “Suspended”)

**Suspended sediment** is the sediment maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid. (See also “Sediment”)

**Suspended-sediment concentration** is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 foot above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). The analytical technique uses the mass of all of the sediment and the net weight of the water-sediment mixture in a sample to compute the suspended-sediment concentration. (See also “Sediment” and “Suspended sediment”)

**Suspended-sediment discharge** (tons/d) is the rate of sediment transport, as measured by dry mass or volume, that passes a cross section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft<sup>3</sup>/s) x 0.0027. (See also “Sediment,” “Suspended sediment,” and “Suspended-sediment concentration”)

**Suspended-sediment load** is a general term that refers to a given characteristic of the material in suspension that passes a point during a specified period of time. The term needs to be qualified, such as “annual suspended-sediment load” or “sand-size suspended-sediment load,” and so on. It is not synonymous with either suspended-sediment discharge or concentration. (See also “Sediment”)

**Suspended, total** is the total amount of a given constituent in the part of a water-sediment sample that is retained on a 0.45-micrometer membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. Knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as “suspended, total.” Determinations of “suspended, total” constituents are made either by directly analyzing portions of the suspended material collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total concentrations of the constituent. (See also “Suspended”)

**Suspended solids, total residue at 105 °C concentration** is the concentration of inorganic and organic material retained on a filter, expressed as milligrams of dry material per liter of water (mg/L). An aliquot of the sample is used for this analysis.

**Synoptic studies** are short-term investigations of specific water-quality conditions during selected seasonal or hydro-logic periods to provide improved spatial resolution for critical water-quality conditions. For the period and conditions sampled, they assess the spatial distribution of selected water-quality conditions in relation to causative factors, such as land use and contaminant sources.

**Taxa (Species) richness** is the number of species (taxa) present in a defined area or sampling unit.

**Taxonomy** is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, *Hexagenia limbata*, is the following:

Kingdom:	Animal
Phylum:	Arthropoda
Class:	Insecta
Order:	Ephemeroptera
Family:	Ephemeridae
Genus:	<i>Hexagenia</i>
Species:	<i>Hexagenia limbata</i>

**Thalweg** is the line formed by connecting points of minimum streambed elevation (deepest part of the channel).

**Thermograph** is an instrument that continuously records variations of temperature on a chart. The more general term “temperature recorder” is used in the table descriptions and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

**Time-weighted average** is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water resulting from the mixing of flow proportionally to the duration of the concentration.

**Tons per acre-foot (T/acre-ft)** is the dry mass (tons) of a constituent per unit volume (acre-foot) of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

**Tons per day (T/DAY, tons/d)** is a common chemical or sediment discharge unit. It is the quantity of a substance in solution, in suspension, or as bedload that passes a stream section during a 24-hour period. It is equivalent to 2,000 pounds per day, or 0.9072 metric tons per day.

**Total** is the amount of a given constituent in a representative whole-water (unfiltered) sample, regardless of the constituent’s physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as “total.” (Note that the word “total” does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined at least 95 percent of the constituent in the sample.)

**Total coliform bacteria** are a particular group of bacteria that are used as indicators of possible sewage pollution. This group includes coliforms that inhabit the intestine of warmblooded animals and those that inhabit soils. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas formation within 48 hours at 35 °C. In the laboratory, these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C plus or minus 1.0 °C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milliliters of sample. (See also “Bacteria”)

**Total discharge** is the quantity of a given constituent, measured as dry mass or volume, that passes a stream cross section per unit of time. When referring to constituents other than water, this term needs to be qualified, such as “total sediment discharge,” “total chloride discharge,” and so on.

**Total in bottom material** is the amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as “total in bottom material.”

**Total length** (fish) is the straight-line distance from the anterior point of a fish specimen’s snout, with the mouth closed, to the posterior end of the caudal (tail) fin, with the lobes of the caudal fin squeezed together.

**Total load** refers to all of a constituent in transport. When referring to sediment, it includes suspended load plus bed load.

**Total organism count** is the number of organisms collected and enumerated in any particular sample. (See also “Organism count/volume”)

**Total recoverable** is the amount of a given constituent in a whole-water sample after a sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the “total” amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data for whole-water samples, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures may produce different analytical results.

**Total sediment discharge** is the mass of suspended-sediment plus bed-load transport, measured as dry weight, that passes a cross section in a given time. It is a rate and is reported as tons per day. (See also “Bedload,” “Bedload discharge,” “Sediment,” “Suspended sediment,” and “Suspended-sediment concentration”)

**Total sediment load** or **total load** is the sediment in transport as bedload and suspended-sediment load. The term may be qualified, such as “annual suspended-sediment load” or “sand-size suspended-sediment load,” and so on. It differs from total sediment discharge in that load refers to the material, whereas discharge refers to the quantity of material, expressed in units of mass per unit time. (See also “Sediment,” “Suspended-sediment load,” and “Total load”)

**Transect**, as used in this report, is a line across a stream perpendicular to the flow and along which measurements are taken, so that morphological and flow characteristics along the line are described from bank to bank. Unlike a cross section, no attempt is made to determine known elevation points along the line.

**Turbidity** is the reduction in the transparency of a solution due to the presence of suspended and some dissolved substances. The measurement technique records the collective optical properties of the solution that cause light to be scattered and attenuated rather than transmitted in straight lines; the higher the intensity of scattered or attenuated light, the higher the value of the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU). Depending on the method used, the turbidity units as NTU can be defined as the intensity of light of a specified wavelength scattered or attenuated by suspended particles or absorbed at a method specified angle, usually 90 degrees, from the path of the incident light. Currently approved methods for the measurement of turbidity in the USGS include those that conform to U.S. EPA Method 180.1, ASTM D1889-00, and ISO 7027. Measurements of turbidity by these different methods and different instruments are unlikely to yield equivalent values.

**Ultraviolet (UV) absorbance (absorption)** at 254 or 280 nanometers is a measure of the aggregate concentration of the mixture of UV absorbing organic materials dissolved in the analyzed water, such as lignin, tannin, humic substances, and various aromatic compounds. UV absorbance (absorption) at 254 or 280 nanometers is measured in UV absorption units per centimeter of pathlength of UV light through a sample.

**Unconfined aquifer** is an aquifer whose upper surface is a water table free to fluctuate under atmospheric pressure. (See “Water-table aquifer”)

**Vertical datum** (See “Datum”)

**Volatile organic compounds (VOCs)** are organic compounds that can be isolated from the water phase of a sample by purging the water sample with inert gas, such as helium, and subsequently analyzed by gas chromatography. Many VOCs are human-made chemicals that are used and produced in the manufacture of paints, adhesives, petroleum products, pharmaceuticals, and refrigerants. They are often components of fuels, solvents, hydraulic fluids, paint thinners, and dry cleaning agents commonly used in urban settings. VOC contamination of drinking-water supplies is a human health concern because many are toxic and are known or suspected human carcinogens.

**Water table** is that surface in a ground-water body at which the water pressure is equal to the atmospheric pressure.

**Water-table aquifer** is an unconfined aquifer within which the water table is found.

**Water year** in USGS reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 2002, is called the “2002 water year.”

**WDR** is used as an abbreviation for “Water-Data Report” in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports. (WRD was used as an abbreviation for “Water-Resources Data” in reports published prior to 1976.)

**Weighted average** is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

**Wet mass** is the mass of living matter plus contained water. (See also “Biomass” and “Dry mass”)

**Wet weight** refers to the weight of animal tissue or other substance including its contained water. (See also “Dry weight”)

**WSP** is used as an acronym for “Water-Supply Paper” in reference to previously published reports.

**Zooplankton** is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and often are large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers. (See also “Plankton”).

## TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS OF THE U.S. GEOLOGICAL SURVEY

The USGS publishes a series of manuals, the Techniques of Water-Resources Investigations, describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, section A of book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

Reports in the Techniques of Water-Resources Investigations series, which are listed below, are online at <http://water.usgs.gov/pubs/twri/>. Printed copies are for sale by the USGS, Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office), telephone 1-888-ASK-USGS. Please telephone 1-888-ASK-USGS for current prices, and refer to the title, book number, chapter number, and mention the "U.S. Geological Survey Techniques of Water-Resources Investigations." Products can then be ordered by telephone, or online at <http://www.usgs.gov/sales.html>, or by FAX to (303)236-469 of an order form available online at <http://mac.usgs.gov/isb/pubs/forms/>. Prepayment by major credit card or by a check or money order payable to the "U.S. Geological Survey" is required.

### Book 1. Collection of Water Data by Direct Measurement

#### Section D. Water Quality

- 1-D1. *Water temperature—influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J.F. Ficke, and G. F. Smoot: USGS–TWRI book 1, chap. D1. 1975. 65 p.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W. Wood: USGS–TWRI book 1, chap. D2. 1976. 24 p.

### Book 2. Collection of Environmental Data

#### Section D. Surface Geophysical Methods

- 2-D1. *Application of surface geophysics to ground-water investigations*, by A.A. R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS–TWRI book 2, chap. D1. 1974. 116 p.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS–TWRI book 2, chap. D2. 1988. 86 p.

#### Section E. Subsurface Geophysical Methods

- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W.S. Keys and L.M. MacCary: USGS–TWRI book 2, chap. E1. 1971. 126 p.
- 2-E2. *Borehole geophysics applied to ground-water investigations*, by W.S. Keys: USGS–TWRI book 2, chap. E2. 1990. 150 p.

#### Section F. Drilling and Sampling Methods

- 2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W.E. Teasdale: USGS–TWRI book 2, chap. F1. 1989. 97 p.

### Book 3. Applications of Hydraulics

#### Section A. Surface-Water Techniques

- 3-A1. *General field and office procedures for indirect discharge measurements*, by M.A. Benson and Tate Dalrymple: USGS–TWRI book 3, chap. A1. 1967. 30 p.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M.A. Benson: USGS–TWRI book 3, chap. A2. 1967. 12 p.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G.L. Bodhaine: USGS–TWRI book 3, chap. A3. 1968. 60 p.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H.F. Matthai: USGS–TWRI book 3, chap. A4. 1967. 44 p.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS–TWRI book 3. chap. A5. 1967. 29 p.

- 3-A6. *General procedure for gaging streams*, by R.W. Carter and Jacob Davidian: USGS–TWRI book 3, chap. A6. 1968. 13 p.
- 3-A7. *Stage measurement at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A7. 1968. 28 p.
- 3-A8. *Discharge measurements at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A8. 1969. 65 p.
- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS–TWRI book 3, chap. A9. 1989. 27 p.
- 3-A10. *Discharge ratings at gaging stations*, by E.J. Kennedy: USGS–TWRI book 3, chap. A10. 1984. 59 p.
- 3-A11. *Measurement of discharge by the moving-boat method*, by G.F. Smoot and C.E. Novak: USGS–TWRI book 3, chap. A11. 1969. 22 p.
- 3-A12. *Fluorometric procedures for dye tracing*, Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS–TWRI book 3, chap. A12. 1986. 34 p.
- 3-A13. *Computation of continuous records of streamflow*, by E.J. Kennedy: USGS–TWRI book 3, chap. A13. 1983. 53 p.
- 3-A14. *Use of flumes in measuring discharge*, by F.A. Kilpatrick and V.R. Schneider: USGS–TWRI book 3, chap. A14. 1983. 46 p.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS–TWRI book 3, chap. A15. 1984. 48 p.
- 3-A16. *Measurement of discharge using tracers*, by F.A. Kilpatrick and E.D. Cobb: USGS–TWRI book 3, chap. A16. 1985. 52 p.
- 3-A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS–TWRI book 3, chap. A17. 1985. 38 p.
- 3-A18. *Determination of stream reaeration coefficients by use of tracers*, by F.A. Kilpatrick, R.E. Rathbun, Nobuhiro Yotsukura, G.W. Parker, and L.L. DeLong: USGS–TWRI book 3, chap. A18. 1989. 52 p.
- 3-A19. *Levels at streamflow gaging stations*, by E.J. Kennedy: USGS–TWRI book 3, chap. A19. 1990. 31 p.
- 3-A20. *Simulation of soluble waste transport and buildup in surface waters using tracers*, by F.A. Kilpatrick: USGS–TWRI book 3, chap. A20. 1993. 38 p.
- 3-A21. *Stream-gaging cableways*, by C. Russell Wagner: USGS–TWRI book 3, chap. A21. 1995. 56 p.

### **Section B. Ground-Water Techniques**

- 3-B1. *Aquifer-test design, observation, and data analysis*, by R.W. Stallman: USGS–TWRI book 3, chap. B1. 1971. 26 p.
- 3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G.D. Bennett: USGS–TWRI book 3, chap. B2. 1976. 172 p.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J.E. Reed: USGS–TWRI book 3, chap. B3. 1980. 106 p.
- 3-B4. *Regression modeling of ground-water flow*, by R.L. Cooley and R.L. Naff: USGS–TWRI book 3, chap. B4. 1990. 232 p.
- 3-B4. *Supplement 1. Regression modeling of ground-water flow --Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems*, by R.L. Cooley: USGS–TWRI book 3, chap. B4. 1993. 8 p.
- 3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems—An introduction*, by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS–TWRI book 3, chap. B5. 1987. 15 p.
- 3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS–TWRI book 3, chap. B6. 1987. 28 p.
- 3-B7. *Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow*, by E.J. Wexler: USGS–TWRI book 3, chap. B7. 1992. 190 p.
- 3-B8. *System and boundary conceptualization in ground-water flow simulation*, by T.E. Reilly: USGS–TWRI book 3, chap. B8. 2001. 29 p.

### **Section C. Sedimentation and Erosion Techniques**

- 3-C1. *Fluvial sediment concepts*, by H.P. Guy: USGS–TWRI book 3, chap. C1. 1970. 55 p.
- 3-C2. *Field methods for measurement of fluvial sediment*, by T.K. Edwards and G.D. Glysson: USGS–TWRI book 3, chap. C2. 1999. 89 p.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS–TWRI book 3, chap. C3. 1972. 66 p.

### **Book 4. Hydrologic Analysis and Interpretation**

#### **Section A. Statistical Analysis**

- 4-A1. *Some statistical tools in hydrology*, by H.C. Riggs: USGS–TWRI book 4, chap. A1. 1968. 39 p.
- 4-A2. *Frequency curves*, by H.C. Riggs: USGS–TWRI book 4, chap. A2. 1968. 15 p.
- 4-A3. *Statistical methods in water resources*, by D.R. Helsel and R.M. Hirsch: USGS–TWRI book 4, chap. A3. 1991. Available only online at <http://water.usgs.gov/pubs/twri/twri4a3/>. (Accessed August 30, 2002.)

#### **Section B. Surface Water**

- 4-B1. *Low-flow investigations*, by H.C. Riggs: USGS–TWRI book 4, chap. B1. 1972. 18 p.
- 4-B2. *Storage analyses for water supply*, by H.C. Riggs and C.H. Hardison: USGS–TWRI book 4, chap. B2. 1973. 20 p.
- 4-B3. *Regional analyses of streamflow characteristics*, by H.C. Riggs: USGS–TWRI book 4, chap. B3. 1973. 15 p.

#### **Section D. Interrelated Phases of the Hydrologic Cycle**

- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C.T. Jenkins: USGS–TWRI book 4, chap. D1. 1970. 17 p.

### **Book 5. Laboratory Analysis**

#### **Section A. Water Analysis**

- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M.J. Fishman and L.C. Friedman, editors: USGS–TWRI book 5, chap. A1. 1989. 545 p.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P.R. Barnett and E.C. Mallory, Jr.: USGS–TWRI book 5, chap. A2. 1971. 31 p.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS–TWRI book 5, chap. A3. 1987. 80 p.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L.J. Britton and P.E. Greeson, editors: USGS–TWRI book 5, chap. A4. 1989. 363 p.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS–TWRI book 5, chap. A5. 1977. 95 p.
- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L.C. Friedman and D.E. Erdmann: USGS–TWRI book 5, chap. A6. 1982. 181 p.

#### **Section C. Sediment Analysis**

- 5-C1. *Laboratory theory and methods for sediment analysis*, by H.P. Guy: USGS–TWRI book 5, chap. C1. 1969. 58 p.

### **Book 6. Modeling Techniques**

#### **Section A. Ground Water**

- 6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M.G. McDonald and A.W. Harbaugh: USGS–TWRI book 6, chap. A1. 1988. 586 p.
- 6-A2. *Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model*, by S.A. Leake and D.E. Prudic: USGS–TWRI book 6, chap. A2. 1991. 68 p.
- 6-A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual*, by L.J. Torak: USGS–TWRI book 6, chap. A3. 1993. 136 p.
- 6-A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions*, by R.L. Cooley: USGS–TWRI book 6, chap. A4. 1992. 108 p.

- 6-A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details*, by L.J. Torak: USGS–TWRI book 6, chap. A5, 1993. 243 p.
- 6-A6. *A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction*, by Eric D. Swain and Eliezer J. Wexler: USGS–TWRI book 6, chap. A5, 1996. 125 p.
- 6-A7. *User's guide to SEAWAT: A computer program for simulation of three-dimensional variable-density ground-water flow*, by Weixing Guo and Christian D. Langevin: USGS–TWRI book 6, chap. A7. 2002. 77 p.

## **Book 7. Automated Data Processing and Computations**

### **Section C. Computer Programs**

- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS–TWRI book 7, chap. C1. 1976. 116 p.
- 7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L.F. Konikow and J.D. Bredehoeft: USGS–TWRI book 7, chap. C2. 1978. 90 p.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS–TWRI book 7, chap. C3. 1981. 110 p.

## **Book 8. Instrumentation**

### **Section A. Instruments for Measurement of Water Level**

- 8-A1. *Methods of measuring water levels in deep wells*, by M.S. Garber and F.C. Koopman: USGS–TWRI book 8, chap. A1. 1968. 23 p.
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS–TWRI book 8, chap. A2. 1983. 57 p.

### **Section B. Instruments for Measurement of Discharge**

- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G.F. Smoot and C.E. Novak: USGS–TWRI book 8, chap. B2. 1968. 15 p.

## **Book 9. Handbooks for Water-Resources Investigations**

### **Section A. National Field Manual for the Collection of Water-Quality Data**

- 9-A1. *National Field Manual for the Collection of Water-Quality Data: Preparations for Water Sampling*, by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A1. 1998. 47 p.
- 9-A2. *National Field Manual for the Collection of Water-Quality Data: Selection of Equipment for Water Sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A2. 1998. 94 p.
- 9-A3. *National Field Manual for the Collection of Water-Quality Data: Cleaning of Equipment for Water Sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A3. 1998. 75 p.
- 9-A4. *National Field Manual for the Collection of Water-Quality Data: Collection of Water Samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A4. 1999. 156 p.
- 9-A5. *National Field Manual for the Collection of Water-Quality Data: Processing of Water Samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A5. 1999. 149 p.
- 9-A6. *National Field Manual for the Collection of Water-Quality Data: Field Measurements*, edited by F.D. Wilde and D.B. Radtke: USGS–TWRI book 9, chap. A6. 1998. Variously paginated.
- 9-A7. *National Field Manual for the Collection of Water-Quality Data: Biological Indicators*, edited by D.N. Myers and F.D. Wilde: USGS–TWRI book 9, chap. A7. 1997 and 1999. Variously paginated.
- 9-A8. *National Field Manual for the Collection of Water-Quality Data: Bottom-material samples*, by D.B. Radtke: USGS–TWRI book 9, chap. A8. 1998. 48 p.
- 9-A9. *National Field Manual for the Collection of Water-Quality Data: Safety in Field Activities*, by S.L. Lane and R.G. Fay: USGS–TWRI book 9, chap. A9. 1998. 60 p.

WELL DESCRIPTIONS AND GROUND-WATER DATA

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

ALACHUA COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
292838082073701	05-19-2003 09-16-2003	1402 1010	A-0725 LK LOCHLOOSA AT LOCHLOOSA, FL	54.62 56.45
293203082200601	05-20-2003 09-16-2003	1510 1510	CHITTY WELL AT KIRKWOOD	54.23 55.53
293252082292301	05-20-2003 09-16-2003	1255 1350	ALTO STRAUGHN-ARCHER WELL	41.00 42.82
293253082055701	05-19-2003 09-16-2003	1430 1030	DRISCOLL WELL NR LOCHLOOSA	69.24 70.86
293539082112601	05-19-2003 09-16-2003	1502 1150	A-005 OWENS-ILLINOIS NO.1	69.47 71.25
293556082043401	05-19-2003	1445	A-0071 HAWTHORNE TOWER DEEP	75.23
293620082362001	05-20-2003 09-16-2003	1220 1320	USGS WELL NR NEWBERRY, FL	39.29 41.11
293644082244201	05-20-2003 09-16-2003	1430 1430	A-0016 RUN MONITOR WELL NO1 AT KANAPAHA	43.29 44.95
293728082282401	05-20-2003	1350	93722801 10S18E14 PARKER RD BAPTIST CHURCH	52.20
293857082203901	05-20-2003	0715	GEOLOGY DEPT WELL GAINESVILLE	43.46
293943082085901	09-15-2003	1230	A-0708 ALACHUA COUNTY F-5 NR ORANGE HEIGHTS, FL	76.15
294011082260401	05-24-2003 09-18-2003	1230 1200	A-0713 ALACHUA CO VISA 3 AT GAINESVILLE, FL	45.30 47.71
294028082245301	05-24-2003 09-18-2003	1200 1200	A-0712 VISA 2 NR GAINESVILLE, FL	45.27 47.76
294105082171501	05-20-2003 09-18-2003	0800 1320	A-063 ALACHUA FAIRGROUNDS CF IN GAINESVILLE, FL	44.06 45.88
294339082184501	05-21-2003 09-15-2003	1200 1230	A-0706 ALACHUA COUNTY F-3 IN GAINESVILLE, FL	38.48 40.14
294407082262801	05-20-2003 09-16-2003	0950 1140	DEP SAN FELASCO HAMMOCK NR GAINESVILLE, FL	55.54 62.12
294530082232001	05-20-2003 09-16-2003	0830 0830	DEERHAVEN POWER PLT WELL NR GAINESVILLE	39.00 40.23
294629082181301	05-21-2003 09-15-2003	1230 1200	A-0704 ALACHUA CO F-1 WELL IN GAINESVILLE, FL	56.18 57.61
294640082064501	05-19-2003 09-16-2003	1555 1230	ROD REESE NR KEYSTONE HEIGHTS	73.90 75.55
294839082230701	05-20-2003 09-16-2003	0925 1000	CELLON WELL NR LA CROSSE (A-0053)	40.95 42.87
294928082355301	05-20-2003 09-16-2003	1145 1050	94923502 08S17E03 CITY HIGH SPRINGS	33.47 34.25
295130082243001	09-11-2003	1150	SRWMD DOF - LACROSSE TOWER NR GAINESVILLE, FL	43.29



KEY TO SITE LOCATIONS ON FIGURE 4  
BAKER COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	301535082162001	36
2	302620082173501	36

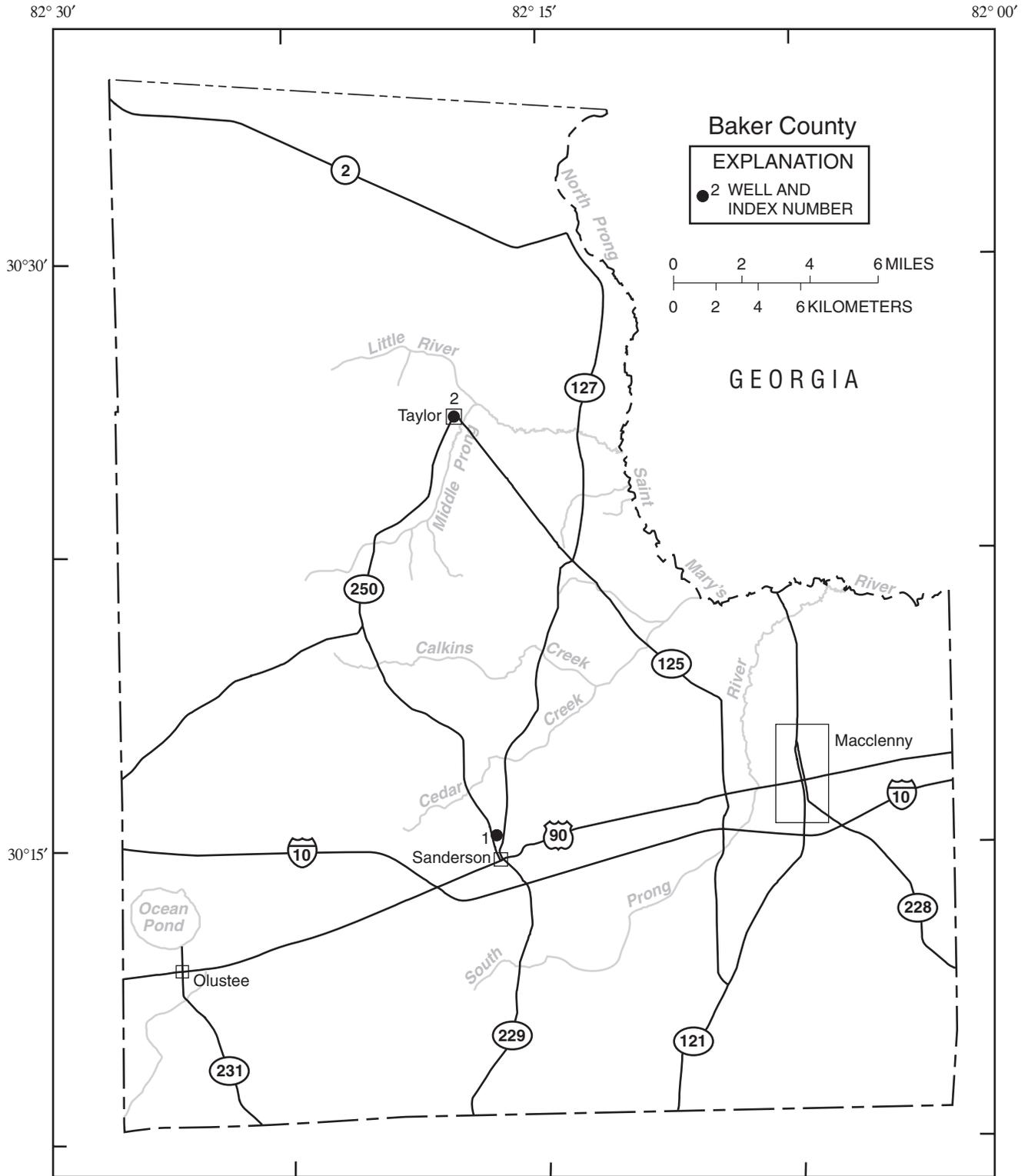


Figure 4.--Location of wells in Baker County.

## BAKER COUNTY

**WELL NUMBER.--301535082162001. Local Number B-11. USGS Well at Sanderson, FL.**

LOCATION.--Lat 30°15'40", long 82°16'20", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.1, T.3 S., R.20 E., Hydrologic Unit 03070204, 0.4 mi northwest of Sanderson Public School, and 0.7 mi north of U.S. Highway 90 in Sanderson. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 6 in., depth 825 ft, cased to 282 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 157.68 ft above NGVD of 1929. Measuring point: Top of 6 in. coupling, 2.30 ft above land-surface datum.

PERIOD OF RECORD.--August 1963 to September 1983 (bimonthly); October 1983 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 64.05 ft above NGVD of 1929, Mar. 1, 1965; lowest measured, 46.87 ft above NGVD of 1929, June 24, 2002.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 29	47.79	JAN 28	50.14	APR 29	54.64	JUN 24	53.58	SEP 17	54.31
NOV 25	48.58	FEB 25	50.98	MAY 22	53.49	JUL 28	53.48	22	53.98
DEC 30	49.62	MAR 25	54.59	28	53.36	AUG 25	54.00		

WATER YEAR 2003    LOWEST 47.79 OCT 29, 2002    HIGHEST 54.64 APR 29, 2003

**WELL NUMBER.--302620082173501. Local Number B-9. USGS Well at Taylor, FL.**

LOCATION.--Lat 30°26'20", long 82°17'35", in NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.3, T.1 S., R.20 E., Hydrologic Unit 03070204, 50 ft northeast of intersection of State Highways 125 and 250, and 200 ft northeast of General Store in Taylor. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 6 in., depth 905 ft, cased to 417 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 116.30 ft above NGVD of 1929. Measuring point: Top of 6 in. coupling, 2.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1963 to September 1983 (bimonthly); October 1983 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 62.50 ft above NGVD of 1929, Jan. 1, 1973; lowest measured, 44.18 ft above NGVD of 1929, July 29, 2002.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 29	45.12	JAN 28	47.76	APR 29	52.74	JUN 24	51.38	SEP 18	51.93
NOV 25	45.89	FEB 25	48.67	MAY 22	51.42	JUL 28	51.04	22	51.76
DEC 30	47.12	MAR 25	52.99	28	51.16	AUG 25	51.75		

WATER YEAR 2003    LOWEST 45.12 OCT 29, 2002    HIGHEST 52.99 MAR 25, 2003

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

37

BAKER COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEV- ATION ABOVE NGVD (FEET)
301022082103301	05-22-03 09-15-03	0915 0915	B-17 (BA0019)MANNING WELL NR MANNING FL	55.53 56.35
301245082233001	05-12-03 09-09-03	1215 0925	SRWMD B-6 US FOREST SERV-OLUSTEE TWR	55.12 55.67
301423082261101	05-19-03 09-17-03	1500 1220	B-15	58.92 59.99
301618082110901	05-22-03 09-17-03	1010 1310	BA0054	53.72 54.48
301635082234001	05-13-03 09-09-03	1015 0820	SRWMD B-0004	54.14 54.86
301702082271401	05-13-03 09-09-03	1040 0800	SRWMD B-0003	54.78 56.97
302115082232201	05-13-03 09-09-03	0950 0840	SRWMD B-2	52.30 53.75
302251082194901	05-22-03 09-18-03	1050 0800	B-25 ONF NO.6 FLORIDAN WELL NEAR TAYLOR FL	51.91 52.46
303235082203501	05-22-03 09-18-03	1135 0710	BA-0057 EDDY FIRETOWER FLORIDAN	50.08 50.59

KEY TO SITE LOCATIONS ON FIGURE 5  
BREVARD COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	275629080504901	40
2	275955080434601	40

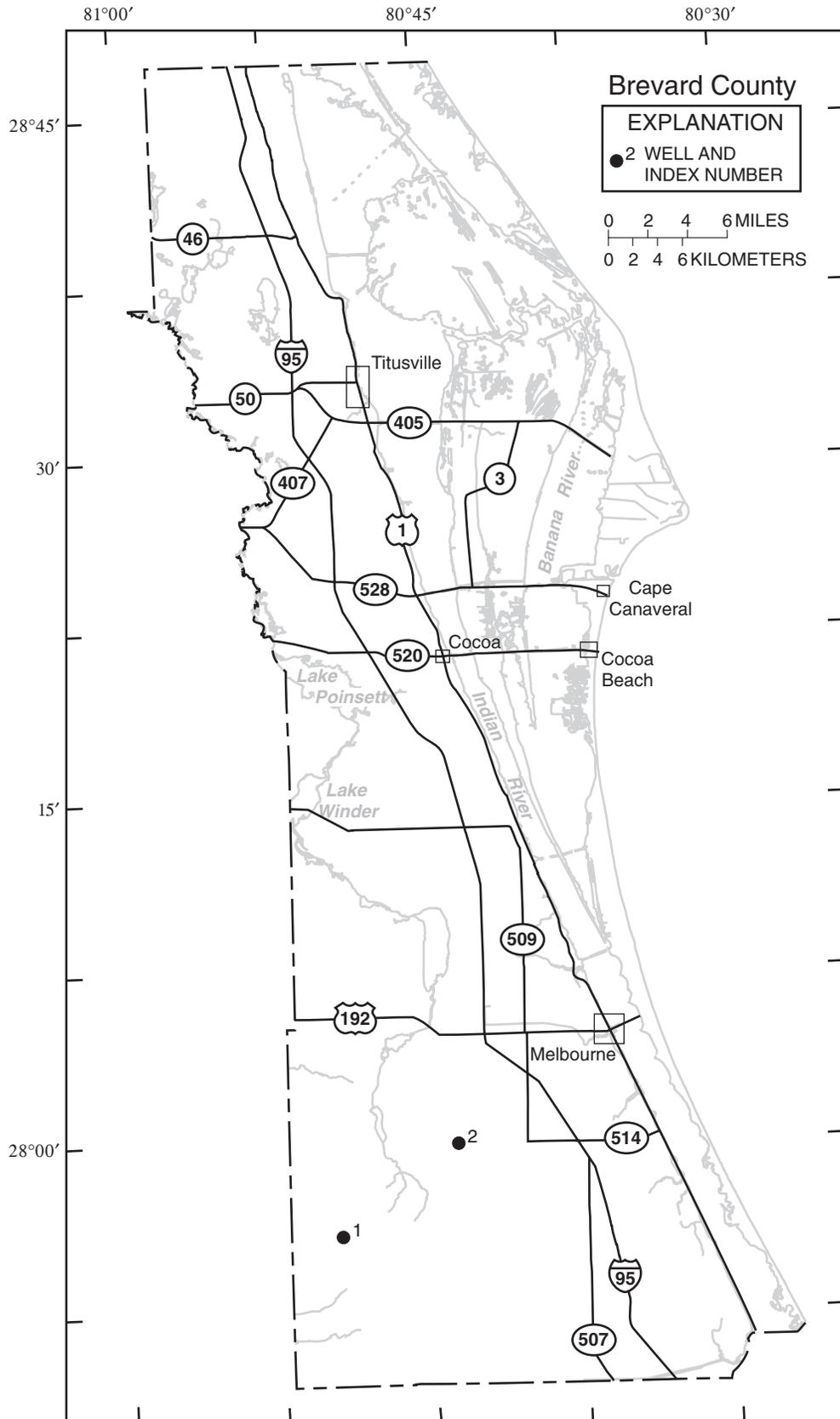


Figure 5.--Location of wells in Brevard County.

## BREVARD COUNTY

**WELL NUMBER.--275629080504901. Deseret Ranch Well No. 3 near Kenansville, FL.**

LOCATION.--Lat 27°56'29", long 80°50'49", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.32, T.29 S., R.35 E., Hydrologic Unit 03080101, 1,760 ft west of private road, 10 mi east of U.S. Highway 441, and 8 mi east of Kenansville. Owner: Deseret Ranches of Florida, Inc.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, irrigation, artesian well, diameter 2 in., depth 272 ft, casing length unknown.

INSTRUMENTATION.--Bimonthly measurement with pressure gage.

DATUM.--Elevation of land-surface datum is 26.57 ft above NGVD of 1929. Measuring point: Top of 2 in elbow, 2.30 ft above land-surface datum.

PERIOD OF RECORD.--June 1956, May 1976 (annually); May 1977 to September 2002 (semiannually); November 2002 to September 2003 (bimonthly).

REMARKS.--Replaces Ten-Mile Ranch well near Kenansville (275508080510701).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 43.82 ft above NGVD of 1929, June 8, 1956; lowest measured, 35.57 ft above NGVD of 1929, May 14, 1977.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 19	40.27	MAR 12	40.67	MAY 19	38.12	SEP 11	41.17
JAN 22	41.87	MAY 06	40.77	JUL 02	40.67	16	42.07
WATER YEAR 2003		LOWEST	38.12	MAY 19, 2003	HIGHEST	42.07	SEP 16, 2003

**WELL NUMBER.--275955080434601. Platt Well near Melbourne, FL.**

LOCATION.--Lat 27°59'55", long 80°43'46", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.4, T.29 S., R.36 E., Hydrologic Unit 03080203, on south side of extension of State Highway 514, 3.5 mi west of State Highway 509, and 9.5 mi southwest of Melbourne. Owner: Marion Platt.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geological Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, irrigation, artesian well, diameter 4 in., depth 447 ft, cased to 125 ft.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Elevation of land-surface datum is 21.78 ft above NGVD of 1929. Measuring point: Top of 4 in. tee, 1.25 ft above land-surface datum.

COOPERATION.--Since Oct. 1, 1985 data provided by St. Johns River Water Management District and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--August 1934, July 1942, November 1946 (annually); May 1947 to December 1949 (semiannually); January 1950 to November 1975 (bimonthly); December 1977 to September 1983 (bimonthly); October 1983 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.53 ft above NGVD of 1929, Aug. 14, 1934; lowest measured, 33.53 ft above NGVD of 1929, June 26, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	40.52	JAN 22	41.32	APR 23	40.67	JUL 22	40.98	SEP 17	42.38
NOV 19	40.43	FEB 19	40.70	MAY 20	39.53	AUG 26	42.18		
DEC 17	41.60	MAR 19	41.74	JUN 18	39.66	SEP 16	42.43		
WATER YEAR 2003		LOWEST	39.53	MAY 20, 2003	HIGHEST	42.43	SEP 16, 2003		

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

41

BREVARD COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
275003080330201	05-21-03 09-16-03	0938 0838	BR-1559 FLEMING GRANT NR FELLSMERE FL	38.69 41.19
275138080491801	05-22-03 09-17-03	1117 1126	TUCKER T-6 REPLACEMENT WELL NR KENANSVILLE FL	40.59 43.99
275210080272202	05-21-03 09-16-03	1230 1300	DR0625 SEB. INLET TW SHALLOW	33.03 36.73
275422080374001	05-21-03 09-16-03	0900 0800	BREVARD GROVES DIESEL BR0288 NR FELLEMERE FL	39.04 42.01
275425080283101	05-21-03 09-16-03	1203 1240	754028002	34.27 36.77
275948080393501	05-20-03 09-16-03	1734 0733	759039005 29S37E06 322 37578 FELLSMERE NW TP	37.15 39.75
280008080342601	05-21-03 09-16-03	1105 1100	800034072 28S37E36 424 08182 MELBOURNE EAST TP	31.02 33.95
280256080325601	05-21-03 09-16-03	1138 1216	802032002 28S38E17 432 1645 MELBOURNE EAST 49	29.50 32.30
280532080514501	05-20-03 09-15-03	1554 1616	805051003 27S35E31 331 30139 DEER PARK SE TP	40.10 43.70
280534080465101	05-20-03 09-15-03	1535 1654	805046002 27S35E36 331 37472 DEER PARK SE TP	40.13 42.03
280648080422801	05-20-03 09-15-03	1503 1537	DAN PLATT SARNO RD REPLACEMENT WELL	36.45 39.05
281109080373701	05-21-03 09-16-03	1330 1351	811037014 26S37E33 122 18134 EAU GALLIE 09	28.29 30.89
281210080473001	05-20-03 09-15-03	1410 1424	DUDA RANCH L-2 (812047001)	37.40 40.30
281447080392601	05-21-03 09-16-03	1345 1400	814039076 26S36E06 444 37577 EAU GALLIE 79	26.74 30.64
281905080375001	05-21-03 09-16-03	1424 1450	819037196 25S37E16 212 27337 COCOA 04	23.35 25.65
281937080442001	05-20-03 09-15-03	1137 1230	BR-1558 KENNEDY HIGH SCHOOL AT ROCKLEDGE FL	25.92 28.90
282204080514301	05-20-03 09-15-03	1023 1330	822051001 24S35E30 342 00767 LAKE POINSETT	30.88 33.38
282301080460601	05-20-03 09-17-03	1050 1209	BR-1557 COCOA HIGH SCHOOL AT COCOA, FL	23.69 25.94
282423080353601	05-21-03 09-16-03	1506 1512	824035001 24S37E11 444 15764 CAPE CANAVERAL TP	20.68 23.28
282524080422301	05-21-03 09-16-03	1525 1534	MERRITT ISLAND INJECTION WELL	18.20 20.50
282921080404701	05-21-03 09-16-03	1555 1551	BR0608 NASA UFA NR GATE 2	11.91 15.46
282945080473901	05-20-03 09-15-03	0946 1110	BR-586 TICO AIRPORT	16.29 18.84
283627080512001	05-20-03 09-15-03	0836 0909	BR-0001 USGS TEST WELL	15.32 17.21
283644080574903	05-20-03 09-15-03	0752 0829	BR-1526 SEMINOLE RANCH	19.16 21.26
283732080510001	05-20-03 09-15-03	0823 0923	BR0585 ASTRONAUT H.S.CF	11.57 13.77
283835080424501	05-20-03 09-15-03	0902 1013	838042002 21S36E27 MERRITT ISLE WILDLIFE	9.06 11.68

KEY TO SITE LOCATIONS ON FIGURE 6  
CITRUS COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	284330082215401	44
2	284508082174601	44
3	285102082204001	45
4	285121082245401	45
5	285414082284201	46
6	285608082233401	46

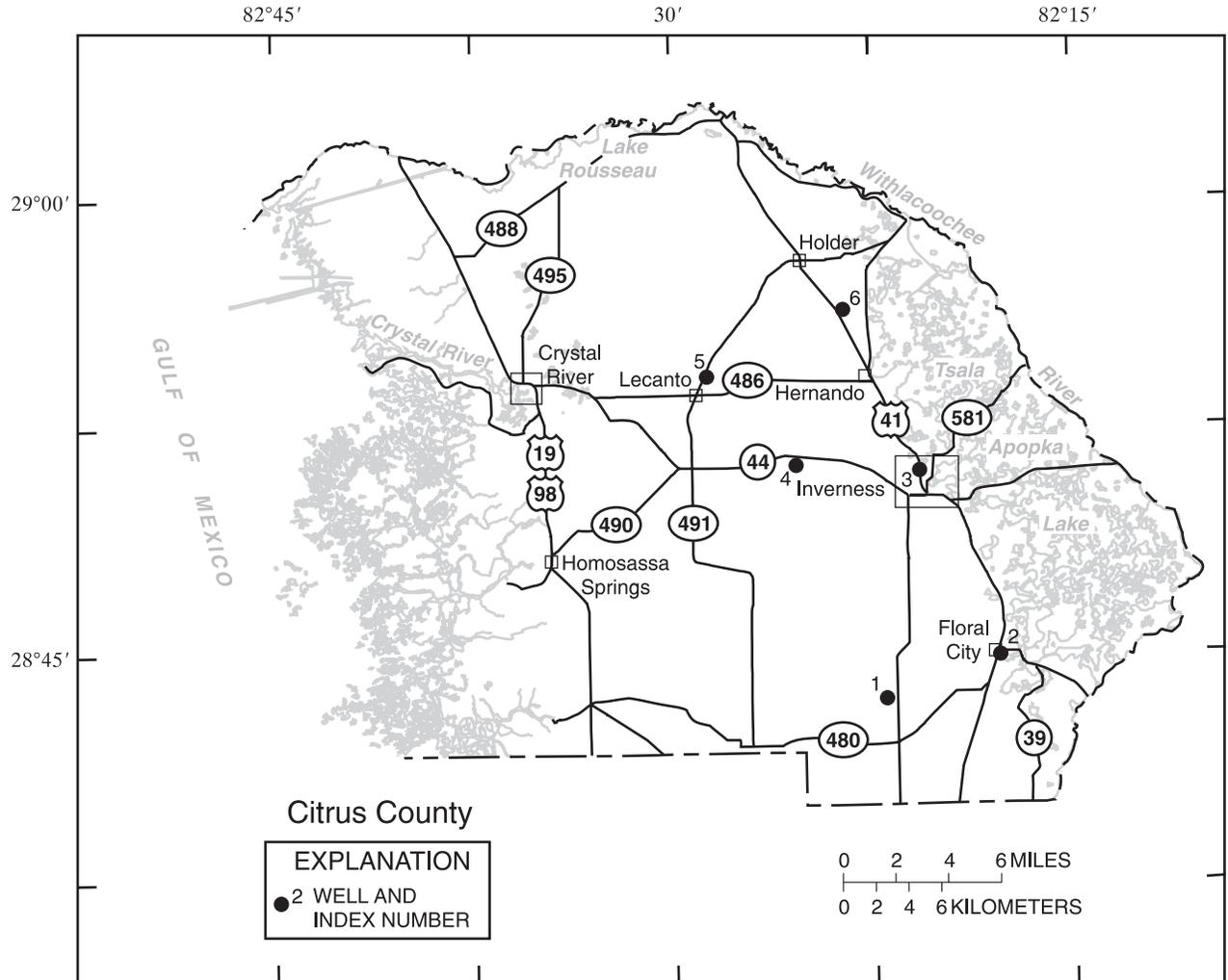


Figure 6.--Location of wells in Citrus County.

## CITRUS COUNTY

**WELL NUMBER.--284330082215401. Romp 109 Well near Floral City, FL.**

LOCATION.--Lat 28°43'30", long 82°21'54", in SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.24, T.20 S., R.19 E., Hydrologic Unit 03100208, 0.5 mi west of State Highway 581, 4.5 mi southwest of Floral City. Owner: Southwest Florida Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 6 in., depth 260 ft, cased to 189 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 157.13 ft above NGVD of 1929. Measuring point: Top of 6 in. flange, 2.67 ft above land-surface datum.

PERIOD OF RECORD.--May 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 23.20 ft above NGVD of 1929, April 19, 1998; lowest water level measured, 12.32 ft above NGVD of 1929, July 13, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.62	16.90	16.65	16.76	16.84	17.00	17.66	17.97	17.69	20.04	22.20	23.02
10	16.71	16.89	16.62	16.81	16.86	17.12	17.79	17.94	17.70	20.68	22.31	23.08
15	16.78	16.87	16.63	16.84	16.88	17.23	17.85	17.90	17.69	21.14	22.41	23.13
20	16.81	16.84	16.65	16.86	16.89	17.30	17.89	17.84	17.81	21.49	22.54	23.10
25	16.85	16.79	16.68	16.87	16.92	17.41	17.96	17.83	18.44	21.77	22.65	23.11
EOM	16.87	16.73	16.73	16.87	16.94	17.57	17.96	17.75	19.25	22.02	22.82	23.02
MAX	16.89	16.91	16.73	16.88	16.96	17.57	17.97	17.97	19.25	22.02	22.82	23.13
WTR YR	2003	MAX	23.13									

**WELL NUMBER.--284508082174601. Ferris Packing Company Well at Floral City, FL.**

LOCATION.--Lat 28°45'08", long 82°17'46", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.15, T.20 S., R.20 E., Hydrologic Unit 03100208, on east side of U.S. Highway 41, in rear of packing house, 0.2 mi north of State Highway 48 in Floral City. Owner: Ferris Packing Company.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 8 in., depth 400 ft, cased to 200 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 70.43 ft above NGVD of 1929. Measuring point: Top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--March and May 1961, January 1964 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.32 ft above NGVD of 1929, Aug. 23, 1965; lowest measured, 25.17 ft above NGVD of 1929, July 13, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	33.44	JAN 22	33.56	MAY 06	34.63	JUL 09	37.33	SEP 16	38.48
NOV 25	32.86	MAR 11	34.26	20	34.27	AUG 27	39.01		
WATER YEAR 2003	LOWEST	32.86	NOV 25, 2002	HIGHEST	39.01	AUG 27, 2003			

## CITRUS COUNTY—Continued

**WELL NUMBER.--285102082204001. DOT-41 Observation Well at Inverness, FL.**

LOCATION.--Lat 28°51'02", long 82°20'40", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.7, T.19 S., R.20 E., Hydrologic Unit 03100208, on east side of U.S. Highway 41, 0.4 mi north of intersection of U.S. Highway 41 and State Highway 581 in Inverness. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 18 in., depth 450 ft, cased to 290 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 41.56 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 2.07 ft above land-surface datum.

PERIOD OF RECORD.--March 1961 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 37.80 ft above NGVD of 1929, Oct. 14, 1982; lowest, 21.70 ft above NGVD of 1929, June 4, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	28.22	28.40	28.19	28.81	28.88	29.43	30.34	30.12	29.69	33.20	34.63	35.02
10	28.28	28.32	28.29	28.95	28.96	29.68	30.40	30.06	29.94	33.56	34.81	34.86
15	28.47	28.31	28.41	28.88	29.00	30.01	30.25	29.99	30.11	33.94	34.77	34.78
20	28.37	28.31	28.65	28.91	29.00	30.14	30.20	29.87	30.58	34.21	34.85	34.64
25	28.40	28.24	28.78	28.87	29.10	30.14	30.32	29.97	31.84	34.33	34.93	34.55
EOM	28.40	28.25	28.85	28.97	29.23	30.12	30.18	29.60	32.63	34.44	34.85	34.38
MAX	28.47	28.43	28.85	29.03	29.26	30.32	30.42	30.21	32.63	34.46	34.96	35.02
CAL YR	2002	MAX	28.85									
WTR YR	2003	MAX	35.02									

**WELL NUMBER.--285121082245401. ROMP 113 Replacement Well near Inverness, FL.**

LOCATION.--Lat 28°51'21", long 82°24'54", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.9, T.19 S., R.19 E., Hydrologic Unit 03100208, on south side of State Highway 44, 5.5 mi west of Inverness. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 6 in., depth 150 ft, cased to 51 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 132.57 ft above NGVD of 1929. Measuring point: Top of flange, 3.69 ft above land-surface datum.

PERIOD OF RECORD.--October 1996 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 12.06 ft above NGVD of 1929, Sept. 5, 2003; lowest, 4.72 ft above NGVD of 1929, June 22, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.11	7.19	6.79	7.11	6.73	7.04	7.40	7.50	7.30	10.30	11.72	12.06
10	7.14	7.15	6.81	7.06	6.74	7.17	7.45	7.44	7.45	10.77	11.80	12.02
15	7.20	7.09	6.94	7.00	6.74	7.25	7.48	7.36	7.49	11.11	11.86	11.92
20	7.24	7.11	6.99	6.97	6.81	7.28	7.45	7.32	7.54	11.35	11.85	11.76
25	7.25	7.00	7.00	6.92	6.91	7.36	7.50	7.37	8.56	11.48	11.95	11.66
EOM	7.20	6.91	7.00	6.77	6.94	7.42	7.51	7.28	9.54	11.63	12.00	11.64
MAX	7.25	7.22	7.04	7.13	6.94	7.42	7.51	7.51	9.54	11.63	12.00	12.06
CAL YR	2002	MAX	7.25									
WTR YR	2003	MAX	12.06									

CITRUS COUNTY—Continued

**WELL NUMBER.--285414082284201. North Lecanto Well near Lecanto, FL.**

LOCATION.--Lat 28°54'14", long 82°28'42", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.22, T.18 S., R.18 E., Hydrologic Unit 03100207, 40 ft east of State Highway 491, and 3.8 mi north of Lecanto. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 335 ft, cased to 288 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 68.87 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 3.07 ft above land-surface datum.

PERIOD OF RECORD.--November 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 8.10 ft above NGVD of 1929, Oct. 15, 1982; lowest, 2.94 ft above NGVD of 1929, May 3-5, 9, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.74	4.71	4.18	4.71	4.15	4.64	4.83	4.82	4.76	7.64	7.63	7.83
10	4.75	4.63	4.24	4.56	4.13	4.82	4.99	4.72	4.82	7.65	7.82	7.64
15	4.84	4.44	4.50	4.36	4.15	4.83	4.83	4.59	4.80	7.83	7.63	7.48
20	4.81	4.45	4.58	4.35	4.30	4.95	4.82	4.62	5.52	7.76	7.62	7.28
25	4.81	4.36	4.68	4.18	4.46	4.84	4.84	4.68	6.91	7.79	7.78	7.27
EOM	4.81	4.24	4.51	4.15	4.47	4.92	4.83	4.58	7.46	7.71	7.78	7.32
MAX	4.88	4.79	4.68	4.77	4.47	5.01	5.00	4.84	7.46	7.83	7.82	7.83
CAL YR	2002	MAX	4.95									
WTR YR	2003	MAX	7.83									

**WELL NUMBER.--285608082233401. Camp Mining Well (CE-64) near Holder, FL.**

LOCATION.--Lat 28°56'08", long 82°23'34", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.10, T.18 S., R.19 E., Hydrologic Unit 03100208, in a field about 0.5 mi east of U.S. Highway 41, at a point 2.5 mi south of County Road 491 in Holder. Owner: G.L. Robinson.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 14 in., depth 91 ft, casing length unknown.

INSTRUMENTATION.--Bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 65.92 ft above NGVD of 1929. Measuring point: Top of casing, 1.14 ft above land-surface datum.

PERIOD OF RECORD.--March 1961, December 1961 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 31.01 ft above NGVD of 1929, Nov. 20, 1964; lowest measured, 12.04 ft above NGVD of 1929, Apr. 13, 1982.

ELEVATION IN FEET (NGVD1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	18.11	JAN 22	18.42	MAY 06	21.36	JUL 08	23.56	SEP 17	27.65
NOV 25	18.51	MAR 12	18.82	21	21.41	AUG 27	27.40		
WATER YEAR 2003	LOWEST	18.11	OCT 03, 2002	HIGHEST	27.65	SEP 17, 2003			

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

47

CITRUS COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEV- ATION ABOVE NGVD (FEET)
284101082184301	05-20-03 09-16-03	1225 1430	84121801 21S20E04 OAK FOREST SUBMERSIBLE	34.63 39.57
284439082131401	05-20-03 09-17-03	1345 1820	84421301 TRAILS END FISH CAMP WELL NR FLORAL CITY	40.56 42.67
284519082150701	05-20-03 09-17-03	1335 1800	84521501 20S21E07 HOMER N FISHER	41.32 42.45
284609082163001	05-20-03 09-17-03	1320 1750	DUVAL ISLAND WELL NR FLORAL CITY FL	41.14 41.72
284752082202501	05-20-03 09-16-03	1540 1045	84722001 19S20E31 HIGHLANDS VFD NR INVERNESS	20.31 26.75
284805082225701	05-20-03 09-16-03	1510 1215	84822201 19S19E26 WSF-HOLDER MINE REC AREA	13.30 18.97
284844082282801	05-21-03 09-16-03	1325 0840	84822801 19S18E22 WSF-PERRYMAN TRACT	7.09 10.84
285037082213801	05-20-03 09-16-03	1835 1015	85022101 19S19E12 INVERNESS VILLAGE EASTW	21.61 28.09
285056082163001	05-20-03 09-17-03	1645 1700	85021601 19S20E11 CITRUS 10 U S GEOL SURVEY	38.61 39.24
285105082135802	05-20-03 09-17-03	1630 1640	USGS WELL 0.7MI.W OF WITH.R. ON SR 44.47FT N RD	38.35 40.75
285248082183201	05-21-03 09-16-03	1235 1530	85221801 18S20E33 ELMER HEATH	38.80 39.56
285612082294201	05-21-03 09-17-03	1035 1300	85622901 18S18E04 PINE RIDGE NO 3	4.82 8.30
285720082201301	05-20-03 09-15-03	1925 1830	85722001 ROMP DEEP WELL 116 NEAR TSALA AOPKA FL	33.44 37.55
285812082360901	05-19-03 09-17-03	1730 1100	85823601 17S17E29 CE 7 U S GEOL SURVEY	11.57 16.09
285833082233301	05-21-03	1105	85822301 17S19E34 CE 16	16.15
285930082283702	05-19-03 09-17-03	1835 1230	85922803 17S18E22 CITRUS SPRINGS RECORDER	7.98 14.27
285951082350901	05-19-03 09-17-03	1745 1140	85923501 17S17E15 CE 6 U S GEOL SURVEY	17.98 23.84
290023082393601	05-19-03 09-17-03	1710 1025	90023901 17S16E11 CE 89 U S GEOL SURVEY	10.73 15.24
290107082400501	05-19-03 09-17-03	1655 1010	90124001 17S16E11 CE 88 U S GEOL SURVEY	2.34 4.93
290132082324201	05-21-03 09-17-03	0930 1125	90123202 17S17E01 EMORY COWART HOUSE WELL	13.54 21.27
290216082292001	05-19-03 09-15-03	1815 1730	90222901 16S18E33 CE 77 U S GEOL SURVEY	13.09 21.43

KEY TO SITE LOCATIONS ON FIGURE 7  
CLAY COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	295733081365505	50
2	300656081463401	50
3	300834081421301	51
4	301018081415101	51

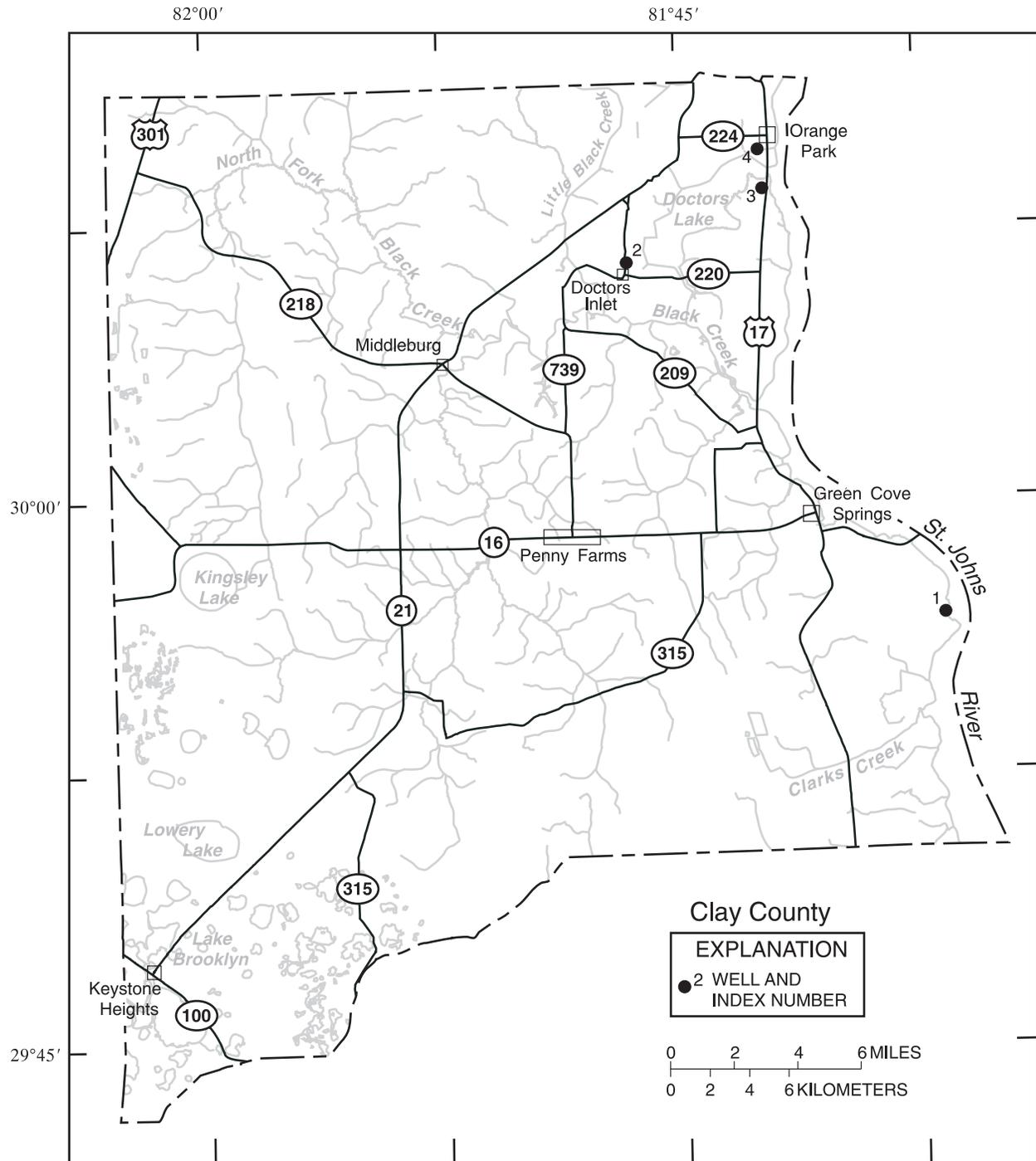


Figure 7.--Location of wells in Clay County.

## CLAY COUNTY

**WELL NUMBER.--295733081365505. Local Number C-0579. Bayard Point Well near Green Cove Springs, FL.**

LOCATION.--Lat 29°57'33", long 81°36'55", in land grant 47, T.6 S., R.27 E., Hydrologic Unit 03080103, 60 ft north of dirt road, 1.6 mi southeast of State Highway 16, and 4.4 mi southeast of Green Cove Springs. Owner: St. Johns River Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 656 ft, cased to 320 ft.

INSTRUMENTATION.--Bimonthly measurement with pressure gage.

DATUM.--Land-surface datum is 9.64 ft above NGVD of 1929. Measuring point: Top of 6 in. gate valve, 1.55 ft above land-surface datum.

PERIOD OF RECORD.--May 2000 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 31.29 ft above NGVD of 1929, Aug. 14, 2003; lowest measured, 17.89 ft, above NGVD of 1929, Apr. 25, 2001.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 14	29.99	APR 10	28.19	JUN 18	30.19	SEP 16	31.19
DEC 04	30.69	MAY 27	27.19	AUG 14	31.29		
WATER YEAR 2003		LOWEST	27.19	MAY 27, 2003	HIGHEST	31.29	AUG 14, 2003

**WELL NUMBER.--300656081463401. Local Number C-94. USGS Test Well near Orange Park, FL.**

LOCATION.--Lat 30°06'56", long 81°46'34", in SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.26, T.4 S., R.25 E., Hydrologic Unit 03080103, at St. Johns River Community College, 150 ft east of State Highway 224, 1.5 mi south of intersection of State Highways 224 and 21, and 5.0 mi southwest of Orange Park. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 8 in., depth 1,197 ft, cased to 391 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 46.22 ft above NGVD of 1929. Measuring point: Top of 2.5 in. coupling, 1.29 ft above land-surface datum.

PERIOD OF RECORD.--February 1974 to April 1979 (quarterly); July 1979 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 41.59 ft above NGVD of 1929, Feb. 28, 1983; lowest measured, 24.43 ft above NGVD of 1929, May 21, 2001.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	30.73	JAN 30	35.28	APR 29	34.28	JUN 24	34.10	SEP 16	33.82
NOV 26	34.83	FEB 25	36.52	MAY 23	32.23	JUL 28	34.61	22	32.98
DEC 30	35.89	MAR 25	37.26	27	33.36	AUG 25	35.51		
WATER YEAR 2003		LOWEST	30.73	OCT 29, 2002	HIGHEST	37.26	MAR 25, 2003		

## CLAY COUNTY—Continued

**WELL NUMBER.--300834081421301. Local Number C-7. Hanson Well near Orange Park, FL.**

LOCATION.--Lat 30°08'34", long 81°42'13", in land grant 44, T.4 S., R.26 E., Hydrologic Unit 03080103, 350 ft north of Creighton Road, 500 ft west of U.S. Highway 17, and 1.5 mi south of Orange Park. Owner: Mr. Peacock.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 3 in., depth 550 ft, casing length unknown.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 3.88 ft above NGVD of 1929. Measuring point: Top of 3 in. cross, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--May 1978 to September 1980 (semiannually); May 1981 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.08 ft above NGVD of 1929, Mar. 24, 1983; lowest measured, 15.88 ft above NGVD of 1929, July 25, 1996.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL										
OCT 29	24.48	DEC 30	29.88	FEB 25	30.38	APR 29	27.78	JUN 24	26.78	AUG 25	28.38
NOV 25	24.78	JAN 28	28.58	MAR 25	30.98	MAY 27	24.88	JUL 28	27.28	SEP 22	26.48

WATER YEAR 2003    LOWEST 24.48    OCT 29, 2002    HIGHEST 30.98    MAR 25, 2003

**WELL NUMBER.--301018081415101. Local Number C-4. Hellmuth Well at Orange Park, FL.**

LOCATION.--Lat 30°10'18", long 81°41'51", in land grant 41, T.4 S., R.26 E., Hydrologic Unit 03080103, 250 ft west of 1454 River Road, 0.25 mi east of U.S. Highway 17, and 0.7 mi northeast of Orange Park. Owner: Mr. Hellmuth.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 6 in., depth 530 ft, cased to 350 ft.

INSTRUMENTATION.--Bimonthly measurement with pressure gage.

DATUM.--Land-surface datum is 11.78 ft above NGVD of 1929. Measuring point: Top of 4 in. elbow, 2.00 ft above land-surface datum.

PERIOD OF RECORD.--November 1958, June 1971, May 1973 to September 1991 (semiannually) incomplete; April 1992 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 42.68 ft above NGVD of 1929, Nov. 7, 1958; lowest measured, 20.28 ft above NGVD of 1929, June 27, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL						
OCT 29	24.88	DEC 30	30.28	FEB 25	30.88	APR 29	30.08

WATER YEAR 2003    LOWEST 24.88    OCT 29, 2002    HIGHEST 30.88    FEB 25, 2003

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

CLAY COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
294307082020903	05-23-03 09-16-03	1300 0710	C-0009 COUNTYLINE NR MELROSE FL	80.06 81.40
294728082010901	05-23-03 09-16-03	1350 0740	C-0442	74.59 77.80
294807082020903	05-28-03 09-16-03	0825 0755	9482028 WELL AT KEYSTONE HEIGHTS FL	76.54 78.17
294911081572601	05-23-03 09-16-03	1445 0830	C-0453 GOLD HEAD	73.22 76.65
295016081433501	05-23-03 09-16-03	1200 0945	C-0123 SUNGARDEN TWR OCALA FL	66.48 68.57
295222081393501	05-23-03 09-16-03	1130 1020	C-1026 BAYARD WELL NR WALKILL	41.84 47.93
295238081553701	05-23-03 09-16-03	1500 0855	C-1011 AT CAMP BLANDING NO.1 NR JACKSONVILLE FL	72.71 74.07
295625081410901	05-22-03 09-16-03	0900 1045	C-1056 WALKILL WELL NR GREEN COVE SPGS, FL	48.26 48.76
295835081515001	05-23-03 09-17-03	1150 0715	C-17	68.10 69.47
295851081555301	05-23-03 09-17-03	1230 0740	C-0128 PENNY FARMS TWR	66.31 69.13
300048081414301	05-23-03 09-16-03	1000 1220	C-30	27.37 29.87
300318082015401	05-27-03 09-17-03	1050 0935	C-1017 TRAINING SITE AT CAMP BLANDING NR JAX FL	52.35 60.34
300450081482801	05-23-03 09-17-03	1115 0655	C-18 MUIR WELL NEAR DOCTORS INLET FL	43.10 43.60
300649081485901	05-23-03 09-17-03	1116 0640	C-5 JOHN HUNTLEY WELL NEAR MIDDLEBURG FL	29.62 37.82
300850081552001	05-22-03 09-17-03	1400 1110	C-29	57.60 58.50
300926081561603	05-22-03 09-17-03	1410 1120	C-0583 YELLOW WATER CR NR HUGH FL	49.80 54.58



WATER RESOURCES DATA FOR FLORIDA, 2003  
Volume 1B: Northeast Florida Ground Water

KEY TO SITE LOCATIONS ON FIGURE 8  
DUVAL COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number	Index number	Site number	Page number
1	300622081284701	56	20	302015081384501	76
2	300820081354001	57	21	302022081393501	77
3	301422081541201	58	22	302052081323201	78
3	301422081541202	58	23	302130081411802	78
3	301422081541203	59	24	302159081235601	79
4	301522081331303	59	25	302227081435001	80
5	301537081441901	60	26	302236081401501	81
6	301551081415701	61	27	302301081295001	82
7	301604081361501	62	27	302301081295002	82
8	301639081330802	63	28	302304081383202	83
9	301648081431801	64	27	302307081293801	83
10	301710081323601	65	29	302339081254702	84
10	301710081323602	65	30	302416081522601	85
10	301710081323603	66	30	302416081522602	85
11	301725081584501	66	31	302502081330701	86
12	301740081361001	67	31	302503081332001	87
13	301743081304701	68	31	302505081331001	88
12	301743081362301	69	31	302511081331201	89
12	301744081363301	70	31	302519081331501	90
12	301752081360501	71	32	302538081392501	91
14	301844081403801	72	33	302550081331501	91
15	301846081350901	72	34	302557081253101	92
16	301852081234201	73	35	302608081354901	93
17	301957081342301	73	35	302608081354902	93
18	302007081353201	74	35	302608081354903	94
19	302013081353801	75	36	302724081244801	95

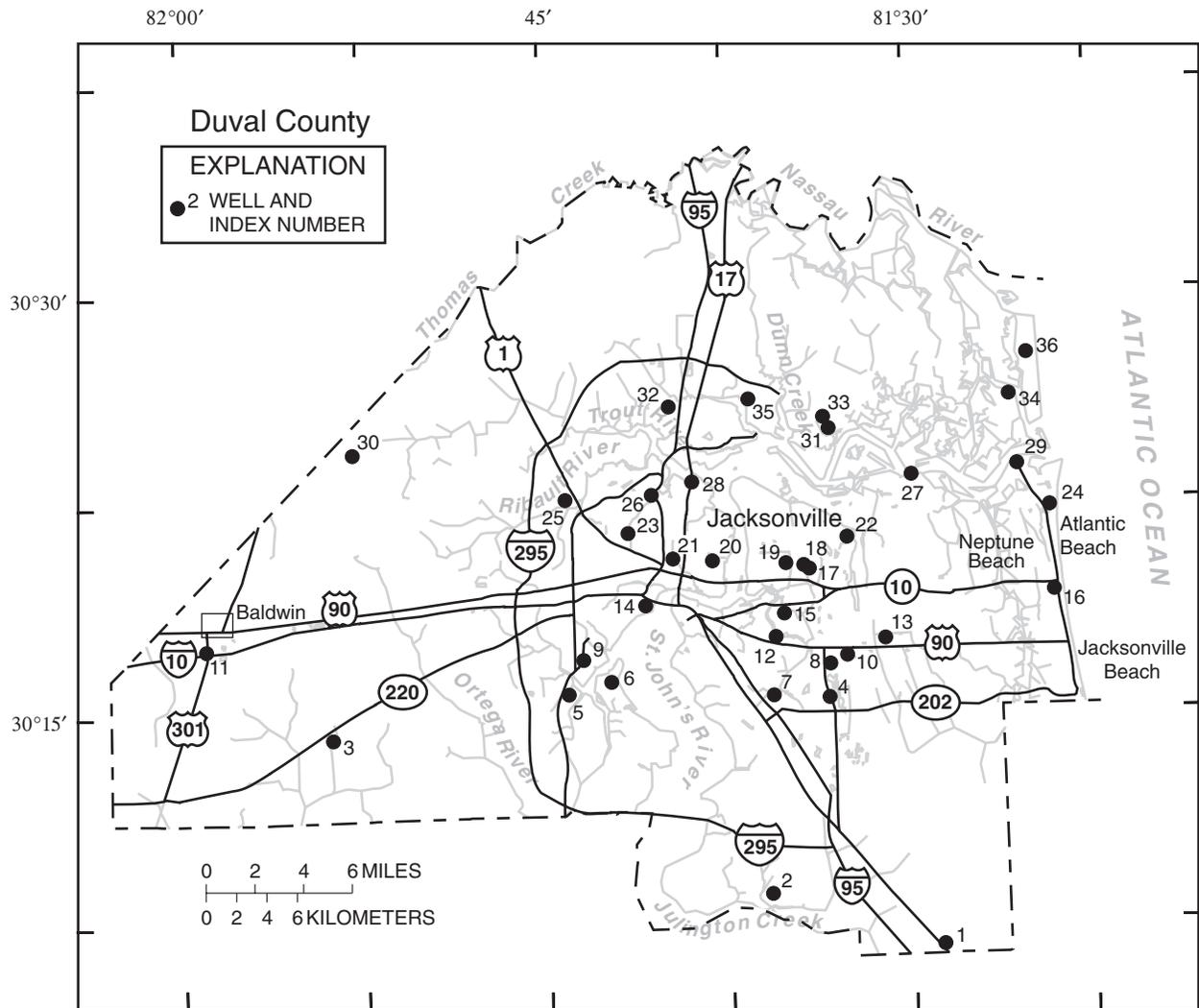


Figure 8.--Location of wells in Duval County.

WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

DUVAL COUNTY

**WELL NUMBER.--300622081284701. Local Number D-909. Dee Dot Ranch Well at Jacksonville, FL.**

LOCATION.--Lat 30°06'22", long 81°28'47", in land grant 48, T.4 S., R.28 E., Hydrologic Unit 03080103, 300 ft northeast of U.S. Highway 1, 0.10 mi north of Duval-St. Johns County line in Jacksonville. Owner: Dee Dot Ranch.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 4 in., depth 500 ft, casing length unknown.

WATER LEVEL RECORDS

INSTRUMENTATION.--Quarterly measurement with pressure gage.

DATUM.--Land-surface datum is 22.81 ft above NGVD of 1929. Measuring point: Top of 4 in. cross pipe, 1.50 ft above land-surface datum.

PERIOD OF RECORD.--May 1976 to September 1983 (semiannually); October 1990 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 41.91 ft above NGVD of 1929, Jan. 27, 1995; lowest measured, 32.71 ft above NGVD of 1929, July 25, 2000.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976-78, 1990 to current year (quarterly).

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	37.51	JAN 27	39.41	APR 22	39.11	JUL 22	38.61
WATER YEAR 2003 LOWEST		37.51	OCT 24, 2002 HIGHEST		39.41	JAN 27, 2003	

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)
OCT 24...	1115	--	--	770	23.0	--	--	--	--	--	--	19.0	--
JAN 27...	1245	--	--	758	20.5	--	--	--	--	--	--	19.0	--
APR 22...	1350	<5	7.2	768	22.0	370	91.0	34.0	2.50	15.0	132	19.0	0.9
JUL 22...	1230	--	--	765	24.0	--	--	--	--	--	--	19.0	--
								Residue on evap. at 180degC wat flt mg/L (70300)		Stront-ium, water, fltrd, ug/L (01080)			
						Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)						
				Date									
				APR 22...		23.0	230	538		4,790			

## DUVAL COUNTY—Continued

**WELL NUMBER.--300820081354001. Local Number D-296. Hood Landing Well at Mandarin, FL.**

LOCATION.--Lat 30°08'20", long 81°35'40", in land grant 43, T.4 S., R.27 E., Hydrologic Unit 03080103, 50 ft east of Hood Landing Road, 150 ft south of Julington Creek Road. Owner: Mrs. Peoples.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, private, domestic, artesian well, diameter 3 in., depth 487 ft, casing length unknown.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1962, 1970, 1972-79, 1983 to current year (quarterly).

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unfltrd uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)
OCT 24...	1100	--	--	700	23.0	--	--	--	--	--	--	19.0	--
JAN 27...	1320	--	--	714	19.5	--	--	--	--	--	--	19.0	--
APR 23...	1300	<5	7.4	702	23.0	330	64.0	41.0	3.10	14.0	111	19.0	0.6
JUL 22...	1340	--	--	696	24.0	--	--	--	--	--	--	19.0	--

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
APR 23...	20.0	210	479	5,250

## DUVAL COUNTY—Continued

**WELL NUMBER.--301422081541201. Local Number DS-226. USGS Observation Well at Jacksonville, FL.**

LOCATION.--Lat 30°14'22", long 81°54'12", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.16, T.3 S., R.24 E., Hydrologic Unit 03080103, 250 ft south of State Highway 228 (Normandy Boulevard), 0.8 mi west of main gate NAS Cecil Field in Jacksonville. Owner: U.S. Geological Survey.

AQUIFER.--Hawthorn Formation of the Miocene Age, Geologic Unit 122 HTRN.

WELL CHARACTERISTICS.--Drilled, unused, nonartesian well, diameter 2 in., depth 210 ft, cased to 210 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 77.22 ft above NGVD of 1929. Prior to August 2002, land-surface datum was considered to be 80.00 ft from topographic map. Measuring point: Top of 2 in. PVC casing, at land-surface datum.

PERIOD OF RECORD.--January 1976, May 1977, February 1979 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 75.5 ft above NGVD of 1929, Aug. 29, 1995, present datum; lowest measured, 65.07 ft above NGVD of 1929, Nov. 29, 1990, present datum.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	72.31	DEC 30	73.17	FEB 25	72.84	APR 29	71.97	JUN 24	71.98	AUG 25	73.70
WATER YEAR 2003		LOWEST	71.97	APR 29, 2003	HIGHEST	73.70	AUG 25, 2003				

**WELL NUMBER.--301422081541202. Local Number DS-227. USGS Observation Well at Jacksonville, FL.**

LOCATION.--Lat 30°14'22", long 81°54'12", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.16, T.3 S., R.24 E., Hydrologic Unit 03080103, 200 ft south of State Highway 228 (Normandy Boulevard), 0.8 mi west of main gate NAS Cecil Field in Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Hawthorn Formation of the Miocene Age, Geologic Unit 122 HTRN.

WELL CHARACTERISTICS.--Drilled, unused, nonartesian well, diameter 2 in., depth 401 ft, cased to 396 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 78.83 ft above NGVD of 1929. Prior to August 2002, land-surface datum was considered to be 80.00 ft from topographic map. Measuring point: Top of 2 in. PVC casing, 1.5 ft above land-surface datum.

PERIOD OF RECORD.--January 1976, March to May 1977, February 1979 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 57.13 ft above NGVD of 1929, May 21, 1984, present datum; lowest measured, 40.90 ft above NGVD of 1929, June 27, 2000, present datum.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	43.19	DEC 30	46.44	FEB 25	47.06	APR 29	48.80	JUN 24	47.52	AUG 25	48.88
WATER YEAR 2003		LOWEST	43.19	OCT 29, 2002	HIGHEST	48.88	AUG 25, 2003				

## DUVAL COUNTY—Continued

**WELL NUMBER.--301422081541203. Local Number DS-238. USGS Observation Well at Jacksonville, FL.**

LOCATION.--Lat 30°14'22", long 81°54'12", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.16, T.3 S., R.24 E., Hydrologic Unit 03080103, 220 ft south of State Highway 228 (Normandy Boulevard), 0.8 mi west of main gate NAS Cecil Field in Jacksonville. Owner: U.S. Geological Survey.

AQUIFER.--Limestone aquifer of the Miocene Age, Geologic Unit 122 LMSN.

WELL CHARACTERISTICS.--Drilled, unused, nonartesian well, diameter 2 in., depth 106 ft, cased to 82 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 78.50 ft above NGVD of 1929. Prior to August 2002, land-surface datum was considered to be 80.00 ft from topographic map. Measuring point: Top of 2 in. casing, at land-surface datum.

PERIOD OF RECORD.--March 1976 to May 1977, February 1979 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 77.93 ft above NGVD of 1929, Feb. 23, 1998, present datum; lowest measured, 68.78 ft above NGVD of 1929, Nov. 29, 1990, present datum.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	74.39	DEC 30	75.30	FEB 25	74.98	APR 29	74.10	JUN 24	74.11	AUG 25	75.78
WATER YEAR 2003		LOWEST	74.10	APR 29, 2003	HIGHEST	75.78	AUG 25, 2003				

**WELL NUMBER.--301522081331303. Local Number D-4610 (Replacement for D-291). Humphrey's Mining Company Well at Jacksonville, FL.**

LOCATION.--Lat 30°15'22", long 81°33'13", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.12, T.3 S., R.27 E., Hydrologic Unit 03080103, 200 ft east of State Highway 115 (Southside Boulevard), and 2.2 mi south of U.S. Highway 90 (Beach Boulevard) in Jacksonville. Owner: St. Johns River Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 6 in., depth 1,218 ft, cased to 1,009 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape.

DATUM.--Land-surface datum is 52.65 ft above NGVD of 1929. Prior to September 2002, land-surface datum was 0.41 ft higher. Measuring point: Top of 6 in. casing, 3.22 ft above land-surface datum.

REMARKS.--Prior to September 1999 originally well Local Number D-291 (301522081331301). Well drilled to 1,246 ft in 1957, backplugged to 1,218 ft in 1999.

PERIOD OF RECORD.--October 1999 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.69 ft above NGVD of 1929, Mar. 24, 2003; lowest measured, 27.33 ft above NGVD of 1929, June 27, 2000, present datum.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	32.65	DEC 30	36.54	FEB 24	37.05	APR 28	35.65	JUN 23	34.77	AUG 25	35.99
NOV 25	35.47	JAN 28	36.29	MAR 24	37.69	MAY 27	33.72	JUL 28	35.18	SEP 22	34.25
WATER YEAR 2003		LOWEST	32.65	OCT 28, 2002	HIGHEST	37.69	MAR 24, 2003				

DUVAL COUNTY—Continued

**WELL NUMBER.--301537081441901. Local Number D-75. City of Jacksonville Confederate Point Well at Jacksonville, FL.**

LOCATION.--Lat 30°15'37", long 81°44'19", in land grant 42, T.3 S., R.26 E., Hydrologic Unit 03080103, at water plant lot, 200 ft north of west end of Swamp Fox Road, in Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation, artesian well, diameter 12 in., depth 1,302 ft, cased to 970 ft.

WATER LEVEL RECORDS

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 15.45 ft above NGVD of 1929. Prior to September 2002, land-surface datum was considered to be 15.30 ft from topographic map. Measuring point: Top of concrete slab, 0.5 ft above land-surface datum.

PERIOD OF RECORD.--October 1986 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 42.95 ft above NGVD of 1929, Mar. 23, 1998, present datum; lowest measured, 30.95 ft above NGVD of 1929, July 21, 2000, present datum.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1986 to current year.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	34.25	DEC 30	38.45	FEB 25	39.55	APR 25	40.05	JUN 24	38.75	AUG 25	40.05
NOV 25	37.45	JAN 30	38.25	MAR 25	40.95	MAY 27	37.95	JUL 23	38.75	SEP 22	39.65
WATER YEAR 2003		LOWEST	34.25	OCT 24, 2002	HIGHEST	40.95	MAR 25, 2003				

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-ium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)
OCT 24...	1000	--	--	362	25.0	--	--	--	--	--	--	7.10	--
JAN 30...	0845	--	--	362	23.0	--	--	--	--	--	--	7.20	--
APR 25...	1045	<5	7.2	362	25.0	170	40.0	15.0	1.80	6.4	107	7.20	0.4
JUL 23...	1400	--	--	364	25.0	--	--	--	--	--	--	7.20	--

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
APR 25...	17.0	62.0	226	3,190

## DUVAL COUNTY—Continued

**WELL NUMBER.--301551081415701. Local Number D-129. K.A. Merrill Well at Jacksonville, FL.**

LOCATION.--Lat 30°15'51", long 81°41'57", in land grant 42, T.3 S., R.26 E., Hydrologic Unit 03080103, 44 ft north of Merrill driveway, and 45 ft east of Ortega Boulevard in Jacksonville. Owner: K.A. Merrill.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 4 in., depth 600 ft, cased to 470 ft.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 8.63 ft above NGVD of 1929. Measuring point: 0.5 in. corporation cock, 1.20 ft above land-surface datum.

PERIOD OF RECORD.--July 1940 to April 1942, January to April 1944, August 1945 to September 1978 (semiannually); February 1979 to July 1980 (bimonthly); August 1980 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 50.93 ft above NGVD of 1929, July 9, 1940; lowest measured, 17.33 ft above NGVD of 1929, May 22, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	24.93	DEC 30	30.43	FEB 25	31.73	APR 29	30.23	JUN 24	27.85	AUG 25	31.23
NOV 25	28.03	JAN 27	29.83	MAR 25	32.33	MAY 27	27.83	JUL 28	30.33	SEP 22	27.93
WATER YEAR 2003		LOWEST	24.93	OCT 28, 2002	HIGHEST	32.33	MAR 25, 2003				

DUVAL COUNTY—Continued

**WELL NUMBER.--301604081361501. Local Number D-450. City of Jacksonville Santa Monica Well at Jacksonville, FL.**

LOCATION.--Lat 30°16'08", long 81°36'28", in land grant 56, T.3 S., R.27 E., Hydrologic Unit 03080103, at water treatment plant, 75 ft east of the end of J-Ray Circle, 1 block east of Interstate Highway 95. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation, artesian well, diameter 12 to 8 in., depth 1,304 ft, cased to 1,100 ft.

WATER LEVEL RECORDS

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 20.05 ft above NGVD of 1929. Prior to September 2002, land-surface datum was considered to be 22.00 ft from topographic map. Measuring point: Top of concrete slab, 0.5 ft above land-surface datum.

PERIOD OF RECORD.--October 1986 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 39.15 ft above NGVD of 1929, Mar. 24, 1998, present datum; lowest measured, 28.15 ft above NGVD of 1929, July 26, 2000, June 20, 2001, present datum.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1986 to current year.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	32.15	DEC 30	36.35	FEB 24	36.85	APR 25	36.95	JUN 23	35.35	AUG 25	36.05
NOV 25	34.65	JAN 31	36.15	MAR 24	38.50	MAY 27	35.05	JUL 24	35.55	SEP 16	35.35
WATER YEAR 2003		LOWEST	32.15	OCT 25, 2002	HIGHEST	38.50	MAR 24, 2003				

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unfltrd uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)
OCT 25...	1240	--	--	674	24.0	--	--	--	--	--	--	37.0	--
JAN 31...	0830	--	--	703	22.0	--	--	--	--	--	--	46.0	--
APR 25...	1400	<5	7.3	731	25.0	310	75.0	30.0	2.20	24.0	144	56.0	0.7
JUL 24...	0915	--	--	722	25.0	--	--	--	--	--	--	53.0	--
						Residue on evap. at 180degC wat flt mg/L (70300)		Strontium, water, fltrd, ug/L (01080)					
Date						Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)						
APR 25...						24.0	140	460	3,470				

DUVAL COUNTY—Continued

**WELL NUMBER.--301639081330802. Local Number D-1155. City of Jacksonville Southside Estates Well at Jacksonville, FL.**

LOCATION.--Lat 30°16'39", long 81°33'08", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>, sec. 1, T.3 S., R.27 E., Hydrologic Unit 03080103, 40 ft south of Anders Boulevard, 0.35 mi east of State Highway 115 (Southside Boulevard), and 0.60 mi south of U.S. Highway 90 (Beach Boulevard). Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation, artesian well, diameter 10 in., depth 1,170 ft, cased to 1,080 ft.

WATER LEVEL RECORDS

INSTRUMENTATION.--Monthly measurement with chalked tape.

DATUM.--Land-surface datum is 51.68 ft above NGVD of 1929. Measuring point: Top of 2 in. casing, 1.76 ft above land-surface datum.

PERIOD OF RECORD.--October 1986 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 41.44 ft above NGVD of 1929, Apr. 21, 1993; lowest measured, 28.21 ft above NGVD of 1929, June 27, 2000.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1986 to current year.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	33.35	DEC 30	37.14	FEB 24	37.56	APR 30	36.30	JUN 23	35.62	AUG 25	35.38
NOV 25	36.02	JAN 31	37.07	MAR 24	38.31	MAY 27	34.75	AUG 01	36.12	SEP 22	35.72
WATER YEAR 2003 LOWEST 33.35		OCT 30, 2002		HIGHEST 38.31		MAR 24, 2003					

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)
OCT 30...	1100	--	--	943	27.0	--	--	--	--	--	--	110	--
JAN 31...	1000	--	--	1,130	26.5	--	--	--	--	--	--	160	--
APR 30...	1100	<5	7.2	935	27.0	390	92.0	38.0	2.40	32.0	140	110	0.7
AUG 01...	1100	--	--	1,020	28.0	--	--	--	--	--	--	130	--

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
APR 30...	24.0	160	578	4,480

DUVAL COUNTY—Continued

**WELL NUMBER.--301648081431801. Local Number D-103. City of Jacksonville Well at Jacksonville, FL.**

LOCATION.--Lat 30°16'48", long 81°43'18", in land grant 59, T.2 S., R.26 E., Hydrologic Unit 03080103, located in Lakeshore pumping station at intersection of Hamilton and Appleton Streets, 0.1 mi south of intersection of State Highway 128 (San Juan Avenue) and U.S. Highway 17 (Roosevelt Boulevard) in Lakeshore area of Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 12 in., depth 1,332 ft, casing length unknown.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968-76, 1983 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd end pt, lab, mg/L as CaCO3 (90410)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)
OCT 24...	1020	--	--	468	26.0	--	--	--	--	--	--	9.90	--
JAN 29...	1130	--	--	468	25.5	--	--	--	--	--	--	10.0	--
APR 25...	1215	<5	7.4	466	28.0	210	48.0	22.0	2.20	9.1	117	10.0	0.6
JUL 21...	1415	--	--	465	28.0	--	--	--	--	--	--	10.0	--

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
APR 25...	19.0	100	304	3,570

## DUVAL COUNTY—Continued

**WELL NUMBER.--301710081323601. Local Number DS-520. St. Johns River Water Management District Observation Well at Jacksonville, FL.**

LOCATION.--Lat 30°17'10", long 81°32'36", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.36, T.2 S., R.27 E., Hydrologic Unit 03080103, 200 ft south of U.S. Highway 90 (Beach Boulevard), and 0.9 mi east of State Highway 115 (Southside Boulevard), next to U.S. Forest Service Southside Lookout Tower. Owner: St. Johns River Water Management District.

AQUIFER.--Nonartesian sand aquifer of the Tertiary System, Geologic Unit 122 NRSD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 2 in., depth 60 ft, cased to 40 ft.

INSTRUMENTATION.--Water-stage recorder--60 minute interval.

DATUM.--Land-surface datum is 54.65 ft above NGVD of 1929. Measuring point: Top of 2 in. casing at shelter floor, 2.67 ft above land-surface datum.

PERIOD OF RECORD.--February 1989 to June 1991 (bimonthly); June 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 46.76 ft above NGVD of 1929, Sept. 16, 2001; lowest water level measured, 38.31 ft above NGVD of 1929, Aug. 3, 1989.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	43.56	43.54	43.24	43.80	43.11	44.38	44.19	43.38	43.20	43.09	43.64	43.39
10	43.33	43.40	43.32	43.80	43.30	44.65	44.08	43.20	43.34	42.92	43.79	43.23
15	44.00	43.41	43.44	43.53	43.29	44.82	43.96	43.04	43.35	42.96	43.78	43.07
20	44.19	43.56	43.36	43.43	43.61	44.74	43.80	43.05	43.44	42.92	43.87	---
25	43.95	43.47	43.49	43.34	43.66	44.45	---	43.23	43.40	43.33	43.89	---
EOM	43.70	43.37	43.61	43.18	43.68	44.38	---	43.06	43.25	43.52	43.59	---
MAX	44.19	43.66	43.61	43.80	43.68	44.82	---	43.41	43.45	43.52	43.89	---

**WELL NUMBER.--301710081323602. Local Number DS-521. St. Johns River Water Management District Observation Well at Jacksonville, FL.**

LOCATION.--Lat 30°17'10", long 81°32'36", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.36, T.2 S., R.27 E., Hydrologic Unit 03080103, 200 ft south of U.S. Highway 90 (Beach Boulevard), and 0.9 mi east of State Highway 115 (Southside Boulevard), next to U.S. Forest Service Southside Lookout Tower. Owner: St. Johns River Water Management District.

AQUIFER.--Limestone aquifer of the Miocene Age, Geologic Unit 122 LMSN.

WELL CHARACTERISTICS.--Drilled, unused, nonartesian well, diameter 4 in., depth 120 ft, cased to 100 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Land-surface datum is 55.10 ft above NGVD of 1929. Measuring point: Top of 4 in. casing at shelter floor, 2.22 ft above land-surface datum.

PERIOD OF RECORD.--March 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 44.40 ft above NGVD of 1929, Aug. 6-13, 1991; lowest, 35.19 ft above NGVD of 1929, Sept. 7, 1999.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	38.78	38.92	38.78	39.50	38.68	39.93	39.54	38.55	38.47	37.95	38.52	37.97
10	38.70	38.84	38.92	39.28	39.02	---	39.43	38.00	38.66	37.54	38.71	37.88
15	39.28	39.00	39.16	39.08	39.12	40.12	39.27	37.70	38.51	37.97	38.63	37.64
20	39.48	39.20	39.14	38.79	39.39	40.05	38.99	37.98	38.54	37.95	38.67	---
25	39.26	39.14	39.28	38.51	39.46	39.78	38.83	38.52	38.42	37.96	38.63	---
EOM	38.96	38.99	39.31	38.31	39.50	39.79	38.89	38.16	38.11	38.30	38.15	---
MAX	39.49	39.27	39.31	39.53	39.51	---	39.73	38.79	38.67	38.30	38.71	---

DUVAL COUNTY—Continued

**WELL NUMBER.--301710081323603. Local Number D-3824. St. Johns River Water Management District Observation Well at Jacksonville, FL.**

LOCATION.--Lat 30°17'10", long 81°32'36", in NE¼NE¼SE¼ sec.36, T.2 S., R.27 E., Hydrologic Unit 03080103, 200 ft south of U.S. Highway 90 (Beach Boulevard), and 0.9 mi east of State Highway 115 (Southside Boulevard), next to U.S. Forest Service Southside Lookout Tower. Owner: St. Johns River Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 6 in., depth 740 ft, cased to 490 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Land-surface datum is 54.97 ft above NGVD of 1929. Measuring point: Top of 6 in. casing at shelter floor, 2.37 ft above land-surface datum.

PERIOD OF RECORD.--March 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 35.68 ft above NGVD of 1929, Jan. 19, 1995; lowest, 12.77 ft above NGVD of 1929, May 29, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.86	22.21	25.80	27.90	27.82	28.66	27.28	23.50	23.75	22.31	26.10	23.81
10	20.46	23.21	26.87	27.69	---	30.37	---	21.11	24.53	20.19	27.57	24.35
15	22.50	25.01	27.95	27.85	---	30.21	26.92	19.22	23.73	24.07	27.37	22.67
20	22.86	26.69	27.07	28.10	---	30.51	25.04	20.62	24.25	24.21	26.14	---
25	22.31	25.81	27.98	27.50	---	29.13	25.39	23.36	22.81	23.90	25.18	---
EOM	22.12	25.64	27.60	27.64	---	29.19	25.02	20.24	22.54	25.61	23.47	---
MAX	23.19	26.69	28.12	28.56	---	---	---	25.03	24.70	25.61	27.92	---

**WELL NUMBER.--301725081584501. Local Number D-254. Seaboard Coastline Well at Baldwin, FL.**

LOCATION.--Lat 30°17'25", long 81°58'45", in NE¼SW¼SW¼ sec.26, T.2 S., R.23 E., Hydrologic Unit 03080103, 0.4 mi north of Interstate Highway 10, and 0.5 mi east of U.S. Highway 301, on property of Seaboard Railroad in Baldwin. Owner: Seaboard Coastline Railroad.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, industrial, artesian well, diameter 8 in., depth 750 ft, cased to 433 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 85.00 ft above NGVD of 1929. Measuring point: 1.25 in. tap in pump base, 1.88 ft above land-surface datum.

PERIOD OF RECORD.--January 1961 to May 1962, May 1964 to September 1978 (annually); February 1979 to March 1983 (bimonthly); May 1983 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 59.75 ft above NGVD of 1929, Jan. 11, 1961; lowest measured, 47.62 ft above NGVD of 1929, Sept. 26, 1990.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	50.94	JAN 27	53.32	APR 29	56.06	JUN 24	55.48	SEP 18	55.88
NOV 25	52.14	FEB 25	54.24	MAY 21	55.11	JUL 28	55.49	22	55.67
DEC 30	53.15	MAR 25	55.73	28	55.20	AUG 25	56.02		
WATER YEAR 2003	LOWEST 50.94	OCT 29, 2002	HIGHEST 56.06	APR 29, 2003					

## DUVAL COUNTY—Continued

**WELL NUMBER.--301740081361001. Local Number D-275. City of Jacksonville Well at Jacksonville, FL.**

LOCATION.--Lat 30°17'40", long 81°36'10", in land grant 52, T.2 S., R.27 E., Hydrologic Unit 03080103, located 300 ft west and 0.15 mi north of intersection of U.S. Highway 90 (Beach Boulevard) and University Boulevard in Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 18 in., depth 1,234 ft, cased to 515 ft.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973-80, 1983 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unfltrd uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd end pt, lab, mg/L as CaCO3 (90410)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)
OCT													
24...	0830	--	--	1,120	27.0	--	--	--	--	--	--	180	--
NOV													
25...	1430	--	--	1,120	26.0	--	--	--	--	--	--	180	--
DEC													
31...	1000	--	--	1,120	24.0	--	--	--	--	--	--	180	--
JAN													
28...	0850	--	--	1,150	24.5	--	--	--	--	--	--	190	--
MAR													
25...	0915	--	--	1,150	27.5	--	--	--	--	--	--	190	--
APR													
23...	1430	<5	7.2	1,110	28.0	410	99.0	38.0	2.40	57.0	136	180	0.6
MAY													
27...	0750	--	--	1,120	28.0	--	--	--	--	--	--	180	--
JUN													
25...	1030	--	--	1,070	29.0	--	--	--	--	--	--	170	--
JUL													
24...	1330	--	--	1,060	29.0	--	--	--	--	--	--	160	--
AUG													
26...	0945	--	--	1,070	28.0	--	--	--	--	--	--	170	--
SEP													
22...	1310	--	--	1,050	29.0	--	--	--	--	--	--	160	--

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
APR 23...	25.0	140	648	3,760

WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

DUVAL COUNTY—Continued

**WELL NUMBER.--301743081304701. Local Number D-224. City of Jacksonville Well at Jacksonville, FL.**

LOCATION.--Lat 30°17'43", long 81°30'47", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec. 29, T.2 S., R.28 E., Hydrologic Unit 03080103, located at Sandalwood High School at intersection of Saints and John Prom Roads, 0.15 mi west of Oakridge Pumping Station in Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 12 in., depth 1,179 ft, cased to 423 ft.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973-78, 1983 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd end pt, lab, mg/L as CaCO3 (90410)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)
OCT 22...	0930	--	--	847	25.0	--	--	--	--	--	--	88.0	--
JAN 28...	1245	--	--	1,090	25.5	--	--	--	--	--	--	170	--
APR 25...	1315	<5	7.3	1,090	27.5	390	92.0	38.0	2.30	58.0	135	180	0.6
JUL 21...	0915	--	--	808	26.0	--	--	--	--	--	--	78.0	--

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
APR 25...	25.0	140	616	3,700

## DUVAL COUNTY—Continued

**WELL NUMBER.--301743081362301. Local Number D-225. City of Jacksonville Well at Jacksonville, FL.**

LOCATION.--Lat 30°17'43", long 81°36'23", in land grant 52, T.2 S., R.27 E., Hydrologic Unit 03080103, located in pumphouse at Love Grove Water Plant at the end of Wilman Way, 600 ft north of Beach Boulevard, 0.4 mi east of intersection of Wilman Way and Spring Glen Road in Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 18 in., depth 1,277 ft, cased to 547 ft.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973-75, 1978-80, 1982 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)
OCT 24...	1310	--	--	1,040	27.5	--	--	--	--	--	--	150	--
NOV 25...	1500	--	--	897	28.0	--	--	--	--	--	--	110	--
DEC 31...	1030	--	--	955	26.0	--	--	--	--	--	--	120	--
JAN 28...	1100	--	--	1,100	25.5	--	--	--	--	--	--	180	--
FEB 25...	1125	--	--	967	25.0	--	--	--	--	--	--	--	--
MAR 25...	1050	--	--	981	26.5	--	--	--	--	--	--	100	--
APR 24...	0830	<5	7.3	1,080	26.0	400	97.0	37.0	2.40	52.0	137	170	0.6
MAY 27...	1240	--	--	1,060	28.0	--	--	--	--	--	--	160	--
JUN 25...	1200	--	--	1,030	28.0	--	--	--	--	--	--	150	--
JUL 31...	1215	--	--	1,050	29.0	--	--	--	--	--	--	160	--
SEP 22...	1400	--	--	998	29.0	--	--	--	--	--	--	140	--

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
APR 24...	25.0	140	628	3,720

WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

DUVAL COUNTY—Continued

**WELL NUMBER.--301744081363301. Local Number D-2193. City of Jacksonville Well at Jacksonville, FL.**

LOCATION.--Lat 30°17'44", long 81°36'33", land grant 52, T.2 S., R.27 E., Hydrologic Unit 03080103, located in pumphouse 85 ft south of Wilman Way, 165 ft northeast of intersection of Beach Boulevard and Spring Glen Road in Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 18 in., depth 1,304 ft, cased to 550 ft.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1979, 1982 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unfiltered uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfiltered end pt, lab, mg/L as CaCO3 (90410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)
OCT 24...	1220	--	--	1,040	27.0	--	--	--	--	--	--	150	--
NOV 25...	1440	--	--	860	28.0	--	--	--	--	--	--	96.0	--
DEC 31...	1020	--	--	1,030	25.0	--	--	--	--	--	--	150	--
MAR 25...	0930	--	--	815	28.0	--	--	--	--	--	--	82.0	--
APR 24...	0850	<5	7.3	775	24.0	320	79.0	30.0	2.10	29.0	138	78.0	0.6
JUN 25...	1240	--	--	1,040	28.0	--	--	--	--	--	--	160	--
AUG 04...	1100	--	--	1,050	29.0	--	--	--	--	--	--	160	--
SEP 24...	1015	--	--	1,000	28.0	--	--	--	--	--	--	150	--

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Strontium, water, fltrd, ug/L (01080)
APR 24...	25.0	130	467	3,220

## DUVAL COUNTY—Continued

**WELL NUMBER.--301752081360501. Local Number D-649. City of Jacksonville Well at Jacksonville, FL.**

LOCATION.--Lat 30°17'52", long 81°36'05", in land grant 52, T.2 S., R.27 E., Hydrologic Unit 03080103, located 50 ft east and 150 ft north of Hart Bridge on-ramp on University Boulevard, and 0.40 mi north of intersection of Beach and University Boulevards in Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 18 in., depth 1,005 ft, cased to 534 ft.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974, 1975, 1979, 1982 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)
OCT													
22...	0815	--	--	664	25.5	--	--	--	--	--	--	30.0	--
NOV													
25...	1420	--	--	642	26.0	--	--	--	--	--	--	29.0	--
DEC													
31...	0845	--	--	662	24.0	--	--	--	--	--	--	31.0	--
JAN													
28...	0920	--	--	661	24.0	--	--	--	--	--	--	30.0	--
FEB													
25...	1110	--	--	665	25.0	--	--	--	--	--	--	30.0	--
MAR													
25...	0815	--	--	662	24.0	--	--	--	--	--	--	29.0	--
APR													
24...	0800	<5	7.2	674	25.0	300	73.0	28.0	2.00	17.0	135	34.0	0.7
MAY													
27...	0810	--	--	664	26.0	--	--	--	--	--	--	29.0	--
JUN													
25...	1045	--	--	660	28.0	--	--	--	--	--	--	29.0	--
JUL													
25...	0930	--	--	655	26.0	--	--	--	--	--	--	29.0	--
AUG													
26...	1000	--	--	662	26.5	--	--	--	--	--	--	29.0	--
SEP													
22...	1320	--	--	665	27.0	--	--	--	--	--	--	31.0	--

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
APR 24...	24.0	150	476	3,480

## DUVAL COUNTY—Continued

**WELL NUMBER.--301844081403801. Local Number D-18. Riverside Avenue and Lomax Street at Jacksonville, FL.**

LOCATION.--Lat 30°18'44", long 81°40'38", in land grant 56, T.2 S., R.26 E., Hydrologic Unit 03080103, 70 ft north of Lomax Street and 350 ft east of Riverside Avenue in Jacksonville. Owner: Unknown.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 8 in., depth and casing length unknown.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 4.48 ft above NGVD of 1929. Measuring point: Top of 8 in. tee, 1.90 ft above land-surface datum.

PERIOD OF RECORD.--November 1938, July 1940 to May 1941, May 1946 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.68 ft above NGVD of 1929, Nov. 26, 1968; lowest measured, 21.38 ft above NGVD of 1929, June 22, 1998, May 21, 2001.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	27.57	DEC 30	32.68	FEB 25	33.98	APR 29	33.18	JUN 24	31.18	AUG 25	32.48
NOV 25	31.58	JAN 27	31.88	MAR 25	35.88	MAY 27	29.88	JUL 28	31.28	SEP 22	30.88
WATER YEAR 2003		LOWEST	27.57	OCT 28, 2002	HIGHEST	35.88	MAR 25, 2003				

**WELL NUMBER.--301846081350901. Local Number D-3544. Healthpoint Medical Center Well at Jacksonville, FL.**

LOCATION.--Lat 30°18'46", long 81°35'09", in land grant 50, T.2 S., R.27 E., Hydrologic Unit 03080103, 15 ft south of Atlantic Boulevard, and 0.8 mi east of intersection of Atlantic Boulevard and University Boulevard. Owner: Healthpoint Medical Center.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 2 in., depth 651 ft, cased to 535 ft.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 12.93 ft above NGVD of 1929. Measuring point: Top of reducer bushing, 1.8 ft above land-surface datum.

PERIOD OF RECORD.--July 1985, July 1997 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.53 ft above NGVD of 1929, Feb. 23, 1998; lowest measured, 21.53 ft above NGVD of 1929, June 26, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	26.53	DEC 30	30.53	FEB 24	31.23	APR 28	31.53	JUN 23	28.13	AUG 25	29.23
NOV 25	28.83	JAN 27	30.83	MAR 24	32.03	MAY 27	28.63	JUL 28	28.53	SEP 22	28.83
WATER YEAR 2003		LOWEST	26.53	OCT 29, 2002	HIGHEST	32.03	MAR 24, 2003				

DUVAL COUNTY—Continued

**WELL NUMBER.--301852081234201. Local Number D-160. City of Neptune Beach Well at Neptune Beach, FL.**

LOCATION.--Lat 30°18'52", long 81°23'42", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.21, T.2 S., R.29 E., Hydrologic Unit 03080201, 20 ft south of Florida Avenue, 400 ft east of Third Street in Neptune Beach. Owner: City of Neptune Beach.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 4 in., depth 585 ft, cased to 340 ft.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 12.05 ft above NGVD of 1929. Measuring point: Top of 8 in. gate valve flange cover, 2.49 ft below land-surface datum.

PERIOD OF RECORD.--June 1934, October 1939, September 1940 to February 1942, January 1944 to April 1980 (bimonthly); May 1980 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 53.75 ft above NGVD of 1929, June 15, 1934; lowest measured, 17.76 ft above NGVD of 1929, June 27, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	28.16	DEC 19	30.76	FEB 25	32.26	APR 28	27.76	JUN 24	27.46	AUG 25	28.46
NOV 25	30.06	JAN 27	31.26	MAR 24	33.46	MAY 27	24.56	JUL 28	27.96	SEP 23	26.46
WATER YEAR 2003		LOWEST	24.56	MAY 27, 2003	HIGHEST	33.46	MAR 24, 2003				

**WELL NUMBER.--301957081342301. Local Number D-313. Jacksonville Suburban Utilities Well at Jacksonville, FL.**

LOCATION.--Lat 30°19'57", long 81°34'23", in land grant 52, T.2 S., R.26 E., Hydrologic Unit 03080103, located at Alderman Park pumping station on Carlotta Road North, 1 block east of intersection of Townsend Boulevard and Carlotta Road North, in Alderman Park area of Jacksonville. Owner: Jacksonville Electric Authority.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 8 in., depth 1,150 ft, cased to 576 ft.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)
OCT 28...	1315	--	1,050	27.0	--	--	--	--	--	--	170	--	--
FEB 03...	1010	--	1,050	25.5	--	--	--	--	--	--	160	--	--
APR 29...	0915	<5	1,040	26.0	380	92.0	35.0	2.00	54.0	146	160	0.6	26.0
JUL 16...	0915	--	907	26.0	--	--	--	--	--	--	150	--	--
							Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)					
					Date	Sulfate water, fltrd, mg/L (00945)							
					APR 29...	120	602	2,620					

WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

DUVAL COUNTY—Continued

**WELL NUMBER.--302007081353201. Local Number D-479. City of Jacksonville Well at Jacksonville, FL.**

LOCATION.--Lat 30°20'07", long 81°35'32", in land grant 52, T.2 S., R.27 E., Hydrologic Unit 03080103, located at Arlington Lions Club, at intersection of Commerce Avenue and Sprinkle Drive in Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 18 in., depth 1,350 ft, cased to 606 ft.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974-79, 1983 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	Specif. conductance, wat unfiltered, uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfiltered, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfiltered end pt, lab, mg/L as CaCO3 (90410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)
OCT 22...	0900	--	967	27.5	--	--	--	--	--	--	140	--	--
JAN 28...	1015	--	1,010	26.0	--	--	--	--	--	--	150	--	--
APR 22...	1310	<5	1,040	28.0	400	98.0	37.0	2.10	45.0	143	160	0.6	27.0
JUL 16...	1400	--	1,080	28.5	--	--	--	--	--	--	170	--	--

Date	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC, wat flt, mg/L (70300)	Strontium, water, fltrd, ug/L (01080)
APR 22...	130	621	2,830

## DUVAL COUNTY—Continued

**WELL NUMBER.--302013081353801. Local Number D-673. City of Jacksonville Well at Jacksonville, FL.**

LOCATION.--Lat 30°20'13", long 81°35'38", in land grant 52, T.2 S., R.27 E., Hydrologic Unit 03080103, located inside fenced area at 1595 Maitland Street, 0.25 mi north of intersection of Arlington Road and Maitland Street, in Arlington area of Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 18 in., depth 814 ft, cased to 578 ft.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975, 1977-80, 1983 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unfltrd uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd end pt, lab, mg/L as CaCO3 (90410)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)
OCT													
22...	0840	--	--	1,100	27.5	--	--	--	--	--	--	180	--
NOV													
25...	1230	--	--	1,100	27.0	--	--	--	--	--	--	170	--
DEC													
30...	0915	--	--	1,080	27.0	--	--	--	--	--	--	170	--
JAN													
28...	0945	--	--	1,080	26.0	--	--	--	--	--	--	170	--
FEB													
25...	1030	--	--	1,070	27.0	--	--	--	--	--	--	170	--
MAR													
25...	0845	--	--	1,070	27.0	--	--	--	--	--	--	170	--
APR													
22...	1230	<5	7.3	1,060	28.5	410	99.0	38.0	2.10	46.0	141	170	0.6
MAY													
27...	0850	--	--	1,090	28.0	--	--	--	--	--	--	170	--
JUN													
25...	1000	--	--	1,120	28.0	--	--	--	--	--	--	180	--
JUL													
17...	1415	--	--	1,130	29.0	--	--	--	--	--	--	180	--
SEP													
22...	1200	--	--	1,120	29.0	--	--	--	--	--	--	180	--

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
APR 22...	27.0	130	620	2,870

WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

DUVAL COUNTY—Continued

**WELL NUMBER.--302015081384501. Local Number D-335. City of Jacksonville Well at Jacksonville, FL.**

LOCATION.--Lat 30°20'15", long 81°38'45", in land grant 37, T.2 S., R.26 E., Hydrologic Unit 03080103, located at rear of Robert Kennedy Community Center, 1133 Ionia Street, near intersection of 2nd and Clark Streets, in Springfield area of Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 12 in., depth 1,286 ft, cased to 531 ft.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966, 1969-79, 1984 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unfiltered uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfiltered end pt, lab, mg/L as CaCO3 (90410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)
OCT 22...	1300	--	--	498	28.5	--	--	--	--	--	--	16.0	--
JAN 29...	1015	--	--	502	27.0	--	--	--	--	--	--	16.0	--
APR 25...	1000	<5	7.8	224	23.0	93	12.0	15.0	1.40	13.0	85	17.0	0.5
JUL 21...	1245	--	--	482	29.0	--	--	--	--	--	--	16.0	--

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Strontium, water, fltrd, ug/L (01080)
APR 25...	12.0	13.0	131	1,270

DUVAL COUNTY—Continued

**WELL NUMBER.--302022081393501. Local Number D-176. City of Jacksonville Well at Jacksonville, FL.**

LOCATION.--Lat 30°20'22", long 81°39'35", in land grant 37, T.2 S., R.26 E., Hydrologic Unit 03080103, at pumphouse next to Hogan Creek Bridge, 50 ft west of intersection of Pearl and 3rd Streets. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation, artesian well, diameter 10 in., depth 1,280 ft, cased to 800 ft.

WATER LEVEL RECORDS

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 5.42 ft above NGVD of 1929. Prior to September 2002, land-surface datum was considered to be 3.00 ft from topographic map. Measuring point: Top of concrete slab, 0.5 ft above land-surface datum.

PERIOD OF RECORD.--October 1986 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 38.32 ft above NGVD of 1929, Mar. 24, Apr. 25, 2003; lowest measured, 22.42 ft above NGVD of 1929, July 25, 2000, present datum.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1986 to current year.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	29.42	DEC 30	32.22	FEB 24	36.72	APR 25	38.32	JUN 23	37.52	AUG 25	36.72
NOV 25	31.72	JAN 30	33.02	MAR 24	38.32	MAY 27	36.12	JUL 23	37.12	SEP 22	36.82
WATER YEAR 2003		LOWEST	29.42	OCT 24, 2002	HIGHEST	38.32	MAR 24, 2003	APR 25, 2003			

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unfltrd uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)
OCT 24...	0940	--	--	624	25.0	--	--	--	--	--	--	13.0	--
JAN 30...	0915	--	--	622	24.0	--	--	--	--	--	--	13.0	--
APR 25...	0930	<5	7.2	622	25.0	300	74.0	27.0	2.00	11.0	134	13.0	0.7
JUL 23...	1220	--	--	620	25.0	--	--	--	--	--	--	13.0	--
						Residue on evap. at 180degC wat flt mg/L (70300)		Strontium, water, fltrd, ug/L (01080)					
						Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)					
						APR 25...	22.0	160	422	3,830			

DUVAL COUNTY—Continued

**WELL NUMBER.--302052081323201. Local Number D-3060. Arlington East Sewage Treatment Plant Well at Jacksonville, FL.**

LOCATION.--Lat 30°20'52", long 81°32'32", in SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec. 7, T.2 S., R.28 E., Hydrologic Unit 03080103, 80 ft north of North Plant Road and 900 ft east of Millcove Road. Owner: St. Johns River Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 2,112 ft, cased to 2,050 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape or pressure gage.

DATUM.--Land-surface datum is 28.44 ft above NGVD of 1929. Measuring point: Top of 6 in. well flange, 3.55 ft, above land-surface datum.

PERIOD OF RECORD.--February 1983 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 36.39 ft above NGVD of 1929, Apr. 30, 1986; lowest measured, 15.35 ft above NGVD of 1929, June 27, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	21.97	DEC 30	24.21	FEB 24	25.05	APR 28	24.40	JUL 28	23.99	SEP 22	24.16
NOV 27	23.07	JAN 29	24.29	MAR 24	25.95	JUN 23	23.61	AUG 25	24.65		
WATER YEAR 2003		LOWEST	21.97	OCT 28, 2002	HIGHEST	25.95	MAR 24, 2003				

**WELL NUMBER.--302130081411802. Local Number D-46A. City of Jacksonville Well at Jacksonville, FL.**

LOCATION.--Lat 30°21'30", long 81°41'18", in land grant 35, T.2 S., R.26 E., Hydrologic Unit 03080103, located at intersection of Fairfax and 25th Streets, in Moncrief Park area of Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 10 in., depth 1,234 ft, cased to 530 ft.

REMARKS.--Well originally drilled to 1,064 ft in 1939, later drilled to 1,234 ft in 1963.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1941, 1964, 1969-81, 1986 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-ium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfl fixed end pt, lab, mg/L as CaCO3 (90410)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)
OCT 22...	1330	--	--	546	28.0	--	--	--	--	--	--	13.0	--
JAN 29...	0945	--	--	553	26.0	--	--	--	--	--	--	13.0	--
APR 22...	0845	<5	7.3	551	27.0	260	64.0	23.0	1.70	11.0	138	13.0	0.7
JUL 21...	1315	--	--	546	29.0	--	--	--	--	--	--	13.0	--
								Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)				
								Date					
								APR 22...					
									24.0	120	363	2,400	

## DUVAL COUNTY—Continued

**WELL NUMBER.--302159081235601. Local Number D-2386. Hanna Park Test Well at Jacksonville, FL.**

LOCATION.--Lat 30°21'59", long 81°23'56", in land grant 37, T.2 S., R.29 E., Hydrologic Unit 03080201, 25 ft north of beach front parking lot #8, 0.8 mi east from intersection of Mayport and Wonderwood Road, and 2.6 mi southeast of City of Mayport. Owner: St. Johns River Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 2,026 ft, cased to 1,892 ft.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 18.94 ft above NGVD of 1929. Measuring point: Top of flange, 1.16 ft above land-surface datum.

PERIOD OF RECORD.--April 1986 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 45.50 ft above NGVD of 1929, Feb. 21, 1995; lowest measured, 25.70 ft above NGVD of 1929, Jan. 28, 2002.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	41.50	DEC 19	42.70	FEB 25	42.90	APR 28	42.40	JUN 24	41.70	AUG 25	42.80
NOV 25	42.30	JAN 27	42.80	MAR 24	44.30	MAY 27	41.20	JUL 28	42.30	SEP 22	43.10
WATER YEAR 2003		LOWEST	41.20	MAY 27, 2003	HIGHEST	44.30	MAR 24, 2003				

DUVAL COUNTY—Continued

**WELL NUMBER.--302227081435001. Local Number D-592. City of Jacksonville Lincoln Estates Well at Jacksonville, FL.**

LOCATION.--Lat 30°22'27", long 81°43'50", in land grant 39, T.1 S., R.26 E., Hydrologic Unit 03080103, at water treatment plant, on south side of Kinlock Drive South, 0.3 mile west of U.S. Highway 1. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation, artesian well, diameter 16 to 10 in., depth 1,326 ft, cased to 1,150 ft.

WATER LEVEL RECORDS

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 8.85 ft above NGVD of 1929. Prior to September 2002, land-surface datum was considered to be 10.00 ft from topographic map. Measuring point: Top of concrete slab, 0.5 ft above land-surface datum.

PERIOD OF RECORD.--October 1986 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 42.75 ft above NGVD of 1929, Mar. 23, 1998, present datum; lowest measured, 31.55 ft above NGVD of 1929, July 25, 2000, present datum.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1986 to current year.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	34.55	DEC 30	37.95	FEB 24	38.75	APR 25	40.15	JUN 23	39.15	AUG 25	39.65
NOV 25	37.35	JAN 29	38.15	MAR 24	40.55	MAY 27	38.85	JUL 23	38.85	SEP 22	39.15
WATER YEAR 2003		LOWEST	34.55	OCT 24, 2002	HIGHEST	40.55	MAR 24, 2003				

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unfltrd uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)
OCT 24...	0910	--	--	612	25.0	--	--	--	--	--	--	12.0	--
JAN 29...	0915	--	--	614	24.0	--	--	--	--	--	--	12.0	--
APR 25...	0830	<5	7.2	615	25.0	290	75.0	25.0	1.70	11.0	130	12.0	0.6
JUL 23...	1245	--	--	610	25.0	--	--	--	--	--	--	12.0	--
								Residue on evap. at 180degC wat flt mg/L (70300)		Strontium, water, fltrd, ug/L (01080)			
								Silica, water, fltrd, mg/L (00955)		Sulfate water, fltrd, mg/L (00945)			
								Date					
								APR 25...	22.0	160	415	2,750	

## DUVAL COUNTY—Continued

**WELL NUMBER.--302236081401501. Local Number D-336. City of Jacksonville Well at Jacksonville, FL.**

LOCATION.--Lat 30°22'36", long 81°40'15", in land grant 50, T.1 S., R.26 E., Hydrologic Unit 03080103, located at 1025 Kenmore Street, 0.4 mi west of Norwood Avenue, and 0.4 mi southeast of intersection of Norwood Avenue and Interstate Highway 95 in Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter unknown, depth 1,303 ft, cased to 520 ft.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975, 1978 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)
OCT 25...	0900	--	--	483	26.0	--	--	--	--	--	--	14.0	--
JAN 29...	1040	--	--	485	25.5	--	--	--	--	--	--	14.0	--
APR 22...	0920	<5	7.5	480	27.0	220	54.0	20.0	1.50	12.0	146	14.0	0.6
JUL 21...	1330	--	--	475	28.5	--	--	--	--	--	--	14.0	--

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
APR 22...	25.0	73.0	306	1,390

DUVAL COUNTY—Continued

**WELL NUMBER.--302301081295001. Local Number DS-522. Fort Caroline National Memorial Park Well at Jacksonville, FL.**

LOCATION.--Lat 30°23'01", long 81°29'38", in land grant 43, T.1 S., R.28 E., Hydrologic Unit 03080103, 75 ft west of Fort Caroline Road, and 200 ft southwest of Fort Caroline Park entrance. Owner: St. Johns River Water Management District.

AQUIFER.--Non-artesian sand aquifer of the Tertiary System, Geologic Unit 112 NRSD.

WELL CHARACTERISTICS.--Drilled, observation, unused, nonartesian well, diameter 4 in., depth 34 ft, cased to 24 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Land-surface datum is 16.58 ft above NGVD of 1929. Measuring point: Shelter floor, 1.22 ft above land-surface datum.

PERIOD OF RECORD.--December 1985 to current year. Prior to October 1989, published as D-3537 U.S. Park Service Well at Jacksonville.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 13.99 ft above NGVD of 1929, July 25, 1991; lowest, 6.07 ft above NGVD of 1929, Aug. 22, 1988.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.66	10.28	9.80	10.42	9.57	11.25	10.56	9.81	9.30	9.26	9.95	9.45
10	10.45	10.10	9.90	10.25	9.75	11.48	10.42	9.64	9.35	9.10	10.41	9.37
15	11.10	10.08	10.03	10.04	9.73	11.40	10.32	9.44	9.64	9.21	10.43	9.25
20	11.07	10.31	9.97	9.88	10.08	11.22	10.15	9.45	9.73	9.09	10.10	9.08
25	10.72	10.09	10.16	9.78	10.04	10.92	9.99	9.50	9.60	---	9.85	9.01
EOM	10.45	9.92	10.22	9.66	10.00	10.77	9.93	9.22	9.37	9.56	9.59	9.27
MAX	11.21	10.40	10.24	10.42	10.09	11.50	10.73	9.91	9.73	---	10.49	9.53

CAL YR 2002 MAX 11.21

**WELL NUMBER.--302301081295002. Local Number DS-523. Fort Caroline National Memorial Park Well at Jacksonville, FL.**

LOCATION.--Lat 30°23'01", long 81°29'50", in land grant 43, T.1S., R.28 E., Hydrologic Unit 03080103, 75 ft west of Fort Caroline Road, and 200 ft southwest of Fort Caroline Park entrance. Owner: St. Johns River Water Management District.

AQUIFER.--Hawthorne sand and gravel aquifer of Miocene Series, Geologic Unit 122 HTRN.

WELL CHARACTERISTICS.--Drilled, observation, unused, nonartesian well, diameter 4 in., depth 204 ft, cased to 190 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Land-surface datum is 16.81 ft above NGVD of 1929. Measuring point: Shelter floor, 1.30 ft above land-surface datum.

PERIOD OF RECORD.--December 1985 to current year. Prior to October 1989, published as D-3538 U.S. Park Service Well at Jacksonville, FL.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 10.58 ft above NGVD of 1929, Oct. 15, 1995; lowest, 5.89 ft above NGVD of 1929, June 29, 1989.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.40	8.17	7.72	7.95	7.41	8.53	8.36	7.83	7.43	7.23	7.58	7.39
10	8.45	8.05	7.88	7.77	7.56	8.75	8.36	7.65	7.39	7.08	7.93	7.42
15	8.75	8.07	7.83	7.74	7.46	8.80	8.18	7.52	7.52	7.22	7.94	7.36
20	8.72	8.13	7.78	7.59	7.73	8.80	8.12	7.65	7.54	7.11	7.71	7.25
25	8.55	7.93	7.84	7.54	7.65	8.66	8.08	7.60	7.41	7.13	7.59	7.29
EOM	8.37	7.83	7.82	7.49	7.73	8.57	7.96	7.37	7.36	7.36	7.43	7.42
MAX	8.79	8.32	7.93	7.98	7.75	8.85	8.53	7.96	7.56	7.36	7.95	7.48

WTR YR 2003 MAX 8.85

## DUVAL COUNTY—Continued

**WELL NUMBER.--302304081383202. Local Number D-122A. City of Jacksonville Panama Park Well at Jacksonville, FL.**

LOCATION.--Lat 30°23'04", long 81°38'32", in land grant 50, T.1 S., R.27 E., Hydrologic Unit 03080103, between Eastland and Russell Streets, 20 ft north of 63rd Street, and 0.4 mi east of U.S. Highway 17 in Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 8 in., depth 905 ft, cased to 571 ft.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 13.07 ft above NGVD of 1929. Measuring point: Top of flange at land-surface datum.

REMARKS.--Well originally drilled to 700 ft in 1914, later drilled to 905 ft in 1925.

PERIOD OF RECORD.--August 1930, June 1938, November 1940 to April 1942, January 1944 to June 1944, August 1945 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 61.87 ft above NGVD of 1929, Aug. 21, 1930; lowest measured, 29.27 ft above NGVD of 1929, Apr. 24, 1975.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	34.27	JAN 27	36.87	APR 28	38.87	JUL 28	37.57	SEP 22	38.27
NOV 25	36.37	FEB 24	37.37	MAY 19	38.17	AUG 25	38.17		
DEC 30	37.07	MAR 24	38.87	JUN 23	37.87	SEP 16	38.07		
WATER YEAR 2003		LOWEST	34.27	OCT 28, 2002	HIGHEST	38.87	MAR 24, 2003	APR 28, 2003	

**WELL NUMBER.--302307081293801. Local Number D-424. U.S. Park Service Well at Jacksonville, FL.**

LOCATION.--Lat 30°23'07", long 81°29'38", in NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.28, T.1 S., R.28 E., Hydrologic Unit 03080103, 106 ft southeast of Fort Caroline Road, and 0.2 mi northeast of Fort Caroline National Park entrance in Jacksonville. Owner: U.S. Park Service.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 6 in., depth 700 ft, cased to 426 ft.

INSTRUMENTATION.--Bimonthly measurement with pressure gage.

DATUM.--Land-surface datum is 11.25 ft above NGVD of 1929. Measuring point: Top of flange on 6 in. tee, 3.60 ft above land-surface datum.

PERIOD OF RECORD.--December 1966, May 1968 to September 1978 (semiannually); January 1979 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 43.55 ft above NGVD of 1929, Dec. 19, 1966; lowest measured, 22.05 ft above NGVD of 1929, June 8, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	29.25	JAN 14	32.65	APR 25	31.15	JUN 27	29.05	SEP 16	30.15
NOV 27	30.15	MAR 11	34.95	MAY 20	28.45	JUL 21	30.85		
WATER YEAR 2003		LOWEST	28.45	MAY 20, 2003	HIGHEST	34.95	MAR 11, 2003		

## DUVAL COUNTY—Continued

**WELL NUMBER.--302339081254702. Local Number D-464A. City of Jacksonville Well at Jacksonville, FL.**

LOCATION.--Lat 30°23'39", long 81°25'47", in land grant 38, T.1 S., R.29 E., Hydrologic Unit 03080103, in Julia Street pumping station, 1 block east of State Highway A1A and Ocean Street, 0.2 mi south of Mayport Ferry landing in Mayport. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 10 in., depth 1,000 ft, cased to 427 ft.

## WATER LEVEL RECORDS

INSTRUMENTATION.--Semiannual measurement with pressure gage.

DATUM.--Land-surface datum is 6.78 ft above NGVD of 1929. Measuring point: Top of 15 in. flange 3.90 ft above land-surface datum.

PERIOD OF RECORD.--May 1977 to current year (semiannually).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.08 ft above NGVD of 1929, Sept. 15, 1982; lowest measured, 24.28 ft above NGVD of 1929, May 19, 1989.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

## ELEVATION AND WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Elevation, feet above NGVD (72020)	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unfltrd uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd end pt, lab, mg/L as CaCO3 (90410)	Chloride, water, fltrd, mg/L (00940)
OCT 28...	1400	--	--	--	575	25.0	--	--	--	--	--	--	15.0
JAN 28...	1345	--	--	--	574	24.0	--	--	--	--	--	--	15.0
APR 22...	1045	--	<5	7.3	573	26.0	270	61.0	29.0	1.70	11.0	130	14.0
MAY 21...	0950	38.18	--	--	--	--	--	--	--	--	--	--	--
JUL 17...	1215	--	--	--	570	26.0	--	--	--	--	--	--	14.0
SEP 18...	1400	35.88	--	--	--	--	--	--	--	--	--	--	--

Date	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Strontium, water, fltrd, ug/L (01080)
APR 22...	0.7	25.0	130	381	1,550

## DUVAL COUNTY—Continued

**WELL NUMBER.--302416081522601. Local Number D-348. Monticello Drug Company Well at Jacksonville, FL.**

LOCATION.--Lat 30°24'16", long 81°52'26", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.23, T.1 S., R.24 E., Hydrologic Unit 03080103, 1.5 mi west of west end of Garden Street, off a private dirt road in Jacksonville. Owner: Monticello Drug Company.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, temporary water supply, artesian well, diameter 6 in., depth 708 ft, cased to 416 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Land-surface datum is 86.78 ft above NGVD of 1929. Measuring point: Shelter floor at top of 11 in. flange, 1.50 ft above land-surface datum.

PERIOD OF RECORD.--March 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 46.32 ft above NGVD of 1929, Mar. 20, 21, 1998; lowest, 35.07 ft above NGVD of 1929, July 22, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	37.69	38.49	40.57	41.66	41.64	---	44.16	43.43	42.05	42.26	42.71	43.00
10	37.70	39.05	40.86	41.85	42.00	---	44.28	42.91	42.20	42.19	42.92	42.96
15	38.01	39.50	40.95	41.67	42.06	---	43.98	42.45	42.27	42.17	42.89	42.87
20	38.01	39.90	41.24	41.71	42.19	---	43.76	42.08	42.44	42.26	42.95	42.59
25	38.10	40.12	41.51	41.48	43.84	43.67	43.88	42.37	42.34	42.24	43.11	42.58
EOM	38.23	40.50	41.73	41.63	43.82	43.88	43.66	42.12	42.18	42.39	42.93	42.67
MAX	38.29	40.50	41.73	41.88	43.84	---	44.29	43.64	42.50	42.47	43.14	43.03
CAL YR 2002	MAX	41.73										

**WELL NUMBER.--302416081522602. Local Number D-349. Monticello Drug Co. Well at Jacksonville, FL.**

LOCATION.--Lat 30°24'16", long 81°52'26", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.23, T.1 S., R.24 E., Hydrologic Unit 03080103, 1.5 mi west of west end of Garden Street, off a private dirt road in Jacksonville. Owner: Monticello Drug Company.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian oil test well, diameter 10 in., depth 1,986 ft, cased to 444 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Land-surface datum is 85.66 ft above NGVD of 1929. Measuring point: Top of 10 in. casing, 3.50 ft above land-surface datum.

REMARKS.--Well originally drilled to 2,230 ft in 1969.

PERIOD OF RECORD.--March 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 56.30 ft above NGVD of 1929, Mar. 10, 1971; lowest, 37.69 ft above NGVD of 1929, July 24,25, 2000.

ELEVATION IN FEET (NGVD 1929)WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	40.57	---	43.11	44.15	44.03	45.34	46.57	45.78	44.48	44.69	45.12	45.37
10	40.54	---	43.39	44.30	44.40	45.60	46.70	45.29	44.65	44.58	45.35	45.31
15	40.84	---	43.51	44.11	44.44	45.86	46.37	44.83	44.69	44.57	45.30	45.21
20	40.81	---	43.75	44.14	44.53	46.24	46.15	44.54	44.94	44.62	45.36	44.88
25	40.88	---	44.00	43.84	44.67	46.16	46.24	44.81	44.81	44.61	45.54	44.85
EOM	40.94	43.07	44.15	44.03	44.84	46.32	46.03	44.51	44.64	44.76	45.33	44.60
MAX	41.04	---	44.15	44.30	44.95	46.49	46.70	46.01	44.99	44.83	45.58	45.40

## DUVAL COUNTY—Continued

**WELL NUMBER.--302502081330701. Local Number D-228. Jacksonville Electric Authority Well at Jacksonville, FL.**

LOCATION.--Lat 30°25'02", long 81°33'30", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 13, T.1 S., R.27 E., Hydrologic Unit 03080103, located at Jacksonville Electric Authority Northside Generating Station at 4377 Heckscher Drive, 6.8 mi east of intersection of U.S. Highway 17 and Heckscher Drive in Jacksonville. Owner: Jacksonville Electric Authority.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, industrial, artesian well, diameter 16 in., depth 850 ft, casing length unknown.

## WATER LEVEL RECORDS

INSTRUMENTATION.--Quarterly measurement with pressure gage.

DATUM.--Land-surface datum is 9.43 ft above NGVD of 1929. Measuring point: Top of 16 in. flange, 1.00 ft, above land-surface datum.

REMARKS.--No water level data collected at times when well is in use.

PERIOD OF RECORD.--October 1979 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 38.83 ft above NGVD of 1929, Mar. 9, 1984; lowest measured, 27.83 ft above NGVD of 1929, July 27, 2000.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974, 1976, 1979 to current year.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	31.93	JAN 30	34.83	APR 24	35.53	JUL 24	34.43
WATER YEAR 2003		LOWEST	31.93	OCT 22, 2002	HIGHEST	35.53	APR 24, 2003

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Chloride, water, fltrd, mg/L (00940)
OCT 22...	1145	538	25.5	35.0
JAN 30...	1010	564	21.0	35.0
APR 24...	1100	520	24.0	35.0
JUL 24...	1200	477	25.5	35.0

## DUVAL COUNTY—Continued

**WELL NUMBER.--302503081332001. Local Number D-1149. Jacksonville Electric Authority Well at Jacksonville, FL.**

LOCATION.--Lat 30°25'03", long 81°33'20", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 13, T.1 S., R.27 E., Hydrologic Unit 03080103, located at Jacksonville Electric Authority Northside Generating Station at 4377 Heckscher Drive, 6.8 mi east of intersection of U.S. Highway 17 and Heckscher Drive in Jacksonville. Owner: Jacksonville Electric Authority.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, industrial, artesian well, diameter 16 in., depth 1,104 ft, cased to 520 ft.

## WATER LEVEL RECORDS

INSTRUMENTATION.--Quarterly measurement with pressure gage.

DATUM.--Land-surface datum is 10.94 ft above NGVD of 1929. Prior to July 2002, land-surface datum was considered to be 10.00 ft from topographic map. Measuring point: Top of 16 in. flange, 1.50 ft, above land-surface datum.

REMARKS.--No water level data collected at times when well is in use.

PERIOD OF RECORD.--January 1980 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.29 ft above NGVD of 1929, Jan. 28, 1999, present datum; lowest measured, 27.94 ft above NGVD of 1929, July 24, 1981, present datum.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1977 to current year.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	45.04	JAN 30	42.64	APR 24	44.64	JUL 24	47.94
WATER YEAR 2003		LOWEST	42.64	JAN 30, 2003	HIGHEST	47.94	JUL 24, 2003

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Chlor- ide, water, fltrd, mg/L (00940)
OCT 22...	1130	520	28.0	21.0
APR 24...	1140	521	28.0	21.0
JUL 24...	1145	517	29.0	20.0

## DUVAL COUNTY—Continued

**WELL NUMBER.--302505081331001. Local Number D-1150. Jacksonville Electric Authority Well at Jacksonville, FL.**

LOCATION.--Lat 30°25'05", long 81°33'10", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec. 13, T.1 S., R.27 E., Hydrologic Unit 03080103, located at Jacksonville Electric Authority Northside Generating Station at 4377 Heckscher Drive, 6.8 mi east of intersection of U.S. Highway 17 and Heckscher Drive in Jacksonville. Owner: Jacksonville Electric Authority.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, industrial, artesian well, diameter 16 in., depth 1,104 ft, cased to 520 ft.

## WATER LEVEL RECORDS

INSTRUMENTATION.--Quarterly measurement with pressure gage.

DATUM.--Land-surface datum is 9.18 ft above NGVD of 1929. Measuring point: Top of 16 in. flange, 0.70 ft, above land-surface datum.

REMARKS.--No water level data collected at times when well is in use.

PERIOD OF RECORD.--January 1981 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 51.13 ft above NGVD of 1929, July 20, 1995; lowest measured, 27.78 ft above NGVD of 1929, July 24, 1981.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976, 1979 to current year.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	44.98	JAN 30	43.98	APR 24	46.08	JUL 24	48.08
WATER YEAR 2003		LOWEST	43.98	JAN 30, 2003	HIGHEST	48.08	JUL 24, 2003

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Chloride, water, fltrd, mg/L (00940)
OCT 22...	1115	588	28.0	38.0
JAN 30...	1100	588	25.5	38.0
APR 24...	1115	591	27.0	39.0
JUL 24...	1130	518	28.5	20.0

## DUVAL COUNTY—Continued

**WELL NUMBER.--302511081331201. Local Number D-1151. Jacksonville Electric Authority Well at Jacksonville, FL.**

LOCATION.--Lat 30°25'11", long 81°33'12", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec. 13, T.1 S., R.27 E., Hydrologic Unit 03080103, located at Jacksonville Electric Authority Northside Generating Station at 4377 Heckscher Drive, 6.8 mi east of intersection of U.S. Highway 17 and Heckscher Drive, in Jacksonville. Owner: Jacksonville Electric Authority.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, industrial, artesian well, diameter 16 in., depth 1,104 ft, cased to 520 ft.

## WATER LEVEL RECORDS

INSTRUMENTATION.--Quarterly measurement with pressure gage.

DATUM.--Land-surface datum is 12.75 ft above NGVD of 1929. Measuring point: Top of 16 in. flange, 1.2 ft above land-surface datum.

REMARKS.--No water level data collected at times when well is in use.

PERIOD OF RECORD.--September 1976, July 1979, October 1980 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 50.75 ft above NGVD of 1929, July 26, 2001; lowest measured, 32.15 ft above NGVD of 1929, Oct. 31, 1990.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976, 1979 to current year.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 30	46.35	APR 24	40.75	JUL 24	45.45
WATER YEAR 2003    LOWEST    40.75    APR 24, 2003    HIGHEST    46.35    JAN 30, 2003					

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conductance, wat unf uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Chloride, water, fltrd, mg/L (00940)
OCT 22...	1100	526	26.0	22.0
JAN 30...	1040	526	25.5	23.0
APR 24...	1040	530	28.0	23.0
JUL 24...	1115	529	26.5	23.0

DUVAL COUNTY—Continued

**WELL NUMBER.--302519081331501. Local Number D-1152. Jacksonville Electric Authority Well at Jacksonville, FL.**

LOCATION.--Lat 30°25'19", long 81°33'15", in NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec. 13, T.1 S., R.27 E., Hydrologic Unit 03080103, located at Jacksonville Electric Authority Northside Generating Station at 4377 Heckscher Drive, 6.8 mi east of intersection of U.S. Highway 17 and Heckscher Drive in Jacksonville. Owner: Jacksonville Electric Authority.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, industrial, artesian well, diameter 16 in., depth 1,104 ft, cased to 520 ft.

WATER LEVEL RECORDS

INSTRUMENTATION.--Quarterly measurement with pressure gage.

DATUM.--Land-surface datum is 13.96 ft above NGVD of 1929. Measuring point: Top of concrete slab, at land-surface datum.

REMARKS.--No water level data collected at times when well is in use.

PERIOD OF RECORD.--October 1980 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 50.96 ft above NGVD of 1929, July 22, 1997; lowest measured, 30.26 ft above NGVD of 1929, July 24, 1981.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1980 to current year.

ELEVATION IN FEET (NGVD1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	44.36	JAN 30	50.16	APR 24	41.06	JUL 24	49.96
WATER YEAR 2003		LOWEST	41.06	APR 24, 2003	HIGHEST	50.16	JAN 30, 2003

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Chlor- ide, water, fltrd, mg/L (00940)
OCT 22...	1040	532	28.0	22.0
JAN 30...	1030	520	20.5	23.0

## DUVAL COUNTY—Continued

**WELL NUMBER.--302538081392501. Local Number D-329. City of Jacksonville Well at Jacksonville, FL.**

LOCATION.--Lat 30°25'38", long 81°39'25", in land grant 49, T.1 S., R.26 E., Hydrologic Unit 03080103, located in Highlands pumping station at end of Beckner Drive, 2 blocks south of intersection of Monaco Drive and Dunn Avenue in Jacksonville. Owner: City of Jacksonville.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 20 in., depth 1,209 ft, cased to 545 ft.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967, 1972-78, 1983 to current year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Chlor- ide, water, fltrd, mg/L (00940)
FEB 03...	1230	530	25.0	21.0

**WELL NUMBER.--302550081331501. Local Number D-3840. St. Johns River Power Park replacement Well at Jacksonville, FL.**

LOCATION.--Lat 30°25'50", long 81°33'15", in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.12, T.1 S., R.27 E., Hydrologic Unit 03080103, 1,800 ft southeast of the intersection of New Berlin and Faye Roads in Jacksonville. Owner: St. Johns River Power Park.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, industrial, artesian well, diameter 6 in., depth 750 ft, cased to 470 ft.

INSTRUMENTATION.--Water-stage recorder with pressure transducer.

DATUM.--Land-surface datum is 13.67 ft above NGVD of 1929. Measuring point: Top of 6 in. pipe flange, 1.12 ft above land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells. Record is equivalent to that for D-2399 (302559081331501), available October 1984 to April 1990.

PERIOD OF RECORD.--April 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 37.29 ft above NGVD of 1929, Feb. 4, 1995; lowest, 15.54 ft above NGVD of 1929, June 18, 2002.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	23.85	27.79	31.29	31.59	29.39	32.69	31.19	29.19	29.79	29.49	---	30.09
10	26.89	28.59	30.09	30.59	28.89	34.29	31.39	28.39	29.49	29.79	---	23.47
15	26.89	28.99	31.29	26.79	29.49	34.79	30.59	28.59	30.09	22.44	---	29.99
20	26.99	29.39	32.49	30.59	29.19	31.59	31.99	28.39	30.09	29.49	---	28.99
25	27.29	29.79	31.59	24.99	29.79	30.69	30.39	28.79	29.79	29.19	---	28.89
EOM	24.09	30.39	31.59	29.39	30.99	31.29	29.79	30.39	29.79	---	---	29.79
MAX	28.19	30.39	32.49	31.99	30.99	34.79	32.19	30.39	30.79	---	---	---

DUVAL COUNTY—Continued

**WELL NUMBER.--302557081253101. Local Number D-913. Jerri Betz Well at Fort George Island, Jacksonville, FL.**

LOCATION.--Lat 30°25'57", long 81°25'31", in land grant 37, T.1 S., R.29 E., Hydrologic Unit 03080103, located at former site of Betz residence, at State Park on Fort George Island, off dirt road, 0.30 mi north of Ft. George Road. Owner: Florida Park Service.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 4 in., depth 556 ft, cased to 435 ft.

WATER LEVEL RECORDS

INSTRUMENTATION.--Quarterly measurement with pressure gage.

DATUM.--Land-surface datum is 21.38 ft above NGVD of 1929. Prior to July 2002, land-surface datum was considered to be 20.00 ft from topographic map. Measuring point: Top of water spigot handle, 1.4 ft above land-surface datum.

PERIOD OF RECORD.--January 1982, October 1990 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.38 ft above NGVD of 1929, Jan. 25, 1995, present datum; lowest measured, 33.28 ft above NGVD of 1929, July 26, 2000, present datum.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976, 1987, 1990 to current year.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	38.28	JAN 30	40.38	APR 24	40.18	JUL 25	38.98
WATER YEAR 2003 LOWEST 38.28		OCT 25, 2002 HIGHEST 40.38		JAN 30, 2003			

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)
OCT 25...	1000	--	--	1,580	23.0	--	--	--	--	--	--	400	--
JAN 30...	1200	--	--	1,660	21.0	--	--	--	--	--	--	400	--
APR 24...	1215	<5	7.6	1,600	21.0	330	42.0	53.0	3.60	170	39	400	0.4
JUL 25...	1230	--	--	1,910	23.0	--	--	--	--	--	--	390	--

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
APR 24...	1.50	110	832	1,610

## DUVAL COUNTY—Continued

**WELL NUMBER.--302608081354901. Local Number D-262. St. Regis Paper Company Well at Jacksonville, FL.**

LOCATION.--Lat 30°26'10", long 81°35'48", in land grant 46, T.1 S., R.27 E., Hydrologic Unit 03080103, 75 ft south of dirt road, 0.4 mi east of Eastport Road in Jacksonville. Owner: Smurfit-Stone Container Corporation.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, industrial, artesian well, diameter 4 in., depth 1,237 ft, cased to 1,163 ft.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 16.32 ft above NGVD of 1929. Measuring point: Top of well flange, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--June 1951 to April 1981 (bimonthly); May 1981 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 53.32 ft above NGVD of 1929, June 12, 1951; lowest measured, 30.42 ft above NGVD of 1929, July 24, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 28	34.62	JAN 27	37.32	APR 28	39.52	JUL 28	38.32	SEP 22	38.92
NOV 25	36.42	FEB 25	38.12	MAY 20	38.62	AUG 25	38.32		
DEC 30	37.42	MAR 24	38.52	JUN 23	37.92	SEP 16	38.72		

WATER YEAR 2003    LOWEST    34.62    OCT 28, 2002    HIGHEST    39.52    APR 28, 2003

**WELL NUMBER.--302608081354902. Local Number D-263. St. Regis Paper Company Well at Jacksonville, FL.**

LOCATION.--Lat 30°26'08", long 81°35'49", in land grant 46, T.1 S., R.27 E., Hydrologic Unit 03080103, 75 ft south of dirt road, 0.4 mi east of Eastport Road in Jacksonville. Owner: Smurfit-Stone Container Corporation.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 4 in., depth 1,025 ft, cased to 850 ft.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 15.96 ft above NGVD of 1929. Measuring point: Top of spigot handle, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1951 to April 1979 (semiannually); January 1980 to September 1985 (bimonthly), October 1985 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.16 ft above NGVD of 1929, Feb. 4, 1954; lowest measured, 31.16 ft above NGVD of 1929, July 24, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 28	35.36	JAN 27	38.26	APR 28	40.06	JUL 28	39.26	SEP 22	39.06
NOV 25	37.06	FEB 25	39.36	MAY 20	38.36	AUG 25	39.46		
DEC 30	38.56	MAR 24	39.56	JUN 23	38.96	SEP 16	39.36		

WATER YEAR 2003    LOWEST    35.36    OCT 28, 2002    HIGHEST    40.06    APR 28, 2003

## WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

## DUVAL COUNTY—Continued

**WELL NUMBER.--302608081354903. Local Number D-264. St. Regis Paper Company Well at Jacksonville, FL.**

LOCATION.--Lat 30°26'10", long 81°35'49", in land grant 46, T.1 S., R.27 E., Hydrologic Unit 03080103, 75 ft south of dirt road, 0.4 mi east of Eastport Road in Jacksonville. Owner: Smurfit-Stone Container Corporation.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, industrial, artesian well, diameter 4 in., depth 654 ft, cased to 574 ft.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 15.87 ft above NGVD of 1929. Measuring point: Top of well flange, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1951 to September 1978 (semiannually); February 1979 to September 1985 (bimonthly), October 1985 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 51.87 ft above NGVD of 1929, Jan. 9, 1952; lowest measured, 29.37 ft above NGVD of 1929, June 26, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	34.07	JAN 27	36.87	APR 28	38.77	JUL 28	37.67	SEP 22	38.37
NOV 25	35.47	FEB 25	38.07	MAY 20	37.67	AUG 25	38.07		
DEC 30	36.97	MAR 24	38.67	JUN 23	37.37	SEP 16	38.27		
WATER YEAR 2003		LOWEST	34.07	OCT 28, 2002	HIGHEST	38.77	APR 28, 2003		

DUVAL COUNTY—Continued

**WELL NUMBER.--302724081244801. Local Number D-395. Florida Park Service Well at Jacksonville, FL.**

LOCATION.--Lat 30°27'24", long 81°24'48", in land grant 42, T.1 S., R.29 E., Hydrologic Unit 03070205, well located at Little Talbot Island State Park, 2.2 mi north of Ft. George Inlet on State Highway A1A. Owner: Florida Park Service.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter unknown, depth and casing length unknown.

WATER LEVEL RECORDS

INSTRUMENTATION.--Quarterly measurement with pressure gage.

DATUM.--Land-surface datum is 7.57 ft above NGVD of 1929. Measuring point: Top of 4 in. tee, 2.50 ft above land-surface datum.

PERIOD OF RECORD.--Water years 1966, 1969, 1972-76 (annually); 1977-89 (semiannually); 1991 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 44.17 ft above NGVD of 1929, May 10, 1966; lowest measured, 28.47 ft above NGVD of 1929, July 26, 2000.

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974-79, 1985 to current year (quarterly).

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	33.57	JAN 30	35.37	APR 23	35.57	MAY 21	34.97	JUL 25	34.37	SEP 18	35.87
WATER YEAR 2003		LOWEST	33.57	OCT 25, 2002	HIGHEST	35.87	SEP 18, 2003				

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed pt, lab, mg/L as CaCO3 (90410)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)
OCT 25...	1030	--	--	494	24.0	--	--	--	--	--	--	20.0	--
JAN 30...	1230	--	--	490	23.0	--	--	--	--	--	--	21.0	--
APR 23...	1000	<5	7.2	492	22.0	220	49.0	23.0	1.90	16.0	152	20.0	0.7
JUL 25...	1045	--	--	495	24.0	--	--	--	--	--	--	20.0	--
						Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)				
					Date								
					APR 23...	29.0	59.0	304	430				

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

DUVAL COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
300824081305401	05-20-03 09-16-03	1400 1100	D-0169 POWEL AT BAYARD FL	36.57 40.17
300926081343002	05-20-03 09-18-03	0938 1245	D-1313 GREENLAND PINES AT GREENLAND FL	32.60 34.80
301157081465201	05-21-03 09-18-03	1430 1200	D-1292 INDIAN TRAILS AT JACKSONVILLE FL	34.47 36.75
301216081451201	05-21-03 09-18-03	1424 1210	D-0321 J-0386	32.81 34.81
301333081324101	05-20-03 09-18-03	1420 1315	D-2847 GOLF COURSE AT DEERWOOD FL	24.30 26.50
301339081531203	05-21-03 09-19-03	1400 1030	D-0326 J-0391	46.54 40.02
301434082021401	05-21-03	1315	D-0085 J-0149 OIL TEST SITE E FIVETONE RD JAX FL	54.29
301617081421601	05-19-03 09-15-03	0845 1045	D-0115 J-0179	27.05 29.25
301749081384602	05-19-03 09-16-03	1445 1030	D-1782 J-1819	37.75 39.35
301758081462901	05-19-03 09-15-03	0815 1000	D-0221 ROLLING HILLS WELL NR MARIETTA, FL	37.10 40.20
302330081463001	05-21-03 09-18-03	1225 1055	D-0420 J-0487 WING-LEE FARM JAX FL	41.92 41.92
302339081254702	05-21-03 09-18-03	0950 1400	D-464A J-0531 1459 JULIA ST MAYPORT FL	38.18 35.88
302502081321001	05-27-03 09-16-03	1120 0840	D-0270 J-0335 5186 HECKSHER DR JAX FL	34.45 35.35
302521081455601	05-19-03 09-15-03	1000 0930	D-1309 DINSMORE ELEM SCHOOL NR DINSMORE FL	38.88 40.08
302538081253101	05-21-03 09-18-03	1040 0910	D-164 J-228 GOLF COURSE @ FT. GEORGE ISLAND FL	37.84 38.64
303209081371801	05-20-03 09-15-03	0930 1130	TISONIA FIRETOWER NR JACKSONVILLE FL	35.79 37.09
303216081433301	05-21-03 09-18-03	1150 0950	D-0401 J-0468 DUVAL COUNTY PRISON FARM JAX FL	39.47 39.47



KEY TO SITE LOCATIONS ON FIGURE 9  
FLAGLER COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	292750081152001	100

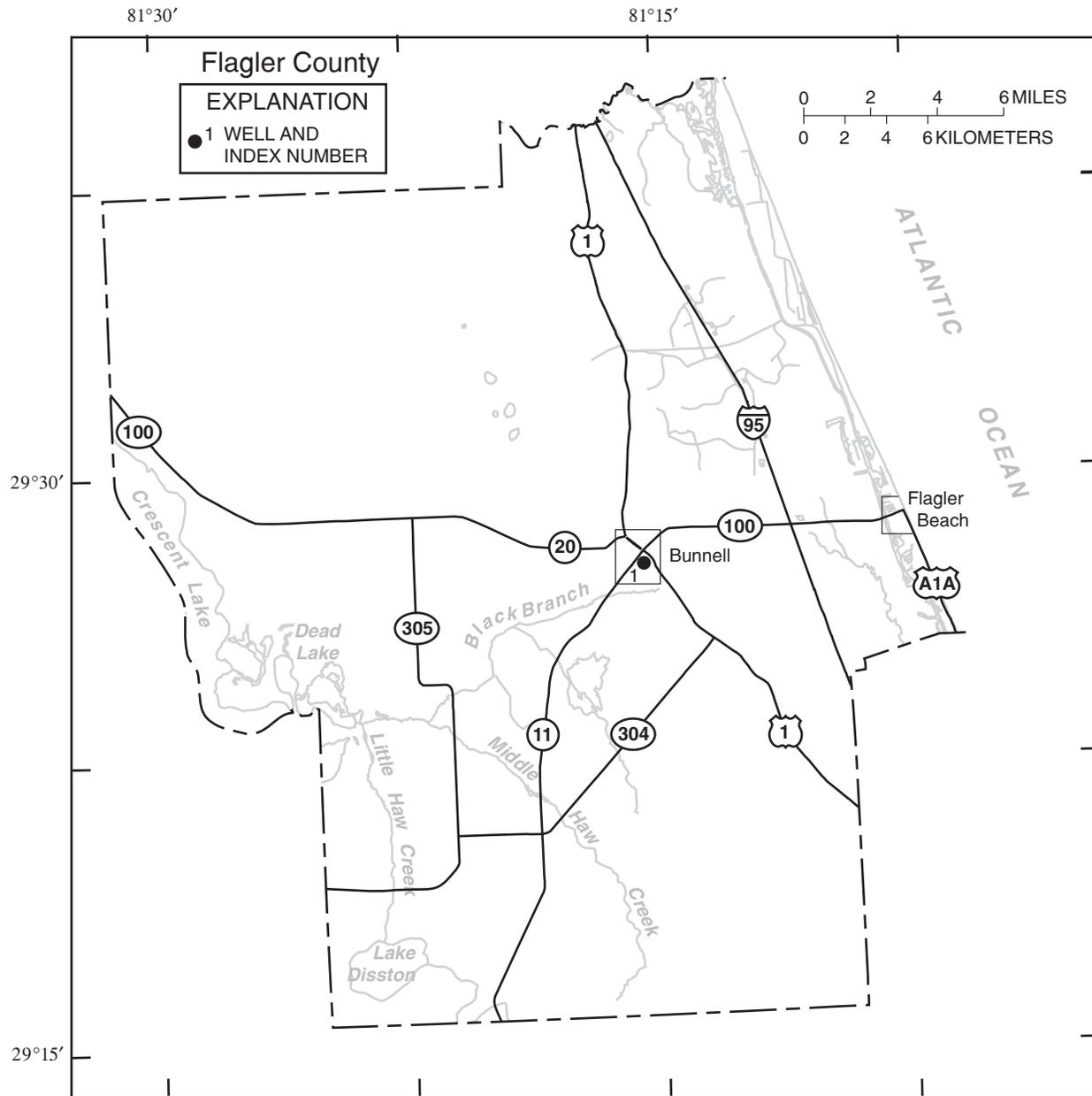


Figure 9.--Location of wells in Flagler County.

## WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

## FLAGLER COUNTY

**WELL NUMBER.--292750081152001. USGS Well Flagler 14 at Bunnell, FL.**

LOCATION.--Lat 29°27'50", long 81°15'20", in NE<sup>1</sup>/<sub>4</sub> sec.15, T.12 S., R.30 E., Hydrologic Unit 03080201, 200 ft south of intersection of West Court and South Railroad Streets, and 600 ft southwest of intersection of State Highway 11 and U.S. Highway 1 at Bunnell. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 to 4 in., depth 417 ft, casing length unknown.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 21.00 ft above NGVD of 1929. Measuring point: Top of 6 in. coupling at land-surface datum.

COOPERATION.--Since Oct. 1, 1985 data provided by St. Johns River Water Management District and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--March 1936 to December 1962 (monthly); February 1963 to September 1985 (bimonthly); October 1985 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.30 ft above NGVD of 1929, Sept. 9, 1947; lowest measured, 9.10 ft above NGVD of 1929, June 26, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	14.01	JAN 24	14.68	APR 23	13.85	JUN 17	13.30	SEP 16	14.79
NOV 20	13.85	FEB 21	14.86	MAY 19	13.02	JUL 24	14.14	17	14.82
DEC 18	14.48	MAR 21	15.32	21	12.88	AUG 21	14.67		
WATER YEAR 2003	LOWEST	12.88	MAY 21, 2003	HIGHEST	15.32	MAR 21, 2003			

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

101

FLAGLER COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
291625081092001	05-19-03	0753	ORMOND BCH FLAGLER 2	7.74
291658081110401	05-19-03	0813	F-0285 ORMOND BCH FLAGLER 1 AT ORMOND BEACH FL	15.15
291818081190401	05-19-03 09-16-03	0920 0835	RELAY TOWER DEEP WELL (F0251)	15.05 18.54
291913081224201	05-19-03 09-16-03	1005 0908	F-0257 STRAWN WELL NR DEANVILLE FL	15.42 14.71
291955081200901	05-19-03 09-16-03	0940 0935	91912003 13S29E36	11.07 18.20
292302081155901	05-19-03	1032	SR304 WELL AT SWEETWATER BRANCH	13.76
292603081082502	05-19-03 09-16-03	1630 1530	F-176 BULLOW RUINS	6.27 10.07
292604081062401	05-19-03 09-16-03	1600 1500	SJRWMD SHALLOW WELL F174	4.92 8.14
292647081182001	05-19-03 09-16-03	1200 1050	92611803 12S30E19	8.51 11.07
292757081222801	05-19-03 09-16-03	1226 1110	F-0353 WESTSIDE BAPTIST NR BIMINI FL	7.39 13.69
293128081090501	05-19-03 09-16-03	1548 1445	LENSSSEN WELL AT BEVERLY BCH	5.63 5.43
293313081132402	05-19-03 09-16-03	1450 1335	SJ F158 11S31E18 ITTPALMCOASTSTJOEGRADE LW-11	13.61 15.90
293344081232401	05-19-03 09-16-03	1300 1142	F-0294 (REP.F-204) TIGER ISLAND DEEP	14.89 17.69
293529081191701	05-19-03 09-16-03	1408 1245	SJ F165 10S30E31 PALMCOASTITT-LW-20 WESTBOUNDR	14.86 17.26
293754081121901	05-19-03 09-16-03	1520 1410	SJ F200 10S31E WASHINGTONOAKSPARKWEATHERSTA	14.28 16.89

KEY TO SITE LOCATIONS ON FIGURE 10  
GLADES COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	265529081185201	104
2	271150081054401	104

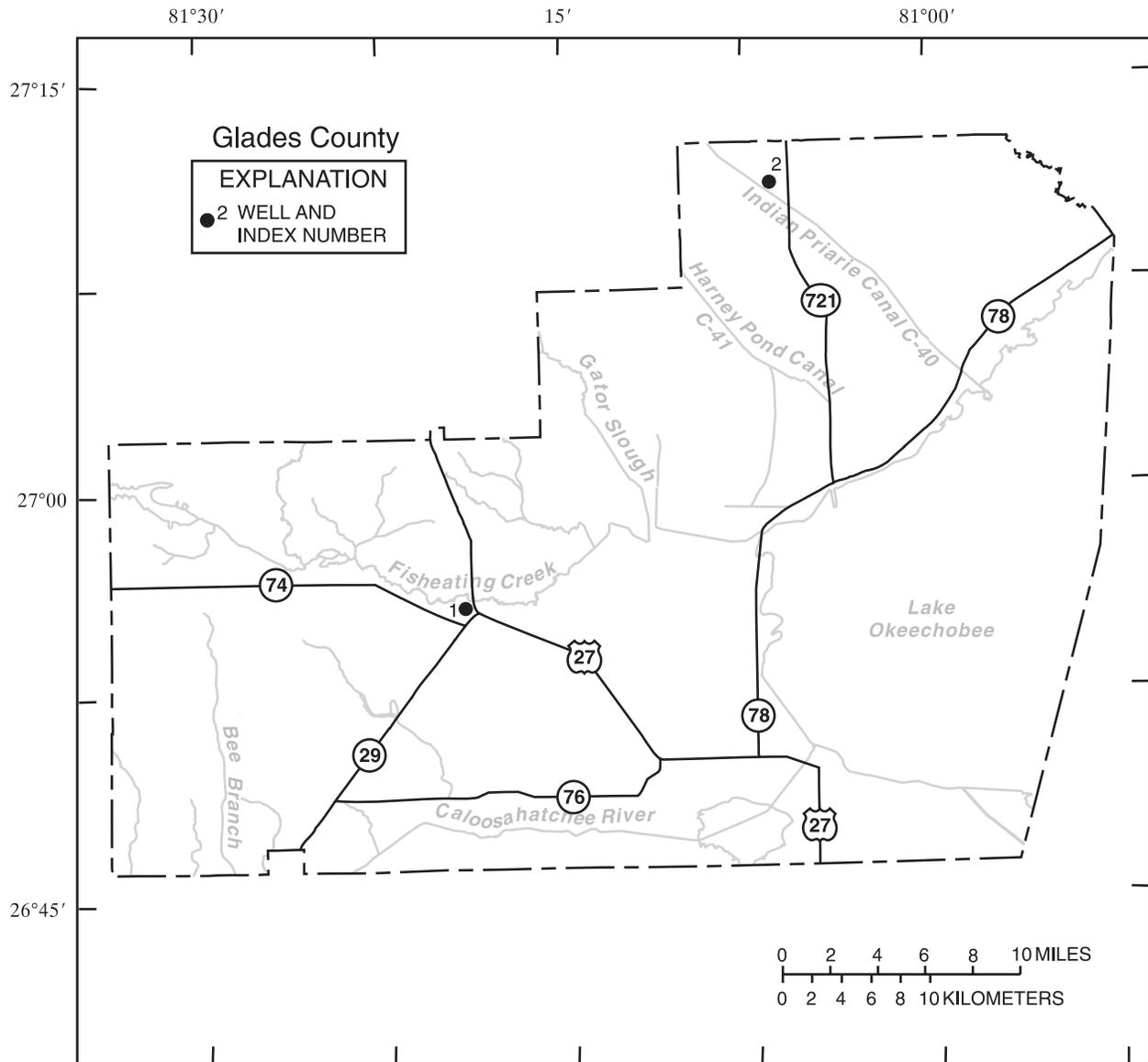


Figure 10.--Location of wells in Glades County.

## GLADES COUNTY

**WELL NUMBER.--265529081185201. GL-267 Well near Palmdale, FL.**

LOCATION.--Lat 26°55'29", long 81°18'52", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.10, T.41 S., R.30 E., Hydrologic Unit 03090103, 100 ft north of Palmdale Fire Tower, 500 ft northwest of intersection of U.S. Highway 27 and State Highway 29, and 2.0 mi south of Palmdale. Owner: Florida Division of Forestry.

AQUIFER.--Hawthorn Limestone aquifer of the Miocene Series, Geologic Unit 122 HTRNN.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 4 in., depth 600 ft, cased to 450 ft.

INSTRUMENTATION.--Bimonthly measurement with pressure gage, chalked or electric tape.

DATUM.--Elevation of land-surface datum is 42.15 ft above NGVD of 1929. Prior to Oct. 1, 1978, land-surface datum was considered to be 41 ft, from topographic map. Oct. 1, 1978 to Mar. 25, 1980 at datum 0.60 ft lower. Measuring point: Top of 3/4 in. tee, 0.89 ft above land-surface datum.

PERIOD OF RECORD.--December 1971 to May 1976 (annually); July 1976 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.25 ft above NGVD of 1929, Sept. 7, 1976; lowest measured, 36.11 ft above NGVD of 1929, May 15, 1995.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL						
OCT 21	41.02	FEB 11	40.42	MAY 19	40.24	JUL 30	41.36
DEC 17	41.49	APR 07	42.03	JUN 03	41.27	SEP 18	42.57

WATER YEAR 2003    LOWEST 40.24 MAY 19, 2003    HIGHEST 42.57 SEP 18, 2003

**WELL NUMBER.--271150081054401. GL-155 Well near Brighton, FL.**

LOCATION.--Lat 27°11'50", long 81°05'44", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.2, T.38 S., R.32 E., Hydrologic Unit 03090103, in front of Lykes Ranch headquarters, 300 ft west of State Highway 721, and 1.9 mi south of State Highway 70 in Brighton. Owner: Lykes Ranch.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 6 in., depth 600 ft, casing length unknown.

INSTRUMENTATION.--Bimonthly measurement with pressure gage.

DATUM.--Elevation of land-surface datum is 29.35 ft above NGVD of 1929. Measuring point: Top of 4 in. casing, 1.80 ft above land-surface datum.

PERIOD OF RECORD.--December 1971 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 53.15 ft above NGVD of 1929, Apr. 1, 1983; lowest measured, 38.15 ft above NGVD of 1929, May 11, 1976.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 21	47.75	FEB 12	47.55	MAY 19	46.15	JUL 29	47.75	SEP 23	48.65
DEC 17	48.35	APR 07	47.85	JUN 03	46.85	SEP 18	48.25		

WATER YEAR 2003    LOWEST 46.15 MAY 19, 2003    HIGHEST 48.65 SEP 23, 2003

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

105

GLADES COUNTY

STATION NUMBER	DATE	TIME	STATION NAME			ELEV- ATION ABOVE NGVD (FEET)
265452081165401	05-19-03	1246	65411601	41S30E12	CLEMONS	49.20
	09-18-03	1321			PALMDALE	50.80

KEY TO SITE LOCATIONS ON FIGURE 11  
HERNANDO COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	283537082151501	108
2	283840082154801	108

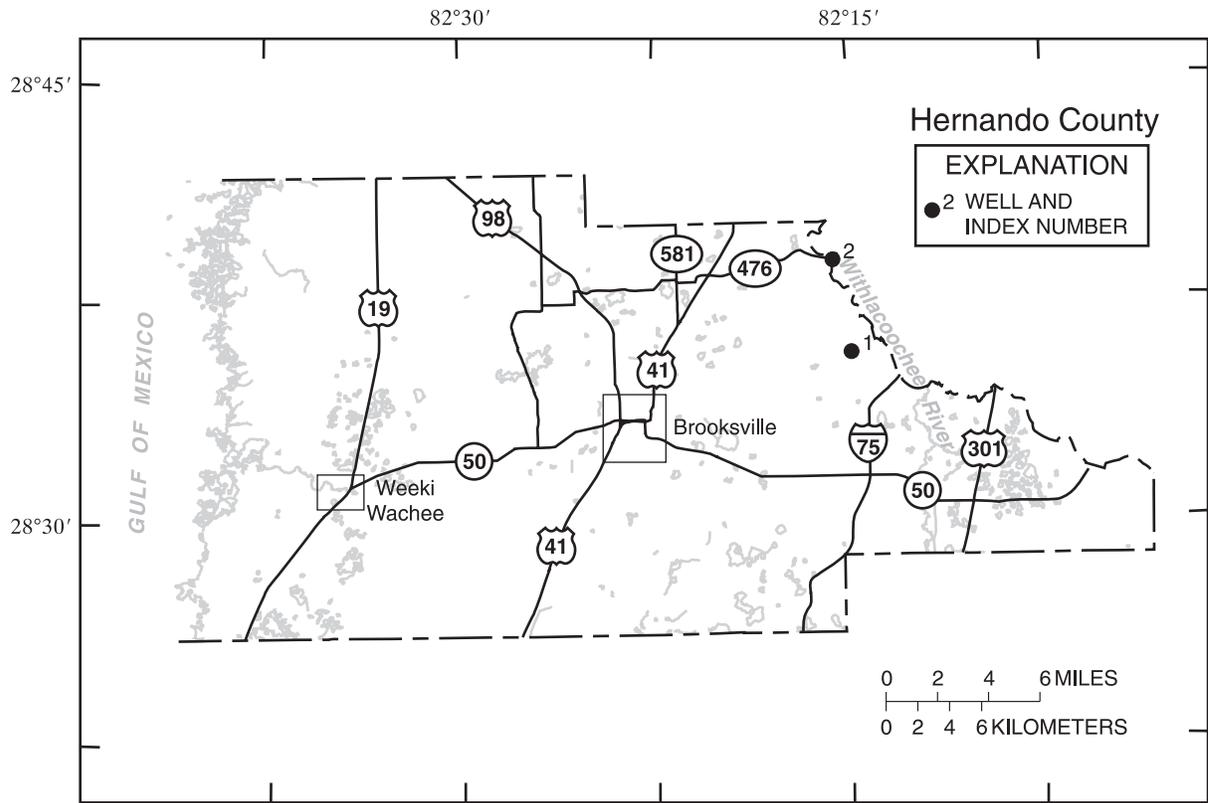


Figure 11.--Location of wells in Hernando County.

## HERNANDO COUNTY

**WELL NUMBER.--283537082151501. ROMP 103 Well near Brooksville, FL.**

LOCATION.--Lat 28°35'37", long 82°15'15", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.12, T.22 S., R.20 E., Hydrologic Unit 03100208, on south side of Croom Road, 2.6 mi east of Tucker Hill Fire Tower, and 6.3 mi northeast of Brooksville. Owner: Southwest Florida Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 8 in., depth 198 ft, cased to 111 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 92.80 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 3.42 ft above land-surface datum.

PERIOD OF RECORD.--April 1977 to September 1992; October 1992 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 48.95 ft above NGVD of 1929, Oct. 14, 1982; lowest, 33.80 ft above NGVD of 1929, June 21, 2001.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 29	42.98	JAN 28	43.71	APR 29	44.05	JUN 24	43.91	SEP 18	48.28
NOV 26	42.04	FEB 25	43.32	MAY 22	43.34	JUL 29	46.52	23	48.19
DEC 31	42.91	MAR 25	44.38	28	43.10	AUG 26	47.61		

WATER YEAR 2003    LOWEST 42.04 NOV 26, 2002    HIGHEST 48.28 SEP 18, 2003

**WELL NUMBER.--283840082154801. Barnhart Well (CE-25) at Nobleton, FL.**

LOCATION.--Lat 28°38'40", long 82°15'48", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.24, T.21 S., R.20 E., Hydrologic Unit 03100208, on Sentinel Street, 200 ft east of Edgewater Avenue in Nobleton. Owner: C.C. Chandler.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 6 in., depth 140 ft, casing length unknown.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 59.30 ft above NGVD of 1929. Measuring point: Hole in sanitary seal, 0.33 ft above land-surface datum.

PERIOD OF RECORD.--March 1961 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.33 ft above NGVD of 1929, Aug. 23, 1965; lowest measured, 33.44 ft above NGVD of 1929, June 6, 2001.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 22	42.19	FEB 11	42.48	MAY 21	42.00	JUL 31	45.08	SEP 24	45.89
DEC 16	41.73	APR 09	43.53	JUN 02	41.63	SEP 18	46.21		

WATER YEAR 2003    LOWEST 41.73 DEC 16, 2002    HIGHEST 46.21 SEP 18, 2003

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

109

HERNANDO COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
282620082193801	05-22-03 09-18-03	1610 1230	82621901	78.19 85.01
282839082190801	05-22-03 09-18-03	1500 1400	82821901 RUSSELL BLACKETT LAKE NEFF	84.20 88.55
282851082035301	05-22-03 09-18-03	1755 1100	82820301 23S22E13 E H BOYETTE	83.54 84.41
283001082064702	05-22-03 09-18-03	1710 1120	83020602 23S22E09 WSF-RICHLOAM FIRE TOWER	73.42 74.24
283036082105501	05-22-03 09-18-03	1650 0930	83021001 23S21E02 830210133 RIDGE MANOR NO 1	55.68 59.90
283508082215101	05-22-03 09-18-03	1310 1500	83522101 22S19E12 CLARENCE SMITH	40.37 45.47
283510082133701	05-22-03 09-18-03	0925 1810	CROOM RR SIDING WELL NR CROOM FL	44.66 49.63
283613082184301	05-22-03 09-18-03	1340 1530	83621801 22S20E04 DELMAS C NIX	39.08 44.00
283806082214801	05-22-03	1125	83822101 21S19E25 EDEN CHRISTIAN SCHOOL	35.86
283957082181001	05-22-03 09-18-03	1020 1610	83921801 21S20E16 W A BLIZZARD	36.12 40.90

KEY TO SITE LOCATIONS ON FIGURE 12  
HIGHLANDS COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	270157081203101	112
2	272504081120101	112

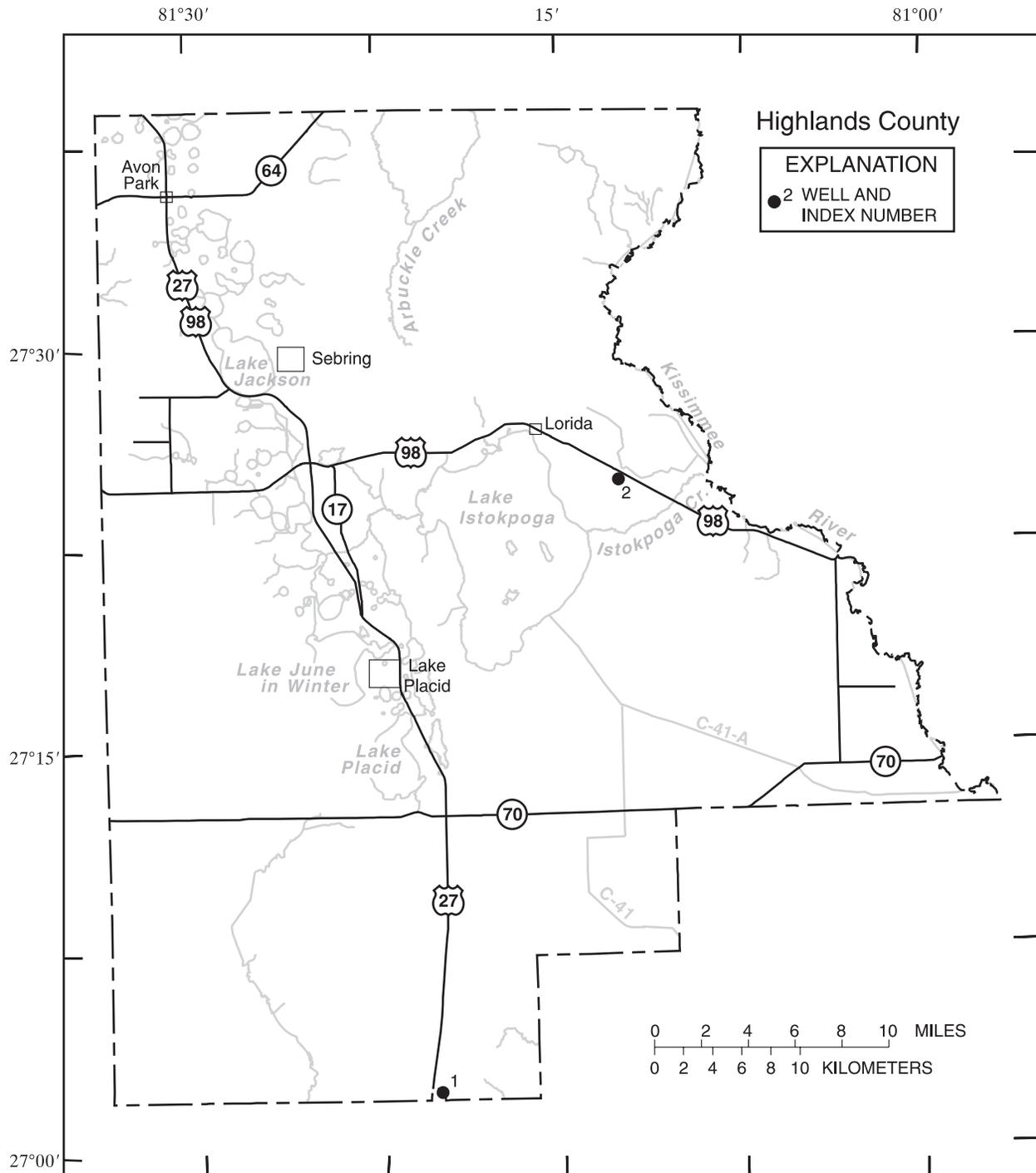


Figure 12.--Location of wells in Highlands County.

## HIGHLANDS COUNTY

**WELL NUMBER.--270157081203101. H-15A Well near Palmdale, FL.**

LOCATION.--Lat 27°02'02", long 81°20'33", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.32, T.39 S., R.30 E., Hydrologic Unit 03090103, on east side of U.S. Highway 27, 200 ft north of Glades-Highlands County line, 2.4 mi southeast of Venus, and 6.7 mi northwest of Palmdale. Owner: U.S. Geological Survey.

AQUIFER.--Nonartesian sand aquifer of the Pleistocene Age, Geologic Unit 112 NRS D.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 6 in., depth 23 ft, cased to 19 ft, gravel-packed screen from 19 to 23 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 58.52 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 3.68 ft above land-surface datum.

PERIOD OF RECORD.--December 1948 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 60.37 ft above NGVD of 1929, Sept. 27, 1997; lowest, 53.49 ft above NGVD of 1929, June 27, 1956.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	57.59	57.04	57.49	58.17	57.45	57.02	57.63	57.04	57.56	57.81	58.10	59.85
10	57.43	56.95	58.62	57.85	57.41	56.91	57.41	56.74	58.18	57.46	58.36	58.42
15	58.23	56.83	58.33	57.77	57.20	57.29	57.13	56.52	58.01	57.17	58.82	58.26
20	57.67	57.93	58.70	57.64	57.33	58.03	56.96	56.69	58.80	56.98	58.88	57.98
25	57.51	57.71	58.32	57.57	57.34	57.74	56.75	57.05	58.48	56.90	59.11	58.13
EOM	57.28	57.56	58.30	57.52	57.14	57.97	57.45	57.91	57.88	57.20	58.25	59.09
MAX	58.26	58.49	58.70	59.09	57.51	58.47	57.82	58.42	59.38	57.81	59.22	59.92

**WELL NUMBER.--272504081120101. H-11A Well near Lake Placid, FL.**

LOCATION.--Lat 27°25'04", long 81°12'01", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.23, T.35 S., R.31 E., Hydrologic Unit 03090101, on north side of U.S. Highway 98, 0.4 mi east of State Highway 621, 2.6 mi northwest of the Istokpoga Canal, and 9.0 mi east of Lake Placid. Owner: U.S. Geological Survey.

AQUIFER.--Nonartesian sand aquifer of the Pleistocene Age, Geologic Unit 112 NRS D.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 6 in., depth 16 ft, cased to 13 ft, gravel-packed screen from 13 to 16 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 49.02 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 2.10 ft above land-surface datum.

PERIOD OF RECORD.--February 1956 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 49.04 ft above NGVD of 1929, Sept. 10, 1960; lowest, 43.26 ft above NGVD of 1929, June 18, 1975.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	46.96	46.03	46.46	47.91	46.67	46.41	46.85	46.59	45.69	48.24	47.13	48.00
10	46.66	45.87	48.08	47.47	46.63	46.22	47.02	46.10	47.02	47.70	47.66	47.99
15	47.17	45.70	48.15	47.20	46.51	46.00	46.62	45.75	46.49	47.44	47.95	47.40
20	46.85	47.12	48.00	46.99	46.68	47.32	46.42	45.49	48.14	47.52	47.72	46.97
25	46.52	46.92	47.91	46.86	46.84	47.41	46.10	45.50	48.12	48.08	47.59	46.85
EOM	46.24	46.65	47.41	46.76	46.67	47.33	46.96	45.35	47.58	47.62	47.29	48.05
MAX	47.33	47.20	48.19	48.02	46.86	47.50	47.19	46.94	48.38	48.30	47.95	48.25



KEY TO SITE LOCATIONS ON FIGURE 13  
INDIAN RIVER COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	273923080471801	116
2	274607080493001	116

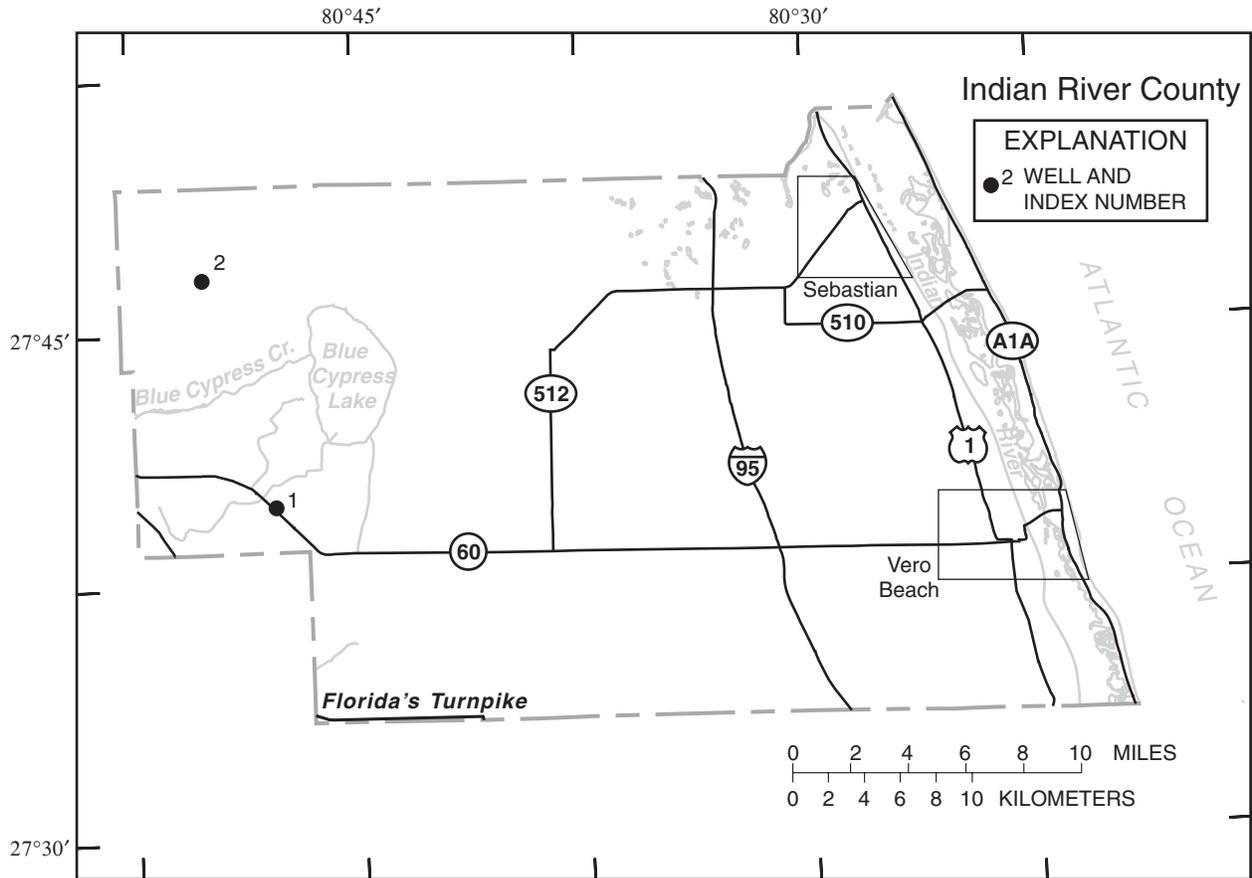


Figure 13.--Location of wells in Indian River County.

## INDIAN RIVER COUNTY

**WELL NUMBER.--273923080471801. IR-25 Well near Yeehaw Junction, FL.**

LOCATION.--Lat 27°39'23", long 80°47'18", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.36, T.32 S., R.35 E., Hydrologic Unit 03080101, on north side of State Highway 60, 1.3 mi east of Blue Cypress Road, and 7.9 mi east of U.S. Highway 441 in Yeehaw Junction. Owner: U.S. Geological Survey.

AQUIFER.--Nonartesian sand of the Surficial Aquifer System, Geologic Unit 112 NRSD.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 6 in., depth 19 ft, cased to 13 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 30.01 ft above NGVD of 1929. Measuring point: Top of shelf, 2.30 ft above land-surface datum.

PERIOD OF RECORD.--October 1950 to September 1996; October 1996 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 31.99 ft above NGVD of 1929, Sept. 4, 1979; lowest, 25.17 ft above NGVD of 1929, May 31, 1967.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	27.23	DEC 30	28.88	FEB 24	27.75	APR 28	27.25	JUN 23	26.99	AUG 27	29.66
NOV 21	27.83	JAN 27	28.43	MAR 24	28.02	MAY 27	26.16	JUL 28	27.82	SEP 22	28.62
WATER YEAR 2003    LOWEST 26.16 MAY 27, 2003    HIGHEST 29.66 AUG 27, 2003											

**WELL NUMBER.--274607080493001. IR-189 Well near Yeehaw Junction, FL.**

LOCATION.--Lat 27°46'07", long 80°49'30", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.22, T.31 S., R.35 E., Hydrologic Unit 03080101, on north side of private road at Rollins Ranch, 10 mi north of Yeehaw Junction. Owner: Rollins Ranch.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, stock, artesian well, diameter 4 in., depth 630 ft, casing length unknown.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Elevation of land-surface datum is 33.85 ft above NGVD of 1929. Prior to April 1983, land-surface datum was 0.69 ft lower. May 1983 to September 2001 land-surface datum was 0.19 ft lower. Measuring point: Top of 4 in. tee, 1.63 ft above land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells.

PERIOD OF RECORD.--1951, 1957, 1970 (annually); January 1976 to October 1983 (bimonthly); November 1983 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.16 ft above NGVD of 1929, datum then in use, Nov. 13, 1951, July 10, 1957; lowest measured, 36.67 ft above NGVD of 1929, datum then in use, May 6, 1981.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
FEB 24	42.84	MAY 22	40.68	JUN 23	42.51	AUG 27	44.20	SEP 22	43.88
APR 28	42.64	27	41.22	JUL 28	43.17	SEP 17	42.38		
WATER YEAR 2003    LOWEST 40.68 MAY 22, 2003    HIGHEST 44.20 AUG 27, 2003									

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

117

INDIAN RIVER COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
273435080255101	05-21-03 09-16-03	0755 0934	73402501 USDA SOUTH WELL 43RD AVE SW OF OSLO	30.95 33.65
273515080344303	05-20-03 09-16-03	1601 1023	IR-0954 SJWCD	39.43 42.23
273536080240201	05-21-03 09-16-03	0739 0912	73502403 REVERSE OSMOSIS MONITOR W OF OSLO	34.44 37.84
273805080223802	05-21-03 09-16-03	0709 0844	IR-1008 VERO BEACH POWER PLANT IN VERO BEACH FL	29.67 32.17
273847080254703	05-21-03 09-16-03	1442 1512	IR-1006 DODGER STADIUM EAST IN DODGERTOWN FL	31.87 35.07
273941080375401	05-20-03 09-16-03	1521 1057	IR-0955 DELTA FARMS	40.19 43.19
274055080281301	05-21-03 09-16-03	1331 1403	74002801 IR 210 WALTER POOL LINDSEY RD GIFFORD	31.39 35.49
274126080304803	05-21-03 09-16-03	1303 1437	IR-0963 CORRIGAN RANCH WELL	35.04 39.04
274217080464201	05-20-03	1407	IR-0968 BLUE CYPRESS WELL	42.45
274350080364501	05-21-03 09-16-03	1014 1251	74303601 JACK BERRY GROVE BLK 11 S OF FELLSMERE	38.01 41.81
274916080520701	05-21-03 09-17-03	1141 1025	74905201 USGS TH MACE RANCH FELLSMERE GRADE	51.09 53.07

KEY TO SITE LOCATIONS ON FIGURE 14  
LAKE COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	282245081492601	120
1	282245081492602	121
2	282717081553101	122
3	283204081544901	122
3	283204081544902	123
4	283314081455501	123
5	284445081462101	124
6	284842081533001	124
7	290950081315501	125

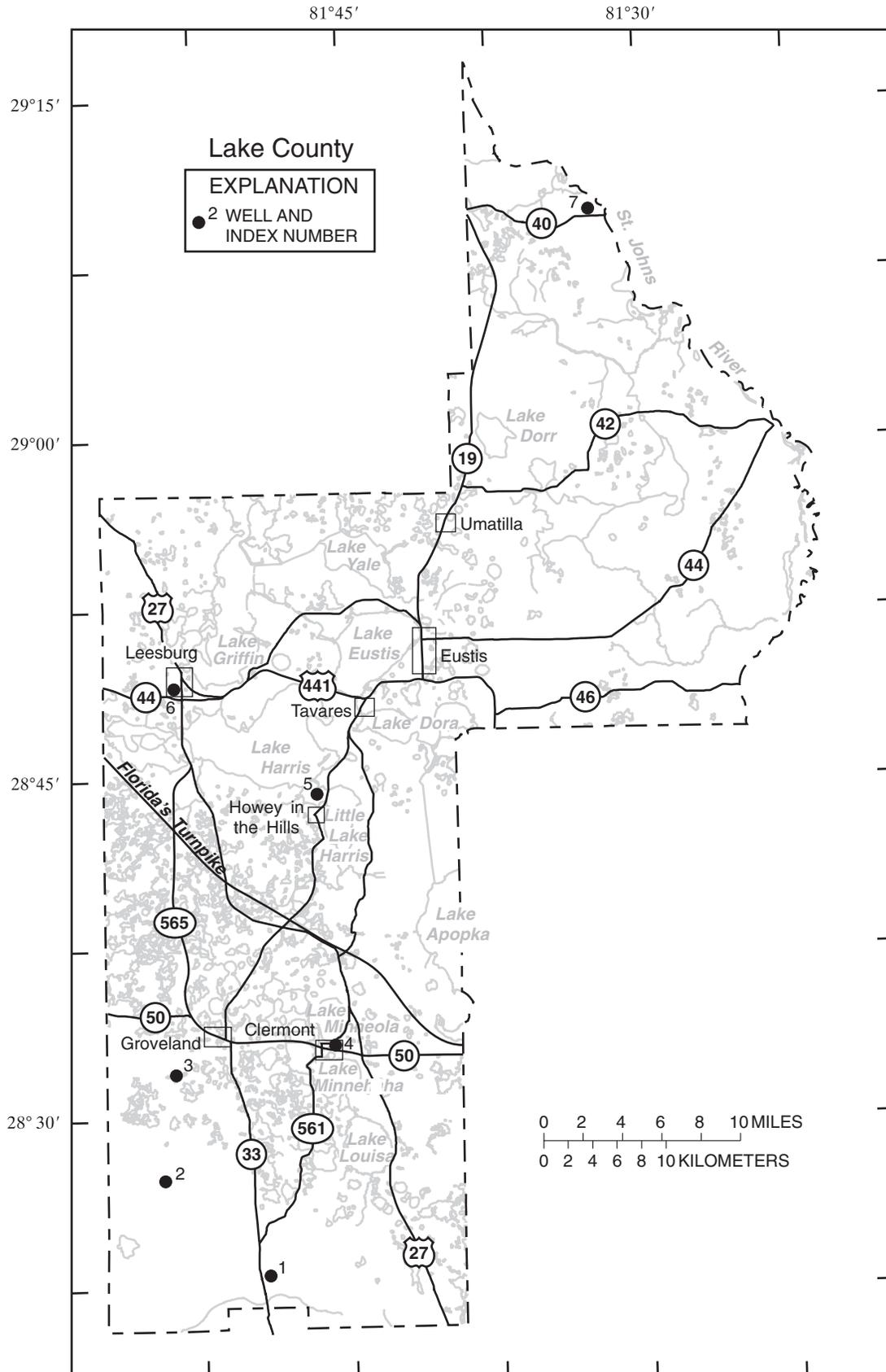


Figure 14.--Location of wells in Lake County.

## LAKE COUNTY

**WELL NUMBER.--282245081492601. Eva Deep Well at Eva, FL.**

LOCATION.--Lat 28°22'45", long 81°49'26", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.20, T.24 S., R.25 E., Hydrologic Unit 03100208, on east side of State Highway 33, 1,000 ft north of State Highway 474 at Eva. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 192 ft, cased to 100 ft.

## WATER LEVEL RECORDS

INSTRUMENTATION.--Monthly measurement with chalked tape or electric tape.

DATUM.--Elevation of land-surface datum is 113.47 ft above NGVD of 1929. Measuring point: Top of 6 in. nipple, 3.22 ft above land-surface datum. Prior to Oct. 1, 2002, measuring point 3.40 ft above land-surface datum.

PERIOD OF RECORD.--January 1959 to December 1962; January 1963 to October 2000 (bimonthly); December 2000 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 112.72 ft above NGVD of 1929, Sept. 10, 1960; lowest measured, 105.06 ft above NGVD of 1929, June 20, 2001.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-2000, 2003.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	110.48	JAN 27	110.54	APR 28	110.37	JUN 23	110.69	AUG 25	111.72
NOV 25	110.39	FEB 24	110.94	MAY 20	109.77	JUL 28	111.47	SEP 15	111.27
DEC 30	111.42	MAR 24	111.24	27	109.55	AUG 12	111.61	22	110.90
WATER YEAR 2003		LOWEST 109.55 MAY 27, 2003		HIGHEST 111.72		AUG 25, 2003			

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Depth of well, feet below LSD (72008)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
08-12-03	1720	192	0.1	7.2	7.8	306	23.3	150	55.0	2.20
Date	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-12-03	1.60	4.3	148	0.1	7.10	<0.1	14.0	<0.20	176	<0.20
Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)	
08-12-03	0.09	<0.02	<0.010	0.06	0.06	1.4	307	12	77.0	

LAKE COUNTY—Continued

**WELL NUMBER.--282245081492602. Eva Shallow Well at Eva, FL.**

LOCATION.--Lat 28°22'45", long 81°49'26", in NE¼SE¼SE¼ sec.20, T.24 S., R.25 E., Hydrologic Unit 03100208, on east side of State Highway 33, 1,000 ft north of State Highway 474 at Eva. Owner: U.S. Geological Survey.

AQUIFER.--Nonartesian sand aquifer of the Tertiary Quaternary Age, Geologic Unit 111 NRS D.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 6 in., depth 23 ft, cased to 18 ft.

WATER LEVEL RECORDS

INSTRUMENTATION.--Bimonthly measurement with chalked tape or electric tape.

DATUM.--Elevation of land-surface datum is 113.44 ft above NGVD of 1929. Measuring point: Hole in 6 in. cap, 3.62 ft above land-surface datum.

PERIOD OF RECORD.--January 1959 to June 1962; July 1962 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 114.44 ft above NGVD of 1929, Sept. 10, 1960; lowest measured, 105.12 ft above NGVD of 1929, June 20, 2001.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-2000, 2003.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 25	111.42	MAR 24	112.86	MAY 28	110.07	AUG 12	113.14	SEP 22	112.08
JAN 29	112.14	MAY 20	110.37	JUL 28	113.14	SEP 15	112.54		
WATER YEAR 2003		LOWEST 110.07 MAY 28, 2003		HIGHEST 113.14 JUL 28, 2003		AUG 12, 2003			

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)
08-12-03	1725	23.0	0.1	5.3	5.9	90	22.7	18	5.10	1.20

Date	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-12-03	2.30	6.6	12	<0.1	8.60	<0.1	3.50	12.0	50	0.30

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)
08-12-03	0.23	<0.02	<0.010	0.01	<0.02	2.4	969	11	16.0

## LAKE COUNTY—Continued

**WELL NUMBER.--282717081553101. ROMP 101 Well near Bay Lake, FL.**

LOCATION.--Lat 28°27'17", long 81°55'31", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.29, T.23 S., R.24 E., Hydrologic Unit 03100208, 75 ft south of State Highway 565, 800 ft west of former Seaboard Coastline Railroad crossing, and 2.3 mi southwest of intersection of Bay Lake Road and State Highway 565 at Bay Lake. Owner: Southwest Florida Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 8 in., depth 404 ft, cased to 118 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 101.35 ft above NGVD of 1929. Measuring point: Top of casing, 2.58 ft above land- surface datum.

PERIOD OF RECORD.--July 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 100.30 ft above NGVD of 1929, Sept. 11, 1988; lowest, 92.26 ft above NGVD of 1929, June 22, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	98.41	98.06	97.79	99.31	98.81	99.09	99.14	98.72	98.06	99.40	99.89	100.00
10	98.27	97.96	98.81	99.25	98.99	99.24	99.18	98.48	98.34	99.29	99.99	99.89
15	98.34	97.95	99.15	99.09	98.85	99.14	98.89	98.22	98.21	99.62	99.81	99.64
20	98.14	98.10	99.20	98.91	98.84	99.16	98.65	98.18	99.12	99.57	100.00	99.45
25	98.28	97.93	99.28	98.78	99.04	99.50	98.79	98.38	99.22	99.62	100.00	99.59
EOM	98.14	97.86	99.36	98.84	99.00	99.26	98.90	97.93	99.44	99.70	99.89	99.48
MAX	98.63	98.16	99.36	99.48	99.06	99.59	99.26	98.97	99.44	99.70	100.10	100.10

**WELL NUMBER.--283204081544901. Mascotte Deep Well near Mascotte, FL.**

LOCATION.--Lat 28°32'04", long 81°54'49", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.33, T.22 S., R.24 E., Hydrologic Unit 03100208, on east side of State Highway 565, 75 ft east of Midway Baptist Church, and 3.6 mi south of State Highway 50 in Mascotte. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 160 ft, cased to 63 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 103.51 ft above NGVD of 1929. Measuring point: Top of 6 in. nipple, 2.25 ft above land-surface datum.

PERIOD OF RECORD.--January 1959 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 102.66 ft above NGVD of 1929, Sept. 10, 1988; lowest, 93.94 ft above NGVD of 1929, June 20,21, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	99.22	98.85	98.47	100.67	100.09	100.75	101.00	100.90	100.00	---	102.18	101.98
10	99.01	98.70	100.00	100.57	100.57	101.05	101.16	100.57	100.21	---	102.30	101.79
15	99.25	98.65	100.42	100.40	100.31	100.76	100.81	100.30	100.06	---	101.92	101.46
20	98.99	98.85	100.45	100.24	100.31	100.76	100.60	100.09	101.76	---	102.08	101.34
25	99.17	98.65	100.59	99.99	100.63	101.30	101.06	100.25	---	---	102.00	101.57
EOM	99.09	98.53	100.84	100.16	100.56	101.23	101.14	99.82	---	101.96	101.71	101.39
MAX	99.43	99.07	100.84	101.03	100.76	101.58	101.27	101.29	---	---	102.39	102.24

## LAKE COUNTY—Continued

**WELL NUMBER.--283204081544902. Mascotte Shallow Well near Mascotte, FL.**

LOCATION.--Lat 28°32'04", long 81°54'49", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.33, T.22 S., R.24 E., Hydrologic Unit 03100208, on east side of State Highway 565, 75 ft east of Midway Baptist Church, and 3.6 mi south of State Highway 50 in Mascotte. Owner: U.S. Geological Survey.

AQUIFER.--Nonartesian sand of the Surficial Aquifer System, Geologic Unit 112 NRSD.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 6 in., depth 30 ft, cased to 16 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 103.51 ft above NGVD of 1929. Measuring point: Top of casing, 2.38 ft above land-surface datum.

PERIOD OF RECORD.--January 1959 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 103.51 ft above NGVD of 1929, estimated, Sept. 11, 1960; lowest, 94.89 ft above NGVD of 1929, June 23, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	99.68	99.42	99.09	101.28	100.59	101.42	101.61	101.66	100.92	---	103.16	102.58
10	99.49	99.29	101.10	101.07	101.30	101.90	101.83	101.36	101.09	---	102.99	102.42
15	99.78	99.23	101.31	100.97	100.85	101.28	101.49	101.11	101.02	---	102.53	102.08
20	99.48	99.47	101.30	100.80	100.86	101.28	101.31	100.95	103.22	---	102.69	102.07
25	99.82	99.28	101.44	100.69	101.21	101.86	102.56	101.10	---	---	102.55	102.57
EOM	99.68	99.16	102.16	100.64	101.11	101.82	102.33	100.64	---	102.90	102.32	102.03
MAX	99.89	99.62	102.16	102.24	101.66	102.83	102.71	102.47	---	---	103.34	103.18

**WELL NUMBER.--283314081455501. City Well Replacement at Clermont, FL.**

LOCATION.--Lat 28°33'14", long 81°45'55", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.24, T.22 S., R.25 E., Hydrologic Unit 03080102, on Lake Avenue, 0.2 mi north of State Highway 50 in Clermont. Owner: City of Clermont.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic well, diameter 12 in., depth 525 ft, casing length unknown.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 148.28 ft above NGVD of 1929. Measuring point: Top of casing, 2.8 ft above land-surface datum.

PERIOD OF RECORD.--May 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 86.04 ft above NGVD of 1929, Mar. 27, 1998; lowest, 74.65 ft above NGVD of 1929, June 14, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	80.13	80.15	79.77	81.54	81.79	82.31	82.57	82.38	82.07	83.72	85.07	85.67
10	80.07	79.94	80.15	81.65	82.10	82.34	82.58	82.19	82.52	83.73	85.16	85.61
15	80.41	79.92	80.58	81.68	82.13	82.32	82.48	82.05	82.72	84.07	85.24	85.44
20	80.28	79.99	80.85	81.74	82.08	82.31	82.18	82.18	83.12	84.19	85.31	85.26
25	80.38	79.93	81.07	81.64	82.23	82.59	82.15	82.12	83.36	84.37	85.54	85.14
EOM	80.34	79.94	81.33	81.78	82.20	82.58	82.39	81.95	83.61	84.48	85.46	85.26
MAX	80.41	80.37	81.33	81.86	82.26	82.71	82.63	82.48	83.61	84.51	85.58	85.68

LAKE COUNTY—Continued

**WELL NUMBER.--284445081462101. Lake Yale Groves Well near Tavares, FL.**

LOCATION.--Lat 28°44'45", long 81°46'21", in SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.13, T.20 S., R.25 E., Hydrologic Unit 03080102, on north side of Little Lake Harris, 0.2 mi west of State Highway 19, and 3.8 mi south of Tavares. Owner: Lake County Water Authority.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, irrigation, artesian well, diameter 8 in., depth 200 ft, cased to 112 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape or manometer.

DATUM.--Elevation of land-surface datum is 64.75 ft above NGVD of 1929. Measuring point: Top of tee, 2.10 ft above land-surface datum.

COOPERATION.--Since Oct. 1, 1985 data provided by St. Johns River Water Management District and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--May 1963 (annually); October 1963 to September 1985 (bimonthly); October 1985 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 70.45 ft above NGVD of 1929, Mar. 13, 1970; lowest measured, 60.54 ft above NGVD of 1929, May 23, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 28	66.13	JAN 27	66.08	APR 21	66.65	JUN 23	67.16	SEP 15	68.35
NOV 18	65.62	FEB 24	66.93	MAY 20	65.91	JUL 28	67.60	17	67.61
DEC 17	66.33	MAR 24	67.49	23	66.07	AUG 18	68.07		

WATER YEAR 2003    LOWEST 65.62 NOV 18, 2002    HIGHEST 68.35 SEP 15, 2003

**WELL NUMBER.--284842081533001. College Street Well at Leesburg, FL.**

LOCATION.--Lat 28°48'42", long 81°53'30", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.27, T.19 S., R.24 E., Hydrologic Unit 03080102, on west side of College Street, near water tank, 350 ft north of West Main Street in Leesburg. Owner: City of Leesburg.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 12 in., depth 245 ft, cased to 90 ft.

INSTRUMENTATION.--Water-stage recorder--15-minute interval.

DATUM.--Elevation of land-surface datum is 93.10 ft above NGVD of 1929. Measuring point: Edge of flange, 1.2 ft above land-surface datum.

PERIOD OF RECORD.--September 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 70.38 ft above NGVD of 1929, Mar. 2, 1998; lowest, 57.29 ft above NGVD of 1929, May 16, 1981.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	67.33	66.27	65.18	67.23	66.59	67.64	67.79	66.50	65.34	66.99	68.81	68.95
10	67.11	65.80	65.73	67.20	66.84	68.16	67.56	65.66	65.82	66.33	69.25	68.63
15	67.17	65.77	66.59	66.82	66.88	68.04	67.10	65.62	65.59	67.44	68.92	68.36
20	66.76	65.65	66.68	66.83	66.82	67.92	66.68	65.74	66.58	67.58	68.79	67.79
25	66.67	65.49	66.92	66.27	66.99	67.80	66.64	65.42	66.91	67.70	69.16	67.35
EOM	66.19	65.18	66.83	66.64	67.02	67.94	66.80	65.00	66.97	68.19	68.79	67.79
MAX	67.65	66.27	66.96	67.32	67.12	68.35	68.01	66.76	67.13	68.26	69.25	68.97

## LAKE COUNTY—Continued

**WELL NUMBER.--290950081315501. Astor Park Well at Astor Park, FL.**

LOCATION.--Lat 29°09'50", long 81°31'55", in land grant 37, T.15 S., R.28 E., Hydrologic Unit 03080101, at residence, 200 ft north of State Highway 40, and 0.7 mi west of St. Johns River at Astor Park. Owner: W.G. House.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 225 ft, casing length 175 ft.

INSTRUMENTATION.--Water-stage recorder-60-minute interval.

DATUM.--Elevation of land-surface datum is 17.78 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 2.40 ft above land-surface datum.

PERIOD OF RECORD.--February 1936 to December 1949 (monthly); January 1950 to September 1985 (bimonthly); October 1985 to September 1997 (monthly); October 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.15 ft above NGVD of 1929, October 1945; lowest daily maximum, 9.18 ft above NGVD of 1929, Jan. 3, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	14.78	14.68	14.16	15.26	14.60	---	15.45	14.83	14.25	15.16	15.40	15.75
10	14.65	14.57	14.71	15.07	14.59	---	15.42	14.53	14.58	15.00	15.55	15.84
15	14.76	14.60	15.05	---	14.85	15.63	15.09	14.29	14.71	15.15	15.50	15.76
20	14.65	14.64	15.02	15.00	14.84	15.61	15.03	14.27	14.82	15.16	15.62	15.63
25	14.50	14.42	15.10	14.62	---	15.55	14.99	14.59	15.18	15.02	15.77	15.51
EOM	14.33	14.33	15.10	14.36	15.06	15.64	14.87	14.39	15.19	15.28	15.68	15.61
MAX	14.86	14.69	15.10	---	---	---	15.54	14.95	15.19	15.28	15.80	15.87

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

LAKE COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
282241081443901	05-20-03 09-15-03	0955 1135	L-0051 SAND MINE RD DP WELL NR CLERMONT	115.40 116.87
282318081544003	05-23-03 09-16-03	0910 1013	GREEN SWAMP AQUIFER TEST LK751W	102.30 103.53
282729081443301	05-20-03 09-15-03	0930 1050	LK LOUISA STATE PARK (SJRWD L-0053) NR CLERMONT	97.84 100.56
283019081455701	05-20-03 09-15-03	1130 1213	LCFD DIST.9 STATION 1	92.09 95.42
283128081404701	05-20-03 09-15-03	0900 1010	JOHNS LAKE WELL NR CLERMONT (SJ L-0052)	81.73 85.94
283232081394101	05-20-03 09-15-03	0800 0855	83213902 EDGEWATER BEACH DEEP	79.59 83.17
283355081411701	05-20-03 09-15-03	0822 0929	L-0199 TURNPIKE	73.10 75.13
283530081514501	05-19-03 09-15-03	1448 1356	DR PHILLIPS & SONS DP	88.27 91.86
283608081403001	05-20-03 09-15-03	0838 0941	L-0658 CITY OF MONTVERDE	73.77 76.54
284122081534401	05-19-03 09-15-03	1425 1416	L-0095 GROVELAND TOWER DEEP	83.21 86.83
284232081533001	05-19-03 09-15-03	1405 1440	842153142 20S24E34	80.74 84.26
284233081442801	05-20-03 09-15-03	1250 1553	WEST ASTATULA WELL NR ASTATULA FL	67.93 69.88
284528081530201	05-19-03 09-15-03	1322 1458	CHURCH OF GOD OF PROPHECY	66.26 67.86
284725081361901	05-20-03 09-17-03	1528 0858	WOLF SINK OBSERVATION WELL NR SORRENTO	50.22 52.49
284757081320701	03-31-03 05-21-03 07-13-03 09-18-03	0840 1540 1045 0915	L KNOWLES DEEP	49.73 48.30 49.18 50.37
284929081294901	05-23-03 09-18-03	1620 1620	ABANDONED FREEFLOW SR46A NR SORRENTO	40.45 44.35
285144081475002	05-20-03 09-17-03	1330 0958	L-0290 LEESBURG FIRETOWER DEEP AT LEESBURG, FL	62.82 64.79
285230081242201	05-23-03	1440	LOWER WEKIWA 2IN FREE NO.2 SOUTH	25.44
285257081434201	05-20-03 09-17-03	1410 1036	852143121 18S26E32 J EICHEL BERGER	57.20 59.24

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

127

LAKE COUNTY---Continued

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
285357081472801	05-20-03 09-18-03	1348 1015	SJR DEEP NR CABBAGE HAMMOCK L-0620	57.01 59.19
285454081241201	09-18-03	1413	LOWER WEKIWA R. 2IN FREE FLOW	30.57
285504081405901	05-20-03 09-17-03	1435 1158	855140-- 18S26E14 AUSTIN GROVES	52.52 54.94
285539081262901	05-23-03 09-18-03	1525 1439	PINE LAKES WELL ON SR 44	37.04 38.22
285810081234101	05-23-03 09-18-03	1320 1330	LOWER WEKIVA R 4"FREEFLO	26.70 28.53
285827081331401	05-23-03 09-17-03	1205 1238	PAUL SHOKLEY AT PAISLEY	42.01 43.41
290000081380001	05-21-03 09-17-03	0950 1309	PITTMAN WORK CENTER ABANDONED NR ALTOONA FL	46.88 48.82
290052081271201	05-23-03 09-18-03	1230 1510	CENTRAL BAPTIST YOUTH CAMP	44.42 45.57
290244081302601	05-21-03 09-18-03	1055 1138	OCALA NF4" NR ALEX.SPGS.CR BOAT LANDING	16.26 16.76
290451081344401	05-21-03 09-18-03	1025 1115	L-0066 OBS WELL ALEXANDER SP NR ASTOR	16.62 17.07
290633081375201	05-21-03 09-17-03	1447 1328	90613701 16S27E18 CAMP OCALA	41.94 43.89
290646081314001	05-21-03 09-17-03	1230 1516	L-0441 USFS WELL NR ASTOR, FL	18.75 20.18
290647081342101	05-21-03 09-18-03	1130 1203	USGS WELL, 2MI N ALEX SPGS, ALTOONA	38.22 39.20
290647081342102	05-21-03 09-18-03	1135 1205	L-0456 ALEXANDER SPS SH	40.92 40.95
290900081342002	05-21-03 09-18-03	1145 1215	909134 15S27E-- ASTOR PARK	34.20 35.06
290910081360001	05-21-03 09-17-03	1335 1418	CAMP MCQUARRIE ABANDONED DP AT CROOKED LAKE	45.72 47.13
291002081330601	05-21-03 09-17-03	1305 1438	L-0455 ASTOR 150 CF	16.83 18.40
291448081381601	05-21-03 09-17-03	1405 1350	JUNIPER HUNT CLUB SUPPLY	1.25 2.04

MISCELLANEOUS WETLANDS WATER LEVEL MEASUREMENTS  
OCTOBER 2000 TO SEPTEMBER 2003

## LAKE COUNTY

The following ground-water data were collected in southeast Lake County, for a short-term study to discern the natural hydrologic response of four karstic-ridge wetlands and the surrounding surficial aquifer system to changes in rainfall, drought, and evapotranspiration. Wells were located in several transects radiating from the wetlands for up to 2,000 ft. Wells included hand-augered piezometers tapping the surficial aquifer system just below the water-table surface and drilled wells tapping the surficial aquifer system in the upper and lower zones. Climate conditions ranged from extremely dry to extremely wet during the data-collection period.

**282434081430100 BOGGY MARSH(N WETLAND) AT HILOHEE NR CLERMONT, FL**

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	113.70	113.28	112.55	112.01	114.91	116.40	---
10	---	---	---	---	---	113.65	113.16	112.42	112.27	115.14	116.56	---
15	---	---	---	---	---	113.62	113.09	112.28	112.24	115.38	116.86	---
20	---	---	---	---	---	113.52	112.99	112.24	112.68	115.40	116.94	---
25	---	---	---	---	---	113.44	112.85	112.02	113.55	115.94	---	---
EOM	---	---	---	---	113.69	113.33	112.71	112.08	114.63	116.23	---	---
MAX	---	---	---	---	---	113.71	113.31	112.69	114.63	116.23	---	---

WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	116.95	116.78	117.39	116.81	116.79	116.58	116.46	116.09	---	---	---
10	---	116.88	117.20	117.23	116.81	116.86	116.54	116.35	116.19	---	---	---
15	---	116.84	117.62	117.12	116.77	116.76	116.45	116.27	---	---	---	---
20	---	116.90	117.33	116.99	116.75	116.74	116.39	116.18	---	---	---	---
25	---	116.81	117.32	116.90	116.76	116.77	116.34	116.25	---	---	---	---
EOM	---	116.76	117.45	116.84	116.74	116.68	116.49	116.09	---	---	---	---
MAX	---	---	117.67	117.51	116.84	116.86	116.65	116.52	---	---	---	---

**282435081430501 HILOCHEE WETLAND LOWER SAS(L-0792) NR CLERMONT, FL**

WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	---	---	---	---	112.07
10	---	---	---	---	---	---	---	---	---	---	---	112.56
15	---	---	---	---	---	---	---	---	---	---	---	114.11
20	---	---	---	---	---	---	---	---	---	---	---	114.19
25	---	---	---	---	---	---	---	---	---	---	---	114.17
EOM	---	---	---	---	---	---	---	---	---	---	112.21	114.11
MAX	---	---	---	---	---	---	---	---	---	---	---	114.21

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	113.78	113.33	113.21	113.06	113.17	112.76	112.13	111.50	115.38	116.53	118.73
10	---	113.65	113.31	113.13	113.06	113.13	112.65	111.99	111.74	115.40	116.65	118.45
15	---	113.67	113.25	113.23	113.02	113.09	112.59	111.85	111.68	115.65	117.05	118.48
20	113.74	113.57	113.20	113.25	112.96	113.00	112.50	111.78	112.26	115.44	117.02	118.17
25	113.84	113.48	113.17	113.21	113.28	112.92	112.38	111.65	113.95	116.18	117.08	118.28
EOM	113.78	113.41	113.09	113.12	113.24	112.82	112.27	111.62	115.26	116.48	118.44	117.96
MAX	---	113.78	113.39	113.28	113.31	113.25	112.82	112.25	115.26	116.48	118.44	118.73

WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	117.77	117.11	116.74	118.15	117.29	117.01	116.66	116.38	115.86	---	---	---
10	117.63	116.99	117.57	118.02	117.28	117.16	116.59	116.19	116.02	---	---	---
15	117.67	116.91	118.04	117.84	117.15	116.97	116.43	116.10	---	---	---	---
20	117.46	116.95	117.95	117.68	117.08	116.87	116.34	115.99	---	---	---	---
25	117.34	116.82	118.21	117.46	117.05	116.92	116.27	116.05	---	---	---	---
EOM	117.21	116.74	118.60	117.40	117.00	116.72	116.47	115.86	---	---	---	---
MAX	117.92	117.17	118.60	118.68	117.38	117.16	116.72	116.52	---	---	---	---

MISCELLANEOUS WETLANDS WATER LEVEL MEASUREMENTS  
OCTOBER 2000 TO SEPTEMBER 2003

129

LAKE COUNTY---Continued

282435081430502 HILOCHEE WETLAND UPPER SAS (L-0793) NR CLERMONT, FL

WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	---	---	---	---	112.07
10	---	---	---	---	---	---	---	---	---	---	---	112.58
15	---	---	---	---	---	---	---	---	---	---	---	114.14
20	---	---	---	---	---	---	---	---	---	---	---	114.18
25	---	---	---	---	---	---	---	---	---	---	---	114.17
EOM	---	---	---	---	---	---	---	---	---	---	112.21	114.11
MAX	---	---	---	---	---	---	---	---	---	---	---	114.21

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	113.78	113.39	113.26	113.07	113.19	112.77	112.13	111.50	115.40	116.56	118.75
10	---	113.66	113.35	113.16	113.07	113.15	112.65	111.99	111.77	115.43	116.67	118.45
15	---	113.69	113.29	113.26	113.04	113.09	112.59	111.86	111.71	115.67	117.07	118.48
20	113.76	113.60	113.23	113.26	112.97	113.01	112.50	111.79	112.29	115.46	117.03	118.17
25	113.83	113.52	113.21	113.23	113.30	112.92	112.38	111.65	114.00	116.21	117.10	118.29
EOM	113.77	113.46	113.12	113.13	113.26	112.83	112.28	111.63	115.32	116.52	118.46	117.96
MAX	---	113.78	113.44	113.31	113.33	113.27	112.82	112.25	115.32	116.52	118.46	118.75

WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	117.78	117.13	116.77	118.15	117.30	117.03	116.68	116.41	115.88	---	---	---
10	117.64	117.01	117.61	118.02	117.29	117.18	116.59	116.20	116.05	---	---	---
15	117.68	116.93	118.05	117.85	117.16	116.98	116.44	116.12	---	---	---	---
20	117.46	116.97	117.98	117.68	117.09	116.88	116.36	116.01	---	---	---	---
25	117.35	116.84	118.24	117.48	117.06	116.92	116.31	116.08	---	---	---	---
EOM	117.23	116.76	118.65	117.41	117.02	116.74	116.50	115.88	---	---	---	---
MAX	117.93	117.19	118.65	118.72	117.38	117.18	116.73	116.55	---	---	---	---

282436081430901 HILOCHEE MID-RIDGE LOWER SAS (L-0794) NR CLERMONT, FL

WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	---	---	---	---	111.90
10	---	---	---	---	---	---	---	---	---	---	---	112.09
15	---	---	---	---	---	---	---	---	---	---	---	112.87
20	---	---	---	---	---	---	---	---	---	---	---	113.66
25	---	---	---	---	---	---	---	---	---	---	---	113.86
EOM	---	---	---	---	---	---	---	---	---	---	111.92	---

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	113.83	113.54	113.36	113.18	113.20	112.90	112.35	111.72	114.98	116.70	119.54
10	---	113.76	113.51	113.27	113.16	113.20	112.82	112.23	111.80	115.18	116.89	119.69
15	---	113.78	113.43	113.28	113.15	113.15	112.75	112.09	111.78	115.38	117.13	119.55
20	113.79	113.73	113.39	113.32	113.13	113.10	112.69	112.02	112.01	115.42	117.45	119.34
25	113.84	113.65	113.37	113.30	113.22	113.04	112.58	111.91	112.90	115.96	117.54	119.18
EOM	113.83	113.60	113.28	113.24	113.22	112.98	112.49	111.78	113.98	116.38	118.69	118.98
MAX	---	113.83	113.60	113.41	113.28	113.28	112.94	112.46	113.98	116.38	118.69	119.72



MISCELLANEOUS WETLANDS WATER LEVEL MEASUREMENTS  
OCTOBER 2000 TO SEPTEMBER 2003

131

LAKE COUNTY---Continued

282436081431501 HILOCHEE RIDGE LOWER SAS(L-0796)NR CLERMONT, FL

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	113.46	114.28	114.28	114.03	113.84	113.64	113.53	113.19	112.62	113.31	116.37	120.73
10	113.72	114.30	114.27	113.98	113.81	113.66	113.48	113.12	112.55	113.96	116.85	121.21
15	---	114.36	114.21	113.96	113.77	113.64	113.43	113.03	112.49	114.47	117.25	121.30
20	114.01	114.36	114.16	113.94	113.74	113.63	113.39	112.93	112.42	114.89	117.65	121.31
25	114.12	114.35	114.13	113.92	113.67	113.60	113.34	112.83	112.47	115.24	118.11	121.23
EOM	114.20	114.34	114.06	113.87	113.65	113.59	113.28	112.73	112.73	115.73	118.64	121.08
MAX	---	114.36	114.33	114.08	113.87	113.72	113.57	113.26	112.73	115.73	118.64	121.32

WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	120.95	120.00	118.99	119.93	120.36	119.54	118.71	117.94	117.27	---	---	---
10	120.83	119.82	118.88	120.51	120.24	119.39	118.61	117.84	117.15	---	---	---
15	120.73	119.65	118.84	120.71	120.08	119.26	118.44	117.72	---	---	---	---
20	120.52	119.48	119.28	120.72	119.92	119.14	118.32	117.61	---	---	---	---
25	120.37	119.31	119.60	120.61	119.76	118.98	118.23	117.51	---	---	---	---
EOM	120.18	119.15	119.81	120.50	119.70	118.82	118.07	117.38	---	---	---	---
MAX	121.06	120.13	119.81	120.78	120.48	119.66	118.78	118.06	---	---	---	---

282436081431502 HILOCHEE RIDGE UPPER SAS(L-0797)NR CLERMONT, FL

WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	---	---	---	---	111.34
10	---	---	---	---	---	---	---	---	---	---	---	111.46
15	---	---	---	---	---	---	---	---	---	---	---	111.60
20	---	---	---	---	---	---	---	---	---	---	---	111.99
25	---	---	---	---	---	---	---	---	---	---	---	112.59
EOM	---	---	---	---	---	---	---	---	---	---	111.18	113.08
MAX	---	---	---	---	---	---	---	---	---	---	---	113.08

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	113.45	114.29	114.27	114.03	113.82	113.65	113.51	113.17	112.62	113.36	116.38	120.72
10	113.70	114.30	114.26	113.96	113.79	113.66	113.46	113.10	112.55	114.01	116.85	121.21
15	---	114.35	114.20	113.94	113.77	113.64	113.41	113.00	112.49	114.51	117.25	121.29
20	114.03	114.35	114.16	113.92	113.73	113.63	113.38	112.91	112.43	114.91	117.64	121.30
25	114.13	114.34	114.12	113.90	113.67	113.61	113.32	112.83	112.48	115.25	118.11	121.22
EOM	114.21	114.33	114.05	113.85	113.66	113.57	113.27	112.73	112.77	115.74	118.65	121.06
MAX	---	114.36	114.32	114.07	113.85	113.72	113.55	113.25	112.77	115.74	118.65	121.31

WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	120.94	119.97	118.98	119.93	120.34	119.51	118.70	117.92	117.25	---	---	---
10	120.81	119.80	118.87	120.51	120.23	119.37	118.59	117.81	117.14	---	---	---
15	120.69	119.62	118.85	120.70	120.07	119.25	118.42	117.71	---	---	---	---
20	120.50	119.46	119.28	120.71	119.90	119.13	118.30	117.59	---	---	---	---
25	120.35	119.29	119.59	120.58	119.74	118.97	118.21	117.50	---	---	---	---
EOM	120.15	119.13	119.81	120.47	119.68	118.81	118.06	117.36	---	---	---	---
MAX	121.04	120.11	119.81	120.76	120.45	119.64	118.77	118.04	---	---	---	---

MISCELLANEOUS WETLANDS WATER LEVEL MEASUREMENTS  
OCTOBER 2000 TO SEPTEMBER 2003

## LAKE COUNTY---Continued

## 282436081431201 HILOCHEE 12IN UFA NR CLERMONT, FL

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	112.33	111.89	110.96	110.15	114.06	114.95	116.34
10	---	---	---	---	---	112.41	111.71	110.76	110.67	114.17	115.03	116.20
15	---	---	---	---	---	112.29	111.65	110.57	110.76	114.39	115.15	116.11
20	---	---	---	---	---	112.18	111.62	110.54	111.52	114.34	115.24	116.02
25	---	---	---	---	112.40	112.11	111.39	110.38	112.66	114.64	115.13	116.00
EOM	---	---	---	---	112.33	112.00	111.20	110.24	113.57	114.74	116.12	115.90
MAX	---	---	---	---	---	112.46	111.98	111.10	113.57	114.74	116.12	116.34

WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	115.75	115.05	114.75	116.26	115.50	115.34	115.12	114.74	114.14	---	---	---
10	115.50	114.99	115.31	116.24	115.55	115.34	115.08	114.53	114.39	---	---	---
15	115.63	114.93	116.01	116.03	115.47	115.35	114.87	114.42	---	---	---	---
20	115.39	115.02	116.01	115.61	115.35	115.23	114.68	114.30	---	---	---	---
25	115.26	114.89	---	114.82	115.34	115.31	114.65	114.42	---	---	---	---
EOM	115.19	114.86	---	115.64	115.33	115.10	114.71	114.19	---	---	---	---
MAX	115.87	115.30	---	116.39	115.62	115.43	115.16	114.81	---	---	---	---

## 282440081430600 STOCK LAKE AT HILOCHEE NR CLERMONT, FL

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	112.46	112.18	111.63	111.05	113.02	114.82	116.89
10	---	---	---	---	---	112.43	112.08	111.49	111.19	113.32	115.04	117.12
15	---	---	---	---	---	112.43	112.03	111.36	111.17	113.66	115.37	117.32
20	---	---	---	---	---	112.39	111.96	111.28	111.39	113.77	115.54	117.35
25	---	---	---	---	112.51	112.30	111.85	111.13	111.95	114.26	115.65	117.44
EOM	---	---	---	---	112.48	112.23	111.75	111.08	---	114.59	116.57	117.46
MEAN	---	---	---	---	---	112.39	112.01	111.36	---	---	115.36	117.20

WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	117.38	116.90	116.44	117.88	117.38	117.10	116.65	116.21	115.58	---	---	---
10	117.30	116.80	116.83	117.85	117.36	117.13	116.53	116.08	115.67	---	---	---
15	117.32	116.72	117.31	117.77	117.25	117.03	116.38	115.95	---	---	---	---
20	117.19	116.72	117.37	117.64	117.19	116.95	116.29	115.81	---	---	---	---
25	117.12	116.62	117.56	117.55	117.16	116.95	116.15	115.84	---	---	---	---
EOM	117.02	116.51	117.57	117.45	117.12	116.82	116.21	115.62	---	---	---	---
MEAN	117.24	116.75	117.09	117.72	117.27	117.01	116.41	115.96	---	---	---	---



KEY TO SITE LOCATIONS ON FIGURE 15  
LEVY COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	290112082371101	136
2	290200082432301	136
3	290202082403901	137
4	290230082412501	137
5	290743082341501	138
6	291910082341101	138
7	292430082283001	139

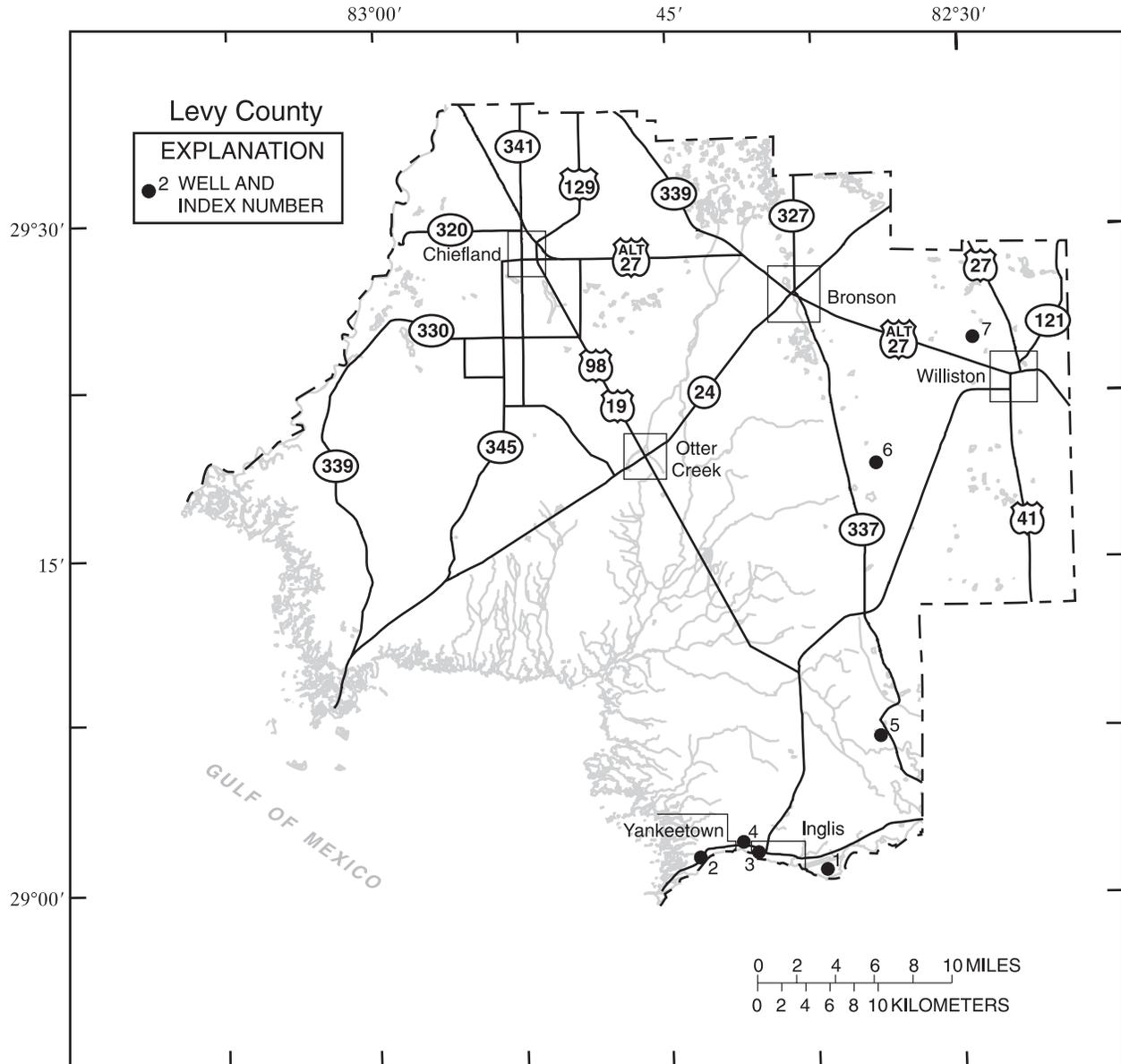


Figure 15.--Location of wells in Levy County.

## LEVY COUNTY

**WELL NUMBER.--290112082371101. CE-5 Well near Inglis, FL.**

LOCATION.--Lat 29°01'12", long 82°37'11", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.7, T.17 S., R.17 E., Hydrologic Unit 03100208, on island 700 ft southwest of Inglis lock, and 3.2 mi southeast of Inglis. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 125 ft, cased to 84 ft.

INSTRUMENTATION.--Water-stage recorder--15-minute interval.

DATUM.--Elevation of land-surface datum is 25.39 ft above NGVD of 1929. Measuring point: Top of casing, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--May 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 9.41 ft above NGVD of 1929, Sept. 6, 1968; lowest, 4.38 ft below NGVD of 1929, Dec. 12, 2002.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.07	6.24	5.64	5.47	5.05	5.78	6.38	6.22	5.49	6.99	6.93	8.06
10	5.74	5.80	5.20	5.35	5.12	5.76	5.89	5.58	5.47	7.28	7.63	7.91
15	5.98	5.62	4.75	5.18	5.63	6.24	6.12	5.97	5.89	7.53	7.42	7.69
20	5.84	5.17	5.91	5.54	5.27	6.69	6.38	5.54	5.64	7.06	7.48	7.17
25	5.88	5.20	6.14	---	5.13	5.89	6.18	5.35	6.45	7.12	7.95	7.77
EOM	5.39	5.24	5.86	5.64	5.65	5.17	6.15	5.84	7.21	7.16	7.88	7.16
MAX	6.51	6.55	6.14	---	6.23	6.79	6.68	6.37	7.21	7.98	8.33	8.13

**WELL NUMBER.--290200082432301. ROMP 124 Well near Yankeetown, FL.**

LOCATION.--Lat 29°02'00", long 82°43'23", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.6, T.17 S., R.16 E., Hydrologic Unit 03110101, 120 ft south of Bonita Club Road, and 1.2 mi west of Yankeetown. Owner: Southwest Florida Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 250 ft, cased to 200 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 4.21 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 3.74 ft above land-surface datum.

PERIOD OF RECORD.--March 1978 to September 1992; October 1992 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 6.11 ft above NGVD of 1929, Aug. 31, 1985; lowest water level measured, 1.51 ft above NGVD of 1929, Jan. 24, 2001.

ELEVATION IN FEET (NGVD1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	2.93	JAN 27	2.77	APR 28	3.63	JUN 23	4.45	SEP 17	3.63
NOV 25	2.66	FEB 24	3.34	MAY 22	2.59	JUL 28	4.08	22	3.77
DEC 30	3.16	MAR 24	3.49	27	2.83	AUG 25	4.48		
WATER YEAR 2003 LOWEST		2.59	MAY 22, 2003 HIGHEST		4.48	AUG 25, 2003			

## LEVY COUNTY—Continued

**WELL NUMBER.--290202082403901. Florida Power Corporation (CE-62) Well at Inglis, FL.**

LOCATION.--Lat 29°02'02", long 82°40'39", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.3, T.17 S., R.16 E., Hydrologic Unit 03100208, 100 ft south of State Highway 40 at abandoned power plant, 0.6 mi west of U.S. Highway 19 in Inglis. Owner: Florida Power Corporation.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 4 in., depth 155 ft, casing length unknown.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 12.67 ft above NGVD of 1929. Measuring point: Top of 4 in. coupling, 1.8 ft above land-surface datum.

PERIOD OF RECORD.--March 1961, October 1963 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.55 ft above NGVD of 1929, Sept. 15, 1964; lowest measured, 1.34 ft above NGVD of 1929, Mar. 14, 1968.

## ELEVATION IN FEET (NGVD1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04	4.17	JAN 22	5.24	MAY 05	4.54	SEP 02	7.64
NOV 26	4.15	MAR 10	7.14	JUL 07	5.99		
WATER YEAR 2003		LOWEST	4.15	NOV 26, 2002	HIGHEST	7.64	SEP 02, 2003

**WELL NUMBER.--290230082412501. ROMP 125 Well at Crackertown, FL.**

LOCATION.--Lat 29°02'30", long 82°41'25", in SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.33, T.16 S., R.16 E., Hydrologic Unit 03110101, 40 ft southwest of intersection of State Highway 40A and Schoolcraft Road at Crackertown. Owner: Southwest Florida Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, unused, artesian well, diameter 6 in., depth 280 ft, cased to 270 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 8.64 ft above NGVD of 1929. Measuring point: Top of flange, 3.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 8.29 ft above NGVD of 1929, Sept. 9, 1988; lowest, .57 ft above NGVD of 1929, June 9,10, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.35	3.41	3.14	5.49	4.33	6.14	5.07	3.91	4.65	6.90	5.41	6.75
10	3.20	3.20	3.28	5.27	4.54	6.19	4.98	3.63	5.18	6.45	7.79	6.22
15	3.38	3.04	4.48	4.91	4.63	5.99	4.63	3.38	4.87	6.17	7.15	5.84
20	3.56	3.34	4.76	4.74	4.96	5.81	4.40	3.12	7.14	5.78	6.83	5.42
25	3.54	3.31	4.79	4.46	5.28	5.44	4.27	3.36	7.34	5.91	6.89	5.39
EOM	3.45	3.20	5.08	4.47	5.37	5.16	4.10	3.21	7.25	5.73	6.65	5.50
MAX	3.58	3.52	5.08	5.62	5.37	6.20	5.13	4.12	7.74	7.38	7.79	6.75

LEVY COUNTY—Continued

**WELL NUMBER.--290743082341501. Tidewater Number 1 Well near Dunnellon, FL.**

LOCATION.--Lat 29°07'43", long 82°34'15", in NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.34, T.15 S., R.17 E., Hydrologic Unit 03110101, on south side of State Highway 336 in Tidewater, 9.8 mi northwest of Dunnellon. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 12 in., depth 784 ft, cased to 298 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 70.07 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 3.82 ft above land-surface datum.

PERIOD OF RECORD.--October 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 61.81 ft above NGVD of 1929, Sept. 26, 1982; lowest, 49.34 ft above NGVD of 1929, June 19, 2002.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	52.52	52.69	52.48	53.28	53.25	53.93	54.74	54.22	54.04	55.11	55.42	56.07
10	52.60	52.48	52.60	53.43	53.42	54.17	54.75	54.09	54.34	55.27	55.76	55.96
15	53.08	52.51	52.76	53.30	53.40	54.43	54.58	53.92	54.40	55.29	55.76	55.99
20	53.00	52.72	52.96	53.38	53.40	54.44	54.43	53.77	54.72	55.24	55.86	55.87
25	52.92	52.57	53.07	53.27	53.48	54.40	54.56	54.02	54.85	55.22	56.04	55.80
EOM	52.78	52.59	53.23	53.40	53.57	54.48	54.38	53.84	55.06	55.36	55.95	55.80
MAX	53.08	52.80	53.23	53.49	53.67	54.71	54.77	54.39	55.06	55.43	56.08	56.07

**WELL NUMBER.--291910082341101. Bullock-Huber Well near Williston, FL.**

LOCATION.--Lat 29°19'10", long 82°34'11", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.36, T.13 S., R.17 E., Hydrologic Unit 03110101, in a field, 1.0 mi south of a county road, 2.9 mi west of State Highway 121, and 10 mi southwest of Williston. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 91 ft, cased to 68 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape.

DATUM.--Land-surface datum is 91.40 ft above NGVD of 1929. Measuring point: Top of casing, 1.00 ft above land-surface datum. Prior to Oct. 1995 at elevation 0.60 ft lower.

PERIOD OF RECORD.--February 1974 to September 1977 (bimonthly); October 1977 to September 1979 (semiannually); October 1979 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.53 ft above NGVD of 1929, Mar. 13, 1998; lowest measured, 37.58 ft above NGVD of 1929, June 12, 2002.

ELEVATION IN FEET (NGVD1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 21	40.62	MAR 14	41.32	MAY 05	42.68	JUL 07	44.10	SEP 03	45.27	SEP 17	45.52
WATER YEAR 2003		LOWEST	40.62	JAN 21, 2003	HIGHEST	45.52	SEP 17, 2003				

## LEVY COUNTY—Continued

**WELL NUMBER.--292430082283001. Devils Den Sink CE-8 near Williston, FL.**

LOCATION.--Lat 29°24'26", long 82°28'36", in NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.26, T.12 S., R.18 E., Hydrologic Unit 03080102, 1,000 ft west of county road, 1.3 mi north of Alternate U.S. Highway 27, at a point 1.0 mi west of U.S. Highway 41 in Williston. Owner: Hugh Barton.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Natural sinkhole, depth 32 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked tape.

DATUM.--Land-surface datum is 71.55 ft above NGVD of 1929. Measuring point: Painted mark on east side of sink at land-surface datum.

PERIOD OF RECORD.--November 1935 to December 1949, and March 1966 to September 1967 (monthly); November 1967 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 60.40 ft above NGVD of 1929, October 1948; lowest measured, 39.07 ft above NGVD of 1929, August 1, 2002.

## ELEVATION IN FEET (NGVD1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	40.16	JAN 21	40.99	MAY 05	43.58	JUL 07	44.15	SEP 18	46.03
NOV 16	40.20	MAR 14	42.07	21	43.54	SEP 03	45.84		
WATER YEAR 2003		LOWEST	40.16	OCT 10, 2002	HIGHEST	46.03	SEP 18, 2003		

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

LEVY COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
290503082323101	05-22-03 09-17-03	0910 0950	90523201 16S17E13 SCE 108 T & J RANCH	70.94 72.96
290605082372601	05-22-03 09-17-03	0945 0845	90623701 16S17E07 GEOTHE ROAD	27.07 28.39
291004082382901	05-21-03 09-17-03	1550 0915	91023801 15S16E24 910238433 DIXIE LIME PR	23.22 25.78
291048083011801	09-18-03	1140	15S13E17 910301212	3.04
291414082560901	05-22-03 09-17-03	1045 1050	ROSEWOOD TOWER WELL NR CEDAR KEYS FL	10.38 11.74
291508082432901	05-22-03 09-17-03	1300 1020	GULF HAMMOCK	8.08 10.43
291712082351801	05-21-03 09-17-03	1440 1100	SOUTH OF BONSON-RO	45.19 47.91
291806082545601	09-16-03	1430	918254331 13S14E33 TEST 2 USGS NR ROSEWOOD	20.95
292143082282201	05-21-03 09-18-03	0815 0800	92122801 13S18E11 WILLISTON AIRPORT	43.51 46.13
292310082373701	05-21-03 09-18-03	1215 0850	ERCELL SMITH	51.60 54.94
292507082560201	09-18-03	1040	A J MIMMS(121420)SR 347 SW OF CHIEFLAND	14.52
292615082272601	05-21-03 09-18-03	0745 0940	ROMP 134 NEAR WILLISTON FL	43.40 45.87
292713082493601	05-06-03 09-11-03	1220 1100	H.E.MILLS NR CHIEFLAND FL	18.97 25.39



KEY TO SITE LOCATIONS ON FIGURE 16  
MARION COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	285920081490501	144
2	290106082191001	144
3	290133082140901	145
4	290215082152401	145
5	290306082232802	146
6	290312082250801	146
7	290514082270701	147
8	290815082025701	147
9	291059082190801	148
10	291100082010003	148
11	291110082060001	149
12	291115082102901	149
13	291849081411401	150
14	292200081510001	150
15	292543081513301	151

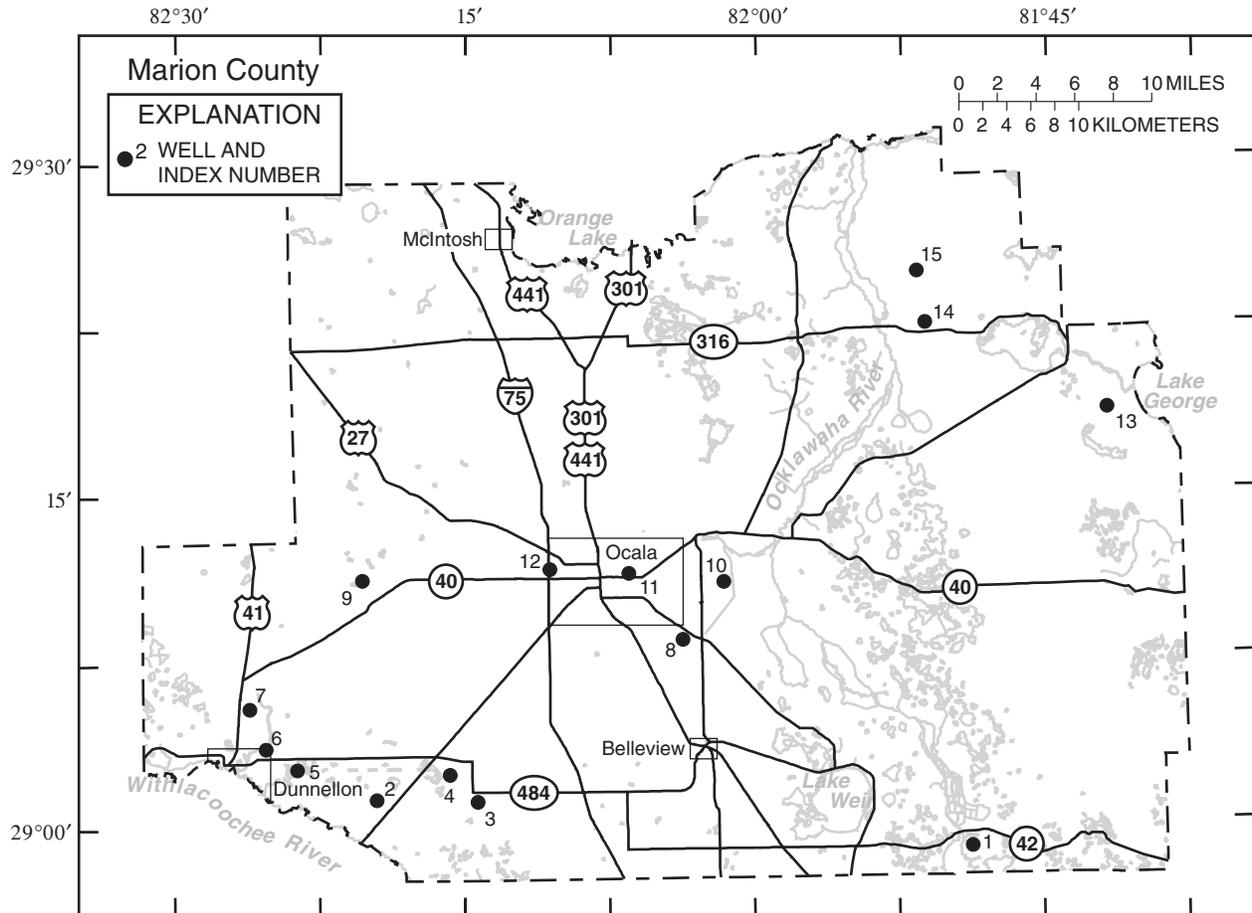


Figure 16.--Location of wells in Marion County.

## MARION COUNTY

**WELL NUMBER.--285920081490501. USGS Well Mar-48 near Ocklawaha, FL. (Formerly Mar-48 Replacement Well near Ocklawaha, FL.)**

LOCATION.--Lat 28°59'20", long 81°49'05", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.20, T.17 S., R.25 E., Hydrologic Unit 03080102, at fish camp south of State Highway 42, on east side of Ocklawaha River at Starks Ferry, and 7 mi southeast of Ocklawaha.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 6 in., depth 152 ft, casing length unknown.

INSTRUMENTATION.--Bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 61.08 ft above NGVD of 1929. Measuring point: Top of PVC elbow at vent, 2.22 ft above land-surface datum.

REMARKS.--Record is equivalent to that for Mar 48 Replacement (285930081500501), available October 1980 to September 1983.

PERIOD OF RECORD.--March 1936 to December 1949 (monthly); January 1950 to September 1980, October 1983 to September 2003 (bimonthly) discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 61.28 ft above NGVD of 1929, October 1945; lowest measured, 47.41 ft above NGVD of 1929, June 12, 2001.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	53.37	FEB 14	52.71	JUN 03	52.80	SEP 24	56.03
DEC 17	52.17	APR 10	54.34	JUL 31	55.07		
WATER YEAR 2003		LOWEST	52.17	DEC 17, 2002	HIGHEST	56.03	SEP 24, 2003

**WELL NUMBER.--290106082191001. CE-23 Well near Dunnellon, FL.**

LOCATION.--Lat 29°01'06", long 82°19'10", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.17, T.17 S., R.20 E., Hydrologic Unit 03100208, north of State Highway 200, 2.8 mi northeast of Withlacoochee River, and 16.3 mi southwest of Ocala. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 45 ft, cased to 19 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 62.64 ft above NGVD of 1929. Measuring point: Top of casing, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--June 1966 to September 1977; October 1977 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 50.94 ft above NGVD of 1929, Mar. 11, 1998; lowest measured, 36.37 ft above NGVD of 1929, March 20, 2001.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	40.61	JAN 22	41.00	MAY 08	43.10	JUL 10	45.75	SEP 17	46.75
NOV 22	39.68	MAR 13	42.61	21	42.52	SEP 03	47.39		
WATER YEAR 2003		LOWEST	39.68	NOV 22, 2002	HIGHEST	47.39	SEP 03, 2003		

## MARION COUNTY—Continued

**WELL NUMBER.--290133082140901. ROMP 119 Well near Ocala, FL.**

LOCATION.--Lat 29°01'33", long 82°14'09", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.8, T.17 S., R.21 E., Hydrologic Unit 03080102, on south side of State Highway 484, 4.5 mi west from intersection with Interstate Highway 75, and 12 mi southwest of Ocala. Owner: Southwest Florida Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 8 in., depth 502 ft, cased to 106 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 71.85 ft above NGVD of 1929. Measuring point: Top of flange, 3.90 ft above land-surface datum.

PERIOD OF RECORD.--December 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 52.20 ft above NGVD of 1929, Mar. 28, 30, 31, 1998; lowest, 39.90 ft above NGVD of 1929, June 25,26, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	44.47	44.09	43.49	43.96	44.27	44.43	45.98	45.57	44.69	45.94	46.34	47.04
10	44.42	43.98	43.46	44.16	44.26	44.87	46.02	45.40	44.67	45.99	46.43	47.09
15	44.43	43.89	43.55	44.26	44.18	45.27	45.97	45.22	44.64	46.07	46.46	47.05
20	44.36	43.81	43.63	44.34	44.14	45.57	45.89	45.06	---	46.23	46.70	46.92
25	44.30	43.69	43.65	44.34	44.16	45.75	45.85	44.98	45.38	46.27	46.85	46.79
EOM	44.19	43.60	43.73	44.33	44.18	45.87	45.71	44.81	45.77	46.29	46.94	46.70
MAX	44.50	44.17	43.73	44.36	44.32	45.89	46.03	45.69	---	46.30	46.94	47.09

**WELL NUMBER.--290215082152401. CE-74 Well near Ocala, FL.**

LOCATION.--Lat 29°02'15", long 82°15'24", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.1, T.17 S., R.20 E., Hydrologic Unit 03100208, 0.25 mi west of State Highway 484, 2.9 mi southeast of State Highway 200, and 13 mi southwest of Ocala. Owner: U.S. Army Corps of Engineers.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 2 in., depth 51 ft, casing length unknown.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 76.97 ft above NGVD of 1929. Measuring point: Top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--July 1964 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 51.63 ft above NGVD of 1929, Mar. 11, 1998; lowest measured, 38.82 ft above NGVD of 1929, March 19, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	43.31	JAN 22	43.32	MAY 08	44.59	JUL 10	45.24	SEP 17	46.18
NOV 21	42.72	MAR 14	43.89	21	44.17	SEP 03	46.22		
WATER YEAR 2003	LOWEST	42.72	NOV 21, 2002	HIGHEST	46.22	SEP 03, 2003			

## MARION COUNTY—Continued

**WELL NUMBER.--290306082232802. Fire Tower (CE-73) Well at Dunnellon, FL.**

LOCATION.--Lat 29°03'06", long 82°23'28", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.34, T.16 S., R.19 E., Hydrologic Unit 03100208, on south side of State Highway 484, across from Dunnellon Fire Tower, and 4.4 mi east of U.S. Highway 41 in Dunnellon. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 36 ft, cased to 26 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 65.18 ft above NGVD of 1929. Measuring point: Hole in cap, 2.00 ft above land-surface datum.

PERIOD OF RECORD.--September 1964 to May 1966 (monthly), July 1966 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 61.99 ft above NGVD of 1929, Mar. 11, 1998; lowest measured, 47.91 ft above NGVD of 1929, July 15, 1975.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04	53.58	JAN 22	53.42	MAY 08	54.04	JUL 10	57.51	SEP 18	56.78
NOV 18	51.74	MAR 13	55.65	21	53.38	SEP 03	57.58		
WATER YEAR 2003		LOWEST 51.74		NOV 18, 2002		HIGHEST 57.58		SEP 03, 2003	

**WELL NUMBER.--290312082250801. CE-14 Well near Dunnellon, FL.**

LOCATION.--Lat 29°03'12", long 82°25'08", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.32, T.16 S., R.19 E., Hydrologic Unit 03100208, on north side of State Highway 484, 8.3 mi west of State Highway 200, and 2.7 mi east of Dunnellon. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 190 ft, cased to 112 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 60.24 ft above NGVD of 1929. Measuring point: Top of casing, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--June 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 50.90 ft above NGVD of 1929, Mar. 1, 1998; lowest, 34.18 ft above NGVD of 1929, July 11, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	39.33	38.61	37.77	39.33	40.11	40.01	42.21	41.11	40.05	45.53	---	46.72
10	39.16	38.43	37.67	39.91	40.00	41.23	42.06	40.93	39.94	45.69	---	46.44
15	39.08	38.27	37.67	40.23	39.82	41.86	41.81	40.74	39.86	45.59	---	46.15
20	38.95	38.15	38.01	40.37	39.68	42.17	41.61	40.56	40.89	---	---	45.90
25	38.83	38.02	38.33	40.36	39.62	42.29	41.51	40.41	43.47	---	---	45.69
EOM	38.69	37.91	38.80	40.29	39.63	42.25	41.29	40.20	44.76	---	---	45.49
MAX	39.43	38.67	38.80	40.41	40.25	42.33	42.26	41.26	44.76	---	---	---

## MARION COUNTY—Continued

**WELL NUMBER.--290514082270701. Rainbow Springs Well near Dunnellon, FL.**

LOCATION.--Lat 29°05'14", long 82°27'07", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.13, T.16 S., R.18 E., Hydrologic Unit 03100208, on east side of U.S. Highway 41, 2.8 mi north of Dunnellon. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 442 ft, cased to 125 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 113.13 ft above NGVD of 1929. Measuring point: Top of casing, 3.00 ft above land-surface datum.

REMARKS.--Well records used to determine flow of Rainbow Springs.

PERIOD OF RECORD.--October 1964 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily mean water level, 36.12 ft above NGVD of 1929, Oct. 22, 1964; lowest, 29.68 ft above NGVD of 1929, June 11, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	30.78	30.59	30.50	30.70	30.84	31.01	31.53	31.35	31.17	32.56	32.77	32.89
10	30.78	30.58	30.51	30.77	30.86	31.15	31.55	31.27	31.12	32.65	32.89	32.78
15	30.86	30.59	30.55	30.85	30.82	31.20	31.52	31.19	31.12	32.70	32.82	32.72
20	30.80	30.56	30.56	30.85	30.83	31.28	31.46	31.24	31.33	32.72	32.86	32.63
25	30.80	30.54	30.57	30.91	30.88	31.38	31.47	31.18	31.70	32.80	32.93	32.53
EOM	30.76	30.53	30.63	30.87	30.85	31.50	31.42	31.11	32.25	32.79	32.84	32.48
MAX	30.86	30.76	30.63	30.91	30.89	31.50	31.55	31.42	32.25	32.80	32.93	32.89

**WELL NUMBER.--290815082025701. USGS Well CE-40 replacement near Ocala, FL.**

LOCATION.--Lat 29°08'15", long 82°02'57", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.31, T.15 S., R.23 E., Hydrologic Unit 03100208, on south side of State Highway 464, 6.5 mi northwest of Candler, and 4.3 mi southeast of Ocala. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 3 in., depth 105 ft, cased to 47 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 91.45 ft above NGVD of 1929. Measuring point: Top edge of casing, 2.80 ft above land-surface datum.

REMARKS.--Record is equivalent to that for CE-40 (290810082025001), available March 1966 to September 1982.

PERIOD OF RECORD.--March 1986 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.39 ft above NGVD of 1929, Mar. 13, 1998; lowest measured, 39.63 ft above NGVD of 1929, July 2, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	43.80	JAN 22	43.62	MAY 05	44.68	SEP 08	45.60
DEC 13	42.80	MAR 19	44.98	JUL 07	44.50		
WATER YEAR 2003	LOWEST	42.80	DEC 13, 2002	HIGHEST	45.60	SEP 08, 2003	



## MARION COUNTY—Continued

**WELL NUMBER.--291110082060001. USGS Well CE-44 at Ocala, FL.**

LOCATION.--Lat 29°11'10", long 82°06'00", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.15, T.15 S., R.22 E., Hydrologic Unit 03080102, on south side of State Highway 40, 120 ft east of Florida Highway Patrol Station at Ocala, and 3.0 mi west of Silver Springs. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 91 ft, cased to 34.2 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 102.73 ft above NGVD of 1929. Measuring point: Top of casing, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--April 1966 to September 1977; October 1977 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 46.94 ft above NGVD of 1929, Mar. 13, 1998; lowest measured, 37.36 ft above NGVD of 1929, April 8, 2002.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	42.14	JAN 21	41.98	MAY 05	42.78	JUL 07	42.63	SEP 16	43.46
NOV 22	41.75	MAR 10	42.53	20	42.93	AUG 25	43.50		
WATER YEAR 2003		LOWEST	41.75	NOV 22, 2002	HIGHEST	43.50	AUG 25, 2003		

**WELL NUMBER.--291115082102901. USGS Well CE-31 replacement at Ocala, FL.**

LOCATION.--Lat 29°11'15", long 82°10'29", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.14, T.15 S., R.21 E., Hydrologic Unit 03080102, 0.25 mi west of Alternate U.S. Highway 27, and 0.1 mi north of State Highway 40, about 2 mi west of Ocala. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 55 ft, cased to 27 feet.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 72.66 ft above NGVD of 1929. Measuring point: Top of casing, 2.4 ft above land-surface datum.

REMARKS.--Record is equivalent to that for CE-31 (291120082102501), available November 1935 to May 1983.

PERIOD OF RECORD.--April 1986 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.88 ft above NGVD of 1929, Mar. 13, 1998; lowest measured, 39.40 ft above NGVD of 1929, July 2, 2001.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	43.10	JAN 21	43.21	MAY 05	44.34	AUG 25	45.33
NOV 22	42.72	MAR 10	43.96	JUL 07	44.89		
WATER YEAR 2003		LOWEST	42.72	NOV 22, 2002	HIGHEST	45.33	AUG 25, 2003

## MARION COUNTY—Continued

**WELL NUMBER.--291849081411401. Lake George Well near Salt Springs, FL.**

LOCATION.--Lat 29°18'49", long 81°41'14", in SE $\frac{1}{4}$  sec.42, Joseph M. Hernandez Grant, T.13 S., R.26 E., Hydrologic Unit 03080101, on a sand trail, on the east side of State Highway 19, 3.8 mi southeast of Salt Springs. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in, depth 298 ft, cased to 267.50 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Land-surface datum is 18.92 ft above NGVD of 1929. Measuring point: Top of PVC casing at black mark, 2.68 ft above land-surface datum.

PERIOD OF RECORD.--January 1983 to September 1985 (bimonthly); October 1985 to March 2002 (monthly); April 2002 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.47 ft above NGVD of 1929, Sept. 18,26,27,2003; lowest measured, 12.99 ft above NGVD of 1929, June 27, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.74	16.56	16.19	16.34	16.11	16.47	16.93	16.93	16.65	16.74	17.39	18.29
10	16.75	16.45	16.33	16.35	16.25	16.61	17.03	16.81	16.63	16.75	17.53	18.39
15	16.90	16.44	16.27	16.36	16.19	16.78	17.01	16.74	16.71	16.94	17.70	18.41
20	16.76	16.40	16.33	16.25	16.22	16.83	16.99	16.79	16.73	17.02	17.80	18.37
25	16.68	16.28	16.33	16.18	16.18	16.81	17.08	16.81	16.82	17.05	18.00	18.42
EOM	16.55	16.25	16.35	16.22	16.25	16.94	17.02	16.70	16.79	17.16	18.15	18.42
MAX	16.90	16.57	16.41	16.44	16.33	17.01	17.08	17.01	16.84	17.22	18.15	18.47

**WELL NUMBER.--292200081510001. USGS Well CE-84 near Salt Springs, FL.**

LOCATION.--Lat 29°22'00", long 81°51'00", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.13, T.13 S., R.24 E., Hydrologic Unit 03080101, on north side of State Highway 316, 2.5 mi east of Ocklawaha River at Eureka, 7.5 mi west of Salt Springs, and 8.0 mi east of Fort McCoy. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 90 ft, cased to 53 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 91.72 ft above NGVD of 1929. Measuring point: Top of casing, 3.38 ft above land-surface datum.

COOPERATION.--Since Oct. 1, 1985 records provided by St. Johns River Water Management District and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--July 1970 to September 1977; October 1977 to September 1985 (bimonthly); October 1985 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.92 ft above NGVD of 1929, Nov. 28, 1979; lowest measured, 21.31 ft above NGVD of 1929, Sept. 16, 1992.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	24.05	JAN 23	24.65	APR 22	25.41	JUN 18	25.54	SEP 15	26.20
NOV 19	24.20	FEB 20	24.76	MAY 19	25.52	JUL 24	25.76	17	26.18
DEC 17	24.39	MAR 24	25.16	21	25.48	AUG 20	25.97		
WATER YEAR 2003		LOWEST	24.05	OCT 23, 2002	HIGHEST	26.20	SEP 15, 2003		

## MARION COUNTY—Continued

**WELL NUMBER.--292543081513301. M-0471 Forest Road 75 well near Salt Springs, FL.**

LOCATION.--Lat 29°25'43", long 81°51'33", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.23, T.12 S., R.24 E., Hydrologic Unit 03080102, on northwest corner of Forest Roads 75 and 97 in the Ocala National Forest, 7.8 mi northeast of Fort McCoy and 9.2 mi northwest of Salt Springs. Owner: St. Johns River Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 380 ft, cased to 317 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 136.86 ft above NGVD of 1929. Measuring point: Top of casing, 0.76 ft below land-surface datum.

PERIOD OF RECORD.--April 2002 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.22 ft above NGVD of 1929, Sept. 15, 2003; lowest measured, 19.02 ft above NGVD of 1929, April 19, 2002.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	20.71	JAN 23	20.53	APR 22	21.19	JUN 18	21.25	SEP 15	22.22
NOV 19	20.86	FEB 20	20.45	MAY 19	21.05	JUL 24	21.55	17	22.15
DEC 18	20.89	MAR 24	21.10	21	21.10	AUG 20	21.94		
WATER YEAR 2003	LOWEST	20.45	FEB 20, 2003	HIGHEST	22.22	SEP 15, 2003			

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

MARION COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
285900082072001	05-22-03 09-17-03	0755 1015	USGS OBSER WELL CE36 AT PEDRO FL	47.10 49.59
285930081430901	05-20-03 09-17-03	0930 0855	SR 42 W OF ALTOONA	51.40 53.43
285933082192501	05-21-03 09-17-03	0645 1000	85921901 17S20E20 CE 24 U S GEOL SURVEY	38.17 42.20
285953081590101	05-20-03 09-17-03	1000 0925	M-0467 LAKE WEIR MIDDLE SCHOOL NR LADY LAKE FL	49.61 52.62
290130082082001	05-22-03 09-17-03	0730 1030	90120801 USGS OB WELL CE35 NR PEDRO FL	47.07 49.44
290227082250801	05-21-03 09-18-03	0900 0800	90222501 16S19E31 CE 75 U S GEOL SURVEY	54.09 58.24
290306082032101	05-22-03 09-17-03	0835 1000	M-0465 BELLEVIEW ELEM SCHOOL AT BELLEVIEW FL	47.17 49.43
290312082190601	05-21-03 09-18-03	0810 1330	90321901 16S20E33 CE 22 U S GEOL SURVEY	47.02 51.45
290327081562001	05-20-03 09-16-03	1030 0725	M-0445 TIGER DEN NR OKLAWAHA FL	49.99 52.71
290447082250901	05-21-03 09-18-03	0925 1135	90422501 16S19E20 CE 13 U S GEOL SURVEY	32.74 34.46
290628081425301	05-20-03 09-17-03	0800 0700	LOOKOUT TOWER BOMBING RANGE DEEP ASTOR PARK	50.15 51.98
290739082245701	05-21-03 09-18-03	0950 1110	90722401 15S19E32 CE 12 U S GEOL SURVEY	34.89 36.46
290752082271101	05-21-03 09-18-03	1020 0900	90722701 15S18E35 SCE 116 RAINBOW ACRES	34.72 36.56
290910082315001	05-21-03 09-18-03	1120 0945	90923101 15S18E30 SCE 138 LITTLE LAKE BONABLE	42.33 46.25
290913082245601	05-21-03 09-18-03	1102 1015	90922401 15S19E29 SCE 118 LAKE TROPICANA	36.63 38.94
290953082031301	05-19-03 09-16-03	1715 1745	CE79 (M0038) OB WELL NR SILVER SPRINGS FL	44.07 44.20
291056082263201	05-21-03 09-18-03	1230 1040	91022601 15S18E13 HERSHEL KYPER ROMEO	38.04 40.99
291117081540501	05-19-03 09-16-03	0738 1100	REDWATER LAKE DEEP WELL NR LYNNE (SJ M-0044)	49.02 51.50

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

153

MARION COUNTY--Continued

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
291140082052701	05-20-03 09-16-03	1045 1130	91120501 USGS OB WELL CE80 AT OCALA FL	43.79 44.22
291600081550001	05-19-03 09-15-03	0825 0910	91615501 USGS OB WELL CE55 NR SALT SPRINGS FL	44.64 46.32
291625082085901	05-19-03 09-16-03	1640 1645	M-0419 MARION CTY SHERRIF NR OCALA FL	43.41 44.70
291728081390501	05-19-03 09-15-03	1145 1000	PONDEROSA CLUB FREEFLOW	15.85 17.25
291751081414301	05-19-03 09-15-03	0920 1020	OCALA NF 4IN SHALLOW WELL(M-0413)	18.98 20.99
292146082182501	05-20-03 09-16-03	1320 1345	92121801 13S20E09 SR 316 WELL SRWMD	46.13 46.97
292204082022801	05-19-03 09-15-03	1310 1500	FT MCCOY DEEP	49.36 51.50
292310081582201	05-19-03 09-15-03	1330 1520	M-0463 FT MCCOY ELEMENTARY SCHOOL NR FT MCCOY FL	52.48 55.49
292554082034501	05-19-03 09-15-03	1420 1620	M-0443 CITRA RANCH NR CITRA FL	53.15 54.20
292656082125001	05-19-03 09-16-03	1510 1515	M-0351 SPORTSMAN COVE	49.50 51.42
292718082202601	05-20-03 09-16-03	1445 1450	92722001 12S20E18 MAHAFFEY WELL	49.85 51.93
292816082234501	05-20-03 09-16-03	1415 1436	92822301 12S19E03 SMITH BROTHERS WACAHOTA	51.05 52.93
292817081483602	05-19-03 09-15-03	1055 1345	OCALA NF 6IN DP WELL(M-0410)NR SALT SPRINGS FL	20.39 21.52
292957081573002	05-19-03 09-15-03	1350 1600	M-0441 G&M CATTLE RANCH NR ORANGE SPRINGS FL	52.93 54.93

KEY TO SITE LOCATIONS ON FIGURE 17  
NASSAU COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	303435081271401	156
2	303518081275002	157
3	303823081273304	157
4	304005081380201	158
5	304213081270801	158

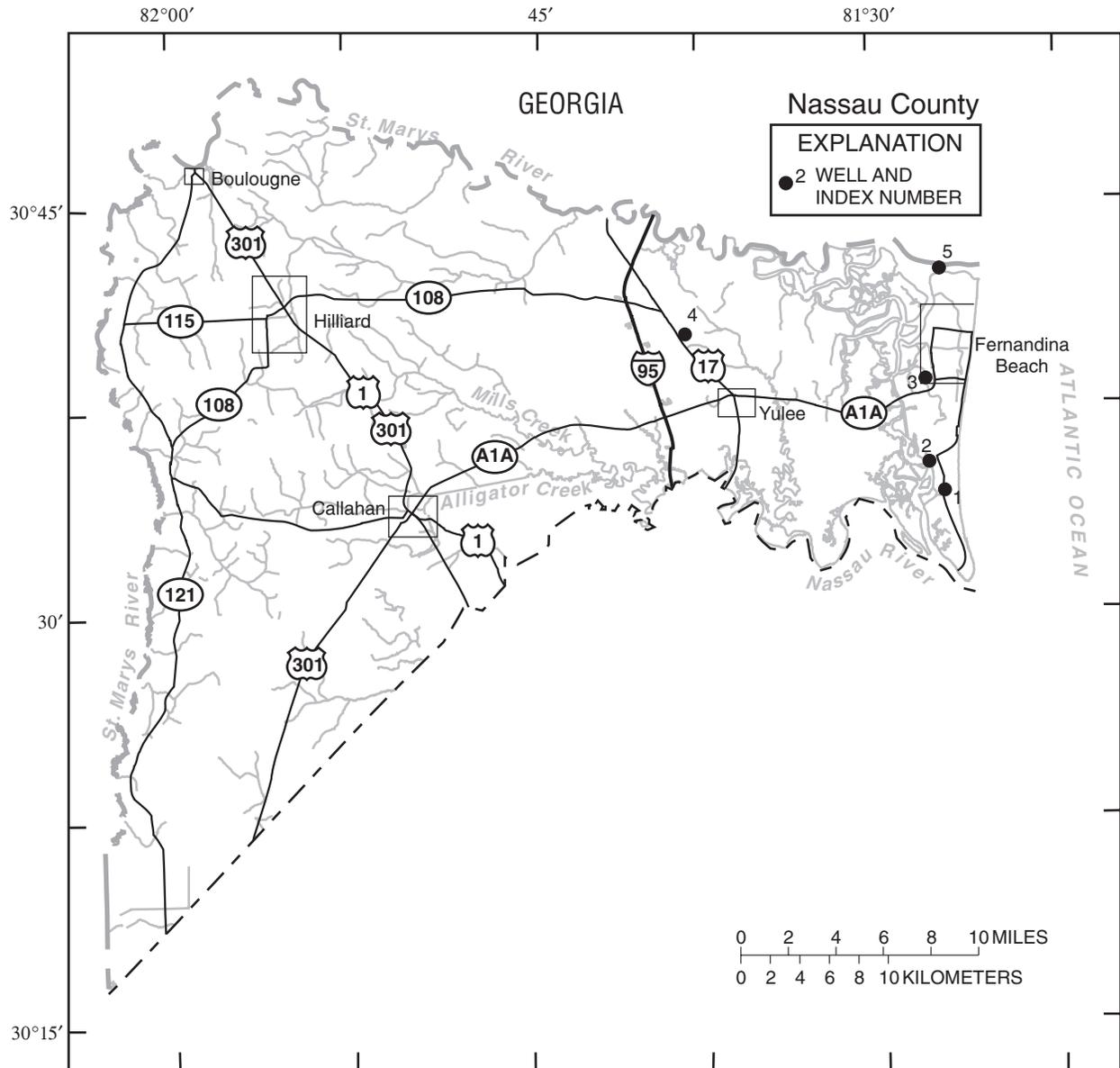


Figure 17.--Location of wells in Nassau County.

## NASSAU COUNTY

**WELL NUMBER.--303435081271401. Local Number N-46. Amelia Island Corporation Well at Amelia City, FL.**

LOCATION.--Lat 30°34'35", long 81°27'14", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.14, T.2 N., R.28 E., Hydrologic Unit 03070205 at Amelia Island waterworks, 200 ft east of water storage tanks, and 1.1 mi south of intersection of State Highways A1A and 105A at Amelia City. Owner: Amelia Island Corporation.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, commercial, artesian well, diameter 12 in., depth 1,016 ft, cased to 492 ft.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975-78, 1983-89 (varied frequencies); 1996 to current year (quarterly).

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Color, water, fltrd, Pt-Co units (00080)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unfiltered, uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfiltered end pt, lab, mg/L as CaCO3 (90410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)
OCT 25...	1100	<5	7.7	598	23.0	270	56.0	31.0	2.00	18.0	149	23.0	0.7
JAN 30...	1300	<5	7.5	597	23.0	280	59.0	31.0	1.90	17.0	145	23.0	0.6
APR 23...	1045	<5	7.3	598	23.0	270	56.0	31.0	1.90	17.0	147	23.0	0.6
JUL 29...	1015	10	7.3	597	25.0	270	58.1	31.1	2.01	17.2	148	23.0	0.6

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Strontium, water, fltrd, ug/L (01080)
OCT 25...	31.0	120	388	540
JAN 30...	32.0	120	394	560
APR 23...	31.0	120	389	540
JUL 29...	33.7	121	413	573

## NASSAU COUNTY—Continued

**WELL NUMBER.--303518081275002. Local Number N-130 Well at Amelia City, FL.**

LOCATION.--Lat 30°35'18", long 81°27'50", in land grant 12, T.2 N., R.28 E., Hydrologic Unit 03070205, at McCranie residence on Forrest Drive, 0.4 mi west of State Highway A1A at Amelia City. Owner: Mr. Crider.

AQUIFER.--Floridan aquifer system of Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 4 in., depth 600 ft, cased to 515 ft.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 14.76 ft above NGVD of 1929. Measuring point: Top of reducer bushing, 1.0 ft above land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells. Record is equivalent to that for N-3 (303518081275001), available March 1939 to January 2000.

PERIOD OF RECORD.--March 2000 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.36 ft above NGVD of 1929, Mar. 25, 2003; lowest measured, 16.15 ft above NGVD of 1929, May 22, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	23.76	JAN 27	25.96	APR 28	25.36	JUN 23	22.56	SEP 15	25.26
NOV 25	24.46	FEB 24	27.96	MAY 19	23.26	JUL 28	24.66	22	21.96
DEC 19	26.76	MAR 25	28.36	28	21.66	AUG 25	24.66		
WATER YEAR 2003		LOWEST	21.66	MAY 28, 2003	HIGHEST	28.36	MAR 25, 2003		

**WELL NUMBER.--303823081273304. Local Number N-62. ITT Rayonier No. 8 Well at Fernandina Beach, FL.**

LOCATION.--Lat 30°38'23", long 81°27'33", in land grant 30, T.3 N., R.28 E., Hydrologic Unit 03070205, 30 ft west of State Highway A1A, and 200 ft north of intersection of State Highways A1A and 108, in Fernandina Beach. Owner: St. Johns River Water Management District.

AQUIFER.--Floridan aquifer system of Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 12 in., depth 1,020 ft, cased to 565 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Land-surface datum is 17.60 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 3.36 ft above land-surface datum.

REMARKS.--Well originally drilled to 2,130 ft in 1945, later reconstructed to 1,020 ft in 1991.

PERIOD OF RECORD.--November 1994 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 13.23 ft above NGVD of 1929, Feb. 25,26, 2001; lowest, 30.01 ft below NGVD of 1929, June 25, 1999.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	-12.46	-8.41	-6.81	-1.75	-0.02	8.84	-3.65	-5.51	-5.42	-6.39	-7.72	-3.42
10	-11.66	-8.26	-3.35	-1.88	4.01	12.21	-3.29	-6.10	-4.69	-9.29	-5.15	-3.03
15	-10.18	-7.46	-4.44	-0.14	2.47	1.11	-4.12	-6.04	-6.04	-6.44	-6.02	-3.61
20	-9.61	-6.74	-5.23	-4.16	1.15	1.51	-5.80	-5.25	-6.89	-8.32	-6.51	-4.53
25	-7.59	-6.84	-4.58	-3.13	-3.04	2.08	-5.87	-5.50	-8.47	-6.84	-5.69	-2.70
EOM	-8.54	-6.93	-6.20	-5.08	-2.20	-3.06	-4.88	-6.91	-8.56	-7.45	-4.87	-1.70
MAX	-6.55	-6.02	-2.80	-0.14	4.65	13.13	-3.01	-4.90	-3.07	-5.98	-4.21	-1.42

Note.--Negative figures indicate water level below NGVD of 1929.

## NASSAU COUNTY—Continued

**WELL NUMBER.--304005081380201. Local Number N-121. Becker Oil Test Supply Well near Yulee, FL.**

LOCATION.--Lat 30°40'05", long 81°38'02", in land grant 50, T.3 N., R.27 E., Hydrologic Unit 03070205, 0.2 mi east of Yulee Fire Tower, 0.42 mi southeast of intersection of U.S. Highway 17 and Parker Road, and 3.0 mi northwest of Yulee. Owner: ITT Rayonier Incorporated.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 4 in., depth 645 ft, cased to 460 ft.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 21.95 ft above NGVD of 1929. Prior to September 2002, land-surface datum was 0.08 ft higher. Measuring point: Top of casing, 1.82 ft above land-surface datum. Prior to September 2002 measuring point 1.45 ft above land-surface datum.

REMARKS.--Record is equivalent to that for N-53 (304002081381201), available February 1940 to June 1994.

PERIOD OF RECORD.--May 1984, August 1985, August 1994 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 36.77 ft above NGVD of 1929, Apr. 25, 2003; lowest measured, 23.23 ft above NGVD of 1929, July 24, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	30.32	JAN 27	34.22	MAY 19	34.27	JUL 28	35.17	SEP 22	35.97
NOV 25	31.42	FEB 24	35.12		27	AUG 25	35.77		
DEC 19	33.42	APR 25	36.77	JUN 23	35.27	SEP 15	35.27		
WATER YEAR 2003		LOWEST	30.32	OCT 28, 2002	HIGHEST	36.77	APR 25, 2003		

**WELL NUMBER.--304213081270801. Local Number N-19. Fort Clinch State Park Well at Fernandina Beach, FL.**

LOCATION.--Lat 30°42'13", long 81°27'08", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.12, T.3 N., R.28 E., Hydrologic Unit 03070204, at picnic area in Fort Clinch State Park at Fernandina Beach. Owner: Florida Department of Environmental Protection.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 5 in., depth 710 ft, casing length unknown.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Land-surface datum is 8.41 ft above NGVD of 1929. Measuring point: Top of 5 in. casing, 1.00 ft above land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells.

PERIOD OF RECORD.--May 1974, December 1974 to December 1975 (monthly); May 1977 to September 1978 (semiannually); April 1979 to September 1981 (bimonthly); May 1982 to September 1985 (semiannually); October 1985 to November 1985 (bimonthly); December 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 9.33 ft above NGVD of 1929, Apr. 27, 1998, Feb. 27, 28, Mar. 1, 2001; lowest water level measured, 30.30 ft below NGVD of 1929, Sept. 25, 1978.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	-8.17	-2.22	-0.88	-2.23	4.33	0.44	1.77	-1.30	-2.01	-1.85	0.42	0.66
10	-7.32	1.06	-1.23	-1.94	---	2.20	-0.29	-1.67	-1.37	-2.37	-0.73	0.28
15	-6.42	0.03	-2.69	-0.12	---	0.71	-0.36	-0.85	-1.82	-2.48	-1.30	-0.06
20	-4.86	0.31	-3.55	-0.66	---	0.29	-1.42	-1.78	-1.43	-1.66	-1.90	-1.03
25	-3.96	1.20	-2.62	-0.98	0.36	0.00	-0.39	-2.74	-2.05	0.89	-0.81	-1.69
EOM	-2.64	-0.46	-2.53	0.30	-0.62	0.95	-0.45	-1.02	-2.42	-0.25	-0.20	-0.83
MAX	-2.64	1.95	-0.15	0.32	---	2.20	1.83	-0.59	-0.93	1.50	0.90	1.12

Note.--Negative figures indicate water level below NGVD of 1929.

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
 OCTOBER 2002 TO SEPTEMBER 2003

159

NASSAU COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
302409081551603	05-19-03 09-19-03	0845 0955	N-0237 CAREY STATE FORREST	41.24 41.66
303357081295601	05-27-03 09-15-03	1330 1105	N-119 CHARLES ALLEN WELL N-100 SUB	34.67 32.47
303541081495001	05-19-03 09-15-03	0910 0915	N-0220 NASSAU COUNTY FAIRGROUNDS	44.45 43.65
303939081312601	05-19-03 09-15-03	1140 1050	N-20	10.42 10.10
304658081571201	05-19-03 09-15-03	0935 0945	N-0221	42.78 42.87

KEY TO SITE LOCATIONS ON FIGURE 18  
OKEECHOBEE COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	273127080481401	162

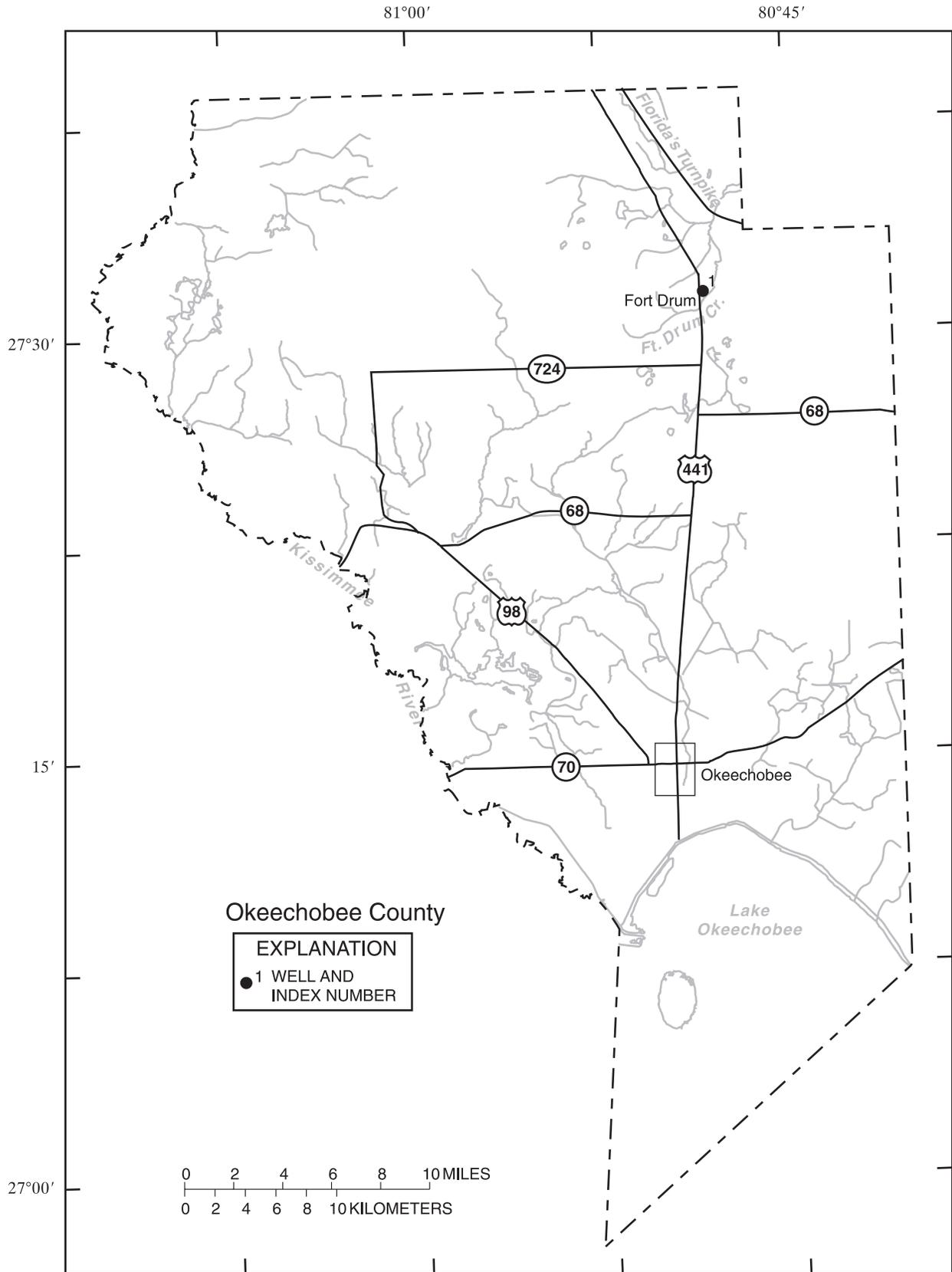


Figure 18.--Location of wells in Okeechobee County.

## OKEECHOBEE COUNTY

**WELL NUMBER.--273127080481401. OK-1 Well at Fort Drum, FL.**

LOCATION.--Lat 27°31'27", long 80°48'14", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.11, T.34 S., R.35 E., Hydrologic Unit 03080101, 200 ft south of dirt road, 0.2 mi east of U.S. Highway 441 at Fort Drum, and 13.4 mi south of State Road 60. Owner: Charles Pierce.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 8 in., depth 960 ft, casing length unknown.

INSTRUMENTATION.--Monthly measurement with chalked tape.

DATUM.--Land-surface datum is 55.67 ft above NGVD of 1929. Measuring point: Top of casing, 0.3 ft above land-surface datum. Prior to Oct. 1, 1990 miscellaneous readings published at datum 0.53 higher.

PERIOD OF RECORD.--May 1976, May 1977 to September 1985 (semiannually); October 1985 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 50.66 ft above NGVD of 1929, Sept. 18, 1985; lowest measured, 38.91 ft above NGVD of 1929, May 8, 1976, Apr. 27, 1999.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	44.46	JAN 27	43.72	APR 28	43.76	JUN 23	44.10	SEP 17	45.83
NOV 21	43.83	FEB 24	44.11	MAY 20	42.23	JUL 28	44.66	22	45.48
DEC 30	45.13	MAR 24	44.82	27	42.90	AUG 27	45.61		
WATER YEAR 2003		LOWEST	42.23	MAY 20, 2003	HIGHEST	45.83	SEP 17, 2003		

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
 OCTOBER 2002 TO SEPTEMBER 2003

163

OKEECHOBEE COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEV- ATION ABOVE NGVD (FEET)
271340080504001	05-19-03 09-17-03	1311 0936	OKF-31	49.32 52.02
272010080550801	05-20-03	0926	DIXIE RANCH (OKF-17)	40.73
272158080470901	09-16-03	0848	JONES WELL S DARK HAMMOCK RD (OKF-7)	46.87
272354080524201	05-20-03 09-18-03	0939 1021	MACARTHUR TRAILER PASTURE 12IN UFA NR BASINGER FL	39.79 42.87
272704081053501	09-16-03	0947	727105--	48.42
272726081003901	09-16-03	0919	727100-- 35S33E02 BASS WELL N OF BASINGER	47.86
273007081114601	05-19-03 09-15-03	1030 1130	OKF-42 EXP WELL S65C	45.00 48.10
273028080542101	05-20-03 09-17-03	1101 1542	WILLAWAY CATTLE CO 12IN UFA NR FORT DRUM FL	45.35 48.51
273217081012601	09-17-03	1058	PEAVINE TRAIL W (OKF-34)	47.81

KEY TO SITE LOCATIONS ON FIGURE 19  
 ORANGE COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	282051081183401	166
2	282202081384601	166
2	282202081384602	167
3	282210081352601	167
4	282341081040101	168
5	282348080564701	169
6	282406081093602	169
7	282434081283102	170
8	282510081054502	170
8	282510081054503	171
9	282528081340901	171
10	282531081054301	172
11	282531081095701	173
12	282532081075601	174
13	282533081082202	175
13	282533081082204	176
13	282533081082205	177
13	282533081082206	178
14	282623081153801	179
15	282738081341401	179
16	282739081054501	180
17	282835081305201	180
18	282847081013701	181
18	282847081013702	182
19	283249081053201	183
19	283249081053202	184
19	283249081053203	184
20	283253081283401	185
21	283333081233501	185
21	283333081233502	186

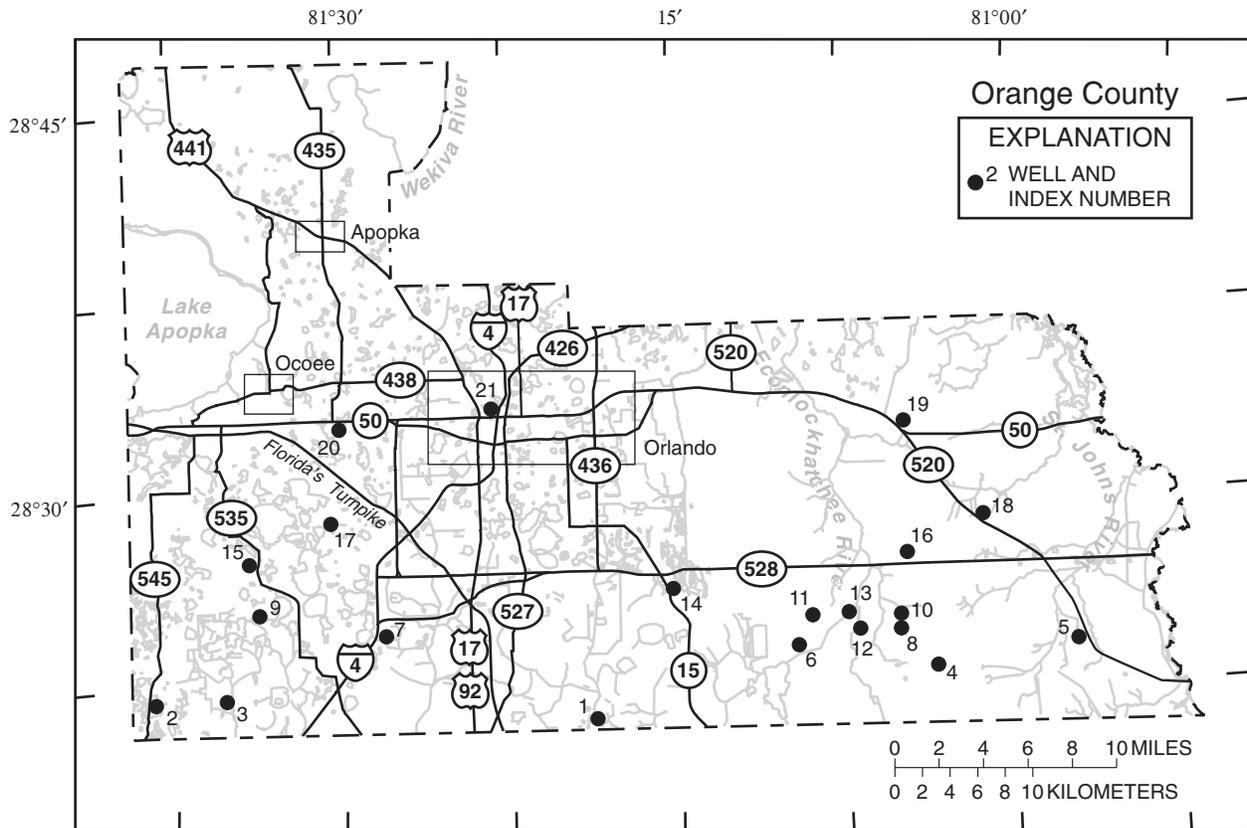


Figure 19.--Location of wells in Orange County.

## ORANGE COUNTY

**WELL NUMBER.--282051081183401. Boggy Creek Road Well at county line near Taft, FL.**

LOCATION.--Lat 28°20'51", long 81°18'34", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.34, T.24 S., R.30 E., Hydrologic Unit 03090101, 40 ft east of Boggy Creek Road (County Road 527A) and 30 ft north of intersection of County Roads 527A and 530. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 4 in., depth 400 ft, cased to 199 ft.

INSTRUMENTATION.--Water-stage recorder and data-collection platform--60-minute interval.

DATUM.--Elevation of land-surface datum is 74.70 ft above NGVD of 1929. Measuring point: Top of flange, 3.25 ft above land-surface datum. Prior to January 2001 measuring point top of casing 3.00 ft above land-surface datum.

PERIOD OF RECORD.--June 1961 to May 1974 (miscellaneous measurements); May 1977 to September 1991 (semiannually); October 1991 to December 2001 (monthly); January 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 53.92 ft above NGVD of 1929, Dec. 12, 1963, lowest measured, 34.92 ft above NGVD of 1929, May 22, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	48.35	47.12	47.32	50.08	48.14	48.74	48.88	47.38	45.77	48.14	48.78	50.03
10	47.70	47.22	48.01	50.02	48.31	48.80	48.48	46.49	46.59	47.91	48.37	50.05
15	47.76	47.26	49.04	49.60	48.24	48.82	48.10	45.81	46.60	47.78	48.35	49.69
20	47.50	47.67	49.24	49.09	48.10	48.99	47.49	45.24	47.00	48.10	---	49.22
25	47.23	47.46	49.49	48.68	48.32	49.19	47.04	45.97	47.67	48.06	49.86	48.73
EOM	47.20	47.24	49.58	48.25	48.48	49.10	47.13	45.72	47.66	---	49.89	49.34
MAX	48.73	47.80	49.58	50.10	48.52	---	49.00	47.41	47.69	---	---	50.14

**WELL NUMBER.--282202081384601. Lake Oliver Deep Well near Vineland, FL.**

LOCATION.--Lat 28°22'02", long 81°38'46", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.30, T.24 S., R.27 E., Hydrologic Unit 03090101, on west side of State Highway 545, 1.4 mi north of U.S. Highway 192, and 15.0 mi west of Vineland. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 318 ft, cased to 103 ft.

INSTRUMENTATION.--Water-stage recorder and data-collection platform--30-minute interval.

DATUM.--Elevation of land-surface datum is 117.12 ft above NGVD of 1929. Measuring point: Top of 6 in. nipple, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--February 1959 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 112.73 ft above NGVD of 1929, Sept. 13, 1960; lowest, 103.48 ft above NGVD of 1929, May 19, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	110.72	110.23	109.83	111.43	110.46	110.15	109.88	109.44	109.35	110.06	111.45	111.57
10	110.51	110.17	110.56	111.26	110.50	110.15	109.81	109.27	109.55	109.89	111.65	111.37
15	110.74	110.11	111.29	111.02	110.31	110.08	109.64	108.98	110.02	110.06	111.44	111.10
20	110.50	110.26	111.20	110.67	110.19	109.96	109.50	109.12	110.08	110.36	111.87	110.80
25	110.41	110.08	111.14	110.43	110.15	110.19	109.39	109.43	110.17	110.37	112.00	110.74
EOM	110.45	109.94	111.19	110.54	110.12	110.00	109.51	109.12	110.13	110.69	111.66	110.72
MAX	110.93	110.43	111.29	111.54	110.53	110.21	109.97	109.57	110.23	110.69	112.09	---

## ORANGE COUNTY—Continued

**WELL NUMBER.--282202081384602. Lake Oliver Shallow Well near Vineland, FL.**

LOCATION.--Lat 28°22'02", long 81°38'46", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.30, T.24 S., R.27 E., Hydrologic Unit 03090101, on west side of State Highway 545, 1.4 mi north of U.S. Highway 192, and 15.0 mi west of Vineland. Owner: U.S. Geological Survey.

AQUIFER.--Nonartesian sand aquifer of the Tertiary Quaternary Age, Geologic Unit 112 NRS D.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 4 in., depth 38 ft, revised, well deepened June 1982.

INSTRUMENTATION.--Water-stage recorder and data-collection platform--30-minute interval.

DATUM.--Elevation of land-surface datum is 117.06 ft above NGVD of 1929. Measuring point: Top of 4 in. coupling, 2.48 ft above land-surface datum.

PERIOD OF RECORD.--April 1959 to December 1969; January 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 115.54 ft above NGVD of 1929, Sept. 10, 1960; lowest, 106.16 ft, above NGVD of 1929, June 14, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	113.55	113.46	113.21	114.50	113.57	113.28	113.17	112.72	112.67	113.25	115.07	114.44
10	113.44	113.37	114.34	114.22	113.50	113.38	113.09	112.60	112.77	113.10	114.83	114.26
15	113.90	113.31	114.71	114.01	113.44	113.25	112.96	112.56	113.27	113.29	114.46	114.06
20	113.57	113.49	114.25	113.88	113.38	113.19	112.87	112.51	113.30	113.65	115.30	113.89
25	113.62	113.31	114.31	113.76	113.34	113.48	112.76	112.88	113.33	113.82	115.19	113.78
EOM	113.58	113.24	114.60	113.66	113.31	113.28	112.76	112.57	113.31	114.12	114.64	113.79
MAX	113.97	113.59	114.99	115.03	113.63	113.48	113.24	112.94	113.46	114.12	115.37	---

**WELL NUMBER.--282210081352601. Disney Shallow Well at Tree Farm near Vineland, FL.**

LOCATION.--Lat 28°22'10" long 81°35'26", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.26, T.24 S., R.27 E., Hydrologic Unit 03090101, at Walt Disney World tree farm, 2.5 mi south of State Highway 405, and 5.6 mi southwest of Vineland. Owner: U.S. Geological Survey.

AQUIFER.--Nonartesian sand aquifer of the Pleistocene Age, Geologic Unit 112 NRS D.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 6 in., depth 18 ft, cased to 18 ft.

INSTRUMENTATION.--Water-stage recorder--30-minute interval.

DATUM.--Elevation of land-surface datum is 99.44 ft above NGVD of 1929. Prior to Oct. 1, 1977, land-surface datum was considered to be 99 ft, from topographic map. Measuring point: Top of casing, 2.90 ft above land-surface datum.

PERIOD OF RECORD.--March 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 99.91 ft above NGVD of 1929, Nov. 3, 1987; well observed dry many days in December 1995.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	97.75	---	96.22	98.24	96.38	96.15	97.08	96.81	95.90	97.70	99.42	97.97
10	---	---	98.25	97.91	96.15	97.08	96.37	95.99	97.22	97.28	98.96	97.81
15	---	---	98.49	97.63	96.06	96.84	96.01	95.78	97.26	97.39	98.63	97.58
20	---	---	98.44	97.41	95.99	97.06	95.85	95.71	97.47	98.08	99.06	97.43
25	---	97.21	99.04	97.22	96.16	97.59	95.78	96.10	97.49	98.67	98.63	97.28
EOM	---	97.08	99.49	97.03	96.15	97.37	97.12	95.91	97.70	98.52	98.17	97.76
MAX	---	---	99.61	99.75	96.98	97.61	97.25	97.17	97.70	98.77	99.60	98.13

## ORANGE COUNTY—Continued

**WELL NUMBER.--282341081040101. Cocoa-A Well near Bithlo, FL.**

LOCATION.--Lat 28°23'41", long 81°04'01", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.13, T.24 S., R.32 E., Hydrologic Unit 03080101, in Cocoa well field, 100 ft west of Cocoa Water Plant Road, 7 mi west of State Highway 520, and 11.3 mi south of Bithlo. Owner: City of Cocoa.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 10 in., depth 516 ft, cased to 301 ft.

## WATER LEVEL RECORDS

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 75.06 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 2.71 ft above land-surface datum.

PERIOD OF RECORD.--March 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 43.59 ft above NGVD of 1929, Sept. 30, Oct. 17, 1960; lowest, 29.01 ft above NGVD of 1929, June 10, 2000.

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1970-72, 1992 to current year.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	36.64	35.99	36.19	37.70	36.62	37.07	37.39	36.02	34.88	36.42	37.07	38.04
10	36.40	35.96	36.58	37.81	36.65	37.08	37.32	35.61	35.29	36.40	37.32	38.12
15	36.45	35.85	36.92	37.63	36.59	37.16	36.80	34.99	35.50	36.33	37.42	37.95
20	36.24	36.07	37.28	37.31	36.59	37.36	36.43	34.58	35.70	36.50	37.55	37.74
25	36.20	36.13	37.54	36.69	36.72	37.42	36.14	34.82	36.10	36.55	37.78	37.59
EOM	36.09	36.21	38.01	36.70	36.88	37.42	35.96	34.94	36.25	36.76	37.81	37.76
MAX	36.75	36.29	38.01	37.81	36.97	37.66	37.45	36.06	36.27	36.76	37.87	38.12

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unfl- uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfl- fixed end pt, lab, mg/L as CaCO3 (90410)	ANC, wat unfl- incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)
NOV 26...	0935	--	1,300	24.0	--	--	--	--	--	--	--	190	--
DEC 31...	0950	--	1,430	23.9	--	--	--	--	--	--	--	220	--
MAY 12...	1200	7.3	1,280	24.0	390	122	19.0	3.70	120	266	261	200	0.4

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
MAY 12...	26.0	92.0	802	2,330

## ORANGE COUNTY—Continued

**WELL NUMBER.--282348080564701. Palmetto Well near Bithlo, FL.**

LOCATION.--Lat 28°23'48", long 80°56'47", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.18, T.24 S., R.34 E., Hydrologic Unit 03080101, 50 ft west of State Road 520, 5 mi southeast of BeeLine Expressway. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 3 in., depth 381 ft, cased to 245 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape.

DATUM.--Land-surface datum is 40.62 ft above NGVD of 1929. Measuring point: Top of casing, 4.60 ft above land-surface datum. Prior to March 25, 2002 top of casing was 0.33 ft lower.

PERIOD OF RECORD.--October 1960 to September 1991 (semiannually); October 1991 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 42.32 ft above NGVD of 1929, Oct. 25, 1960; lowest measured, 29.44 ft above NGVD of 1929, June 27, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	35.63	JAN 27	35.84	APR 28	35.33	JUN 23	35.48	SEP 16	37.37
NOV 26	35.74	FEB 24	36.03	MAY 20	34.11	JUL 28	36.10	22	37.02
DEC 31	36.94	MAR 24	36.85	27	34.26	AUG 25	37.10		
WATER YEAR 2003		LOWEST	34.11	MAY 20, 2003	HIGHEST	37.37	SEP 16, 2003		

**WELL NUMBER.--282406081093602. Cocoa R near Bithlo, FL.**

LOCATION.--Lat 28°24'06" long 81°09'36", in SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.18, T.24 S., R.32 E., Hydrologic Unit 03090101, in Cocoa Well field, 50 ft west of private road, 2.5 mi southwest of Magnolia Ranch headquarters and 1.8 mi south of Wewahootee Road. Owner: City of Cocoa.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 1205 ft, cased to 1098 ft.

INSTRUMENTATION.--Quarterly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 68.20 ft above NGVD of 1929. Measuring point: Top of threaded coupling, 2.42 ft above land-surface datum.

PERIOD OF RECORD.--September 1993 to February 1999 (monthly); March 1999 to September 2001 (bimonthly); October 2001 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 39.40 ft above NGVD of 1929, Feb. 25, 1998; lowest measured, 29.90 ft above NGVD of 1929, May 23, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	35.37	FEB 06	36.46	APR 28	36.17	MAY 13	34.82	AUG 06	37.06
WATER YEAR 2003		LOWEST	34.82	MAY 13, 2003	HIGHEST	37.06	AUG 06, 2003		

ORANGE COUNTY—Continued

**WELL NUMBER.--282434081283102. Sea World Drive Replacement Well near Vineland, FL.**

LOCATION.--Lat 28°24'34", long 81°28'31", in NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.11, T.24 S., R.28 E., Hydrologic Unit 03090101, on west side of Interstate Highway 4, 2.0 mi northeast of Vineland. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 4 in., depth 239 ft, cased to 158 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 103.16 ft above NGVD of 1929. Measuring point: Top of coupling, 4.00 ft above land-surface datum.

REMARKS.--Record is equivalent to that for Sea World Drive Well (282434081283101), available October 1980 to September 1989.

PERIOD OF RECORD.--October 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 67.83 ft above NGVD of 1929, Mar. 2, 3, 1998; lowest water level measured, 49.57 ft above NGVD of 1929, May 27, 2000, may have been lower during period of missing record, May-June 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	60.59	63.96	61.92	62.24	---	---	57.47	60.99	---	64.81
10	---	---	61.74	64.47	61.47	62.22	---	---	59.53	60.46	---	64.97
15	---	---	63.44	64.13	61.53	61.94	---	---	59.40	60.10	---	63.96
20	---	---	63.94	63.67	62.10	---	---	57.88	60.32	61.37	---	62.56
25	---	60.74	64.03	62.66	62.45	---	---	58.88	61.39	61.10	---	61.65
EOM	---	60.33	63.38	62.59	61.79	---	---	57.77	60.60	---	64.50	62.94
MAX	---	---	64.03	64.56	62.57	---	---	---	61.40	---	---	65.12

**WELL NUMBER.--282510081054502. Cocoa-M Well near Bithlo, FL.**

LOCATION.--Lat 28°25'10", long 81°05'45", in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.10, T.24 S., R.32 E., Hydrologic Unit 03080101, in Cocoa well field, 300 ft southwest of intersection of private road and Wewahootee Road, and 9.1 mi south of Bithlo. Owner: City of Cocoa.

AQUIFER.--Nonartesian sand of the Surficial Aquifer System, Geologic Unit 112 NRSD.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 6 in., depth 10 ft, cased to 10 ft.

INSTRUMENTATION.--Quarterly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 70.81 ft above NGVD of 1929. Measuring point: Bolt hole in cap, 3.15 ft above land-surface datum.

PERIOD OF RECORD.--February 1969 to January 1977; February 1977 to April 1999 (monthly); May 1999 to August 2000 (bimonthly); November 2000 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 69.94 ft above NGVD of 1929, Nov. 4, 1969; well observed dry August 1981, July 1982, August, October 1984, April 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	65.40	FEB 06	66.51	APR 22	66.58	MAY 13	65.94	AUG 06	68.82
WATER YEAR 2003		LOWEST	65.40	NOV 12, 2002	HIGHEST	68.82	AUG 06, 2003		

## ORANGE COUNTY—Continued

**WELL NUMBER.--282510081054503. Cocoa-1T Well near Bithlo, FL.**

LOCATION.--Lat 28°25'10", long 81°05'45", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.10, T.24 S., R.32 E., Hydrologic Unit 03080101, in Cocoa well field, 300 ft southwest of intersection of private road and Wewahootee Road, and 9.1 mi south of Bithlo. Owner: City of Cocoa.

AQUIFER.--Hawthorn sand and gravel of the Intermediate Aquifer System, Geologic Unit 122 HTRNS.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 12 in., depth 200 ft, cased to 85 ft.

INSTRUMENTATION.--Quarterly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 71.19 ft above NGVD of 1929. Measuring point: Top of casing, 1.00 ft above land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells.

PERIOD OF RECORD.--September 1969 to March 1970; January 1971 to April 1999 (monthly); May 1999 to August 2000 (bimonthly); October 2000 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 65.54 ft above NGVD of 1929, Oct. 1, 1982; lowest measured 44.55 ft above NGVD of 1929, June 7, 1971.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	45.39	FEB 06	46.47	APR 22	47.14	MAY 13	46.46	AUG 06	63.04
WATER YEAR 2003		LOWEST	45.39	NOV 12, 2002	HIGHEST	63.04	AUG 06, 2003		

**WELL NUMBER.--282528081340901. Bay Lake Deep Well near Windermere, FL.**

LOCATION.--Lat 28°25'28", long 81°34'09", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.1, T.24 S., R.27 E., Hydrologic Unit 03090101, on north shore of Bay Lake, 0.8 mi northeast of Magic Kingdom Theme Park, and 5.3 mi southwest of Windermere. Owner: Reedy Creek Improvement District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 8 in., depth 223 ft, cased to 104 ft.

INSTRUMENTATION.--Water-stage recorder and data-collection platform--15-minute interval.

DATUM.--Elevation of land-surface datum is 97.10 ft above NGVD of 1929. Measuring point: Top of casing, 4.00 ft above land-surface datum.

PERIOD OF RECORD.--March 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 96.91 ft above NGVD of 1929, Oct. 31, 1966; lowest, 77.37 ft above NGVD of 1929, June 10, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	87.91	87.48	87.42	89.87	89.48	89.05	88.29	87.39	86.39	87.68	88.77	90.83
10	87.20	87.36	88.45	90.09	89.51	88.98	87.91	86.73	87.24	87.16	89.41	90.86
15	87.25	87.34	89.43	90.11	89.15	88.69	87.25	85.86	87.06	87.27	89.47	90.05
20	87.18	87.97	89.54	89.50	88.45	88.66	86.70	86.10	87.26	87.72	89.82	89.18
25	87.36	87.49	89.52	88.73	89.08	88.93	86.34	86.90	87.61	87.67	90.51	88.90
EOM	87.82	87.16	89.15	89.38	88.73	88.70	87.22	86.10	87.33	88.15	90.59	89.52
MAX	88.59	88.16	89.77	90.54	89.51	89.06	88.69	87.72	87.76	88.15	---	91.02

## ORANGE COUNTY—Continued

**WELL NUMBER.--282531081054301. Cocoa-O Well near Bithlo, FL.**

LOCATION.--Lat 28°25'31", long 81°05'43", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.2, T.24 S., R.32 E., Hydrologic Unit 03080101, in Cocoa well field, 225 ft east of private road (abandoned FEC Railroad grade owned by Magnolia Ranch), 0.3 mi north of Wewahootee Road, 1.6 mi south of State Highway 528, and 8.6 mi south of Bithlo. Owner: U.S. Geological Survey.

AQUIFER.--Hawthorn sand and gravel of the Intermediate Aquifer System, Geologic Unit 122 HTRNS.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 90 ft, cased to 70 ft.

INSTRUMENTATION.--Quarterly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 68.60 ft above NGVD of 1929. Measuring point: Top of 4 in. casing, 3.00 ft above land-surface datum.

REMARKS.--Water level affected by pumping of nearby well.

PERIOD OF RECORD.--February 1970 to April 1999 (monthly); May 1999 to September 2001 (bimonthly); October 2001 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 67.77 ft above NGVD of 1929, Oct. 1, 1982; lowest measured, 8.25 ft above NGVD of 1929, April 23, 2001.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	9.96	FEB 06	10.76	APR 22	11.33	MAY 13	11.03	AUG 06	63.28
WATER YEAR 2003		LOWEST	9.96	NOV 12, 2002	HIGHEST	63.28	AUG 06, 2003		

ORANGE COUNTY—Continued

**WELL NUMBER.--282531081095701. Cocoa-D Well near Narcoossee, FL.**

LOCATION.--Lat 28°25'31", long 81°09'57", in NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.1, T.24 S., R.31 E., Hydrologic Unit 03080101, in Cocoa well field, on south side of Wewahootee Road, 5.1 mi west of State Highway 15, 2.5 mi west of Magnolia Ranch headquarters, and 9.7 mi northeast of Narcoossee. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 300 ft, cased to 226 ft.

WATER LEVEL RECORDS

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 75.91 ft above NGVD of 1929. Measuring point: Top of shelf, 3.63 ft above land-surface datum.

PERIOD OF RECORD.--July 1961 to October 1965 (bimonthly); November 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 45.04 ft above NGVD of 1929, Dec. 12, 1963; lowest daily maximum water level, 25.97 ft above NGVD of 1929, June 6, 2000.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1961, 1968, 1980, 1992 to current year.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	35.99	34.24	33.81	36.32	35.90	37.68	37.16	35.51	36.11	36.96	37.00	38.96
10	36.47	34.53	35.50	37.13	36.10	37.68	37.91	35.81	35.83	35.42	38.18	38.27
15	36.84	34.06	37.25	37.15	36.11	37.53	36.83	33.95	36.32	36.31	37.69	37.54
20	35.14	35.18	36.90	36.99	36.03	37.02	35.31	33.24	37.08	37.43	38.19	38.06
25	34.56	33.75	37.55	36.69	37.41	38.73	36.29	34.34	37.10	36.92	38.38	37.60
EOM	35.92	34.81	37.29	36.89	37.55	37.75	37.16	34.83	35.51	37.03	37.20	39.55
MAX	36.84	36.31	37.91	37.86	37.81	39.22	38.74	37.27	37.58	37.98	38.72	39.55

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)
MAY 12...	0957	7.5	614	23.5	300	113	3.50	1.00	20.0	327	326	11.0	0.2
						Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)				
MAY 12...						31.0	0.20	381	490				

## ORANGE COUNTY—Continued

**WELL NUMBER.--282532081075601. Cocoa-B Well near Bithlo, FL.**

LOCATION.--Lat 28°25'32", long 81°07'56", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.5, T.24 S., R.32 E., Hydrologic Unit 03080101, in Cocoa well field, on south side of Wewahootee Road, 7.1 mi west of State Highway 15, 10.1 mi south of Bithlo. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 515 ft, cased to 235 ft.

INSTRUMENTATION.--Quarterly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 62.15 ft above NGVD of 1929. Measuring point: Top of casing, 3.70 ft above land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells.

PERIOD OF RECORD.--January 1965 (annually); October 1965 to July 1968; August 1968 to April 1999 (monthly); May 1999 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 42.37 ft above NGVD of 1929, June 23, 1966; lowest water level measured, 21.42 ft above NGVD of 1929, Aug. 5, 1981.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	33.87	FEB 06	34.83	APR 22	35.65	MAY 12	33.53	AUG 06	36.69
WATER YEAR 2003		LOWEST	33.53	MAY 12, 2003	HIGHEST	36.69	AUG 06, 2003		



ORANGE COUNTY—Continued

**WELL NUMBER.--282533081082204. Cocoa-C (Zone 3) Well near Bithlo, FL.**

LOCATION.--Lat 28°25'33", long 81°08'22", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.5, T.24 S., R.32 E., Hydrologic Unit 03080101, in Cocoa well field, 10 ft north of Wewahootee Road, 6.6 mi east of State Highway 15, and 10 mi south of Bithlo. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 1.25 in., depth 1,224 ft, cased to 1,218 ft.

WATER LEVEL RECORDS

INSTRUMENTAION.--Quarterly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 63.77 ft above NGVD of 1929. Measuring point: Top of male quick connect coupling 2.81 ft above land-surface datum.

PERIOD OF RECORD.--February 1966 to April 1999 (monthly); May 1999 to August 2000 (bimonthly); November 2000 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 42.27 ft above NGVD of 1929, Feb. 2, 1970; lowest measured, 32.23 ft above NGVD of 1929, April 28, 1999.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966 to current year.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	36.98	FEB 06	37.70	APR 22	37.68	MAY 13	36.55	AUG 06	38.23
WATER YEAR 2003		LOWEST	36.55	MAY 13, 2003	HIGHEST	38.23	AUG 06, 2003		

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfix ed end pt, lab, mg/L as CaCO3 (90410)	ANC, wat unfix ed titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)
MAY 13...	0730	8.1	877	23.0	360	111	17.0	2.30	47.0	199	205	80.0	0.2

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
MAY 13...	20.0	130	606	9,990

ORANGE COUNTY—Continued

**WELL NUMBER.--282533081082205. Cocoa-C (Zone 4) Well near Bithlo, FL.**

LOCATION.--Lat 28°25'33", long 81°08'22", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.5, T.24 S., R.32 E., Hydrologic Unit 03080101, in Cocoa well field, 10 ft north of Wewahootee Road, 6.6 mi east of State Highway 15, and 10.0 mi south of Bithlo. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 1.25 in., depth 1,050 ft, cased to 1,044 ft.

WATER LEVEL RECORDS

INSTRUMENTATION.--Quarterly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 63.74 ft above NGVD of 1929. Measuring point: Top of male quick connect coupling, 2.82 ft above land-surface datum.

PERIOD OF RECORD.--February 1966 to April 1999 (monthly); May 1999 to August 2000 (bimonthly); November 2000 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 42.27 ft above NGVD of 1929, Oct. 31, 1969; lowest measured, 30.95 ft above NGVD of 1929, July 30, 1998.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966 to current year.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	36.87	FEB 06	37.72	APR 22	37.44	MAY 12	36.43	AUG 06	38.19
WATER YEAR 2003		LOWEST	36.43	MAY 12, 2003	HIGHEST	38.19	AUG 06, 2003		

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd end pt, lab, mg/L as CaCO3 (90410)	ANC, wat unfltrd, titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)
MAY 12...	1042	8.2	585	23.4	270	79.0	7.10	1.50	20.0	228	233	36.0	0.3

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
MAY 12...	22.0	34.0	411	41,500

ORANGE COUNTY—Continued

**WELL NUMBER.--282533081082206. Cocoa-C (Zone 5) Well near Bithlo, FL.**

LOCATION.--Lat 28°25'33", long 81°08'22", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.5, T.24 S., R.32 E., Hydrologic Unit 03080101, in Cocoa well field, 10 ft north of Wewahootee Road, 6.6 mi east of State Highway 15, and 10 mi south of Bithlo. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 8 in., depth 1,004 ft, cased to 248 ft.

WATER LEVEL RECORDS

INSTRUMENTATION.--Quarterly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 63.72 ft above NGVD of 1929. Measuring point: Top of male quick coupling, 2.82 ft above land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells.

PERIOD OF RECORD.--February 1966 to April 1999 (monthly); May 1999 to August 2000 (bimonthly); November 2000 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 42.18 ft above NGVD of 1929, Dec. 4, 1969; lowest measured, 26.52 ft above NGVD of 1929, April 28, 1999.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966 to current year.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	34.14	FEB 06	34.97	APR 22	34.72	MAY 14	33.39	AUG 06	36.25
WATER YEAR 2003		LOWEST	33.39	MAY 14, 2003	HIGHEST	36.25	AUG 06, 2003		

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)
MAY 14...	0725	8.1	1,120	22.3	370	111	20.0	3.60	93.0	187	180	170	0.1

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
MAY 14...	16.0	130	725	5,200

## ORANGE COUNTY—Continued

**WELL NUMBER.--282623081153801. Cocoa-P Well near Taft, FL.**

LOCATION.--Lat 28°26'23", long 81°15'38", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.31, T.23 S., R.31 E., Hydrologic Unit 03080101, on east side of State Highway 15, 0.4 mi south of State Highway 528, and 7.2 mi east of Taft. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 439 ft, cased to 245 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 94.12 ft above NGVD of 1929. Measuring point: Top of casing, 0.80 ft below land-surface datum. Prior to April 5, 1999, elevation of land-surface datum was 91.48 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 4.03 ft above land-surface datum.

PERIOD OF RECORD.--April 1961 to January 1971 (bimonthly); March 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.02 ft above NGVD of 1929, present datum, Apr. 14, 1961; lowest daily maximum water level, 34.45 ft above NGVD of 1929, June 10, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	45.27	44.36	44.12	48.81	45.55	46.38	46.17	44.69	42.98	46.56	47.02	48.62
10	44.38	---	46.09	47.77	45.66	46.50	45.55	43.74	44.45	45.33	47.47	48.52
15	45.57	---	48.17	47.15	45.57	46.16	44.98	42.59	43.78	45.84	47.08	46.96
20	44.59	45.21	47.30	46.53	45.38	46.73	44.31	42.53	44.53	46.39	---	46.63
25	44.52	44.65	47.55	46.02	45.99	47.33	43.84	43.95	45.82	45.94	---	46.11
EOM	44.37	44.42	47.33	45.69	45.69	46.53	44.49	43.06	45.12	46.35	48.07	47.44
MAX	45.89	---	48.17	49.20	46.02	47.33	46.54	45.48	45.86	46.56	---	48.88

**WELL NUMBER.--282738081341401. Lake Sawyer Well near Windermere, FL.**

LOCATION.--Lat 28°27'38", long 81°34'14", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.25, T.23 S., R.27 E., Hydrologic Unit 03090101, on Overstreet Road, 0.6 mi west of State Highway 535, and 3.2 mi southwest of Windermere. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 4 in., depth 178 ft, cased to 103 ft.

INSTRUMENTATION.--Water-stage recorder and data-collection platform--60-minute interval.

DATUM.--Elevation of land-surface datum is 116.04 ft above NGVD of 1929. Measuring point: Top of shelter floor, 2.88 ft above land-surface datum.

PERIOD OF RECORD.--October 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 87.98 ft above NGVD of 1929, Mar. 20, 21, 1998; lowest, 70.36 ft above NGVD of 1929, June 22, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	82.42	81.74	80.97	84.88	83.85	84.06	83.27	82.44	81.29	83.22	84.60	86.68
10	81.40	81.59	82.75	84.79	84.05	83.98	82.83	81.11	82.40	82.16	85.17	86.60
15	81.91	81.30	83.88	84.60	83.51	83.95	81.84	80.81	81.89	82.90	84.98	85.49
20	81.47	82.03	84.13	83.98	83.63	83.78	81.70	80.52	82.39	83.45	86.04	83.84
25	81.80	81.47	84.26	81.72	83.66	84.22	81.15	81.76	83.01	83.42	86.76	84.19
EOM	82.25	81.46	84.37	83.33	83.51	83.82	81.83	80.08	82.74	83.94	86.65	85.17
MAX	82.92	82.16	84.37	84.90	84.05	84.22	83.60	82.86	83.22	83.94	86.87	---

ORANGE COUNTY—Continued

**WELL NUMBER.--282739081054501. Cocoa-F Well near Bithlo, FL.**

LOCATION.--Lat 28°27'39", long 81°05'45", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.27, T.23 S., R.32 E., Hydrologic Unit 03080101, in Cocoa well field, 150 ft west of Dallas Boulevard, 0.7 mi north of Beeline Expressway (State Highway 528), and 6.3 mi south of Bithlo. Owner: Cape Orlando Corporation.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 375 ft, cased to 200 ft.

INSTRUMENTATION.--Quarterly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 67.29 ft above NGVD of 1929. Measuring point: Top of 6 in. coupling, 0.80 ft above land-surface datum.

PERIOD OF RECORD.--1960-70 (annually); October 1970 to April 1999 (monthly); May 1999 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 39.92 ft above NGVD of 1929, June 24, 1960; lowest measured, 29.99 ft above NGVD of 1929, Apr. 28, 1999.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	34.96	FEB 06	35.78	APR 22	35.74	MAY 13	34.49	AUG 05	36.34	SEP 15	37.17
WATER YEAR 2003 LOWEST		34.49	MAY 13, 2003 HIGHEST		37.17	SEP 15, 2003					

**WELL NUMBER.--282835081305201. Palm Lake Drive Well near Windermere, FL.**

LOCATION.--Lat 28°28'39", long 81°30'26", in SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.22, T.23 S., R.28 E., Hydrologic Unit 03090101, 2.0 mi southwest of Windermere, and 2.3 mi north of Doctor Phillips. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 4 in., depth 235 ft, cased to 161 ft.

INSTRUMENTATION.--Water-stage recorder--15-minute interval.

DATUM.--Elevation of land-surface datum is 157.10 ft above NGVD of 1929. Measuring point: Top of coupling, 2.56 ft above land-surface datum.

PERIOD OF RECORD.--October 1980 to June 1981 (bimonthly); July 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 76.43 ft above NGVD of 1929, Mar. 1, 1998; lowest, 57.07 ft above NGVD of 1929, June 15, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	69.84	68.41	68.32	73.49	71.13	71.78	70.70	69.60	67.68	70.68	72.79	74.11
10	68.58	68.03	70.79	72.93	71.26	71.42	70.17	68.09	69.44	68.96	72.24	74.05
15	69.33	68.77	72.66	72.29	70.53	71.37	69.48	66.91	68.47	70.62	71.81	72.03
20	68.83	69.23	72.45	71.96	70.91	71.39	68.78	67.38	70.18	70.54	72.95	70.95
25	68.93	68.66	72.47	71.04	71.12	72.21	68.95	68.67	70.27	71.74	75.76	71.19
EOM	69.20	68.72	72.28	70.85	71.12	71.61	69.19	67.43	69.85	71.79	73.85	73.04
MAX	70.28	69.61	72.69	73.53	71.26	72.21	71.46	70.06	70.61	71.93	75.77	75.04

ORANGE COUNTY—Continued

**WELL NUMBER.--282847081013701. Cocoa-H Well near Bithlo, FL.**

LOCATION.--Lat 28°28'47", long 81°01'37", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.21, T.23 S., R.33 E., Hydrologic Unit 03080101, on west side of State Highway 520, 5.4 mi south of intersection with State Highway 50, and 7.3 mi southeast of Bithlo. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 495 ft, cased to 252 ft.

WATER LEVEL RECORDS

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 60.00 ft above NGVD of 1929. Measuring point: Top of casing, 3.13 ft above land-surface datum.

PERIOD OF RECORD.--August 1968 to June 1977; July 1977 to April 1999 (monthly); May 1999 to September 2000 (bimonthly); November 2000 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 39.01 ft above NGVD of 1929, Feb. 25, 1970; lowest measured, 29.48 ft above NGVD of 1929, May 13, 1981, Apr. 28, 1999.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1961, 1970-72, 1991 to current year.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 29	34.98	JAN 27	35.31	APR 28	34.71	MAY 27	33.63	AUG 25	36.48
NOV 26	34.85	FEB 24	35.38	MAY 13	34.14	JUN 23	34.84	SEP 16	36.79
DEC 31	36.29	MAR 24	36.19	20	33.44	JUL 28	35.47	22	36.43

WATER YEAR 2003    LOWEST 33.44 MAY 20, 2003    HIGHEST 36.79 SEP 16, 2003

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	ANC, wat unfltrd titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)
MAY 13...	0821	7.6	730	23.9	280	60.0	30.0	2.10	43.0	188	188	85.0	0.7

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
MAY 13...	27.0	62.0	469	2,000

## ORANGE COUNTY—Continued

**WELL NUMBER.--282847081013702. Cocoa-K Well near Bithlo, FL.**

LOCATION.--Lat 28°28'47", long 81°01'37", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.21, T.23 S., R.33 E., Hydrologic Unit 03080101, on west side of State Highway 520, 5.4 mi south of intersection with State Highway 50, and 7.3 mi southeast of Bithlo. Owner: U.S. Geological Survey.

AQUIFER.--Nonartesian sand of the Surficial Aquifer System, Geologic Unit 112 NRSD.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 6 in., depth 8 ft, cased to 8 ft.

INSTRUMENTATION.--Quarterly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 60.00 ft above NGVD of 1929. Measuring point: Top of casing, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--August 1968 to February 1977; March 1977 to April 1999 (monthly); May 1999 to August 2000 (bimonthly); November 2000 to current year (quarterly).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 59.81 ft above NGVD of 1929, Oct. 3, 1969; lowest, 54.16 ft above NGVD of 1929, May 20, 1996.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 12	56.90	FEB 06	57.89	APR 22	57.94	MAY 13	57.49	AUG 05	59.65
WATER YEAR 2003		LOWEST	56.90	NOV 12, 2002	HIGHEST	59.65	AUG 05, 2003		

ORANGE COUNTY—Continued

**WELL NUMBER.--283249081053201. Bithlo-1 Well at Bithlo, FL.**

LOCATION.--Lat 28°32'49", long 81°05'32", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.26, T.22 S., R.32 E., Hydrologic Unit 03080101, on north side of State Highway 50, 0.8 mi west of intersection of State Highway 520, and 1.0 mi east of Bithlo. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 492 ft, cased to 151 ft.

WATER LEVEL RECORDS

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 63.53 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 3.10 ft above land-surface datum. Prior to October 1, 2001 at elevation 0.05 ft higher.

PERIOD OF RECORD.--October 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 42.98 ft above NGVD of 1929, Oct. 31, 1960; lowest, 28.70 ft above NGVD of 1929, June 10, 2000.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960,1965,1970-72,1992 to current year.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	36.02	---	35.58	37.39	36.19	36.63	36.87	35.51	34.42	35.97	---	37.61
10	35.69	---	36.04	37.43	36.23	36.61	36.76	35.08	34.85	35.88	---	37.67
15	35.79	---	36.48	37.20	36.18	36.72	36.27	34.55	34.99	35.89	---	37.42
20	35.52	---	36.80	36.87	36.15	36.90	35.90	34.18	35.23	36.08	---	37.22
25	35.40	---	37.07	36.29	36.29	36.98	35.62	34.44	35.68	36.07	37.36	37.05
EOM	35.35	35.61	37.18	36.29	36.41	36.92	35.48	34.43	35.73	---	37.37	37.26
MAX	36.12	---	37.18	37.44	36.46	37.20	36.92	35.64	35.77	---	---	37.72

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unfltrd uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)
MAY 13...	0918	7.6	556	24.1	210	62.0	13.0	1.80	33.0	157	160	52.0	0.3

Date	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Strontium, water, fltrd, ug/L (01080)
MAY 13...	18.0	42.0	355	1,190

## ORANGE COUNTY—Continued

**WELL NUMBER.--283249081053202. Bithlo-2 Well at Bithlo, FL.**

LOCATION.--Lat 28°32'49", long 81°05'32", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.26, T.22 S., R.32 E., Hydrologic Unit 03080101, on north side of State Highway 50, 0.8 mi west of intersection with State Highway 520, and 1.0 mi east of Bithlo. Owner: U.S. Geological Survey.

AQUIFER.--Hawthorn limestone of the Intermediate Aquifer System, Geologic Unit 122 HTRNN.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 75 ft, cased to 65 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 63.49 ft above NGVD of 1929. Measuring point: Top of casing cap, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1960 to August 2000 (monthly); October 2000 to September 2002 (bimonthly); October 2002 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 61.60 ft above NGVD of 1929, Jan. 26, 1971; lowest measured, 43.31 ft above NGVD of 1929, June 27, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 29	47.64	JAN 27	48.54	APR 28	47.93	JUN 23	47.07	SEP 22	48.53
NOV 26	47.59	FEB 24	48.29	MAY 13	47.62	JUL 28	47.70		
DEC 31	48.53	MAR 24	48.86	27	47.08	AUG 25	48.66		

WATER YEAR 2003    LOWEST 47.07 JUN 23, 2003    HIGHEST 48.86 MAR 24, 2003

**WELL NUMBER.--283249081053203. Bithlo-3 Well at Bithlo, FL.**

LOCATION.--Lat 28°32'49", long 81°05'32", in NE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.26, T.22 S., R.32 E., Hydrologic Unit 03080101, on north side of State Highway 50, 0.8 mi west of intersection with State Highway 520, and 1.0 mi east of Bithlo. Owner: U.S. Geological Survey.

AQUIFER.--Nonartesian sand of the Surficial Aquifer System, Geologic Unit 112 NRSD.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 6 in., depth 15 ft, cased to 12 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 63.14 ft above NGVD of 1929. Measuring point: Top of casing, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--September 1960 to August 2000 (monthly); October 2000 to September 2002 (bimonthly); October 2002 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 64.21 ft above NGVD of 1929, Aug. 28, 1964; lowest measured, 56.25 ft above NGVD of 1929, April 25, 2001.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 29	59.99	JAN 27	60.57	APR 28	59.95	JUN 23	62.72	SEP 22	60.55
NOV 26	59.79	FEB 24	60.67	MAY 13	59.83	JUL 28	60.99		
DEC 31	61.77	MAR 24	62.63	27	60.06	AUG 25	62.54		

WATER YEAR 2003    LOWEST 59.79 NOV 26, 2002    HIGHEST 62.72 JUN 23, 2003

## ORANGE COUNTY—Continued

**WELL NUMBER.--283253081283401. OR-47 Well at Orlo Vista, FL.**

LOCATION.--Lat 28°32'53", long 81°28'34", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.26, T.22 S., R.28 E., Hydrologic Unit 03080101, on west side of Hiawasse Road, 0.6 mi north of Old Winter Garden Road, and 0.15 mi south of State Highway 50 in Orlo Vista. Owner: Orange County.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 350 ft, cased to 328 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 81.71 ft above NGVD of 1929. Measuring point: Top of casing, 0.71 ft below land-surface datum.

PERIOD OF RECORD.--July 1930 to May 1933; August 1943 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 80.78 ft above NGVD of 1929, Mar. 20, 1960; lowest, 48.32 ft above NGVD of 1929, May 24, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	58.38	57.42	57.02	61.63	60.08	60.31	60.20	59.00	57.82	60.25	61.70	63.88
10	57.72	57.30	58.40	61.33	60.23	60.38	59.79	58.29	58.60	60.08	62.23	64.00
15	58.42	57.33	60.14	61.06	60.09	60.18	59.28	57.66	58.09	60.33	62.07	63.17
20	57.89	57.93	60.01	60.85	59.90	60.37	58.87	57.58	58.93	60.98	62.60	62.62
25	57.93	57.47	60.35	60.52	60.16	60.86	58.58	58.26	59.50	60.86	63.36	---
EOM	57.70	57.32	60.47	60.26	60.06	60.52	59.01	57.47	59.64	61.21	63.50	---
MAX	58.75	57.95	60.47	61.81	60.25	60.86	60.53	59.50	59.64	61.21	63.61	---

**WELL NUMBER.--283333081233501. Lake Adair 9 Deep Well at Orlando, FL.**

LOCATION.--Lat 28°33'33", long 81°23'35", in NW $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.23, T.22 S., R.29 E., Hydrologic Unit 03080101, 25 ft northeast of intersection of Westmoreland Drive and Lake Adair Boulevard in Orlando. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 20 in., depth 1,281 ft, cased to 601 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 80.40 ft above NGVD of 1929. Measuring point: Top of casing, 4.00 ft above land-surface datum.

PERIOD OF RECORD.--January 1961 (annually); November 1962 to August 1973; September 1973 to September 1983 (bimonthly); October 1983 to January 1984 (monthly); January 1984 to June 1988; July 1988 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 60.23 ft above NGVD of 1929, Aug. 9, 1966; lowest water level measured, 38.03 ft above NGVD of 1929, May 22, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	47.13	DEC 30	49.56	FEB 24	48.64	APR 28	47.23	JUN 23	49.85	AUG 25	52.12
NOV 25	46.89	JAN 27	48.44	MAR 24	50.36	MAY 27	46.71	JUL 28	49.28	SEP 22	48.28
WATER YEAR 2003	LOWEST	46.71	MAY 27, 2003	HIGHEST	52.12	AUG 25, 2003					

## ORANGE COUNTY—Continued

**WELL NUMBER.--283333081233502. Lake Adair 10 Shallow Well at Orlando, FL.**

LOCATION.--Lat 28°33'33", long 81°23'35", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.23, T.22 S., R.29 E., Hydrologic Unit 03080101, 25 ft northeast of intersection of Westmoreland Drive and Lake Adair Boulevard in Orlando. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian, observation well, diameter 4 in., depth 400 ft, cased to 105 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 80.40 ft above NGVD of 1929. Measuring point: Top of casing, 3.62 ft above land-surface datum.

PERIOD OF RECORD.--November 1962 to November 1972; May 1973 to September 1983 (bimonthly); October 1983 to January 1984 (monthly); January 1984 to June 1988; July 1988 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 68.92 ft above NGVD of 1929, June 28, 1974; lowest measured, 38.44 ft above NGVD of 1929, May 22, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	47.99	DEC 30	50.53	FEB 24	49.44	APR 28	47.74	JUN 23	51.15	AUG 25	53.36
NOV 25	47.48	JAN 27	49.00	MAR 24	51.44	MAY 27	47.32	JUL 28	50.19	SEP 22	49.81
WATER YEAR 2003		LOWEST	47.32	MAY 27, 2003	HIGHEST	53.36	AUG 25, 2003				

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

187

ORANGE COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
282241081112801	05-21-03 09-16-03	0902 1310	82211103 24S31E23 MOSS PARK	40.09 43.99
282241081112802	05-21-03 09-16-03	0905 1315	82211104 24S31E23 MOSS PARK SHALLOW	60.27 61.27
282331081370801	05-20-03 09-17-03	1005 0847	82313702 27416 E USGS WELL HARTZOG RD	99.93 104.94
282339081010001	05-21-03 09-16-03	0815 1125	OR-0669 COCOA 13T NR BITHLO, FL	34.73 37.97
282354081313001	05-19-03 09-17-03	1018 0808	82313104 24S28E17 RCID OBSER. WELL NO. 1	78.62 80.53
282510081054501	05-21-03	0720	82510502USGS OBSER W. COCOA 1 NR BITHLO FL	35.51
282543081385801	05-19-03 09-17-03	1354 0905	82513801	97.55 99.75
282718081215101	05-21-03 09-16-03	1050 1436	PINECASTLE POST OFFICE AT PINECASTLE	45.64 50.63
282848080544501	05-20-03 09-16-03	1335 0850	TOSOHATCHEE GAME PRESERVE NR CHRISTMAS, FL	31.00 32.90
282923081282801	05-19-03 09-17-03	1057 1105	82912802	61.60 67.34
282936081340201	05-19-03 09-17-03	0905 1020	82913405 23S27E12 ROSS WELL ON LK BUTLER	79.22 84.27
283007081122705	05-20-03	1145	OR-0678 UFA EASTERN WWTP NR UNION PARK, FL	36.65
283144081254201	05-21-03 09-17-03	1215 1247	83112504 LK MANN DRAIN WELL O-174, ORLANDO	49.75 54.76
283157081180401	05-20-03	1110	OR-0563 ENGLEWOOD S/D DRAIN WELL NR MAITLAND, FL	46.17
283307081300801	05-20-03 09-17-03	0932 1225	83313001 22S28E22 W-5110 LK SHERWOOD D WL	60.86 66.65
283340081222803	05-20-03 09-17-03	0830 1320	LAKE IVANHOE UPPER FLORIDAN WELL AT ORLANDO, FL	44.99 50.06
283959081303101	05-19-03 09-18-03	0750 0811	OR-0796 APOPKA CRATE MILL AT APOPKA, FL	48.55 53.01
284230081345301	05-19-03 09-18-03	0812 0825	OR0106 UPPER FL NR APOPKA, FL	53.96 57.03
284238081275803	05-19-03 09-18-03	0734 0730	OR-0548	20.82 22.13

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

**282127081053901 -- COCOA 44 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)
05-14-03	0952	7.4	1,080	25.3	350	117	14.0	3.50	87.0	250

Date	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
05-14-03	257	150	0.2	22.0	64.0	661	1,520

**282145081053801 -- COCOA 43 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)
05-14-03	0915	7.4	1,480	25.1	420	128	24.0	4.80	140	242

Date	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
05-14-03	257	260	0.3	23.0	130	903	1,810

**282208081053801 -- COCOA 42 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)
05-13-03	1310	7.3	936	24.4	340	114	12.0	2.30	64.0	271

Date	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
05-13-03	271	99.0	0.2	25.0	59.0	589	1,030

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

189

**282238081053801 -- COCOA 41 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-ium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-13-03	1223	7.5	925	24.3	300	79.0	24.0	2.30	71.0	198

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-13-03	205	130	0.6	31.0	60.0	592	890

**282250081053801 -- COCOA 40 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-ium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-13-03	1331	7.5	1,050	24.5	320	85.0	26.0	2.80	86.0	192

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-13-03	196	160	0.6	30.0	83.0	636	1,570

**COCOA 25 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-ium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-13-03	1050	7.4	595	24.9	260	88.0	9.30	1.80	24.0	229

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-13-03	245	36.0	0.2	22.0	24.0	364	650

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

**282304081053901 -- COCOA 39 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)
05-13-03	1045	7.6	1,270	24.7	370	111	22.0	3.60	110	210

Date	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
05-13-03	217	200	0.3	23.0	110	767	1,860

**282315081053801 -- COCOA 38 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)
05-13-03	1115	7.5	1,150	25.1	350	107	19.0	3.20	96.0	209

Date	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
05-13-03	213	180	0.3	22.0	97.0	699	1,980

**282315081093601 -- COCOA 24 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)
05-12-03	1010	7.4	715	25.1	310	104	13.0	2.10	30.0	227

Date	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
05-12-03	233	45.0	0.2	22.0	74.0	483	1,040

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

191

**282331081093801 -- COCOA 23 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-13-03	0915	7.4	836	25.0	360	116	16.0	2.50	37.0	226

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-13-03	227	57.0	0.2	21.0	130	567	1,210

**282344081054201 -- 82310501 COCOA 11 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-13-03	0925	7.5	1,350	25.2	380	115	22.0	4.40	120	210

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-13-03	215	210	0.2	21.0	130	810	3,060

**282356081091901 -- COCOA 22 16IN WEL NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-13-03	0745	7.5	608	25.0	270	91.0	9.30	1.70	26.0	226

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-13-03	229	38.0	0.2	22.0	29.0	387	680

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

**282406081093601 -- COCOA 21 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unfltrd uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-13-03	0815	7.4	1,070	24.7	430	135	21.0	2.60	60.0	187

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
05-13-03	209	110	0.2	20.0	200	698	1,660

**282424081093601 -- COCOA 20 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unfltrd uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-12-03	1320	7.5	910	25.0	380	123	18.0	2.20	43.0	202

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
05-12-03	221	73.0	0.2	21.0	160	595	1,460

**28241081054501 -- 82410503 COCOA 5**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unfltrd uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-12-03	1355	7.5	725	24.3	300	110	6.90	1.30	40.0	307

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
05-12-03	286	46.0	0.3	27.0	15.0	448	1,140

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

193

282510081054501 -- 82510502 USGS OBSER W COCOA 1 NR BITHLO FL

Date	Time	Elevation, feet above NGVD (72020)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)
05-13-03	0900	--	7.4	802	24.5	310	105	12.0	2.00	46.0
05-21-03	0720	35.51	--	--	--	--	--	--	--	--

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-13-03	238	233	75.0	0.2	22.0	64.0	519	1,190

282529081073201 -- 82510702 COCOA 7A NR BITHLO FL

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)
05-12-03	0820	7.5	1,440	24.9	470	155	18.0	3.20	120	238

Date	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-12-03	237	230	0.2	22.0	170	930	3,300

282529081073201 -- 82510503 COCOA 7 NR BITHLO FL

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)
05-13-03	0815	7.4	1,220	23.9	390	139	11.0	2.40	98.0	300

Date	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-13-03	288	170	0.2	25.0	66.0	731	1,230

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

282530081054204 -- 82510508 COCOA 7T1 NR BITHLO FL

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfl fixed end pt, lab, mg/L as CaCO3 (90410)
05-13-03	0747	7.3	622	22.5	290	112	3.50	1.10	16.0	308

Date	ANC, wat unfl incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-13-03	298	17.0	0.2	20.0	<0.20	384	570

282530081065601 -- OR0614

Date	Time	Eleva-tion, feet above NGVD (72020)	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)
05-14-03	0825	34.39	7.4	2,220	28.1	680	186	50.0	8.20	210

Date	ANC, wat unfl fixed end pt, lab, mg/L as CaCO3 (90410)	ANC, wat unfl incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-14-03	155	164	380	0.2	18.0	430	1,470	12,600

282530081085401 -- 82510802 COCOA 15 NR BITHLO FL

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfl fixed end pt, lab, mg/L as CaCO3 (90410)
05-12-03	1210	7.4	1,220	24.9	390	122	20.0	3.20	98.0	195

Date	ANC, wat unfl incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-12-03	204	180	0.2	20.0	150	785	2,460

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

195

**282530081091701 -- 82510902 COCOA 16 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-ium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-12-03	1120	7.6	790	24.9	290	91.0	15.0	2.10	48.0	179

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-12-03	184	84.0	0.2	19.0	86.0	511	1,330

**282530081094001 -- 82510903 COCOA 17 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-ium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-12-03	1100	7.5	747	25.0	280	86.0	15.0	2.00	45.0	174

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-12-03	176	77.0	0.2	19.0	88.0	462	1,300

**282531081075602 -- COCOA 13R NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-ium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-12-03	0945	7.6	954	24.3	350	123	10.0	2.00	67.0	260

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-12-03	259	110	0.2	24.0	69.0	601	910

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

**282548081054201 -- 82510504 COCOA 3 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)
05-12-03	1215	7.5	938	23.6	340	125	7.50	1.70	63.0	291

Date	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
05-12-03	282	100	0.2	24.0	39.0	568	1,180

**282556081094001 -- COCOA 18 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)
05-12-03	1045	7.5	962	25.4	350	107	20.0	2.70	63.0	181

Date	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
05-12-03	184	110	0.2	20.0	140	613	1,870

**282612081054201 -- 82610502 COCOA 2 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)
05-12-03	1155	7.3	1,250	24.2	400	139	12.0	2.40	100	267

Date	ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront- ium, water, fltrd, ug/L (01080)
05-12-03	259	180	0.2	23.0	94.0	775	4,740

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

197

**282632081054502 -- COCOA 8 REPLACEMENT WELL NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-12-03	1115	7.3	998	24.3	360	132	7.60	1.50	67.0	289

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-12-03	270	110	0.2	24.0	50.0	621	1,140

**282650081054201 -- 82610504 COCOA 9 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-12-03	0900	7.6	1,270	24.1	400	133	15.0	2.90	110	256

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-12-03	257	190	0.3	23.0	110	766	1,670

**282716081054501 -- 82710501 COCOA 10 NR BITHLO FL**

Date	Time	pH, water, unfltrd field, std units (00400)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)
05-12-03	1015	7.4	682	23.5	320	120	4.60	0.80	30.0	336

Date	ANC, wat unfltrd incrm. titr., field, mg/L as CaCO3 (00419)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Stront-ium, water, fltrd, ug/L (01080)
05-12-03	330	25.0	0.3	29.0	0.50	441	620

KEY TO SITE LOCATIONS ON FIGURE 20  
OSCEOLA COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	274149080534801	200
2	274807081115501	200
3	274944080573302	201
4	274947080584001	201
5	275222081030701	202
6	275609081132001	202
7	275852081030501	203
8	280619080542601	203
9	280750081155701	204
10	280826081031801	204
11	280905081270101	205
12	281006081162601	206
13	281429081290501	206
14	281443081140501	207
15	281559081260701	207
16	281630080591001	208
17	281630081024401	208
18	281714081093001	209
19	281719081134001	209
20	281722080543001	210

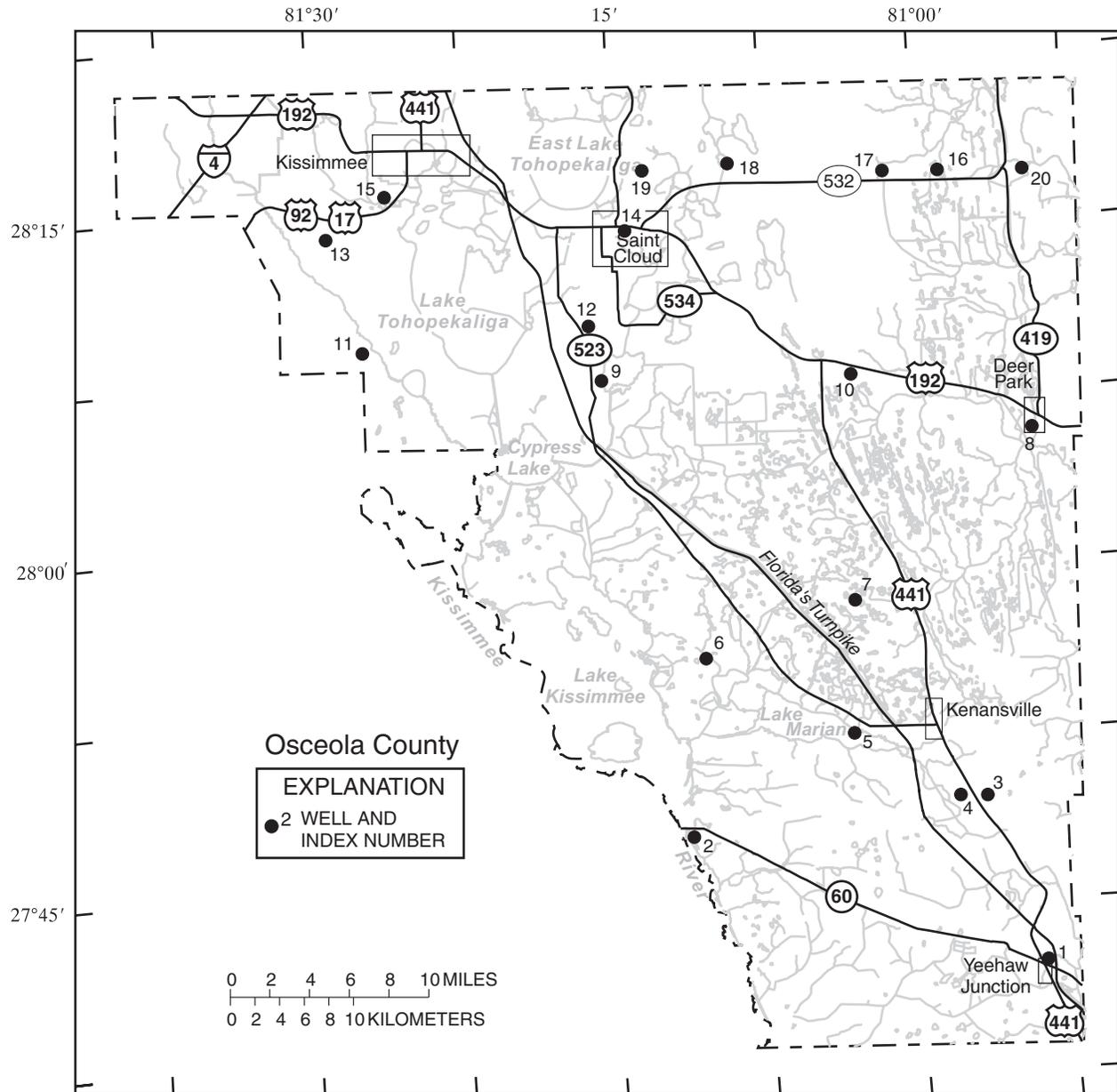


Figure 20.--Location of wells in Osceola County.

## OSCEOLA COUNTY

**WELL NUMBER.--274149080534801. OSF-60A Test Well at Yeehaw Junction, FL.**

LOCATION.--Lat 27°41'49", long 80°53'48", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.4, T.32 S., R.34 E., Hydrologic Unit 03080101, at the northeast corner of the intersection of State Highway 91 (Florida Turnpike) and State Highway 60 at Yeehaw Junction, FL. Owner: South Florida Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 8 in., depth 590 ft, cased to 325 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 57.13 ft above NGVD of 1929. Measuring point: Top of PVC casing, 1.0 ft above land-surface datum.

PERIOD OF RECORD.--October 1992 to September 1995 (monthly); May 1996 to September 2001 (semiannually); October 2001 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 43.35 ft above NGVD of 1929, Sept. 13, 1995; lowest measured, 36.28 ft above NGVD of 1929, May 16, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 29	41.04	JAN 27	40.89	APR 28	40.84	JUN 23	41.11	SEP 17	42.91
NOV 21	40.99	FEB 24	41.25	MAY 20	39.74	JUL 28	41.65	22	42.51
DEC 30	42.15	MAR 24	42.00	27	39.85	AUG 27	42.67		

WATER YEAR 2003    LOWEST    39.74    MAY 20, 2003    HIGHEST    42.91    SEP 17, 2003

**WELL NUMBER.--274807081115501. S65 Well near Kenansville, FL.**

LOCATION.--Lat 27°48'07", long 81°11'55", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.11, T.31 S., R.31 E., Hydrologic Unit 03080101, on the right bank of the Kissimmee River at lock structure S-65, 8 mi east of Indian Lake Estates, 21 mi west of Yeehaw Junction, FL. Owner: South Florida Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 12 in., depth 850 ft, cased to unknown depth.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 53.86 ft above NGVD of 1929. Measuring point: Top of PVC casing, 2.84 ft above land-surface datum.

PERIOD OF RECORD.--May 1983 to September 1992 (semiannually); October 1992 to August 1994 (monthly); May 1995 to September 2001 (semiannually); October 2001 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.39 ft above NGVD of 1929, Sept. 13, 1995; lowest measured, 40.33 ft above NGVD of 1929, May 16, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 29	44.08	JAN 27	43.53	APR 28	43.75	JUN 23	43.93	SEP 17	45.89
NOV 21	43.91	FEB 24	44.23	MAY 20	42.65	JUL 28	44.63	22	45.56
DEC 30	45.16	MAR 24	44.98	27	42.71	AUG 27	45.63		

WATER YEAR 2003    LOWEST    42.65    MAY 20, 2003    HIGHEST    45.89    SEP 17, 2003

## OSCEOLA COUNTY—Continued

**WELL NUMBER.--274944080573302. OS0231 Campbell Ranch near Kenansville, FL.**

LOCATION.--Lat 27°49'44", long 80°57'33", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.31, T.30 S., R.34 E., Hydrologic Unit 03090101, on Campbell Ranch, 3.8 mi south of Kenansville on U.S. Highway 441 on ranch, approximately 0.1 mi east of U.S. Highway 441 near Kenansville. Owner: St. Johns River Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 6 in., depth 420 ft, cased to 360 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 73.58 ft above NGVD of 1929. Measuring point: Mark on top of casing, 3.36 ft above land-surface datum.

PERIOD OF RECORD.--May 2000 to September 2000 (semiannually); May 2001 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 46.22 ft above NGVD of 1929, Sept. 17, 2003; lowest measured, 38.94 ft above NGVD of 1929, May 22, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 28	44.22	JAN 27	44.14	APR 28	44.02	JUN 23	44.20	SEP 17	46.22
NOV 21	44.12	FEB 24	44.50	MAY 20	42.94	JUL 28	44.96	22	45.66
DEC 30	45.33	MAR 24	45.26	27	42.96	AUG 27	45.79		

WATER YEAR 2003    LOWEST 42.94 MAY 20, 2003    HIGHEST 46.22 SEP 17, 2003

**WELL NUMBER.--274947080584001. Hayman Well near Kenansville, FL.**

LOCATION.--Lat 27°49'47", long 80°58'40", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.36, T.30 S., R.33 E., Hydrologic Unit 03080101, in pasture of 7-11 Ranch, 0.4 mi west of U.S. Highway 441, and 3.1 mi south of Kenansville. Owner: W. Paul Hayman.

AQUIFER.--Nonartesian sand aquifer of the Pleistocene Age, Geologic Unit 112 NRSB.

WELL CHARACTERISTICS.--Drilled, nonartesian well, diameter 3 in., depth 90 ft, casing length unknown.

INSTRUMENTATION.--Bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 74.25 ft above NGVD of 1929. Measuring point: Hole in threaded cap, 2.48 ft above land-surface datum. Prior to Aug. 31, 1999, measuring point .48 ft above land-surface datum.

PERIOD OF RECORD.--January 1974 to current year (bimonthly), incomplete.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 72.10 ft above NGVD of 1929, July 18, 2002; lowest measured, 64.74 ft above NGVD of 1929, June 13, 1985.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL										
NOV 19	70.17	JAN 13	70.47	MAR 10	70.14	MAY 05	67.90	JUN 30	67.83	SEP 04	71.38

WATER YEAR 2003    LOWEST 67.83 JUN 30, 2003    HIGHEST 71.38 SEP 04, 2003

## OSCEOLA COUNTY—Continued

**WELL NUMBER.--275222081030701. OS-243 Well at Lake Marian near Kenansville, FL.**

LOCATION.--Lat 27°52'22", long 81°03'07", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.18, T.30 S., R.33 E., Hydrologic Unit 03090101, at boat ramp in Osceola County Park, on east side of Lake Marian, and 3.0 mi west of Kenansville. Owner: U.S. Geological Survey.

AQUIFER.--Hawthorn limestone aquifer of the Miocene Series, Geologic Unit 122 HTRNN.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 320 ft, cased to 243 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 63.21 ft above NGVD of 1929. Prior to Oct. 1, 1977, datum was considered to be 63.95 ft, Oct. 1, 1977, to Sept. 30, 1978, to be 65.05 ft, and Oct. 1, 1979 to Sept. 30, 1990, to be 62.61 ft above NGVD of 1929. Measuring point: Top of casing, 0.69 ft above land-surface datum.

PERIOD OF RECORD.--April 1974 to September 1992 (bimonthly); October 1992 to September 1994 (monthly); October 1994 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 57.83 ft above NGVD of 1929, Sept. 13, 1995; lowest measured, 48.43 ft above NGVD of 1929, present datum, May 8, 1976.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 19	53.73	JAN 22	54.74	MAR 10	54.22	MAY 05	53.80	JUN 30	53.23	SEP 03	55.31
WATER YEAR 2003    LOWEST 53.23    JUN 30, 2003    HIGHEST 55.31    SEP 03, 2003											

**WELL NUMBER.--275609081132001. Joe Overstreet Well (OSF-4) near St. Cloud, FL.**

LOCATION.--Lat 27°56'09", long 81°13'20", in SE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$  sec.28, T.29 S., R.31 E., Hydrologic Unit 03080101, on south side of Joe Overstreet Road, 5.2 mi southwest of State Highway 523 (Canoe Creek Road), 21 mi southeast of St. Cloud. Owner: South Florida Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 4 in., depth 400 ft, cased to 288 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Land-surface datum is 59.09 ft above NGVD of 1929. Measuring point: Top of sanitary seal, at land-surface datum.

PERIOD OF RECORD.--May 1976 to May 1978 (semiannually); October 1978 to September 1980 (miscellaneous); May 1982 to September 1992 (semiannually); October 1992 to September 1994 (monthly); May 1995 to September 2001 (semiannually); October 2001 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 50.30 ft above NGVD of 1929, Sept. 13, 1995; lowest measured, 41.94 ft above NGVD of 1929, May 14, 1981.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	46.91	JAN 27	47.87	APR 28	47.72	JUN 23	47.91	SEP 17	49.84
NOV 21	47.59	FEB 24	48.11	MAY 20	46.39	JUL 28	48.60	22	49.58
DEC 30	48.94	MAR 24	49.03	27	46.63	AUG 25	49.64		
WATER YEAR 2003    LOWEST 46.39    MAY 20, 2003    HIGHEST 49.84    SEP 17, 2003									

## OSCEOLA COUNTY—Continued

**WELL NUMBER.--275852081030501. TH-10 Williams Road Well near Holopaw, FL.**

LOCATION.--Lat 27°58'52", long 81°03'05", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec.7, T.29 S., R.33 E., Hydrologic Unit 03080101, on eastern bank of pond, 4.4 mi west of intersection of State Highway 441 and Williams Road, 13.7 mi south of Holopaw, FL. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 405 ft, cased to 242 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 75.30 ft above NGVD of 1929. Measuring point: Top of PVC pipe, 0.24 ft above land-surface datum.

PERIOD OF RECORD.--March 1980 to September 1992 (semiannually); October 1992 to September 1994 (monthly); May 1995 to September 2001 (semiannually); October 2001 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 46.48 ft above NGVD of 1929, Sept. 11, 1995; lowest measured, 38.76 ft above NGVD of 1929, May 15, 1981.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 28	43.33	JAN 28	43.40	APR 29	43.02	JUN 24	43.25	SEP 16	45.25
NOV 22	43.21	FEB 25	43.72	MAY 19	41.90	JUL 29	43.93	23	44.80
DEC 30	44.43	MAR 25	44.34	28	41.92	AUG 26	44.91		

WATER YEAR 2003    LOWEST    41.90    MAY 19, 2003    HIGHEST    45.25    SEP 16, 2003

**WELL NUMBER.--280619080542601. OS-179 Well at Deer Park, FL.**

LOCATION.--Lat 28°06'19", long 80°54'26", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.27, T.27 S., R.34 E., Hydrologic Unit 03080101, on south side of U.S. Highway 192, 0.8 mi northwest of Deer Park, and 11 mi east of Holopaw. Owner: U.S. Geological Survey.

AQUIFER.--Nonartesian sand of the surficial aquifer system, Geologic Unit 112 SDGV.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 6 in., depth 17.6 ft, cased to 17.6 ft, gravel packed 12.6 to 17.6 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 48.84 ft above NGVD of 1929. Measuring point: Top of casing, 3.20 ft above land-surface datum.

PERIOD OF RECORD.--April 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 49.11 ft above NGVD of 1929, July 15, 1978; lowest, 42.24 ft above NGVD of 1929, June 30, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	46.24	45.93	45.70	47.27	45.97	46.05	46.25	45.42	45.05	47.00	48.28	47.32
10	45.99	45.75	48.00	46.92	46.24	46.42	46.02	45.14	45.54	47.35	47.89	47.37
15	46.27	45.57	47.42	46.61	45.97	46.01	45.73	44.91	45.53	47.58	47.85	46.65
20	45.82	46.59	47.84	46.39	45.85	46.19	45.51	44.70	45.60	47.79	48.29	46.53
25	47.13	46.17	48.10	46.24	46.05	47.28	45.40	45.13	46.86	48.08	47.66	46.17
EOM	46.27	45.89	47.90	46.10	46.11	46.82	45.65	44.64	46.41	48.07	47.47	47.67
MAX	47.13	47.09	48.10	48.03	46.25	47.46	46.59	45.65	47.44	48.28	48.29	47.90

## OSCEOLA COUNTY—Continued

**WELL NUMBER.--280750081155701. Canoe Creek Road Well near St. Cloud, FL.**

LOCATION.--Lat 28°07'50", long 81°15'57", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.13, T.27 S., R.30 E., Hydrologic Unit 03090101, well is 400 ft east of County Road 523 and 8 mi south of St. Cloud. Owner: Earl Partin.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 6 in., depth 816 ft, casing length unknown.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 70 ft above NGVD of 1929. Measuring point: Top of casing 2.30 ft above land-surface datum.

PERIOD OF RECORD.--July to September 2003 (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 51.94 ft above NGVD of 1929, Aug. 25, 2003; lowest measured, 50.87 ft above NGVD of 1929, July 28, 2003.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL		
JUL 28	50.87	AUG 25	51.94	SEP 22	51.85		
WATER YEAR 2003		LOWEST	50.87	JUL 28, 2003	HIGHEST	51.94	AUG 25, 2003

**WELL NUMBER.--280826081031801. Holopaw Test Well No. 1 (OSF-28) near Holopaw, FL.**

LOCATION.--Lat 28°08'26", long 81°03'18", in NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.18, T.27 S., R.33 E., Hydrologic Unit 03090101, on south side of U.S. State Highway 192, 1.3 mi east of U.S. 441 and State Highway 192 intersection, 1.3 mi northeast of Holopaw. Owner: South Brevard Water Authority.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, test well, artesian well, diameter 10 in., depth 1097 ft, casing length 322 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 70.06 ft above NGVD of 1929. Measuring point: Top of casing 3.01 ft above land-surface datum.

PERIOD OF RECORD.--August 1987 to September 1990; May 1991 to September 1992 (semiannually); October 1992 to September 1994 (monthly); May 1995 to May 1996, May 2000 to September 2001 (semiannually); October 2001 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 44.89 ft above NGVD of 1929, Sept. 15, 1995; lowest measured, 37.26 ft above NGVD of 1929, May 17, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	42.66	JAN 28	42.92	APR 29	42.39	JUN 24	42.63	SEP 16	44.58
NOV 22	42.72	FEB 25	43.18	MAY 19	41.13	JUL 29	43.30	23	44.16
DEC 30	43.90	MAR 25	43.85	28	41.24	AUG 26	44.30		
WATER YEAR 2003		LOWEST	41.13	MAY 19, 2003	HIGHEST	44.58	SEP 16, 2003		

OSCEOLA COUNTY—Continued

**WELL NUMBER.--280905081270101. Reedy Creek Overlook Well (OSF-11) near Deer Park, FL.**

LOCATION.--Lat 28°09'05", long 81°27'01", in NW¼NW¼SE¼ sec.9, T.28 S., R.29 E., Hydrologic Unit 03080101, on Ranch Road, 0.8 mi east of State Highway 419 and 5.5 mi north of Deer Park. Owner: Deseret Ranch.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation, diameter 6 in., depth 398 ft, casing length unknown.

WATER LEVEL RECORDS

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 63.57 ft above NGVD of 1929. Measuring point: Top of 6 inch casing, 3.05 ft above land-surface datum.

PERIOD OF RECORD.--May 1976 to May 1992 (semiannually); September 1992 to September 1994 (monthly); May 1996 to September 2001 (semiannually); October 2001 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 66.50 ft above NGVD of 1929, Sept. 15, 1982; lowest measured, 55.06 ft above NGVD of 1929, May 30, 2002.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976-2000, 2003.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	62.69	JAN 28	63.55	APR 29	62.57	JUN 24	62.85	AUG 26	65.09
NOV 25	62.95	FEB 25	63.45	MAY 19	61.30	JUL 29	63.32	SEP 16	64.80
DEC 30	64.50	MAR 25	64.28	28	61.38	AUG 14	64.14	23	63.84
WATER YEAR 2003		LOWEST	61.30	MAY 19, 2003	HIGHEST	65.09	AUG 26, 2003		

WATER-QUALITY DATA, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium, water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)
08-14-03	1000	398	0.1	7.8	8.1	198	22.5	93	28.0	5.60
Date	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC, wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-14-03	0.60	3.4	85	<0.1	5.50	0.1	9.90	8.00	115	<0.20
Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)	
08-14-03	0.09	<0.02	<0.010	0.03	<0.02	1.4	8	2	130	

## OSCEOLA COUNTY—Continued

**WELL NUMBER.--281006081162601. Canoe Creek Campground Well near St. Cloud, FL.**

LOCATION.--Lat 28°10'06", long 81°16'26", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.1, T.27 S., R.30 E., Hydrologic Unit 03090101, well is 71 ft east of County Road 523 and 5.3 mi south of the intersection of U.S. Highway 441 and 192, and 5.6 mi southeast of St. Cloud. Owner: Mr. T. Scheidi.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 4 in., depth 500 ft, casing length unknown.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 72.86 ft above NGVD of 1929. Measuring point: Hole in sanitary seal 1.8 ft above land-surface datum.

PERIOD OF RECORD.--May 1978 to September 1992 (semiannually); October 1992 to September 1994 (monthly); May 1995 to September 2001 (semiannually); October 2001 to February 2003 (monthly) discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.51 ft above NGVD of 1929, Sept. 17, 1986; lowest measured, 43.18 ft above NGVD of 1929, May 15, 2002.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	48.96	NOV 21	48.91	DEC 30	50.19	JAN 27	49.40	FEB 24	49.43
WATER YEAR 2003		LOWEST	48.91	NOV 21, 2002	HIGHEST	50.19	DEC 30, 2002		

**WELL NUMBER.--281429081290501. Mercantile Lane (OS254) near Kissimmee, FL.**

LOCATION.--Lat 28°14'29", long 81°29'05", in NE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec. 11, T.265 S., R.28 E., Hydrologic Unit 03080101, 600 ft east of South Poinciana Blvd., 0.9 mi south of U.S. Highway 17-92 and 6.2 mi southwest of Kissimmee. Owner: M. H. Brown.

AQUIFER.--Hawthorn limestone aquifer of the Miocene Series, Geologic Unit 122 HTRNN.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, 6 in. steel casing, depth 328 ft, cased to 110 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 77.65 ft above NGVD of 1929. Measuring point: Top of 6 in. casing, 1 ft above land-surface datum.

PERIOD OF RECORD.--January 1973 to May 1974; May 1974 to September 1992 (semiannually); September 1992 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 69.42 ft above NGVD of 1929, Feb. 23, 1973; lowest measured, 57.68 ft above NGVD of 1929, May 13, 2002.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	63.68	JAN 28	64.83	APR 29	63.29	JUN 24	63.64	SEP 16	65.71
NOV 25	64.15	FEB 25	64.47	MAY 19	62.17	JUL 29	63.97	23	64.84
DEC 30	65.65	MAR 25	65.15	28	62.39	AUG 26	65.95		
WATER YEAR 2003		LOWEST	62.17	MAY 19, 2003	HIGHEST	65.95	AUG 26, 2003		

## OSCEOLA COUNTY—Continued

**WELL NUMBER.--281443081140501. Ashton Forestry Tower Well at Ashton, FL.**

LOCATION.--Lat 28°14'43", long 81°14'05", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec. 8, T.26 S., R.31 E., Hydrologic Unit 03090101, located 301 ft south of U.S. Highway 192, 0.5 mi east of State Highway 15 at Forestry Tower in Ashton. Owner: U.S. Forestry Department.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 4 in, depth 400 ft, casing length unknown.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 74.79 ft above NGVD of 1929. Measuring point: Top of casing, 1.2 ft above land-surface datum.

PERIOD OF RECORD.--May 1973 to November 1979 (about thrice yearly); September 1980 to September 1992 (semiannually); February 1993 to September 1994 (monthly); May 1995 to September 2001 (semiannually); October 2001 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 50.10 ft above NGVD of 1929, Nov. 5, 1973; lowest measured, 39.54 ft above NGVD of 1929, May 15, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 28	46.09	JAN 28	46.74	APR 29	46.11	JUN 24	46.39	SEP 16	48.00
NOV 22	46.46	FEB 25	47.09	MAY 19	44.15	JUL 29	47.11	23	47.85
DEC 30	47.85	MAR 25	47.85	28	44.81	AUG 26	48.31		

WATER YEAR 2003    LOWEST 44.15    MAY 19, 2003    HIGHEST 48.31    AUG 26, 2003

**WELL NUMBER.--281559081260701. Shingle Creek Well at State Highway 531A near Kissimmee, FL.**

LOCATION.--Lat 28°15'59", long 81°26'07", in NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec. 32, T.25 S., R.29 E., Hydrologic Unit 03080101, 365 ft east of Shingle Creek Road (State Highway 531A), 0.4 mi north of U.S. Highway 17-92 and 2.2 mi southwest of Kissimmee. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 200 ft, casing length unknown.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 59.98 ft above NGVD of 1929. Measuring point: Top of casing, 0.8 ft above land-surface datum.

PERIOD OF RECORD.--March 1978 to September 1979 (monthly); May 1979 to September 1992 (semiannually); September 1992 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 63.50 ft above NGVD of 1929, Sept. 15, 1982; lowest measured, 50.79 ft above NGVD of 1929, May 13, 2002.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 30	57.79	JAN 28	59.47	APR 29	57.70	JUN 24	57.89	SEP 16	60.21
NOV 25	58.81	FEB 25	59.02	MAY 19	56.14	JUL 29	58.31	23	59.78
DEC 30	60.38	MAR 25	59.78	28	56.45	AUG 26	60.55		

WATER YEAR 2003    LOWEST 56.14    MAY 19, 2003    HIGHEST 60.55    AUG 26, 2003

## OSCEOLA COUNTY—Continued

**WELL NUMBER.--281630080591001. TH-3 Lake Poinsett SW near New Eden, FL.**

LOCATION.--Lat 28°16'30", long 80°59'10", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.26, T.25 S., R.33 E., Hydrologic Unit 03090101, 40 ft north of County Road 532, 3.9 mi west of intersection of County Road 532 and County Road 419, and 8.7 mi east of New Eden. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 360 ft, cased to 246 ft.

INSTRUMENTATION.--Monthly measurements with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 59.68 ft above NGVD of 1929. Measuring point: Land-surface datum.

PERIOD OF RECORD.--December 1979 to September 1982 (semiannually); May 1984 to September 1992 (semiannually); October 1992 to September 1994 (monthly); May 1995 to September 2001 (semiannually); October 2001 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 41.06 ft above NGVD of 1929, Sept. 11, 1995; lowest measured, 32.24 ft above NGVD of 1929, May 13, 1981.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 28	37.64	JAN 28	37.93	APR 29	37.44	JUN 24	37.54	SEP 17	39.49
NOV 22	37.55	FEB 25	38.20	MAY 20	36.31	JUL 29	38.28	23	39.15
DEC 30	38.89	MAR 25	38.84	28	36.31	AUG 26	39.18		

WATER YEAR 2003    LOWEST    36.31    MAY 20, 28, 2003    HIGHEST    39.49    SEP 17, 2003

**WELL NUMBER.--281630081024401. TH-9 Nova Road 532 west (OSF-93) near New Eden, FL.**

LOCATION.--Lat 28°16'30", long 81°02'44", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.29, T.25 S., R.33 E., Hydrologic Unit 03090101, 20 ft north of County Road 532, 7.9 mi west of the intersection of County Road 532 and County Road 419 and 8.2 mi east of New Eden. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 405 ft, cased to 288 ft.

INSTRUMENTATION.--Monthly measurements with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 76.79 ft above NGVD of 1929. Measuring point: Top of casing 3.31 ft above land-surface datum.

PERIOD OF RECORD.--September 1980 to September 1992 (semiannually); October 1992 to September 1994 (monthly); May 1995 to September 2001 (semiannually); October 2001 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 42.99 ft above NGVD of 1929, Sept. 11, 1995; lowest measured, 35.43 ft above NGVD of 1929, May 13, 1981.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 28	40.76	JAN 28	41.16	APR 29	40.61	JUN 24	40.69	SEP 17	42.64
NOV 22	40.86	FEB 25	41.40	MAY 20	39.38	JUL 29	41.43	23	42.30
DEC 30	42.03	MAR 25	42.11	28	39.48	AUG 26	42.40		

WATER YEAR 2003    LOWEST    39.38    MAY 20, 2003    HIGHEST    42.64    SEP 17, 2003

## OSCEOLA COUNTY—Continued

**WELL NUMBER.--281714081093001. Lake Joel Well near Ashton, FL.**

LOCATION.--Lat 28°17'14", long 81°09'30", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.30, T.25 S., R.32 E., Hydrologic Unit 03090101, on southwest shore of Lake Joel, 0.8 mi north of State Highway 532, and 5.0 mi northeast of Ashton. Owner: Deseret Ranch.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 8 in., depth 750 ft, cased to 394 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 64.78 ft above NGVD of 1929. Measuring point: Top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--November 1969, May 1973 to November 1975 (bimonthly); December 1975 to current year. Prior to October 1977, published as (OS 213), Gulf American Co.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.68 ft above NGVD of 1929, Nov. 20, 1969; lowest daily maximum water level, 36.30 ft above NGVD of 1929, June 3, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	44.06	---	43.60	45.33	44.01	44.65	44.97	43.49	42.37	44.03	44.51	45.65
10	43.70	---	43.99	45.41	44.15	44.66	44.85	43.04	42.79	44.08	44.84	45.73
15	43.81	---	44.41	45.22	44.07	44.73	44.36	42.34	43.06	43.89	44.97	45.56
20	43.65	---	44.79	44.77	44.09	44.86	44.04	41.93	43.26	44.07	45.11	45.38
25	43.45	43.49	45.06	44.18	44.26	44.95	43.58	42.29	43.63	44.11	45.38	45.19
EOM	43.31	43.61	45.17	44.23	44.39	44.92	43.50	42.37	43.87	44.28	45.42	45.36
MAX	44.18	---	45.17	45.41	44.43	45.17	45.02	43.57	43.87	44.29	45.46	45.79

**WELL NUMBER.--281719081134001. South Eagle Road Grove Well at Narcoossee, FL.**

LOCATION.--Lat 28°17'19", long 81°13'40", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.28, T.25 S., R.31 E., Hydrologic Unit 03090101, in orange grove 0.1 mi southwest of South Eagle Road, in Narcoossee. Owner: Mrs. C. Fulmer.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, irrigation, artesian well, diameter 8 in., depth 474 ft, cased to 239 ft.

INSTRUMENTATION.--Monthly measurements with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 78.00 ft above NGVD of 1929. Measuring point: Top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--May 1979 to September 1992 (semiannually); October 1992 to September 1994 (monthly); May 1995 to May 1996 (semiannually); October 2001 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.88 ft above NGVD of 1929, May 15, 1980; lowest measured, 38.44 ft above NGVD of 1929, May 18, 1995.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	44.00	DEC 30	46.24	FEB 25	45.99	APR 29	44.59	JUN 23	44.82	AUG 26	46.73
NOV 22	46.90	JAN 28	45.39	MAR 25	46.28	MAY 28	43.29	JUL 29	45.53	SEP 22	46.36
WATER YEAR 2003		LOWEST	43.29	MAY 28, 2003		HIGHEST	46.90	NOV 22, 2002			

## OSCEOLA COUNTY—Continued

**WELL NUMBER.--281722080543001. OS-171 Well near Deer Park, FL.**

LOCATION.--Lat 28°17'22", long 80°54'30", in SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.22, T.25 S., R.34 E., Hydrologic Unit 03080101, on ranch road, 0.9 mi east of State Highway 532, 3.6 mi south of K-6 Ranch Headquarters, and 13.5 mi north of Deer Park. Owner: U.S. Geological Survey.

AQUIFER.--Nonartesian sand of the surficial aquifer system, Geologic Unit 112 NRSD.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 6 in., depth 19 ft, cased to 12.7 ft, gravel packed, 11 to 19 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 31.60 ft above NGVD of 1929. Measuring point: Top of casing, 3.32 ft above land-surface datum.

PERIOD OF RECORD.--October 1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 33.56 ft above NGVD of 1929, Sept. 23, 1960; lowest, 26.32 ft above NGVD of 1929, July 28, 1981.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	31.03	31.19	31.07	31.46	30.87	31.36	31.01	30.98	31.24	31.05	31.71	31.30
10	31.31	30.98	32.24	31.26	31.04	31.39	30.86	30.66	31.17	30.65	---	31.12
15	31.52	30.84	31.67	31.15	30.82	31.15	30.42	---	30.84	30.60	---	30.83
20	31.16	31.33	31.52	31.07	30.83	31.28	29.99	---	31.25	30.58	---	31.20
25	31.55	31.14	31.83	30.96	31.23	31.50	30.47	---	31.19	31.01	---	31.23
EOM	31.19	31.00	31.77	30.91	31.44	31.27	31.31	29.50	31.36	31.60	31.27	31.95
MAX	31.55	31.58	32.24	32.38	31.44	31.60	31.31	---	31.42	31.60	---	32.50

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

211

OSCEOLA COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
274307080582401	05-20-03 09-17-03	0637 0633	OSF-42	43.31 46.53
275347081022601	05-20-03 09-17-03	0556 0603	OSF-62 TEST WELL	42.40 45.77
280036080563801	05-19-03 09-16-03	1319 1327	OS-0019 BULL CR LOOP RD	40.89 44.26
280141081112701	05-20-03 09-17-03	0541 0548	OSF-66 TEST WELL	46.58 50.29
280418081160401	05-20-03 09-17-03	0929 0725	OSF-64 TEST	49.70 53.12
280829080574001	05-20-03 09-16-03	1217 1427	808057 27S34E18 TH-6 DEER PARK NW	40.98 44.39
280823081210301	05-19-03	0719	OSF-53 S-61 WELL NR ALCOMA	50.29
281023081075401	05-19-03 09-16-03	1021 1017	OSF-68 TEST WELL	41.75 42.14
281105080541401	05-20-03 09-16-03	1140 1456	811054-- 26S34E34 RODEO FIELD DEER PARK NW	37.80 40.44
281146081211701	05-19-03 09-16-03	0848 0912	CECIL WHALEY WELL	49.27 53.16
281354080563301	05-20-03 09-17-03	1112 1008	813056 26S34E08 TH-4 DEER PARK NW	38.87 42.21
281456081171701	05-19-03 09-16-03	0913 0933	ST.CLOUD POWER PLANT WELL	41.53 45.62
281506081194601	05-19-03 09-16-03	0817 0823	OSF-70 TEST WELL	45.57 50.19
281632080515001	05-20-03 09-18-03	1324 0748	DSR-38 LAKE POINSETT NR ROCKLEDGE, FL	37.25 39.90
281937081245901	05-19-03 09-16-03	0554 0613	81912401 25S29E09 OS U.L	40.87 47.21

KEY TO SITE LOCATIONS ON FIGURE 21  
PASCO COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	281654082065901	214
2	282259082104101	214

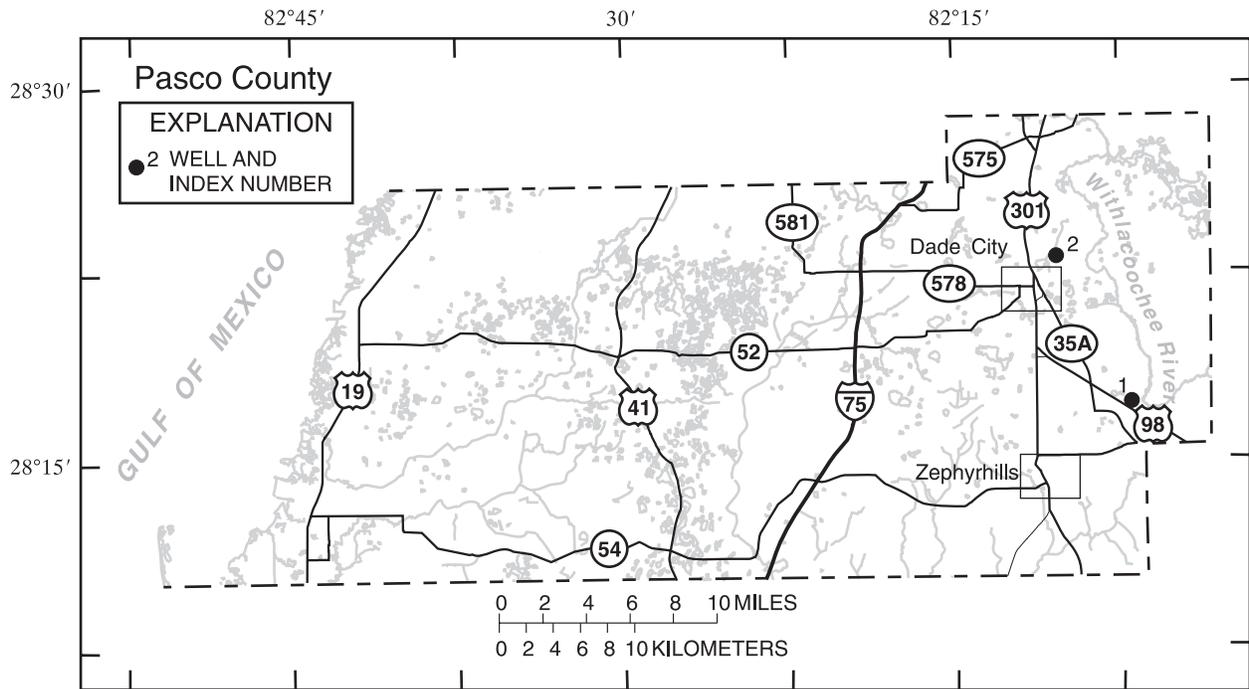


Figure 21.--Location of wells in Pasco County.

PASCO COUNTY

**WELL NUMBER.--281654082065901. U.S. Highway 98 Well near Dade City, FL.**

LOCATION.--Lat 28°16'54", long 82°06'59", in SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.28, T.25 S., R.22 E., Hydrologic Unit 03100208, on north side of U.S. Highway 98, 2.9 mi north of intersection of State Highway 54, and 7.8 mi southeast of Dade City. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 3 in., depth 200 ft, cased to 41 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 83.77 ft above NGVD of 1929. Measuring point: Top of casing, 3.10 ft above land-surface datum.

PERIOD OF RECORD.--May 1976, January 1977 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 80.68 ft above NGVD of 1929, Oct. 11, 1995; lowest measured, 68.72 ft above NGVD of 1929, June 4, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	78.42	FEB 12	79.16	MAY 22	78.97	JUL 25	80.06	SEP 26	80.37
DEC 17	80.13	APR 10	79.21	JUN 04	78.48	SEP 15	80.09		
WATER YEAR 2003		LOWEST	78.42	OCT 21, 2002	HIGHEST	80.37	SEP 26, 2003		

**WELL NUMBER.--282259082104101. Lykes Pasco Well near Dade City, FL.**

LOCATION.--Lat 28°22'59", long 82°10'41", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.23, T.24 S., R.21 E., Hydrologic Unit 03100208, 0.5 mi east of confluence of Pasco Packing Company and Evans Packing Company canals, and 2 mi northeast of Dade City. Owner: Lykes Pasco Packing Co.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 4 in., depth 36 ft, casing length unknown.

INSTRUMENTATION.--Water-stage recorder--60-minute interval. Prior to March 2003, monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 73.81 ft above NGVD of 1929. Measuring point: Top edge of flange on casing, 4.13 ft above land-surface datum.

PERIOD OF RECORD.--April 1973 to September 1992; October 1992 to February 2003 (monthly), March 2003 to September 2003.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 75.19 ft above NGVD of 1929, Mar. 23, 1998; lowest measured, 57.38 ft above NGVD of 1929, June 21, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	68.23	NOV 26	67.24	DEC 31	69.61	JAN 28	69.91	FEB 25	69.36
WATER YEAR 2003		LOWEST	67.24	NOV 26, 2002	HIGHEST	69.91	JAN 28, 2003		

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	69.88	68.89	68.06	71.12	71.89	72.62
10	---	---	---	---	---	---	69.83	68.71	68.29	71.25	72.10	72.79
15	---	---	---	---	---	---	69.60	68.55	68.57	71.61	72.08	73.01
20	---	---	---	---	---	---	69.36	68.39	68.98	71.57	72.08	72.92
25	---	---	---	---	---	69.72	69.10	68.42	70.14	71.72	72.54	72.87
EOB	---	---	---	---	---	69.86	68.95	68.29	70.78	71.90	72.62	72.93
MAX	---	---	---	---	---	---	69.88	68.92	70.78	71.96	72.62	73.02

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

215

PASCO COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
281942082112801	05-22-03 09-15-03	1000 1008	MUNBURY DR WELL AT DADE CITY, FL	68.43 74.48
282121082071101	05-22-03 09-15-03	1025 1050	82120702 24S22E32 CUMMER OFFICE WELL	75.04 77.34
282154082142401	05-22-03 09-15-03	0936 0942	82121401 24S21E30 HAYCRAFT WELL	70.48 76.72
282221082103001	09-15-03	1030	82221001 24S21E26 COLLURA WELL NO 1	75.23
282428082134501	05-22-03 09-15-03	0915 0923	82421301 24S21E08 LEE WELL	67.23 74.31
282430082112101	05-22-03 09-15-03	0851 0900	82421102 24S21E10 SELF WELL	66.41 73.18
282717082142001	05-22-03 09-15-03	0826 0837	82721401 23S21E30 ROSSINI WELL WEST OF TRILBY	58.30 66.67
282816082123701	05-22-03 09-15-03	0811 0818	82821201 23S21E21 TOMKOW HAY BARN WELL	53.58 61.45

KEY TO SITE LOCATIONS ON FIGURE 22  
POLK COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	273929081080601	218
2	274812081190301	218
3	274815081130301	219
4	274846081262001	219
5	280503081552801	220
6	280531081431601	220
7	280556081532601	221
8	280715081543501	221
8	280719081543301	222
9	281008081441801	222
9	281008081441802	223
10	281057081495002	223
11	281202081391701	224
12	281312082011601	224

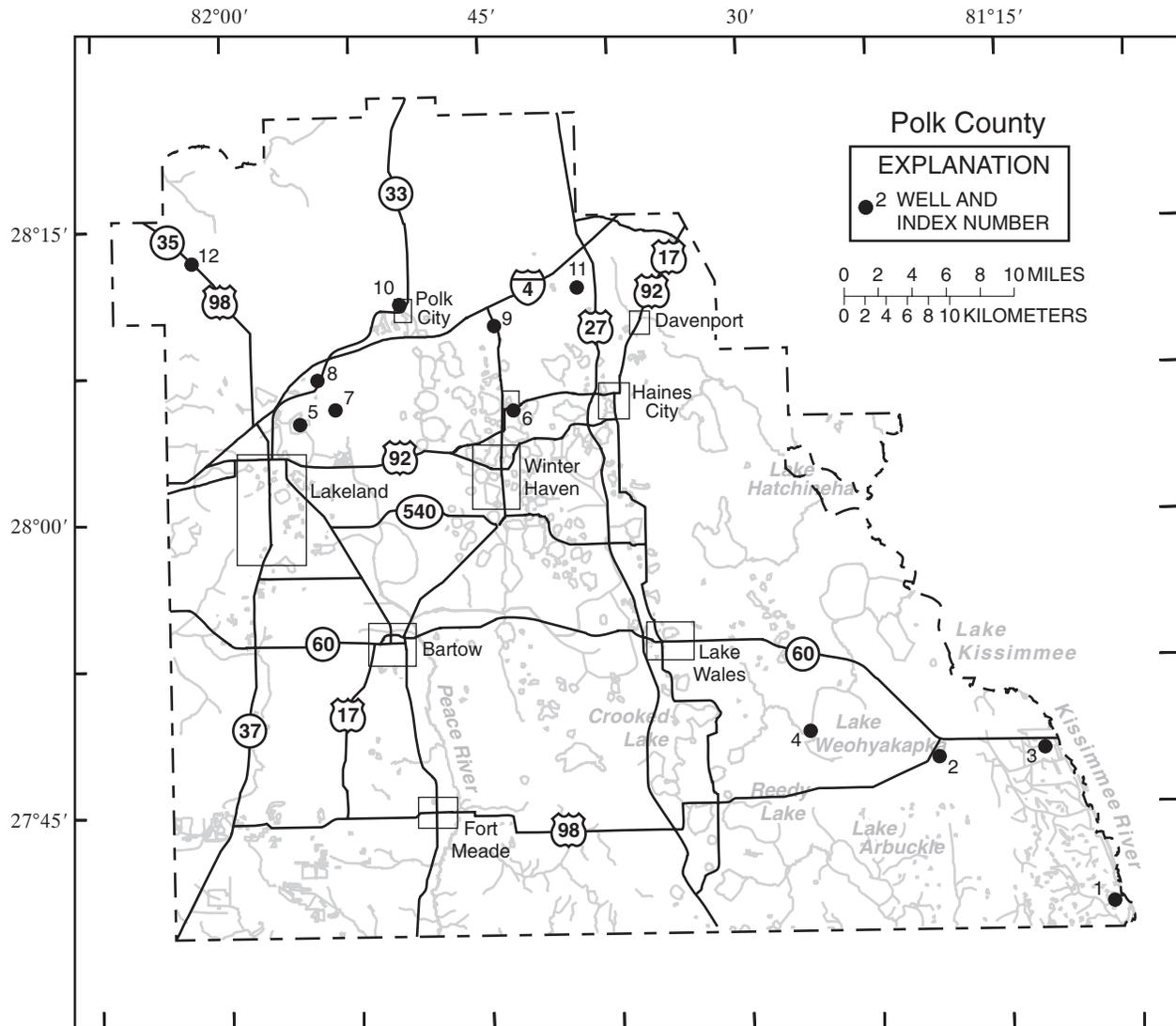


Figure 22.--Location of wells in Polk County.

## POLK COUNTY

**WELL NUMBER.--273929081080601. S-65A (POF-20) Well near Yeehaw Junction, FL.**

LOCATION.--Lat 27°39'29", long 81°08'06", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.28, T.32 S., R.32 E., Hydrologic Unit 03090101, on right bank of the Kissimmee River S-65A lock structure, 7.7 mi southwest of State Road 60, 18.7 mi southwest of Yeehaw Junction. Owner: South Florida Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 8 in., depth 1000 ft, casing length unknown.

INSTRUMENTATION.--Monthly measurements with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 50.80 ft above NGVD of 1929. Measuring point: Top of casing, 1.68 ft above land-surface datum.

PERIOD OF RECORD.--May 1983 to September 1993 (semiannually); November 1993 to September 1994 (monthly); May 1995 to September 2001 (semiannually); October 2001 to September 2002 (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 47.75 ft above NGVD of 1929, May 15, 1996; lowest, 40.68 ft above NGVD of 1929, May 16, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 29	44.55	JAN 27	44.21	APR 28	44.22	JUN 23	44.49	AUG 27	46.02
NOV 21	44.36	FEB 24	44.69	MAY 20	43.18	JUL 28	45.12	SEP 17	46.36
DEC 30	45.64	MAR 24	45.37	27	43.27	AUG 05	45.33	22	45.91

WATER YEAR 2003    LOWEST    43.18    MAY 20, 2003    HIGHEST    46.36    SEP 17, 2003

**WELL NUMBER.--274812081190301. P-49 Well near Frostproof, FL.**

LOCATION.--Lat 27°48'12", long 81°19'03", in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.9, T.31 S., R.30 E., Hydrologic Unit 03090101, on south side of State Highway 630, 0.2 mi west of State Highway 60, and 12.0 mi east of Frostproof. Owner: U.S. Geological Survey.

AQUIFER.--Nonartesian sand aquifer of the Pleistocene Age, Geologic Unit 112 NRSD.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 6 in., depth 17 ft, cased to 14 ft, gravel-packed from 14 to 17 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 104.93 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 3.38 ft above land-surface datum.

PERIOD OF RECORD.--April 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 105.38 ft above NGVD of 1929, June 18, 1982; lowest, 98.61 ft above NGVD of 1929, June 5, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	103.39	102.89	102.76	103.69	102.59	102.69	102.92	102.70	102.60	104.28	104.41	104.51
10	103.18	102.69	104.64	103.45	102.48	102.69	102.69	102.13	103.62	103.96	104.64	103.96
15	102.99	102.49	104.22	103.31	102.32	102.27	102.39	101.82	102.99	104.16	104.24	103.63
20	102.79	103.37	103.94	103.08	102.23	103.39	102.14	102.39	103.89	103.92	104.99	103.65
25	103.65	103.22	104.23	102.90	102.42	103.67	101.97	---	103.74	103.65	104.40	103.61
EOM	103.17	102.95	103.89	102.74	102.28	103.31	102.88	---	104.13	104.21	104.12	104.56
MAX	103.69	104.20	104.64	104.34	102.71	104.12	103.21	---	---	104.60	104.99	104.56

## POLK COUNTY—Continued

**WELL NUMBER.--274815081130301. River Ranch Well near Indian Lake Estates, FL.**

LOCATION.--Lat 27°48'15", long 81°13'03", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.10, T.31 S., R.31 E., Hydrologic Unit 03090101, 92 ft south of State Highway 60, 1.0 mi west of Kissimmee River Bridge, and 6.5 mi east of Indian Lake Estates. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 300 ft, cased to 185 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 55.17 ft above NGVD of 1929. Prior to Oct. 1, 1977, datum was considered to be 55.64 ft, and Oct. 1, 1977 to Sept. 30, 1978, at 55.34 ft above NGVD of 1929. Measuring point: Top of casing, 0.37 ft below land-surface datum.

PERIOD OF RECORD.--May 1974 to September 1984 (bimonthly); October 1984 to September 1986 (monthly); October 1986 to September 1995 (bimonthly); October 1996 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.23 ft above NGVD of 1929, Mar. 10, 1998; lowest measured, 41.02 ft above NGVD of 1929, June 22, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	45.36	FEB 13	45.89	MAY 20	45.18	JUL 28	46.84	SEP 22	47.72
DEC 19	46.55	APR 09	45.61	JUN 04	45.69	SEP 16	48.16		
WATER YEAR 2003		LOWEST	45.18	MAY 20, 2003	HIGHEST	48.16	SEP 16, 2003		

**WELL NUMBER.--274846081262001. Lake Weohyakapka Well near Frostproof, FL.**

LOCATION.--Lat 27°48'46", long 81°26'20", in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.5, T.31 S., R.29 E., Hydrologic Unit 03090101, on southwest shore of Lake Weohyakapka, at county boat ramp, and 8.0 mi east of Frostproof. Owner: Polk County.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, artesian well, diameter 3 in., depth 199 ft, cased to 153 ft.

INSTRUMENTATION.--Bimonthly measurement with pressure gage.

DATUM.--Elevation of land-surface datum is 65.15 ft above NGVD of 1929. Prior to Oct. 1, 1977, datum was considered to be 65 ft, from topographic map, and Oct. 1, 1977, to Sept. 30, 1978, at 65.30 ft above NGVD of 1929. Measuring point: Spigot on discharge line, 1.85 ft above land-surface datum.

PERIOD OF RECORD.--February 1958, December 1959, June 1969 to September 1984 (bimonthly); October 1984 to September 1986 (monthly); October 1986 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 88.35 ft above NGVD of 1929, present datum, Dec. 15, 1959; lowest measured, 72.27 ft above NGVD of 1929, May 20, 1981.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	81.40	FEB 13	82.00	MAY 20	79.80	JUL 28	83.00	SEP 22	82.50
DEC 18	82.30	APR 09	83.00	JUN 04	80.00	SEP 16	84.60		
WATER YEAR 2003		LOWEST	79.80	MAY 20, 2003	HIGHEST	84.60	SEP 16, 2003		

## POLK COUNTY—Continued

**WELL NUMBER.--280503081552801. Fish Lake Deep Well near Lakeland, FL.**

LOCATION.--Lat 28°05'03", long 81°55'28", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.32, T.27 S., R.24 E., Hydrologic Unit 03100101, 50 ft east of Lake Park Drive, 1.4 mi south of Old Combee Road, and 3.5 mi northeast of Lakeland. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 4 in., depth 311 ft, cased to 265 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 135.93 ft above NGVD of 1929. Measuring point: Top of casing, .90 ft above land-surface datum. Prior to Aug. 2, 2000, elevation of land-surface datum was 134.84 ft above NGVD of 1929. Measuring Point: Top of casing 3.65 ft above NGVD of 1929.

PERIOD OF RECORD.--December 1955 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 120.97 ft above NGVD of 1929, Aug. 8, 1960; lowest measured, 103.60 ft above NGVD of 1929, May 10, 1976.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	113.13	FEB 10	115.50	MAY 19	111.91	JUL 24	115.63	SEP 26	115.00
DEC 18	115.89	APR 14	115.48	JUN 04	112.71	SEP 17	115.60		
WATER YEAR 2003		LOWEST	111.91	MAY 19, 2003	HIGHEST	115.89	DEC 18, 2002		

**WELL NUMBER.--280531081431601. Lake Alfred Deep Well at Lake Alfred, FL.**

LOCATION.--Lat 28°05'31", long 81°43'16", in SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.33, T.27 S., R.26 E., Hydrologic Unit 03100101, on northeast corner at intersection of Glencruiten Avenue and Haines Boulevard at Lake Alfred. Owner: City of Lake Alfred.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 12 in., depth 555 ft, cased to 282 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 171.04 ft, above NGVD of 1929. Measuring point: Top of recorder shelter floor, 3.46 ft above land-surface datum. Prior to May 1988, at elevation 3.12 ft lower.

PERIOD OF RECORD.--May 1973 to February 1976 (quarterly), incomplete; March 1976 to September 1992; October 1992 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 126.51 ft above NGVD of 1929, July 10, 1974; lowest daily maximum water level, 109.13 ft above NGVD of 1929, May 15, 1981.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	121.62	JAN 28	120.92	APR 29	121.39	JUN 24	124.20	SEP 15	123.75
NOV 25	122.12	FEB 25	123.63	MAY 19	120.39	JUL 29	123.26	23	122.22
DEC 30	123.55	MAR 25	124.46	28	122.26	AUG 27	125.11		
WATER YEAR 2003		LOWEST	120.39	MAY 19, 2003	HIGHEST	125.11	AUG 27, 2003		

## POLK COUNTY—Continued

**WELL NUMBER.--280556081532601. Tennorock Road Well near Lakeland, FL.**

LOCATION.--Lat 28°05'56", long 81°53'26", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.27, T.27 S., R.24 E., Hydrologic Unit 03100101, on south side of Tennorock Road, 0.9 mi east of Alternate State Highway 33, and 5.4 mi northeast of Lakeland. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 3 in., depth 72 ft, cased to 45 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 132.01 ft above NGVD of 1929. Measuring point: Top of casing, 2.30 ft above land-surface datum.

PERIOD OF RECORD.--February 1956 to February 1960 (monthly), incomplete; June 1960 to May 1961 and January 1963 to September 1977 (about thrice yearly); October 1977 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 124.71 ft above NGVD of 1929, Feb 3, 1998; lowest measured, 96.15 ft above NGVD of 1929, May 7, 1968.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 18	120.56	FEB 10	121.82	MAY 19	119.12	JUL 24	122.15	SEP 26	121.51
DEC 18	122.50	APR 14	121.57	JUN 04	119.69	SEP 17	122.19		

WATER YEAR 2003    LOWEST 119.12 MAY 19, 2003    HIGHEST 122.50 DEC 18, 2002

**WELL NUMBER.--280715081543501. Combee Road Deep Well near Lakeland, FL.**

LOCATION.--Lat 28°07'07", long 81°54'30", in SW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.21, T.27 S., R.24 E., Hydrologic Unit 03100101, at the intersection of State Highway 33 and Combee Road, 1.5 mi southwest of Interstate Highway 4, and 7.3 mi northeast of Lakeland. Owner: U.S. Geological Survey.

AQUIFER.--Hawthorn Formation of Miocene Age, Geologic Unit 122 HTRN.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 3 in., depth 55 ft, cased to 31 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 136.20 ft above NGVD of 1929. Measuring point: Top of casing, 0.86 ft above land-surface datum. Aug. 10, 1999 to May 7, 2000, measuring point 0.18 ft above land-surface datum. June 30, 1991 to Aug. 9, 1999, measuring point 3.41 ft above land-surface datum. Prior to June 30, 1991, measuring point 2.80 ft above land-surface datum.

PERIOD OF RECORD.--January 1956 to September 1977 (thrice yearly); October 1977 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 136.92 ft above NGVD of 1929, July 7, 1959; lowest measured, 118.56 ft above NGVD of 1929, Nov. 6, 1964.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 18	133.36	FEB 10	133.44	MAY 22	132.87	JUL 24	133.42	SEP 17	133.45
DEC 18	134.69	APR 14	133.26	JUN 04	133.14	AUG 06	133.92	26	133.29

WATER YEAR 2003    LOWEST 132.87 MAY 22, 2003    HIGHEST 134.69 DEC 18, 2002

## POLK COUNTY—Continued

**WELL NUMBER.--280719081543301. Combee Road Shallow Well near Lakeland, FL.**

LOCATION.--Lat 28°07'06", long 81°54'31", in SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.21, T.27 S., R.24 E., Hydrologic Unit 03100101, at the intersection of State Highway 33 and Combee Road, 1.5 mi southwest of Interstate Highway 4, and 7.3 mi northeast of Lakeland. Owner: U.S. Geological Survey.

AQUIFER.--Nonartesian sand aquifer of Pleistocene Age, Geologic Unit 112 NRS D.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 1.25 in., depth 9 ft, cased to 8 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 136.45 ft above NGVD of 1929. Measuring point: Top of casing, 3.63 ft above land-surface datum. June 30, 1991 to Oct. 5, 1999, measuring point 1.06 ft above land-surface datum. Prior to June 30, 1991, measuring point 3.00 ft above land-surface datum.

PERIOD OF RECORD.--August 1955 to September 1977 (thrice yearly); October 1977 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 136.97 ft above NGVD of 1929, Oct. 10, 1995; well observed dry, Nov. 16, 1964.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 18	134.10	FEB 10	133.89	MAY 22	133.31	JUL 24	133.82	SEP 17	133.83
DEC 18	135.44	APR 14	134.25	JUN 04	133.85	AUG 06	134.69	26	133.61
WATER YEAR 2003		LOWEST	133.31	MAY 22, 2003	HIGHEST	135.44	DEC 18, 2002		

**WELL NUMBER.--281008081441801. Lake Alfred Deep Well near Lake Alfred, FL.**

LOCATION.--Lat 28°10'08", long 81°44'18", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.5, T.27 S., R.26 E., Hydrologic Unit 03100208, on west side of Pit Road, 100 ft north of intersection with State Highway 557, 1.2 mi south of Interstate Highway 4, and 5.0 mi north of Lake Alfred. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 425 ft, cased to 102 ft.

INSTRUMENTATION.--Water-stage recorder--60-minute interval.

DATUM.--Elevation of land-surface datum is 137.38 ft above NGVD of 1929. Measuring point: Top of casing, 2.25 ft above land-surface datum.

PERIOD OF RECORD.--July 1959 to November 1960 (monthly); December 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 131.18 ft above NGVD of 1929, Mar. 21, 1998; lowest, 119.85 ft above NGVD of 1929, May 3, 1974.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	128.61	127.85	127.93	129.97	128.94	129.52	129.26	128.43	127.86	129.76	129.92	130.05
10	128.26	127.74	128.65	129.77	129.06	129.52	128.88	127.44	128.71	129.51	130.07	129.90
15	128.39	127.81	129.33	129.79	129.14	129.40	128.54	127.13	129.05	129.44	130.01	129.51
20	128.28	128.24	129.49	128.58	129.16	129.45	127.81	127.90	129.34	129.65	129.97	128.41
25	128.01	128.13	129.72	126.14	129.25	129.66	127.44	128.49	129.58	129.61	130.12	128.60
EOM	128.22	128.06	129.92	128.81	129.28	129.54	128.23	128.07	129.67	129.76	130.00	129.20
MAX	128.96	128.34	129.92	130.14	129.33	129.74	129.46	128.51	129.67	129.77	130.13	130.07

## POLK COUNTY—Continued

**WELL NUMBER.--281008081441802. Lake Alfred Shallow Well near Lake Alfred, FL.**

LOCATION.--Lat 28°10'08", long 81°44'18", in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.5, T.27 S., R.26 E., Hydrologic Unit 03100208, on west side of Pit Road, 100 ft north of intersection with State Highway 557, 1.2 mi south of Interstate Highway 4, and 5.0 mi north of Lake Alfred. Owner: U.S. Geological Survey.

AQUIFER.--Nonartesian sand aquifer of the Tertiary Quaternary Age, Geologic Unit 111 NRSB.

WELL CHARACTERISTICS.--Drilled, observation, nonartesian well, diameter 6 in., depth 9 ft, cased to 6 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 137.17 ft above NGVD of 1929. Measuring point: Top of casing, 2.40 ft above land-surface datum.

PERIOD OF RECORD.--October 1960 to September 1977 (monthly); October 1977 to September 1983 (bimonthly); October 1983 to September 1997, April 1998 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 137.02 ft above NGVD of 1929, Aug. 23, 1999; well observed dry on numerous visits.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 30	131.56	MAR 25	133.35	MAY 28	131.37	AUG 14	133.11	SEP 17	131.89
DEC 30	133.83	APR 29	131.94	JUN 24	131.15	27	132.74		
FEB 25	132.39	MAY 19	131.40	JUL 29	132.69	SEP 16	131.77		

WATER YEAR 2003    LOWEST 131.15 JUN 24, 2003    HIGHEST 133.83 DEC 30, 2002

**WELL NUMBER.--281057081495002. ROMP 76A Well near Polk City, FL.**

LOCATION.--Lat 28°10'57", long 81°49'50", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.32, T.26 S., R.25 E., Hydrologic Unit 03100208, in pasture at end of Pine Avenue, 0.3 mi north of State Highway 33 in Polk City. Owner: Southwest Florida Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 6 in., depth 315 ft, cased to 264 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 136.79 ft above NGVD of 1929. Measuring point: Top of casing, 3.40 ft above land-surface datum.

PERIOD OF RECORD.--November 1978 to September 1992; October 1992 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 132.84 ft above NGVD of 1929, Mar. 23, 1998; lowest measured, 119.37 ft above NGVD of 1929, May 16, 1981.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 30	129.32	JAN 28	129.59	APR 29	129.13	JUN 24	131.01	SEP 17	130.44
NOV 25	129.14	FEB 25	130.70	MAY 19	128.54	JUL 29	130.95	23	129.79
DEC 30	131.29	MAR 25	131.26	28	129.35	AUG 27	131.52		

WATER YEAR 2003    LOWEST 128.54 MAY 19, 2003    HIGHEST 131.52 AUG 27, 2003

## POLK COUNTY—Continued

**WELL NUMBER.--281202081391701. PO-1 Thornhill Deep Well near Davenport, FL.**

LOCATION.--Lat 28°12'02", long 81°39'17", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec.19, T.26 S., R.19 E., Hydrologic Unit 03080102, on dirt road 0.8 mi east of State Highway 27, and 2.0 mi south of the intersection State Highway 27 and Interstate Highway 4 and 4.2 mi northwest of Davenport. Owner: St. Johns River Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, unused, diameter 4 in., depth 151 ft, casing length unknown.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 133.21 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 2.20 ft above land-surface datum.

PERIOD OF RECORD.--May 1983 to October 1985 (semiannually); October 1985 to September 1996; October 1996 to September 2001 (semiannually); October 2001 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 129.06 ft above NGVD of 1929, Sept. 12, 1983; lowest measured, 118.90 ft above NGVD of 1929, May 16, 2001.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	125.47	JAN 28	126.86	APR 29	126.35	JUN 24	127.07	SEP 17	128.39
NOV 25	125.57	FEB 25	127.37	MAY 19	125.82	JUL 29	127.90	23	128.40
DEC 30	127.24	MAR 25	127.53	28	126.47	AUG 27	129.01		
WATER YEAR 2003		LOWEST 125.47 OCT 30, 2002		HIGHEST 129.01		AUG 27, 2003			

**WELL NUMBER.--281312082011601. ROMP 87 Well near Lakeland, FL.**

LOCATION.--Lat 28°13'12", long 82°01'25", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$  sec.17, T.26 S., R.23 E., Hydrologic Unit 03100208, 2.35 mi northwest of intersection of U.S. Highway 98 and Rock Ridge Road, and 14.5 mi northwest of Lakeland. Owner: Southwest Florida Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 6 in., depth 380 ft, cased to 300 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 107.52 ft above NGVD of 1929. Measuring point: Top of casing, 3.73 ft above land-surface datum.

PERIOD OF RECORD.--January 1981 to September 1992; October 1992 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 105.78 ft above NGVD of 1929, Dec. 29, 1997; lowest measured, 94.88 ft above NGVD of 1929, June 27, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	103.30	JAN 28	103.51	APR 29	102.59	JUN 24	104.53	SEP 15	103.77
NOV 26	102.91	FEB 25	103.93	MAY 19	101.63	JUL 29	104.51	23	103.37
DEC 31	104.71	MAR 25	104.58	28	102.01	AUG 26	104.86		
WATER YEAR 2003		LOWEST 101.63 MAY 19, 2003		HIGHEST 104.86		AUG 26, 2003			

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

225

POLK COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
273903081185201	05-20-03 09-16-03	0936 0843	73911801 33S30E06 USAF AVON PARK #1	70.69 74.79
274552081115201	05-20-03 09-16-03	1156 1135	RIVER RANCH REPLACEMENT WELL	40.01 43.69
274746081202201	09-16-03	1020	747120 31S30E08 INDIAN LK ESTATES GOLF COURSE	71.36
275137081252501	05-20-03 09-16-03	0925 0935	751125 30S29E21 E. LK. WALES UTILITY	78.08 82.68
275622081252301	05-20-03 09-16-03	1340 1222	756125 29S29E28 L ROSALIE NW	57.76 60.49
275634081211801	05-20-03 09-16-03	1310 1252	756121 29S30E19 KISS STPK NR LK KISSIMMEE	55.30 58.92
280153081274101	05-20-03 09-16-03	1430 1354	801127 28S29E19 LK HATCHI NR HAINES CITY	68.09 70.09
280558081314801	05-20-03 09-16-03	1455 1440	805131 27S28E29 KIMBELL WELL NR LK MARION	71.22 73.27
281058081495002	05-19-03 09-17-03	1019 1017	USGS 1.75" DRILL PIPE INNER MONITOR AT POLK CITY	128.28 130.43
281058081495003	05-19-03 09-17-03	1022 1020	USGS 4" ANNULAR MONITOR AT POLK CITY	127.39 129.43
281058081495004	05-19-03 09-17-03	1015 1014	USGS CORE HOLE 2 AT POLK CITY	125.23 127.10
281202081391702	09-17-03	1225	PO-2 THORNHILL SH NR DAVENPORT	130.93
281317081491301	05-19-03 08-12-03 09-17-03	1036 1252 1036	813149423 26S25E16	126.22 128.93 127.95
281317081491302	05-19-03 08-12-03 09-17-03	1036 1250 1038	81314902 26S25E16	127.81 130.62 129.10
281440081431701	05-19-03 09-17-03	1135 1126	814143232 26S26E04	126.89 128.30
281440081431702	05-19-03 09-17-03	1136 1130	81414302 26S26E04	129.66 130.61
281511081393101	05-19-03 08-07-03 09-15-03	1340 1620 0820	815139342 26S26E01	122.22 123.79 125.76
281532081345001	05-19-03 09-17-03	1213 1158	815134134 26S27E02 LOUGHMAN DP WELL NR LOUGHMAN	89.34 91.03
281532081345002	05-19-03 09-17-03	1312 1203	815134134A26S27E02 LOUGHMAN SH WELL NR LOUGHMAN	91.55 93.80
281532081493001	05-19-03 09-17-03	1107 1100	815149233 25S25E32	124.13 125.72
281837081544101	05-23-03 09-16-03	0825 0840	ROMP 88 DEEP NR ROCKRIDGE FL	104.47 105.35

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

273903081185201 -- 73911801 33S30E06 USAF AVON PARK #1

Date	Time	Depth of well, feet below LSD (72008)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unfiltered 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)
07-15-03	1300	1,035	8.2	8.3	154	25.7	70	17.0	6.10	0.50

Date	Time	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfiltered end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat fltrd (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)
07-15-03	3.0	65	65	<0.1	4.50	0.1	11.0	6.00	104	<0.20	0.02

Date	Time	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	Strontium, water, fltrd, ug/L (01080)
07-15-03		<0.02	<0.010	<0.01	<0.02	0.1	5	<1	1,910

273929081080601 -- S-65A(POF-20)WELL NR YEEHAW JUNCTION FL

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unfiltered 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
08-05-03	1210	1,000	0.1	7.5	7.9	489	24.6	170	35.0	19.0

Date	Time	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfiltered end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat fltrd (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-05-03	1.90	29.0	29.0	123	0.2	51.0	0.5	26.0	41.0	285	0.30

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	Strontium, water, fltrd, ug/L (01080)
08-05-03		0.26	<0.02	<0.010	<0.01	<0.02	1.6	<2	<1	5,460

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

227

273929081080603 -- S-65A OSS-75 NR YEEHAW JUNCTION FL

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unfiltered 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	
08-05-03	1200	35	0.7	7.3	8.0	496	24.0	180	63.0	5.40	
Date	Time	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfiltered fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-05-03	1.30	32.0	201	0.2	34.0	0.5	28.0	1.90	292	0.50	
Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)	
08-05-03		0.38	<0.02	<0.010	<0.01	<0.02	4.6	293	16	510	

274155081573201 -- FT GREEN SGS RD WELL NR BRADLEY JCT FL

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unfiltered 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	
08-06-03	1550	302	0.1	7.3	7.9	577	25.2	230	46.0	27.0	
Date	Time	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfiltered fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-06-03	1.80	30.0	182	0.3	61.0	2.3	43.0	15.0	351	0.30	
Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)	
08-06-03		0.29	<0.02	<0.010	0.02	0.02	1.4	92	10	710	

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

274532081320601 -- FROSTPROOF WATERPLANT 2 WELL 4 IN FROSTPROOF FL

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)
07-17-03	1000	1,082	0.2	7.2	7.7	376	25.7	170	46.0	14.0

Date	Time	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
07-17-03	2.40	8.1	128	0.1	13.0	0.2	22.0	44.0	272	0.30	

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)
07-17-03		0.24	<0.02	<0.010	0.03	0.03	2.1	20	4	1,650

274547081470901 -- ROMP 45 HAWTHORN WELL AT FT MEADE FL

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)
08-06-03	1050	192	0.2	7.3	8.0	310	24.4	150	34.0	16.0

Date	Time	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-06-03	0.90	7.5	151	<0.1	6.10	0.8	39.0	6.90	199	<0.20	

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)
08-06-03		0.04	<0.02	<0.010	<0.01	<0.02	0.2	7	<1	160

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

229

274547081470902 -- ROMP 45 WELL NO2 NR FT MEADE FL

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
08-06-03	1258	440	0.1	7.6	7.9	368	27.2	170	43.0	15.0

Date	Time	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-06-03	1.60	7.9	140	0.1	11.0	0.4	18.0	36.0	229	<0.20	

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)
08-06-03	0.20	<0.02	<0.02	<0.010	0.02	<0.02	1.0	2	<1	2,590

274547081470904 -- ROMP 45 SHALLOW

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unfltrd uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
08-06-03	1210	58	4.1	7.6	8.0	315	26.7	140	30.0	15.0

Date	Time	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-06-03	0.50	6.6	113	0.1	14.0	0.3	20.0	1.90	181	<0.20	

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)
08-06-03	<0.01	6.20	<0.010	<0.01	<0.02	0.2	<2	<1	26.0	

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

**274552081115201 -- RIVER RANCH REPLACEMENT WELL**

Date	Time	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specific conductance, wat unfiltered, uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)
09-09-03	0845	0.1	7.7	7.9	335	25.0	140	25.0	16.0	1.30

Date	Time	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfiltered end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat fltrd, mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)
09-09-03	12.0	135	135	0.1	17.0	0.6	28.0	12.0	204	0.40	0.33

Date	Time	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	Strontium, water, fltrd, ug/L (01080)
09-09-03		<0.02	<0.010	<0.01	<0.02	1.8	8	<1	9,450

**274749081582501 -- BRADLEY JUNCTION WELL 2 AT BRADLEY JUNCTION FL**

Date	Time	Depth of well, feet below LSD (72008)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specific conductance, wat unfiltered, uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)
07-16-03	0815	550	7.3	7.8	350	25.1	160	44.0	13.0	0.70

Date	Time	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfiltered end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat fltrd, mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)
07-16-03	6.3	122	122	<0.1	7.80	0.3	16.0	42.0	223	<0.20	0.08

Date	Time	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	Strontium, water, fltrd, ug/L (01080)
07-16-03		<0.02	<0.010	0.01	<0.02	0.6	31	<1	780

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

231

274810081480601 -- TOM WINKLER IAS WELL NR FT MEADE FL

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
08-12-03	0945	320	0.2	7.0	7.5	495	24.5	170	37.0	18.0

Date	Time	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L as CaCO3 (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-12-03	0.90	38.0	193	<0.1	36.0	1.0	35.0	4.80	295	<0.20	

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover-able, ug/L (01045)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)
08-12-03	<0.01	<0.02	<0.010	<0.01	<0.02	1.4	3	2,360	<1	260	

274840081195001 -- INDIAN LAKES UTILITIES WELL 2 NR DAVENPORT FL

Date	Time	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)
07-17-03	1115	0.1	8.0	8.1	174	25.6	82	19.0	7.40	0.80

Date	Time	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)
07-17-03	3.9	78	<0.1	5.70	0.2	12.0	3.40	106	<0.20	0.10	

Date	Time	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)
07-17-03	<0.02	<0.010	<0.01	<0.02	0.5	6	<1	3,350	

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

274907081124801 -- GRAPE HAMMOCK WELL NR INDIAN LAKE ESTATES FL

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unfiltered 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
09-09-03	1005	465	0.1	7.3	7.7	572	24.1	220	55.0	19.0

Date	Time	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfiltered fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
09-09-03	1.40	29.0	173	0.3	58.0	0.9	27.0	26.0	345	0.90	

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)
09-09-03		0.63	<0.02	<0.010	<0.01	<0.02	7.2	10	<1	1,510

275028081394301 -- ORANGE ACRES RANCH MHP NR LAKE WALES FL

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unfiltered 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
09-09-03	1505	850	0.4	6.8	7.7	448	24.9	230	54.0	24.0

Date	Time	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfiltered fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
09-09-03	3.40	6.9	250	<0.1	7.20	0.3	46.0	<0.20	289	0.20	

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)
09-09-03		0.27	<0.02	<0.010	0.02	<0.02	3.0	55	2	130

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

233

275115081522101 -- CHAMBER DRIVE WELL NR BARTOW FL

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unfltrd 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-ium, water, fltrd, mg/L (00935)
09-16-03	0955	740	0.2	7.6	8.0	335	24.1	150	39.0	12.0	1.10

Date	Time	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt (70300)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, mg/L (01056)	Stront-ium, water, fltrd, ug/L (01080)
09-16-03	10.0	123	<0.1	9.20	0.5	17.0	33.0	208	197	5	880	

275137081252501 -- 751125-- 30S29E21 E LK WALES UTILITY

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unfltrd 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)
07-15-03	1440	837	0.6	8.1	8.2	160	25.8	74	18.0	6.40

Date	Time	Potas-ium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
07-15-03	0.60	3.2	70	0.1	5.40	0.1	9.60	4.30	111	<0.20	

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)
07-15-03	0.03	<0.02	<0.010	<0.01	<0.02	0.3	18	2	2,110	

275327081341001 -- LAKE WALES GROVE AVE WELL NR LAKE WALES FL

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unfltrd 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)
07-17-03	1240	1,063	0.4	7.4	7.9	298	25.9	130	39.0	8.70

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

275327081341001 -- LAKE WALES GROVE AVE WELL NR LAKE WALES FL--Continued

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
07-17-03	2.10	6.4	109	0.1	12.0	0.1	11.0	21.0	193	<0.20

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
07-17-03	0.06	0.29	<0.010	0.03	0.04	0.7	<2	5	370

275448081431601 --LAKE GARFIELD WELL IN LAKE GARFIELD FL

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)
07-16-03	1055	410	0.3	7.2	7.6	413	24.4	190	50.0	16.0

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
07-16-03	3.50	9.6	188	0.1	18.0	0.4	28.0	<0.20	245	0.30

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
07-16-03	0.26	<0.02	<0.010	0.03	0.03	2.0	379	14	120

275524081485601 -- CITY OF BARTOW WELL NO4 AT BARTOW FL

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)
08-13-03	1625	750	0.2	6.8	7.6	572	23.8	290	71.0	28.0

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

235

**275524081485601 -- CITY OF BARTOW WELL NO4 AT BARTOW FL--Continued**

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
08-13-03	0.90	10.0	279	0.1	10.0	0.4	20.0	19.0	324	541	18	120

**275536081490901 -- CITY OF BARTOW WELL NO2 AT BARTOW FL**

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
08-13-03	1530	750	0.1	7.3	7.7	379	26.4	180	50.0	13.0

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-13-03	1.00	7.3	159	0.1	9.30	0.3	17.0	23.0	232	0.40

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
08-13-03	0.33	<0.02	<0.010	0.04	0.04	2.0	19	2	710

**275545081362701 -- TOWER WOOD WELL 222 NR LAKE WALES FL**

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
08-05-03	1605	150	0.2	7.0	7.7	347	23.6	170	50.0	11.0

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-05-03	3.80	4.3	228	<0.1	4.40	0.4	31.0	<0.20	207	<0.20

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

275545081362701 -- TOWER WOOD WELL 222 NR LAKE WALES FL--Continued

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
08-05-03	0.09	<0.02	<0.010	0.10	0.15	2.5	1,030	19	120

275624081252201 -- LAKE ROSALIE WELL 2 NR DAVENPORT FL

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)
07-17-03	1430	475	1.1	8.0	8.2	163	24.6	76	15.0	8.10

Date	Time	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
07-17-03	1.00	3.6	77	<0.1	4.90	0.1	11.0	1.30	106	<0.20	

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
07-17-03	0.07	<0.02	<0.010	<0.01	<0.02	0.4	7	<1	4,340

275634081211801 -- 756121-- 29S30E19 KISS STPK NR LK KISSIMMEE

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)
07-15-03	1605	560	0.1	7.5	8.1	178	24.0	81	19.0	7.60

Date	Time	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
07-15-03	1.10	3.5	78	<0.1	5.70	0.3	12.0	4.10	106	<0.20	

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

237

**275634081211801 -- 756121-- 29S30E19 KISS STPK NR LK KISSIMMEE--Continued**

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
07-15-03	0.18	<0.02	<0.010	<0.01	<0.02	1.3	22	1	1,910

**280103081493301 -- DONALD LANE WELL NR WINTER HAVEN FL**

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)
07-16-03	0950	610	1.1	7.5	7.9	240	25.4	110	32.0	7.80

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
07-16-03	1.10	5.5	114	<0.1	7.10	0.2	15.0	1.40	136	0.20

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
07-16-03	0.25	<0.02	<0.010	0.02	0.03	1.3	4	<1	79.0

**280153081274101 -- 801127-- 28S29E19 LK HATCHI NR HAINES CITY**

Date	Time	Depth of well, feet below LSD (72008)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Chlor- ide, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)
09-16-03	1355	411	177	26.7	12.0	21.0

**280229081325201 -- LAKE HATCHINEHA ROAD WELL NEAR LAKE HAMILTON FL**

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)
08-05-03	1835	453	0.1	7.3	7.9	304	24.0	150	42.0	10.0

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

**280229081325201 -- LAKE HATCHINEHA ROAD WELL NEAR LAKE HAMILTON FL--Continued**

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat un- fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-05-03	1.00	4.7	149	0.1	7.20	<0.1	15.0	0.20	175	0.60

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
08-05-03	0.45	<0.02	<0.010	0.02	0.02	3.0	358	32	320

**280247082015301 -- DJ TRUSSES CO WELL NR LAKELAND FL**

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat un- f uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
07-16-03	1530	140	0.2	7.2	7.7	443	23.6	210	63.0	13.0

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat un- fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
07-16-03	0.60	9.5	193	0.1	14.0	0.5	38.0	17.0	294	<0.20

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
07-16-03	0.09	<0.02	<0.010	0.30	0.36	2.1	335	15	110

**280253081235802 -- DISNEY PRESERVE SMW2 SURFICIAL NR HAINES CITY FL**

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat un- f uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
08-07-03	1150	36	M	4.4	4.7	41	23.8	4	0.25	0.78

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

239

280253081235802 -- DISNEY PRESERVE SMW2 SURFICIAL NR HAINES CITY FL--Continued

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-07-03	<0.10	4.1	2	<0.1	7.10	<0.1	4.70	1.40	30	<0.20

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
08-07-03	0.09	<0.02	<0.010	0.02	<0.02	4.5	652	10	4.9

280253081235804 -- DISNEY PRESERVE FMW1 NR HAINES CITY FL

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
08-07-03	1225	460	0.1	7.8	8.2	185	24.1	85	26.0	4.80

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia water, fltrd, mg/L as N (00608)
08-07-03	0.70	3.2	75	<0.1	4.80	0.1	11.0	11.0	115	<0.01

280253081235804 -- DISNEY PRESERVE FMW1 NR HAINES CITY FL

Date	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
08-07-03	<0.02	<0.010	<0.01	12	1	140

280443081391701 -- WINTER HAVEN VO TECH SCHOOL IN WINTER HAVEN FL

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
09-15-03	1430	445	0.2	7.4	8.0	264	26.4	110	34.0	7.20

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

280443081391701 -- WINTER HAVEN VO TECH SCHOOL IN WINTER HAVEN FL--Continued

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat un- fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
09-15-03	1.20	6.6	113	<0.1	10.0	0.2	14.0	4.60	152	<0.20

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
09-15-03	0.06	0.41	0.030	0.04	0.05	1.4	4	2	140

280635081372301 -- HAINES CITY NO3 AT HAINES CITY FL

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat un- f uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
09-08-03	0930	570	0.1	7.3	7.8	366	25.6	160	51.0	7.60

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat un- fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
09-08-03	1.30	11.0	158	0.1	16.0	0.1	13.0	7.80	209	0.70

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
09-08-03	0.52	<0.02	<0.010	0.05	0.04	2.4	10	8	99.0

280715081543501 -- 807154433 COMBEE RD DP WELL AT SR33 NR LAKELAND FL

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat un- f uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
08-06-03	1830	55.0	0.7	6.3	6.9	585	23.8	300	62.0	36.0

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

241

**280715081543501 -- 807154433 COMBEE RD DP WELL AT SR33 NR LAKELAND FL--Continued**

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat un fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-06-03	0.30	13.0	307	0.3	13.0	0.2	23.0	<0.20	356	0.20

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
08-06-03	0.04	<0.02	<0.010	<0.01	0.37	8.1	10,800	157	74.0

**280732081585301 -- PALMORE WELL NR LAKELAND,FL**

Date	Time	Depth of well, feet below LSD (72008)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat un uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)
07-15-03	0940	562	7.8	7.9	239	24.0	120	33.0	8.60	0.50

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat un fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)
07-15-03	3.8	117	<0.1	5.60	0.3	15.0	1.20	145	<0.20	0.08

Date	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
07-15-03	<0.02	<0.010	0.03	0.04	0.6	4	3	52.0

**280807081571401 -- LAKE GIBSONIA HIGH SCHOOL WELL NR LAKELAND FL**

Date	Time	Depth of well, feet below LSD (72008)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat un uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)
07-15-03	0830	618	7.7	7.9	384	25.5	190	63.0	7.60	0.70

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

**280807081571401 -- LAKE GIBSONIA HIGH SCHOOL WELL NR LAKELAND FL--Continued**

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd, fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)
07-15-03	4.8	188	0.1	8.00	0.2	12.0	1.00	216	0.50	0.45

Date	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	Strontium, water, fltrd, ug/L (01080)
07-15-03	<0.02	<0.010	0.07	0.08	1.9	15	8	100

**280906082004001 -- SOCRUM SPRING NR SOCRUM FL**

Date	Time	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unfltrd uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)
09-08-03	1600	5.6	4.6	5.1	278	25.3	89	11.0	15.0	0.60

Date	Sodium, water, fltrd, mg/L (00930)	ANC, wat unfltrd, fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)
09-08-03	9.0	3	0.1	33.0	0.4	7.20	0.40	171	<0.20	0.03

Date	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Manganese, water, fltrd, ug/L (01056)	Strontium, water, fltrd, ug/L (01080)
09-08-03	17.0	<0.010	0.07	0.07	0.7	8	16	5.7

**280916082005501 -- COSTINE WELL NR SOCRUM FL**

Date	Time	Depth of well, feet below LSD (72008)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unfltrd uS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Hardness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
09-08-03	1745	139	3.9	6.4	7.3	253	24.0	100	31.0	5.60

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

243

**280916082005501 -- COSTINE WELL NR SOCRUM FL--Continued**

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat un- fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
09-08-03	0.60	7.5	64	0.1	18.0	0.2	14.0	3.30	176	<0.20

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
09-08-03	0.01	7.80	<0.010	0.33	0.32	0.2	10	<1	31.0

**281008081441801 -- 810144432 LAKE ALFRED W NR LAKE ALFRED FL**

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat un- f uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
08-14-03	1225	425	0.1	7.5	7.9	258	24.2	120	42.0	4.20

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat un- fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-14-03	1.50	4.4	125	<0.1	6.00	0.2	17.0	0.40	177	<0.20

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
08-14-03	0.05	<0.02	<0.010	0.04	0.03	0.6	252	12	67.0

**281226081341901 -- THREE WORLDS RV PARK WELL NR DAVENPORT FL**

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat un- f uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)
09-08-03	1100	310	0.2	7.1	7.6	318	24.0	150	52.0	4.80

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

**281226081341901 -- THREE WORLDS RV PARK WELL NR DAVENPORT FL--Continued**

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
09-08-03	0.60	5.2	154	<0.1	8.40	<0.1	11.0	0.20	181	134	15	52.0

**281317081491301 -- 813149423 26S25E16**

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)
08-12-03	1350	217	0.1	6.8	7.5	528	23.7	280	108	2.80

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-12-03	1.90	6.4	267	<0.1	11.0	<0.1	14.0	<0.40	304	0.20

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
08-12-03	0.07	<0.02	<0.010	0.17	0.16	1.1	83	8	140

**281511081393101 -- 815139342 26S26E01**

Date	Time	Depth of well, feet below LSD (72008)	Dis- solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)
08-07-03	1620	447	0.1	7.4	7.9	309	25.3	150	55.0	3.10

Date	Potas- sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-07-03	0.70	4.4	148	<0.1	7.20	<0.1	13.0	2.50	173	<0.20

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

245

**281511081393101 -- 815139342 26S26E01--Continued**

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
08-07-03	0.11	<0.02	<0.010	0.04	0.03	1.7	64	8	65.0

**281511081393102 -- 815139342A26S26E01**

Date	Time	Depth of well, feet below LSD (72008)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc- tance, wat unf uS/cm 25 degC (00095)	Temper- ature, water, deg C (00010)	Hard- ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes- ium, water, fltrd, mg/L (00925)	Potas- sium, water, fltrd, mg/L (00935)
08-07-03	1735	92.0	4.9	5.4	117	25.5	31	6.70	3.50	7.20

Date	Time	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor- ide, water, fltrd, mg/L (00940)	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia water, fltrd, mg/L as N (00608)
08-07-03	1.9	3	<0.1	4.20	<0.1	6.10	31.0	79	<0.20	<0.01	

Date	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Stront- ium, water, fltrd, ug/L (01080)
08-07-03	1.80	<0.010	<0.01	<0.02	0.6	13	16	12.0

KEY TO SITE LOCATIONS ON FIGURE 23  
PUTNAM COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	292948081503001	248

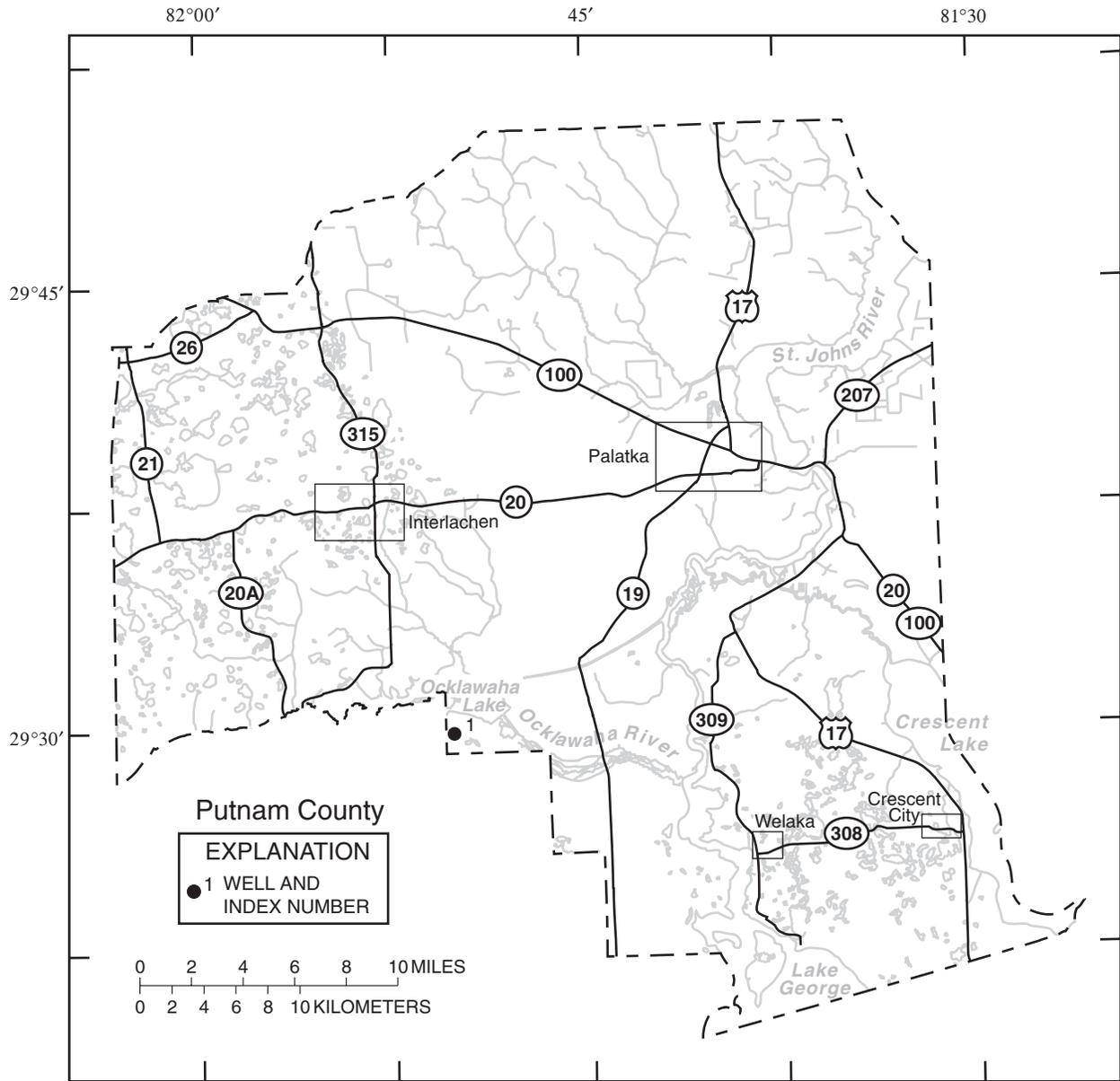


Figure 23.--Location of wells in Putnam County.

PUTNAM COUNTY

**WELL NUMBER.--292948081503001. Well RD-77-G near Orange Springs, FL.**

LOCATION.--Lat 29°29'48", long 81°50'30", in NW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec. 31, T.11 S., R.25 E., Hydrologic Unit 03080102, in northeast corner of intersection of roads 77 and 77-G in Ocala National Forest, 7.3 mi west of State Highway 19, and about 6.0 mi east of Orange Springs. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary system, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 4 in., depth 241 ft, cased to 215 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape.

DATUM.--Land-surface datum is 100.81 ft above NGVD of 1929. Measuring point: Top of 4 in. casing, 2.50 ft above land-surface datum.

COOPERATION.--Since October 1, 1985 records provided by St. Johns River Water Management District and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--September 1982 to September 1985 (bimonthly), October 1985 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.28 ft above NGVD of 1929, May 8, 1998; lowest measured, 16.84 ft above NGVD of 1929, Mar. 25, 1992.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	20.36	JAN 23	19.64	MAR 28	20.52	JUN 18	20.60	SEP 17	21.17
NOV 19	20.57	FEB 20	19.85	APR 22	20.61	JUL 24	20.89		
DEC 18	20.49	MAR 24	20.46	MAY 21	20.43	AUG 20	21.11		
WATER YEAR 2003		LOWEST	19.64	JAN 23, 2003	HIGHEST	21.17	SEP 17, 2003		

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

249

PUTNAM COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
292124081345202	05-20-03 09-16-03	1020 1010	P-0736 MIDDLE RD UPPER DEEP	8.10 9.66
292218081333101	05-20-03 09-16-03	0945 0930	P-0410 POTMAP WELL NR GEORGETOWN FL	24.96 26.62
292239081282401	05-20-03 09-16-03	1240 1140	P-0255	13.76 15.91
292254081382101	05-20-03 09-16-03	0830 0830	SJ P421 13S27E39 DRAYTONISLAND EASTSHORELANDIN	11.44 12.84
292435081441301	05-19-03 09-15-03	1205 1250	NR FRONTIER D H NR SALT SPGS	10.98 12.42
292555081305003	05-20-03 09-16-03	1315 1215	P-2037 REPLACEMENT WELL AT LAKE STELLA	22.98 24.34
292628081385501	05-20-03 09-16-03	0910 0905	SJ P396 12S26E23 WELAKAFISHHATCHERYFRUITLAND	11.85 12.82
292824081341501	05-20-03 09-16-03	1350 1250	P-0246 COL SAULS	31.46 33.20
292824081443301	05-19-03 09-15-03	1135 1030	JOHNSONS FIELD NR WELAKA	7.80 10.04
293633081594601	05-19-03 09-15-03	1000 0900	DRAINAGE WELL COWPEN LAKE PUTNAM CO FL	77.19 77.99
294243081555901	05-19-03 09-15-03	0920 0750	P-0822 FLORIDA ROCK IN PUTNAM CO	79.21 80.14
292859081375701	05-20-03 09-16-03	1430 1325	P-408 HWAY 308B	18.26 20.40
293113081370301	05-21-03 09-17-03	1120 0900	SJ P382 11S27E19 MAINROAD OFFSISCORPOMONAPARK	28.17 29.76
293206081351701	05-21-03 09-17-03	1150 0935	P-0817	25.32 27.15
293300081523901	05-19-03 09-15-03	1100 1005	933152 11S24E11 CE 60 U S A CORPS ENG	57.53 60.51
293554081342601	05-21-03 09-17-03	1230 1010	SAN MATEO TOWERSITE DEEP	16.01 18.85
293633081594601	05-19-03 09-15-03	1000 0900	DRAINAGE WELL COWPEN LAKE PUTNAM CO FL	77.19 77.99
293733081474801	05-19-03 09-15-03	1035 0935	HOLLISTER WORKCTR CF (P-510)	48.29 50.23
293755081412903	05-19-03 09-15-03	1245 1320	P-0891 EH MILLER SCHOOL	26.73 29.51
293933081342801	05-19-03 09-17-03	1450 1040	93913411 10S27E04 P-172 CRACKER SWAMP	15.35 20.45
293951081413901	05-19-03 09-15-03	1310 1155	P-0123 DHQ DEEP WELL	27.29 30.52
294243081555901	05-19-03 09-15-03	0920 0750	P-0822 FLORIDA ROCK IN PUTNAM CO	79.21 80.14
294255081323501	05-21-03 09-17-03	1035 1110	P-0076 A J ROBERTS	18.00 22.64
294321081492103	05-21-03 09-17-03	0950 0755	P-4086 EATONIA EAST V ROAD NR PALATKA, FL	71.17 72.57
294553081344301	05-19-03 09-15-03	1345 1400	94513401 08S27E RIVERDALE NO 61	23.08 27.78
294816081482201	05-19-03 09-17-03	1610 1255	P-4083 ETONIA SF MANNING RD NR PALATKA, FL	69.38 71.15

KEY TO SITE LOCATIONS ON FIGURE 24  
ST. JOHNS COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	295357081294301	252
2	295713081203401	252
3	300717081381001	253
4	300758081230501	253
5	301132081225801	254

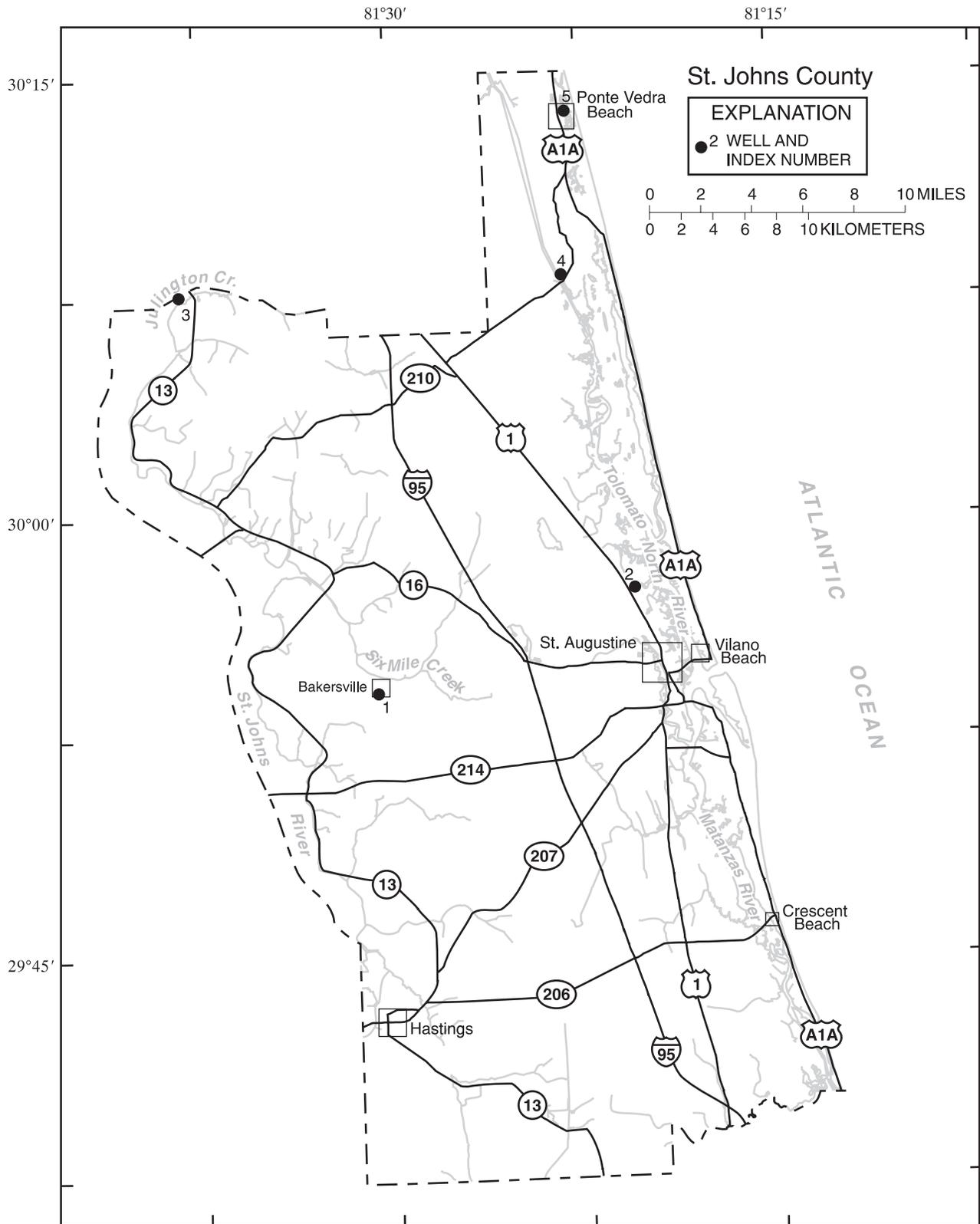


Figure 24.--Location of wells in St. Johns County.

## ST. JOHNS COUNTY

**WELL NUMBER.--295357081294301. Local Number SJ-77. Engel Well near Molasses Junction, FL.**

LOCATION.--Lat 29°53'57", long 81°29'43", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$  sec. 17, T.7 S., R.28 E., Hydrologic Unit 03080103, in ditch on the west side of Alternate State Road 13, and 0.4 mi south of State Road 208. Owner: Mr. Engel.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 4 in., depth and casing length unknown.

INSTRUMENTATION.--Bimonthly measurement with pressure gage.

DATUM.--Land-surface datum is 20.62 ft above NGVD of 1929. Measuring point: Top of 4 in. tee at land-surface datum.

REMARKS.--Water level seasonally affected by pumping of nearby wells.

PERIOD OF RECORD.--May 1977 to May 1986 (semiannually); July 1986 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.82 ft above NGVD of 1929, Feb. 6, 1997; lowest measured, 21.97 ft above NGVD of 1929, Apr. 8, 1991.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 13	32.12	DEC 19	32.82	JAN 22	33.12	MAR 25	32.62	MAY 07	24.32	JUL 22	32.02
WATER YEAR 2003		LOWEST	24.32	MAY 07, 2003	HIGHEST	33.12	JAN 22, 2003				

**WELL NUMBER.--295713081203401. Local Number SJ-89. Airport Well near St. Augustine, FL.**

LOCATION.--Lat 29°57'13", long 81°20'34", in land grant 50, T.6 S., R.29 E., Hydrologic Unit 03080201, at St. Augustine Airport on U.S. Highway 1, 2.5 mi north of St. Augustine. Owner: St. Augustine Airport Authority.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 4 in., depth 350 ft, cased to 190 ft.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 9.48 ft above NGVD of 1929. Measuring point: File marks on south side of 9 in flange at land-surface datum.

REMARKS.--Water levels affected by pumping of nearby wells.

PERIOD OF RECORD.--May 1978 to September 1980 (semiannually); May 1981 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 33.98 ft above NGVD of 1929, Dec. 21, 1994; lowest measured, 23.18 ft above NGVD of 1929, May 24, 2003.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	29.08	DEC 19	30.88	FEB 25	31.28	APR 29	29.58	JUN 24	29.08	AUG 26	31.18
NOV 25	29.78	JAN 28	30.48	MAR 24	23.18	MAY 27	24.38	JUL 29	29.88	SEP 23	23.28
WATER YEAR 2003		LOWEST	23.18	MAR 24, 2003	HIGHEST	31.28	FEB 25, 2003				

## ST. JOHNS COUNTY—Continued

**WELL NUMBER.--300717081381001. Local Number SJ-15. S.L. Chavez Well near Mandarin, FL.**

LOCATION.--Lat 30°07'17", long 81°38'10", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 30, T.4 S., R.27 E., Hydrologic Unit 03080103, 300 ft north of Fruit Cove Road, 0.6 mi west of the intersection of State Road 13 and Fruit Cove Road, and 3.7 mi south of old Mandarin Post Office. Owner: S.L. Chavez.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 3 to 2 in., depth 580 ft, cased to 300 ft.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 8.12 ft above NGVD of 1929. Measuring point: Top of 3 in. tee, 1.20 ft above land-surface datum.

PERIOD OF RECORD.--1974, 1977 to 1980 (semiannually); May 1981 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 41.02 ft above NGVD of 1929 May 12, 1980; lowest measured, 17.32 ft above NGVD of 1929, May 21, 2001.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	26.32	DEC 23	31.32	FEB 25	32.92	APR 29	26.82	JUN 24	28.62	AUG 26	30.22
NOV 26	29.72	JAN 28	31.02	MAR 24	33.02	MAY 27	24.72	JUL 29	29.72	SEP 23	28.02
WATER YEAR 2003		LOWEST	24.72	MAY 27, 2003	HIGHEST	33.02	MAR 24, 2003				

**WELL NUMBER.--300758081230501. Local Number SJ-5. G. Oesterreicher Well near Palm Valley, FL.**

LOCATION.--Lat 30°07'58", long 81°23'05", in land grant 54, T.4 S., R.29 E., Hydrologic Unit 03080201, 100 ft east of the Intracoastal Waterway, 250 ft northwest of State Highways 210 and 210A, and 2.8 mi south of Palm Valley. Owner: Eddie Ervin.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, domestic, artesian well, diameter 6 in., depth 350 ft, cased to 180 ft.

INSTRUMENTATION.--Monthly measurement with pressure gage.

DATUM.--Land-surface datum is 4.53 ft above NGVD of 1929. Measuring point: Top of 4 in. gate valve, 2.18 ft above land-surface datum.

PERIOD OF RECORD.--1934, 1940, 1944 to 1946 (annually); 1947 to 1963 (bimonthly); 1964 to 1980 (annually); May 1981 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 50.73 ft above NGVD of 1929, Nov. 9, 1948; lowest measured, 22.71 ft above NGVD of 1929, June 27, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	31.11	FEB 25	34.91	APR 29	32.01	JUN 24	30.61	AUG 26	32.91
JAN 29	34.31	MAR 24	36.01	MAY 27	29.01	JUL 29	31.91	SEP 23	30.41
WATER YEAR 2003		LOWEST	29.01	MAY 27, 2003	HIGHEST	36.01	MAR 24, 2003		

ST. JOHNS COUNTY—Continued

**WELL NUMBER.--301132081225801. Local Number SJ-150. Ponte Vedra Test Well near Ponte Vedra, FL.**

LOCATION.--Lat 30°11'28", long 81°23'01", in land grant 70, T.4 S., R.29 E., Hydrologic Unit 03080201, 290 ft west of State Highway 210 behind St. Johns County Courthouse Annex and Library, 1500 ft southwest of junction of State Highways 201 and A1A, and 1.6 mi southwest of Ponte Vedra Post Office. Owner: St. Johns River Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 2,035 ft, cased to 1,980 ft.

INSTRUMENTATION.--Monthly measurement with chalked tape.

DATUM.--Land-surface datum is 6.34 ft above NGVD of 1929. Measuring point: Top of 6 in. gate valve, 4.56 ft above land-surface datum.

PERIOD OF RECORD.--April 1986 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.63 ft above NGVD of 1929, Mar. 29, 1993; lowest measured, 7.76 ft below NGVD of 1929, June 27, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	-1.85	DEC 19	-.42	FEB 25	-.06	APR 29	-.64	JUN 24	-1.23	AUG 25	.00
NOV 25	-.75	JAN 27	-.07	MAR 24	1.01	MAY 27	-1.75	JUL 28	-.73	SEP 23	.22
WATER YEAR 2003		LOWEST	-1.85	OCT 29, 2002	HIGHEST	1.01	MAR 24, 2003				

Note.--Negative figures indicate water level below NGVD of 1929.

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

255

ST JOHNS COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
293729081221201	05-20-03 09-17-03	1120 1155	SJ-104 MEADOWBRICK WELL	14.98 17.30
294128081291301	05-20-03 09-17-03	1000 1130	SJ-263 D REID	9.61 17.17
294213081194401	05-20-03 09-17-03	1140 1215	SJ-0602 DOT I95 SOUTH	15.73 18.31
294519081184502	05-20-03 09-16-03	1200 1240	SJ-516 DUPONT CTR FIRE TOWER NR YELVINGTON FL	15.68 17.99
294701081263301	05-20-03 09-17-03	0905 0955	SJ-317 SIKES WELL NR ELKTON FL	3.88 24.06
295000081212702	05-20-03 09-17-03	1210 0940	SJ0824 TREATY PARK WELL AT ST AUGUSTINE FL	23.49 27.00
295039081325401	05-20-03 09-16-03	0840 0905	SJ-133 WILSON	21.50 26.00
295132081164801	05-20-03 09-16-03	1255 1300	SJ-92 ST.JOHNS CO PARKS REC OFFICE	18.31 20.81
295427081293101	05-20-03 09-16-03	0825 0800	SJ-0027 BAKERSVILLE TOWER	24.48 32.73
295604081223503	05-20-03 09-17-03	1330 0835	SJ 0331 WOODLAWN RD WELL NR BAKERSVILLE, FL	28.59 33.30
295903081334301	05-20-03 09-17-03	1230 1000	SJ-119 (SUB FOR SJ-11)	26.23 32.13
300340081383901	05-20-03 09-17-03	1330 0920	SJ0508 GREENBRIER RD MIDDLE SCH NR SWITZERLAND FL	33.50 32.67
300341081395401	05-20-03 09-17-03	1300 1050	SJ-12	30.27 33.47
300507081272701	05-20-03 09-17-03	1145 0845	SJ-163 SJRWMD DURBIN OBSERVATION WELL	36.90 39.87
301212081252401	05-21-03 09-19-03	1330 0930	SJ-63 DEE DOT RANCH AT BULL PEN	38.88 41.58
301408081253101	05-21-03 09-19-03	1310 0900	SJ-60 DEE DOT RANCH AT CRACKER LODGE	18.84 19.14

KEY TO SITE LOCATIONS ON FIGURE 25  
SEMINOLE COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	284147081220201	258

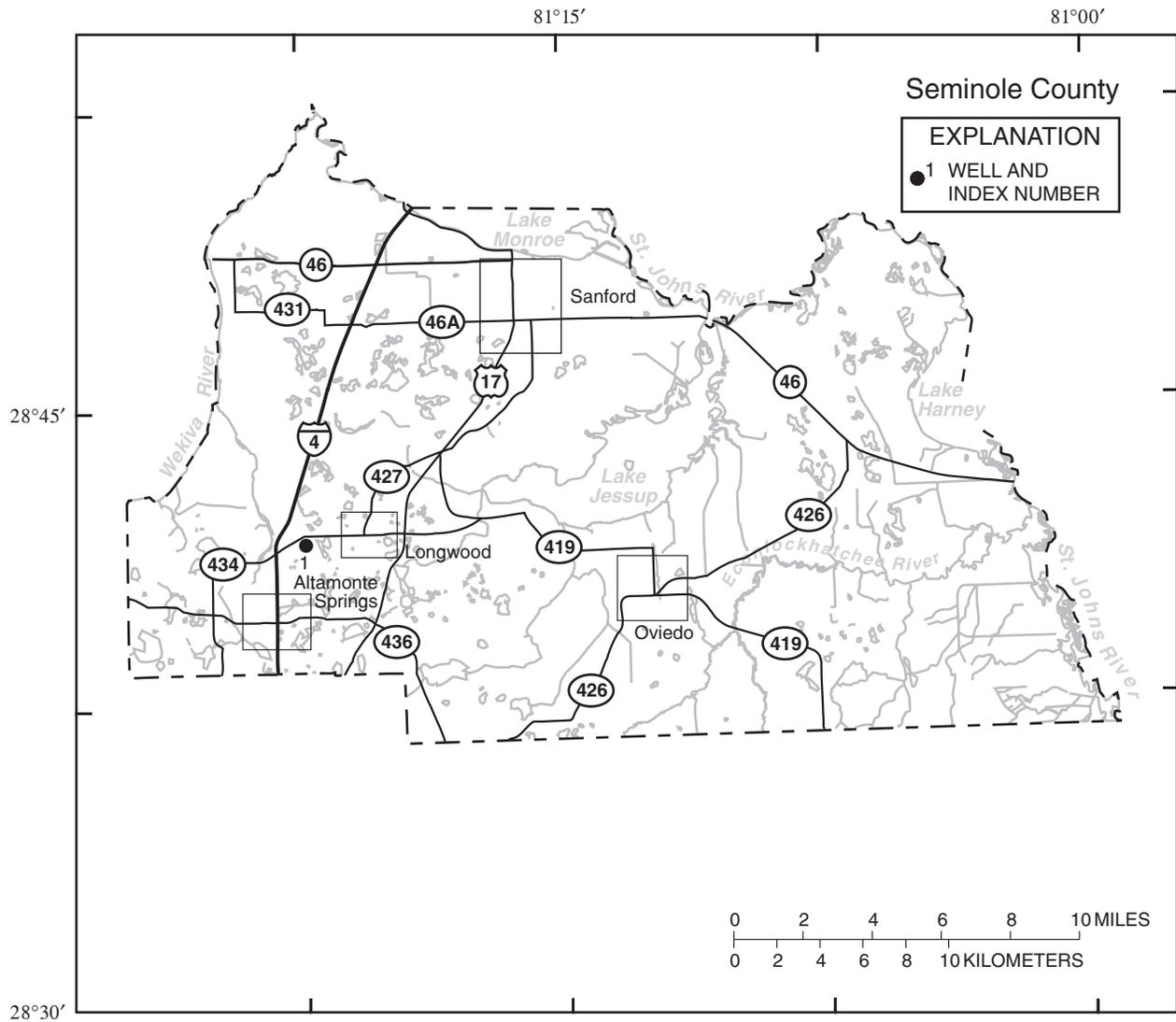


Figure 25.--Location of wells in Seminole County.

## SEMINOLE COUNTY

**WELL NUMBER.--284147081220201. Seminole 125 Well at Longwood, FL.**

LOCATION.--Lat 28°41'47", long 81°22'02", in NW $\frac{1}{4}$ NE $\frac{1}{4}$  sec.1, T.21 S., R.29 E., Hydrologic Unit 03080101, 500 ft south of State Highway 434, at a point 1.3 mi west of State Highway 427 in Longwood. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 146 ft, cased to 63 ft.

INSTRUMENTATION.--Water-stage recorder--15-minute interval.

DATUM.--Elevation of land-surface datum is 85.69 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 1.26 ft above land-surface datum.

PERIOD OF RECORD.--October 1951 to September 1952 (monthly); November 1952 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 55.80 ft above NGVD of 1929, Sept. 30, 1960; lowest, 30.11 ft above NGVD of 1929, May 27, 2000.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	40.09	---	38.48	44.76	43.15	43.74	43.62	39.06	40.94	43.76	44.96	46.34
10	41.97	41.41	---	44.44	43.49	43.83	43.16	40.71	41.90	42.79	45.17	46.04
15	42.56	39.25	---	43.58	42.62	43.57	40.00	38.13	41.28	43.82	45.34	44.50
20	41.58	39.49	---	43.66	40.21	43.79	41.60	38.76	42.52	43.86	45.49	44.37
25	38.86	38.95	---	43.47	43.38	44.13	39.56	39.64	43.22	43.69	46.05	44.03
EOM	41.64	41.75	43.99	43.21	43.30	43.98	39.20	40.38	43.04	44.13	45.57	45.16
MAX	43.08	---	---	45.02	43.60	44.26	44.05	41.31	43.31	44.13	46.18	46.36

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

259

SEMINOLE COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
283933081123103	05-20-03 09-15-03	0920 0956	S-1193 AT OVIEDO WTP	34.62 37.84
284052081212601	05-20-03 09-15-03	1322 1350	S-1014 CHARLOTTE STREET	42.96 47.26
284133081105701	05-20-03 09-15-03	1123 1017	FLORIDA AVE WELL NR OVIEDO	19.29 23.11
284217081023001	05-20-03 09-15-03	1000 1110	KILBEE #3 TEST NR GENEVA FL S-0025	8.19 10.91
284247081070801	05-20-03 09-15-03	0936 1032	GENEVA WELL S-0001 NR GENEVA FL	20.20 22.18
284412081071102	05-20-03 09-15-03	1018 1041	OLD GENEVA FIRE STATION S-1253	18.05 20.12
284533081204801	05-20-03 09-15-03	1200 1322	84512005 20S30E08	33.98 36.46
284715081051802	05-20-03 09-15-03	1052 1147	S-0086 OSCEOLA LANDFILL	12.25 14.05
284923081234802	05-20-03 09-15-03	1231 1237	S-1230 YANKEE LAKE	20.36 21.81

KEY TO SITE LOCATIONS ON FIGURE 26  
SUMTER COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	282741081585701	262
2	283638082025702	262
3	284619082035101	263
4	285119082120601	263
5	285207082014501	264

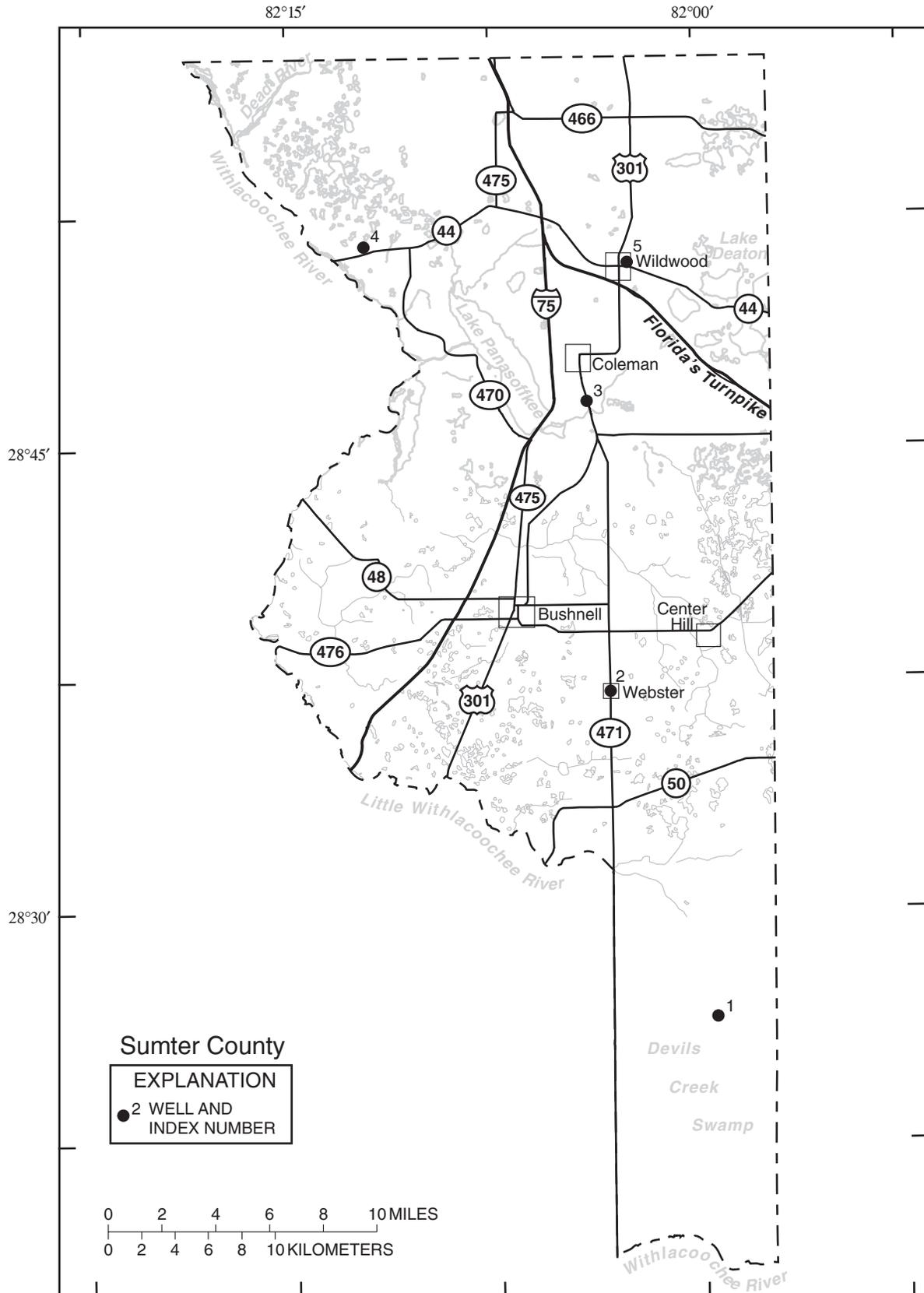


Figure 26.--Location of wells in Sumter County.

## SUMTER COUNTY

**WELL NUMBER.--282741081585701. Withlacoochee State Forest Green Swamp Well near Bay Lake, FL.**

LOCATION.--Lat 28°27'41", long 81°58'57", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.26, T.23 S., R.23 E., Hydrologic Unit 03100208, in Withlacoochee State Forest, at southwest corner of Center and South Loop Roads, 4.8 mi east of State Highway 471, and 4.8 mi west of Bay Lake. Owner: U.S. Geological Survey.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 3 in., depth 175 ft, cased to 99 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 96.94 ft above NGVD of 1929. Measuring point: Top of casing, 1.60 ft above land-surface datum. Prior to June 1991, 3.00 ft above land-surface datum.

COOPERATION.--Data provided by Southwest Florida Water Management District from October 1983 to September 1985.

PERIOD OF RECORD.--July 1959, September 1964 to September 1984 (bimonthly); October 1984 to September 1985 (monthly); October 1986 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 96.50 ft above NGVD of 1929, July 8, 1974; lowest measured, 89.29 ft above NGVD of 1929, May 4, 2000.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 22	95.17	FEB 10	95.67	MAY 19	94.31	JUL 22	95.52	SEP 25	95.17
JAN 23	95.50	APR 09	95.59	JUN 03	93.59	SEP 15	95.52		

WATER YEAR 2003    LOWEST 93.59 JUN 03, 2003    HIGHEST 95.67 FEB 10, 2003

**WELL NUMBER.--283638082025702. Webster City Well 2 at Webster, FL.**

LOCATION.--Lat 28°36'38", long 82°02'57", in SW<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.31, T.21 S., R.23 E., Hydrologic Unit 03100208, 100 ft west of town water tank at east end of Main Street in Webster. Owner: City of Webster.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 8 in., depth 341 ft, cased to 174 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 91.85 ft above NGVD of 1929. Measuring point: Mark on top of 14 in casing protector, 2.94 ft above land-surface datum. Prior to June 1997, .89 ft above land-surface datum.

PERIOD OF RECORD.--April to September 1978; October 1979 to September 1992; October 1992 to current year (monthly). Prior to October 1992 published as Webster City Recorder Well at Webster, FL.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 88.50 ft above NGVD of 1929, Mar. 23, 1998; lowest daily maximum water level, 74.45 ft above NGVD of 1929, July 20, 1981.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 28	85.46	JAN 27	85.81	APR 28	85.79	JUN 23	87.52	SEP 15	88.00
NOV 25	84.53	FEB 24	86.24	MAY 19	84.24	JUL 28	88.15	22	87.78
DEC 30	86.44	MAR 24	87.34	27	84.10	AUG 25	88.39		

WATER YEAR 2003    LOWEST 84.10 MAY 27, 2003    HIGHEST 88.39 AUG 25, 2003

## SUMTER COUNTY—Continued

**WELL NUMBER.--284619082035101. ROMP 111 Well at Tompkins Park near Coleman, FL.**

LOCATION.--Lat 28°46'19", long 82°03'51", in NW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec.1, T.20 S., R.22 E., Hydrologic Unit 03100208, in G.B. Tompkins Park on U.S. Highway 301, 500 ft north of Shady Brook, and 2.0 mi south of Coleman. Owner: Southwest Florida Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, observation well, diameter 8 in., depth 192 ft, cased to 62 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 59.34 ft above NGVD of 1929. Measuring point: Top of 8 in. coupling, 1.62 ft above land-surface datum.

PERIOD OF RECORD.--October 1975 to September 1992; October 1992 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 53.09 ft above NGVD of 1929, Mar. 31, 1987; lowest, 44.23 ft above NGVD of 1929, July 30, 1992.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 28	49.68	JAN 27	50.22	APR 28	50.30	JUN 23	50.85	SEP 17	51.54
NOV 26	49.24	FEB 24	50.78	MAY 20	50.07	JUL 28	50.94	22	51.30
DEC 30	50.41	MAR 24	51.48	27	49.84	AUG 25	52.27		

WATER YEAR 2003    LOWEST 49.24 NOV 26, 2002    HIGHEST 52.27 AUG 25, 2003

**WELL NUMBER.--285119082120601. Sumter 13 Replacement Well near Wildwood, FL.**

LOCATION.--Lat 28°51'19", long 82°12'05", in SW $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$  sec.10, T.19 S., R.21 E., Hydrologic Unit 03100208, on north side of State Highway 44, 1.2 mi east of Withlacoochee River, and 9.0 mi west of Wildwood. Owner: South Florida Water Management District.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, observation, artesian well, diameter 6 in., depth 33 ft, cased to 28 ft.

INSTRUMENTATION.--Monthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 47.80 ft above NGVD of 1929. Measuring point: Shelter floor, 4.81 ft above land-surface datum.

PERIOD OF RECORD.--August 2002 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest daily maximum water level, 46.87 ft above NGVD of 1929, June 23, 2003; lowest water level measured, 42.08 ft above NGVD of 1929, November 25, 2002.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL								
OCT 28	43.06	JAN 27	43.25	APR 28	43.32	JUN 23	46.87	SEP 17	44.65
NOV 25	42.08	FEB 24	44.49	MAY 20	42.51	JUL 28	44.92	22	44.27
DEC 30	43.61	MAR 24	44.62	27	42.27	AUG 25	45.44		

WATER YEAR 2003    LOWEST 42.08 NOV 25, 2002    HIGHEST 46.87 JUN 23, 2003

## WELL DESCRIPTIONS AND WATER LEVEL MEASUREMENTS

## SUMTER COUNTY—Continued

**WELL NUMBER.--285207082014501. Masters Avenue City Well at Wildwood, FL.**

LOCATION.--Lat 28°52'07", long 82°01'45", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$  sec.5, T.19 S., R.23 E., Hydrologic Unit 03100208, 100 ft east of Masters Avenue, and 600 ft north of Cleveland Avenue in Wildwood. Owner: City of Wildwood.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geological Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, unused, artesian well, diameter 12 in., depth 82 ft, cased to 62 ft.

INSTRUMENTATION.--Bimonthly measurement with chalked or electric tape.

DATUM.--Elevation of land-surface datum is 82.58 ft above NGVD of 1929. Measuring point: Bottom edge of 2 in. vent pipe, 1.48 ft above land-surface datum.

PERIOD OF RECORD.--March 1961 to January 1978 (bimonthly); February 1978 to October 1979; November 1979 to current year (bimonthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 57.86 ft above NGVD of 1929, Sept. 15, 1964; lowest measured, 43.34 ft above NGVD of 1929, May 7, 2002.

## ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	49.94	FEB 11	49.41	MAY 21	49.92	JUL 22	50.78	SEP 25	52.87
DEC 16	48.76	APR 08	52.19	JUN 03	49.55	SEP 17	53.44		
WATER YEAR 2003		LOWEST	48.76	DEC 16, 2002	HIGHEST	53.44	SEP 17, 2003		

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

265

SUMTER COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEVATION ABOVE NGVD (FEET)
281951082012001	05-19-03	0842	81920101GREEN SWAMP L11MD NR DADE CITY, FL	90.21
	08-13-03	1200		91.68
	09-15-03	0735		90.99
281951082012002	05-19-03	0843	81920102GREEN SWAMP L11MM NR DADE CITY, FL	90.25
	08-13-03	1201		91.75
	09-15-03	0738		91.09
281951082012003	05-19-03	0840	81920103 GREEN SWAMP L11MS NR DADE CITY, FL	89.53
	08-13-03	1202		92.01
	09-15-03	0741		91.06
282740082012101	05-19-03	1045	82720101GREEN SWAMP L12BD NR BAY LAKE, FL	90.40
	09-15-03	0935		91.98
282740082012102	05-19-03	1046	82720102GREEN SWAMP L12BS NR BAY LAKE, FL	90.38
	09-15-03	0940		91.91
283432081592401	05-19-03	0752	83415901 22S23E15 JC 51 HUGH ILEY	91.91
	09-16-03	0645		94.93
283539082000301	05-19-03	1142	83520001 25S23E10 JC 67 FLA ROCK IND NO 2	87.70
	09-15-03	1110		91.28
283637082081501	05-19-03	1210	83620801 21S22E32 SCL RR USED 155	64.32
	09-15-03	1145		66.49
283829082123701	05-19-03	1230	83821202 21S21E21 JC 47 N R DOKE	45.43
	09-15-03	1208		48.37
283904082001601	05-20-03	0642	83920001 21S23E22 JC 65 U S GEOL SURVEY	82.40
	09-16-03	0715		85.00
283952082022001	05-19-03	1335	83920201 21S23E18 JC 42 PARROT RANCH	77.26
	09-16-03	0740		81.90
283953082051401	05-19-03	1320	83920501 21S22E14 JC 36	76.47
	09-16-03	0855		78.92
284105081594301	05-19-03	1355	STUART RANCH REPLACEMENT NR CENTER HILL	86.35
	09-15-03	1325		90.71
284115082062601	05-20-03	0855	84120601 21S22E04 JC 27A	59.40
	09-16-03	0910		62.86
284119082034501	05-20-03	0727	84120304 21S22E01 JC 44 PARROT RANCH	79.27
	09-16-03	0815		82.09
284146082061401	05-20-03	0805	84120604 21S22E03 JC 32	59.33
	09-17-03	1050		61.71
284147082052801	05-20-03	0825	84120506 21S22E03 JC 34	66.10
	09-16-03	0925		67.70
284212082071701	05-20-03	0915	84220702 20S22E32 JC 63 U S GEOL SURVEY	55.33
	09-17-03	1105		56.74

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

## SUMTER COUNTY-Continued

STATION NUMBER	DATE	TIME	STATION NAME	ELEV- ATION ABOVE NGVD (FEET)
284317082142601	05-19-03 09-15-03	1255 1226	84321401 20S21E30 TRAILER PARK NW OF WAHOO	40.73 43.12
284435082011701	05-20-03 09-17-03	0950 1130	BRENTWOOD WELL NR SUMTERVILLE, FL	64.94 70.36
284449082055201	05-20-03 09-17-03	1117 1020	84420502 20S22E15 WOODWARD RESIDENCE	42.87 46.35
284703082001701	05-20-03 09-17-03	1047 1150	LOWES BURNED HOUSE WELL NR ADAMSVILLE, FL	54.69 58.15
284809082080701	05-20-03 09-17-03	1145 1005	84820801 19S22E30 HOWARD KENT	39.61 41.70
284955081595801	05-21-03 09-17-03	0706 1208	BYRD TRAILER WELL NR ORANGE HOME, FL	65.52 67.05
285150082044001	05-20-03 09-17-03	1315 0920	85120401 19S22E02 JC 58 U S GEOL SURVEY	47.86 49.81
285420081571901	05-21-03 09-17-03	0815 0755	SMITH WELL NO.2 NR CHERRY LAKE, FL	52.73 56.84
285422082001901	05-21-03 09-17-03	0748 0830	HATCHER WELL AT LAKE MIONA NR OXFORD, FL	47.20 50.36
285536082044001	05-21-03 09-17-03	0630 0845	85520401 18S22E14 G N SMITH	48.05 50.70

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

267

281951082012001 -- 81920101GREEN SWAMP L11MD NR DADE CITY FL

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)
08-13-03	1200	49.0	1.6	6.3	7.1	810	23.0	380	131	13.0

Date	Time	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-13-03	0.20	34.0	354	0.2	61.0	0.4	16.0	<0.20	541	0.70	

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)
08-13-03	0.28	<0.02	<0.010	<0.01	<0.02	22.0	7,200	66	890	

281951082012003 -- 81920103 GREEN SWAMP L11MS NR DADE CITY FL

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)
08-13-03	1230	9.0	1.8	6.3	7.3	515	25.1	210	58.0	15.0

Date	Time	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-13-03	0.20	30.0	258	0.3	15.0	0.6	9.70	4.10	352	0.30	

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)
08-13-03	0.02	<0.02	<0.010	<0.01	<0.02	12.0	10,000	47	1,020	

MISCELLANEOUS WATER-QUALITY RECORDS  
OCTOBER 2002 TO SEPTEMBER 2003

282125082021901 -- GREEN SWAMP CHECK STATION

Date	Time	Depth of well, feet below LSD (72008)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conduc-tance, wat unf uS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, unfltrd mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)
08-08-03	1230	20	0.5	6.7	7.4	605	22.0	320	123	2.40

Date	Time	Potas-sium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Bromide water, fltrd, mg/L (71870)	Chlor-ide, water, fltrd, mg/L (00940)	Fluor-ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)
08-08-03	<.10	9.7	294	0.1	16.0	0.1	12.0	5.00	350	<.20	

Date	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, fltrd, mg/L (00666)	Organic carbon, water, unfltrd mg/L (00680)	Iron, water, fltrd, ug/L (01046)	Mangan-ese, water, fltrd, ug/L (01056)	Stront-ium, water, fltrd, ug/L (01080)
08-08-03	0.03	<0.02	<.010	<0.01	<0.02	1.7	921	15	170



KEY TO SITE LOCATIONS ON FIGURE 27  
VOLUSIA COUNTY, GROUND-WATER LEVELS

Index number	Site number	Page number
1	291905081251001	272

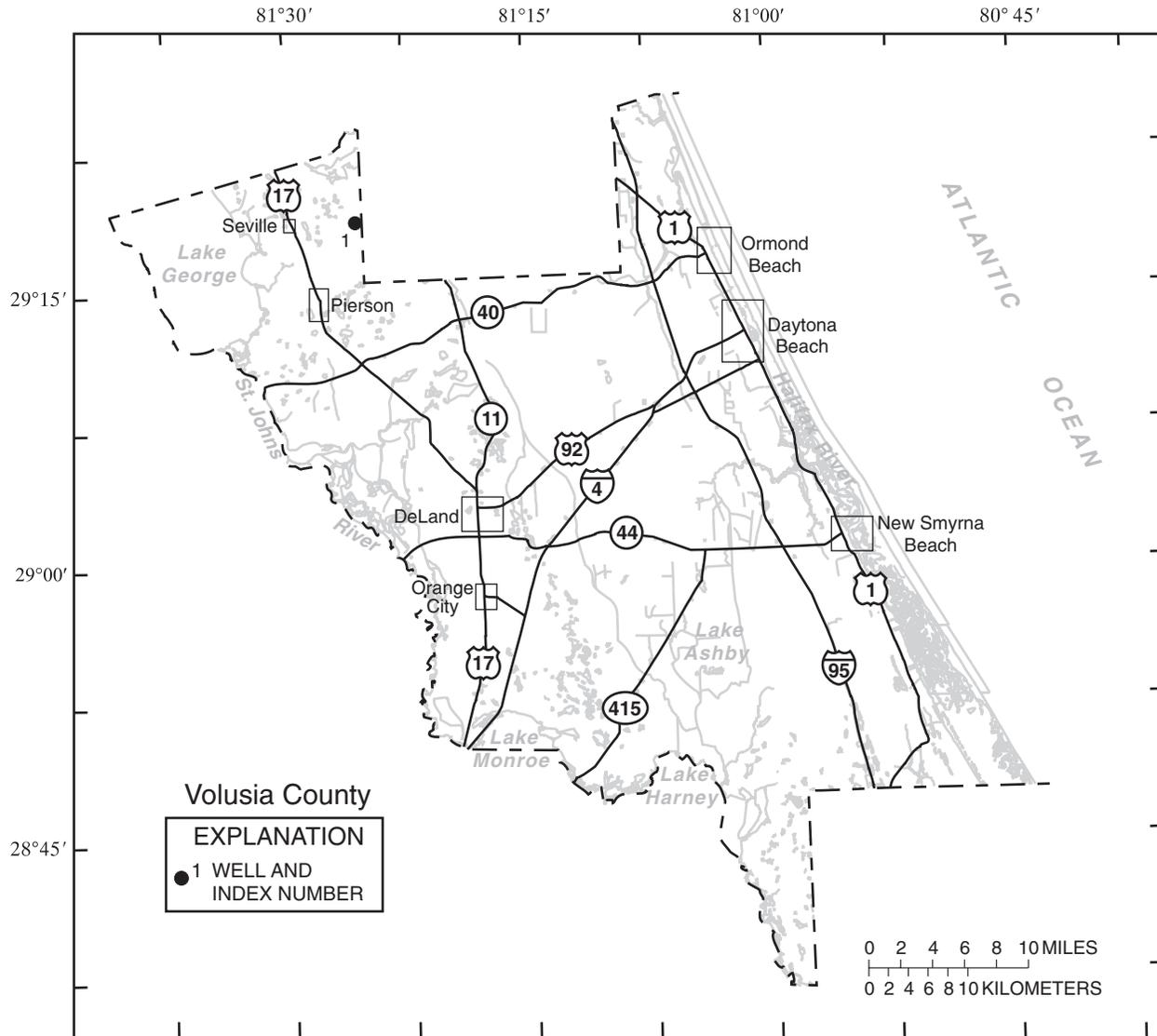


Figure 27.--Location of wells in Volusia County.

VOLUSIA COUNTY

**WELL NUMBER.--291905081251001. R. Nolan Well near Seville, FL.**

LOCATION.--Lat 29°19'05", long 81°25'10", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> sec.36, T.13 S., R.28 E., Hydrologic Unit 03080103, 25 ft south of State Highway 305, 100 ft west of Volusia-Flagler County line, and 4.8 mi east of U.S. Highway 17 in Seville. Owner: Robert Nolan.

AQUIFER.--Floridan aquifer system of the Tertiary System, Geologic Unit 120 FLRD.

WELL CHARACTERISTICS.--Drilled, stock, artesian well, diameter 6 in., depth 138 ft, casing length unknown.

INSTRUMENTATION.--Monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 23.30 ft above NGVD of 1929. Measuring point: Top of casing, 1.21 ft above land-surface datum.

COOPERATION.--Since Oct. 1, 1985 data provided by St. Johns River Water Management District and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--December 1935 to April 1950 (monthly); July 1950 to September 1985 (bimonthly); October 1985 to current year (monthly).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.90 ft above NGVD of 1929, Sept. 1, Oct. 1, 1947; lowest measured, 14.51 ft above NGVD of 1929, May 15, 2001.

ELEVATION IN FEET (NGVD 1929), WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	20.19	DEC 17	19.68	FEB 20	20.49	MAY 19	18.27	JUN 19	20.12	SEP 15	21.14
NOV 20	19.82	JAN 24	18.38	MAR 25	21.18	21	18.62	AUG 26	21.69	18	21.23
WATER YEAR 2003 LOWEST		18.27	MAY 19, 2003 HIGHEST		21.69	AUG 26, 2003					

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

273

VOLUSIA COUNTY

STATION NUMBER	DATE	TIME	STATION NAME	ELEV- ATION ABOVE NGVD (FEET)
284840081115701	05-20-03 09-17-03	0845 0910	V-0818 OSTEEN RANCH	17.73 19.76
284859080501002	05-20-03 09-16-03	1025 0950	V-0840 MIGOR SHILOH RD NR OAK HILL, FL	3.45 6.02
285221081095002	05-20-03 09-16-03	0815 0800	85210902 USGS TEST WELL G-2, N. OF OSTEEN, FL	25.40 27.08
285419081041001	05-20-03 09-16-03	0930 0905	V-0198 LAKE ASHBY TWR DEEP	16.10 19.03
285442081181401	05-21-03 09-16-03	1010 1645	V-0196 ORANGE CITY TWR DEEP	20.56 22.63
285513081202801	05-21-03 09-16-03	1045 1520	V-1091 WELL SO OF BLUE SPRINGS NR DEBARY, FL	18.00 20.00
285524081132403	05-20-03 09-17-03	1400 1300	V-0772 GALAXY MIDDLE SCHOOL	12.80 13.82
285813081142402	05-21-03 09-16-03	0830 1545	V-0777 LAKE HELEN UPPER	20.32 20.82
285921080541001	05-20-03 09-16-03	1100 1030	85905402 MOORE WELL RIVERSIDE DR EDGEWATER	6.86 9.05
285934081041801	05-20-03 09-16-03	1305 1220	85910401 USGS TEST WELL 10, S. OF SAMSULA	25.23 28.22
290103080551902	05-20-03 09-16-03	1125 1045	V-0508 NEW SMYRNA BEACH	3.51 5.89
290138081203202	05-21-03 09-16-03	0935 1610	V-0115 USGS J-24 TEST WELL, W. OF DELAND	11.26 13.16
290225081040301	05-20-03 09-16-03	1255 1212	90210402 17S32E11 USGS TEST WELL 9, N. SAMSULA	19.00 21.83
290230081123401	05-21-03 09-15-03	0910 1650	90211203 USGS TEST HOLE 5, E. OF DELAND	36.42 38.31
290541081132902	05-19-03 09-15-03	1545 1616	90511304 USGS 04 DP TEST W. NR. DELAND, FL. 6" CSG	36.20 37.83
290550081162601	05-19-03 09-15-03	1520 1500	V-0808 WL LAWRENCE 4IN NR LK DAUGHARTY	40.59 41.62
290614081183301	05-19-03 09-15-03	1500 1437	V-0742	34.76 36.14
290737081220301	05-19-03 09-15-03	1440 1420	90712201 HAGSTROM IRRIG WELL, W OF DELEON SPGS	9.78 10.55
290806081013901	05-20-03 09-16-03	1225 1150	V-0162 CITY OBS. WELL #2, WELLFIELD, P. ORANGE	-1.01 3.37

Note.--Negative figures indicate water level below NGVD of 1929

MISCELLANEOUS WATER LEVEL MEASUREMENTS  
OCTOBER 2002 TO SEPTEMBER 2003

VOLUSIA COUNTY---Continued

STATION NUMBER	DATE	TIME	STATION NAME	ELEV- ATION ABOVE NGVD (FEET)
290828081215103	05-19-03 09-15-03	1425 1405	1030 WELL AT DELEON SPRINGS, FL	20.07 21.17
290834081073802	05-19-03 09-17-03	1655 1002	V-0188	15.72 17.71
291031080590103	05-20-03 09-16-03	1155 1120	V-0200 DAYTONA BEACH SHORES 4INUFA DAYTONA BCH	.60 2.81
291040081143701	05-19-03 09-15-03	1615 1540	V-0700 ORMOND BEACH DAN FORD	32.02 34.00
291150081282501	05-19-03 09-15-03	1356 1335	91112806 15S28E14 HARPERS WELL E OF MURPHY RD	28.00 29.12
291258081313701	05-19-03 09-15-03	1330 1250	91213103 4" SUPPLY WELL, SE L.GEORGE, NR EMPORIA	7.54 9.24
291448081274905	05-19-03 09-17-03	1050 1120	V-0531 PIERSON UPPER	22.01 24.68
291509081302601	05-19-03 09-17-03	1305 1140	V-4034 SJRWMD 6IN, 2MI W PIERSON, FL	14.12 15.62
291523081095001	05-20-03 09-17-03	1820 1050	91510902 USGS WELL #1 SR40 W OF ORMOND	13.50 16.74
291705081073502	05-20-03 09-17-03	1800 1035	V-1094 NR ORMOND BEACH, FL	5.90 8.69
291835081324201	05-19-03 09-15-03	1205 1105	91813201 USED 426 PINE ISLAND W OF SEVILLE	7.16 8.96
292038081315302	05-19-03 09-15-03	1130 1030	V-0567	30.84 32.85

MISCELLANEOUS WETLANDS WATER LEVEL MEASUREMENTS  
OCTOBER 2000 TO SEPTEMBER 2003

275

VOLUSIA COUNTY

The following ground-water data were collected in southwest Volusia County, for a short-term study to discern the natural hydrologic response of four karstic-ridge wetlands and the surrounding surficial aquifer system to changes in rainfall, drought, and evapotranspiration. Wells were located in several transects radiating from the wetlands for up to 2,000 ft. Wells included hand-augered piezometers tapping the surficial aquifer system just below the water-table surface and drilled wells tapping the surficial aquifer system in the upper and lower zones. Climate conditions ranged from extremely dry to extremely wet during the data-collection period.

285512081133301 LYONIA S RIDGE 4IN LOWER SAS(V-2033)AT DELTONA,FL

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	26.15	24.73	23.37	22.64	22.20	21.80	21.40	21.07	20.93	27.49	29.59
10	---	25.57	24.48	23.21	22.57	22.15	21.72	21.35	21.01	21.58	27.56	29.93
15	---	25.16	24.19	23.09	22.48	22.08	21.66	21.30	20.96	24.14	27.74	29.74
20	---	25.00	23.94	22.97	22.40	22.02	21.59	21.23	20.91	27.32	27.70	29.52
25	---	25.01	23.74	22.88	22.32	21.95	21.51	21.18	20.88	27.62	28.08	29.51
EOM	26.81	24.99	23.52	22.75	22.27	21.88	21.46	21.12	20.87	27.58	28.79	29.91
MAX	---	26.70	24.94	23.48	22.74	22.26	21.86	21.45	21.11	27.66	28.79	29.93

WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	30.34	29.08	25.57	24.29	23.63	23.12	23.20	24.64	23.45	---	---	---
10	30.62	28.71	25.28	24.18	23.56	23.04	23.44	24.46	---	---	---	---
15	30.58	27.98	24.91	24.07	23.46	23.01	23.76	24.24	---	---	---	---
20	30.12	27.04	24.72	24.00	23.35	22.96	24.06	23.94	---	---	---	---
25	29.80	26.39	24.58	23.90	23.26	22.93	24.46	23.74	---	---	---	---
EOM	29.42	25.97	24.44	23.76	23.20	22.99	24.48	23.58	---	---	---	---
MAX	30.63	29.35	25.86	24.43	23.73	23.20	---	24.69	---	---	---	---

285523081133501 LYONIA LG WETLAND S 4IN UP SAS(V-2044)AT DELTONA,FL

WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	---	---	---	---	12.63
10	---	---	---	---	---	---	---	---	---	---	---	13.63
15	---	---	---	---	---	---	---	---	---	---	---	14.62
20	---	---	---	---	---	---	---	---	---	---	---	14.73
25	---	---	---	---	---	---	---	---	---	---	---	14.86
EOM	---	---	---	---	---	---	---	---	---	---	---	15.02
MAX	---	---	---	---	---	---	---	---	---	---	---	15.02

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.03	15.68	15.90	15.62	15.04	14.79	14.04	13.26	12.53	15.79	17.07	---
10	15.08	15.62	15.84	15.52	14.95	14.66	13.89	13.09	12.81	16.11	17.18	---
15	15.21	16.01	15.76	15.50	14.86	14.54	13.85	12.91	13.17	16.22	17.69	---
20	15.21	16.05	15.68	15.38	14.75	14.40	13.76	12.78	13.32	16.24	---	---
25	15.44	16.02	15.60	15.28	14.94	14.28	13.61	12.60	14.22	16.59	---	---
EOM	15.46	15.97	15.50	15.16	14.85	14.16	13.43	13.14	14.99	16.76	---	---
MAX	15.47	16.05	15.96	15.73	15.14	14.83	14.12	13.40	14.99	16.77	---	---

MISCELLANEOUS WETLANDS WATER LEVEL MEASUREMENTS  
OCTOBER 2000 TO SEPTEMBER 2003

## VOLUSIA COUNTY---Continued

## 285524081133701 LYONIA LG WETLAND 4IN LOW SAS(V-2047)AT DELTONA,FL

WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	---	---	---	---	12.30
10	---	---	---	---	---	---	---	---	---	---	---	13.60
15	---	---	---	---	---	---	---	---	---	---	---	14.63
20	---	---	---	---	---	---	---	---	---	---	---	14.81
25	---	---	---	---	---	---	---	---	---	---	---	14.93
EOM	---	---	---	---	---	---	---	---	---	---	---	15.08
MAX	---	---	---	---	---	---	---	---	---	---	---	15.08

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.05	15.54	15.72	15.35	14.76	14.45	13.77	13.01	12.27	15.76	---	---
10	---	15.46	15.66	15.23	14.68	14.37	13.65	12.85	12.51	16.05	---	---
15	---	15.89	15.56	15.23	14.58	14.26	13.57	12.68	12.73	16.10	---	---
20	15.17	15.91	15.48	15.10	14.47	14.13	13.49	12.56	12.96	16.07	---	---
25	15.37	15.86	15.39	15.00	14.63	14.01	13.33	12.39	13.96	16.46	---	---
EOM	15.34	15.81	15.27	14.88	14.53	13.89	13.18	---	14.86	16.61	---	---
MAX	---	15.91	15.79	15.48	14.85	14.52	13.87	---	---	---	---	---

## 285524081133702 LYONIA LG WETLAND 4IN UP SAS(V-2046)AT DELTONA,FL

WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	---	---	---	---	12.78
10	---	---	---	---	---	---	---	---	---	---	---	13.69
15	---	---	---	---	---	---	---	---	---	---	---	14.50
20	---	---	---	---	---	---	---	---	---	---	---	14.68
25	---	---	---	---	---	---	---	---	---	---	---	14.84
EOM	---	---	---	---	---	---	---	---	---	---	---	15.02
MAX	---	---	---	---	---	---	---	---	---	---	---	15.02

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.03	15.67	15.89	15.63	15.06	14.83	14.10	13.32	12.65	15.71	---	---
10	---	15.62	15.84	15.53	14.98	14.70	13.96	13.16	12.93	16.06	---	---
15	---	15.96	15.77	15.52	14.88	14.56	13.93	12.97	13.39	16.19	---	---
20	15.25	16.02	15.70	15.41	14.78	14.45	13.82	12.87	13.46	16.22	---	---
25	15.45	15.99	15.62	15.30	14.96	14.33	13.66	12.66	14.14	16.58	---	---
EOM	15.45	15.95	15.51	15.18	14.88	14.22	13.49	---	14.94	---	---	---
MAX	---	16.02	15.94	15.68	15.16	14.86	14.19	---	---	---	---	---

## 285524081133703 LYONIA PRESERVE LARGE WETLAND AT DELTONA,FL

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	14.81	14.10	13.33	12.68	15.49	17.06	---
10	---	---	---	---	---	14.68	13.95	13.19	12.90	16.04	17.16	---
15	---	---	---	---	14.88	14.56	13.90	13.01	---	16.21	17.66	---
20	---	---	---	---	14.77	14.43	13.85	12.91	---	16.18	18.01	---
25	---	---	---	---	14.94	14.32	13.70	12.68	---	16.57	---	---
EOM	---	---	---	---	14.86	14.21	13.54	---	---	16.75	---	---
MEAN	---	---	---	---	---	14.54	13.89	---	---	---	---	---

MISCELLANEOUS WETLANDS WATER LEVEL MEASUREMENTS  
OCTOBER 2000 TO SEPTEMBER 2003

277

VOLUSIA COUNTY---Continued

285525081133401 LYONIA LG WETLAND N 4IN UP SAS(V-2045)AT DELTONA,FL

WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	---	---	---	---	12.83
10	---	---	---	---	---	---	---	---	---	---	---	13.74
15	---	---	---	---	---	---	---	---	---	---	---	14.55
20	---	---	---	---	---	---	---	---	---	---	---	14.70
25	---	---	---	---	---	---	---	---	---	---	---	14.84
BOM	---	---	---	---	---	---	---	---	---	---	---	15.02
MAX	---	---	---	---	---	---	---	---	---	---	---	15.02

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.03	15.69	15.91	15.63	15.08	14.82	14.10	13.31	12.61	15.72	---	---
10	---	15.63	15.85	15.54	14.98	14.70	13.94	13.15	12.90	16.09	---	---
15	---	15.98	15.78	15.53	14.88	14.57	13.91	12.96	13.38	16.21	---	---
20	15.24	16.03	15.71	15.43	14.77	14.44	13.81	12.84	13.44	16.24	---	---
25	15.47	16.01	15.61	15.31	14.95	14.32	13.65	12.64	14.17	16.59	---	---
BOM	15.47	15.97	15.52	15.20	14.88	14.21	13.48	13.43	14.94	---	---	---
MAX	---	16.03	15.96	15.67	15.18	14.87	14.17	13.45	14.94	---	---	---

285528081134001 LYONIA MID-RIDGE 4IN MDL SAS(V-2039)AT DELTONA,FL

WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	---	---	---	---	11.62
10	---	---	---	---	---	---	---	---	---	---	---	13.64
15	---	---	---	---	---	---	---	---	---	---	---	14.46
20	---	---	---	---	---	---	---	---	---	---	---	15.41
25	---	---	---	---	---	---	---	---	---	---	---	15.51
BOM	---	---	---	---	---	---	---	---	---	---	---	15.43
MAX	---	---	---	---	---	---	---	---	---	---	---	15.52

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.28	15.27	15.53	14.92	14.35	13.93	13.37	12.68	11.83	15.69	16.91	18.36
10	15.32	15.25	15.41	14.81	14.27	13.88	13.25	12.53	11.84	16.41	17.03	18.26
15	---	15.49	15.29	14.74	14.18	13.80	13.16	12.38	11.85	16.51	17.56	18.37
20	15.08	15.81	15.20	14.65	14.08	13.71	13.07	12.24	12.05	16.36	17.98	18.90
25	15.04	15.81	15.10	14.57	14.06	13.60	12.95	12.10	13.06	16.64	18.24	19.49
BOM	15.20	15.72	14.97	14.45	14.01	13.48	12.83	11.95	14.24	16.71	18.33	19.55
MAX	---	15.84	15.68	14.97	14.44	14.00	13.46	12.80	14.24	16.71	18.33	19.58

WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	19.40	18.37	17.69	18.43	17.61	17.93	18.62	17.65	16.70	---	---	---
10	19.17	18.26	17.83	18.36	17.55	18.08	18.45	17.46	---	---	---	---
15	19.07	18.13	18.30	18.16	17.45	18.11	18.20	17.27	---	---	---	---
20	18.86	18.07	18.21	18.00	17.35	18.24	18.06	17.10	---	---	---	---
25	18.72	17.94	18.15	17.85	17.41	18.80	17.93	17.03	---	---	---	---
BOM	18.54	17.83	18.20	17.73	17.35	18.71	17.77	16.85	---	---	---	---
MAX	19.53	18.51	18.30	18.47	17.70	18.83	18.66	17.75	---	---	---	---

MISCELLANEOUS WETLANDS WATER LEVEL MEASUREMENTS  
OCTOBER 2000 TO SEPTEMBER 2003

## VOLUSIA COUNTY---Continued

## 285528081134002 LYONIA MID-RIDGE 4IN UPPER SAS(V-2038)AT DELTONA, FL

WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	---	---	---	---	11.69
10	---	---	---	---	---	---	---	---	---	---	---	13.80
15	---	---	---	---	---	---	---	---	---	---	---	14.61
20	---	---	---	---	---	---	---	---	---	---	---	15.69
25	---	---	---	---	---	---	---	---	---	---	---	15.77
EOM	---	---	---	---	---	---	---	---	---	---	---	15.64
MAX	---	---	---	---	---	---	---	---	---	---	---	15.78

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.44	15.36	15.74	15.10	14.51	14.08	13.54	12.86	12.01	15.98	17.16	18.58
10	15.34	15.37	15.62	14.98	14.42	14.03	13.43	12.72	11.98	16.76	17.30	18.46
15	---	15.60	15.50	14.92	14.35	13.96	13.35	12.58	11.98	16.86	17.82	18.56
20	15.20	15.98	15.40	14.83	14.26	13.87	13.24	12.43	12.17	16.67	18.22	19.13
25	15.15	16.00	15.29	14.73	14.20	13.78	13.13	12.29	13.17	16.92	18.51	19.75
EOM	15.34	15.92	15.16	14.61	14.15	13.67	13.01	12.13	14.43	16.99	18.56	19.84
MAX	---	16.02	15.88	15.17	14.59	14.16	13.65	12.99	14.43	16.99	18.56	19.86

WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	19.66	18.60	17.93	18.68	17.82	18.15	18.85	17.86	16.93	---	---	---
10	19.41	18.48	18.03	18.58	17.73	18.30	18.68	17.71	---	---	---	---
15	19.27	18.35	18.56	18.37	17.64	18.34	18.45	17.53	---	---	---	---
20	19.08	18.28	18.46	18.21	17.55	18.43	18.31	17.37	---	---	---	---
25	18.93	18.17	18.37	18.06	17.60	19.07	18.16	17.26	---	---	---	---
EOM	18.75	18.06	18.40	17.94	17.55	18.96	18.00	17.09	---	---	---	---
MAX	19.81	18.72	18.57	18.71	17.91	19.09	18.91	17.98	---	---	---	---

## 285528081134003 LYONIA MID-RIDGE 4IN LOWER SAS AT DELTONA, FL

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	14.90	15.41	15.24	15.08	14.95	14.83	14.67	14.53	15.30	16.43	17.94
10	---	14.90	15.38	15.22	15.05	14.93	14.82	14.64	14.51	15.90	16.56	17.93
15	---	15.14	15.35	15.20	15.03	14.91	14.77	14.62	14.49	16.01	17.06	17.93
20	---	15.42	15.34	15.16	15.01	14.89	14.74	14.60	14.48	16.00	17.47	18.46
25	14.80	15.43	15.31	15.14	14.98	14.87	14.71	14.58	14.46	16.13	17.73	19.02
EOM	14.84	15.42	15.27	15.10	14.97	14.85	14.69	14.54	14.46	16.22	17.88	19.11
MAX	---	15.44	15.42	15.26	15.10	14.97	14.85	14.68	14.54	16.22	17.88	19.11

WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	19.10	18.96	18.81	18.70	18.60	18.51	18.49	17.55	16.85	---	---	---
10	19.08	18.94	18.78	18.69	18.58	18.50	18.16	17.44	---	---	---	---
15	19.06	18.92	18.76	18.66	18.56	18.50	18.09	17.31	---	---	---	---
20	19.04	18.89	18.74	18.65	18.55	18.49	18.04	17.19	---	---	---	---
25	19.02	18.86	18.73	18.64	18.53	18.49	17.96	17.08	---	---	---	---
EOM	18.98	18.84	18.71	18.62	18.52	18.48	17.63	16.96	---	---	---	---
MAX	19.11	18.98	18.83	18.70	18.62	18.52	---	17.62	---	---	---	---



MISCELLANEOUS WETLANDS WATER LEVEL MEASUREMENTS  
OCTOBER 2000 TO SEPTEMBER 2003

## VOLUSIA COUNTY---Continued

## 285535081133401 LYONIA SM WETLAND 4IN LOW SAS(V-2041)AT DELTONA,FL

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.06	15.38	15.30	14.77	14.04	13.79	12.95	12.05	11.43	---	16.82	---
10	15.02	15.22	15.18	14.61	13.94	13.62	12.78	11.88	12.01	---	16.88	---
15	---	15.68	15.04	14.59	---	13.48	12.77	11.70	12.42	16.09	---	---
20	15.01	15.65	14.90	14.45	---	13.33	12.61	11.64	12.62	---	---	---
25	15.28	15.55	14.78	14.34	13.97	13.20	12.42	11.44	13.82	16.40	---	---
EOM	15.14	15.44	14.64	14.19	13.86	13.09	12.24	12.10	14.85	16.52	---	---
MAX	---	15.68	15.41	14.86	---	13.91	13.06	12.22	14.85	---	---	---

## 285535081133402 LYONIA SM WETLAND 4IN UP SAS(V-2040)AT DELTONA,FL

WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	---	---	---	---	12.76
10	---	---	---	---	---	---	---	---	---	---	---	13.86
15	---	---	---	---	---	---	---	---	---	---	---	14.87
20	---	---	---	---	---	---	---	---	---	---	---	15.02
25	---	---	---	---	---	---	---	---	---	---	---	15.11
EOM	---	---	---	---	---	---	---	---	---	---	---	15.25
MAX	---	---	---	---	---	---	---	---	---	---	---	15.25

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	15.14	15.44	15.38	14.84	14.12	13.81	12.98	12.07	11.46	15.60	---	---
10	15.12	15.32	15.27	14.70	14.02	13.66	12.82	11.90	12.09	16.01	---	---
15	---	15.70	15.12	14.71	---	13.52	12.93	11.71	12.75	16.09	---	---
20	15.11	15.72	15.00	14.54	---	13.38	12.64	11.68	12.79	---	---	---
25	15.31	15.63	14.87	14.45	14.05	13.25	12.44	11.45	13.86	16.42	---	---
EOM	15.23	15.52	14.71	14.27	13.91	13.13	12.27	12.68	14.78	16.56	---	---
MAX	---	15.72	15.50	15.06	---	13.96	13.36	12.68	14.78	---	---	---

## 285535081133403 LYONIA PRESERVE SMALL WETLAND AT DELTONA,FL

WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	13.89	13.04	---	---	15.37	16.83	---
10	---	---	---	---	---	13.72	12.83	---	12.05	15.96	16.90	---
15	---	---	---	---	---	13.57	12.81	---	12.47	16.09	17.37	---
20	---	---	---	---	---	13.42	---	---	12.71	---	---	---
25	---	---	---	---	14.04	13.28	---	11.60	13.72	16.42	---	---
EOM	---	---	---	---	13.95	13.17	---	12.08	---	16.54	---	---
MEAN	---	---	---	---	---	13.56	---	---	---	---	---	---

INDEX TO INTRODUCTORY TEXT

Acid neutralizing capacity, definition of .....10  
Acre-foot, definition of .....10  
Adenosine triphosphate, definition of .....10  
Algae, definition Blue-green, definition of  
    Blue-green, definition of .....11  
Algae, definition of  
    Fire, definition of .....15  
    Green, definition of .....15  
Algal growth potential, definition of .....10  
Alkalinity, definition of .....10  
Annual 7-day minimum, definition of .....10  
Annual runoff, definition of .....10  
Aquifer, water table, definition of .....26  
Aroclor .....10  
Artificial substrate, definition of .....10  
Ash mass, definition of .....10  
Bacteria, Fecal streptococcal, definition of .....15  
Bacteria, Escherichia coli, definition of .....14  
Bacteria, Fecal coliform, definition of .....15  
Bacteria, Enterococcus, definition of .....14  
Bacteria, Total coliform, definition of .....25  
Base flow, definition of .....11  
Bed load, definition of .....11  
Bed material, definition of .....11  
Bed-load discharge, definition of .....11  
Benthic organisms, definition of .....11  
Biochemical oxygen demand, definition of .....11  
Biomass pigment ratio, definition of .....11  
Biomass, definition of .....11  
Blue-green algae, definition of .....11  
Bottom material, definition of .....11  
Cells/volume, definition of .....11  
Chemical oxygen demand, definition of .....12  
Color unit, definition of .....12  
Confined aquifer, definition of .....12  
Contents, definition of .....12  
Control structure, definition of .....12  
Control, definition of .....12  
Cubic foot per second per square mile, definition of .....13  
Cubic foot per second, definition of .....12  
Cubic foot per second-day, definition of .....13  
Diatom, definition of .....13  
Diel, definition of .....13  
Dissolved oxygen, definition of .....13  
Dissolved, definition of .....13  
Dissolved-solids concentration, definition of .....13  
Diversity index, definition of .....14  
Drainage area, definition of .....14  
Drainage basin, definition of .....14  
Dry mass, definition of .....14  
Dry weight, definition of .....14  
Enterococcus bacteria, definition of .....14  
Escherichia coli (E. coli), definition of .....14  
Euglenoids, definition of .....15  
Fecal coliform bacteria, definition of .....15

## INDEX TO INTRODUCTORY TEXT--Continued

Fecal streptococcal bacteria, definition of .....	15
Fire algae, definition of .....	15
Flow-duration percentiles, definition of .....	15
Gage height, definition of .....	15
Gaging station, definition of .....	15
Gas chromatography/flame ionization detector, definition of .....	15
Green algae, definition of .....	15
Hardness, definition of .....	16
High tide, definition of .....	16
Hydrologic unit, definition of .....	16
Land-surface datum, definition of .....	16
Light-attenuation coefficient, definition of .....	17
Lipid, definition of .....	17
Low flow, 7-day 10-year, definition of .....	22
Low tide, definition of .....	17
Macrophytes, definition of .....	17
Mean discharge, definition of .....	17
Measuring point, definition of .....	17
Membrane filter, definition of .....	17
Metamorphic stage, definition of .....	17
Methylene blue active substances, definition of .....	18
Micrograms per gram, definition of .....	18
Micrograms per kilogram, definition of .....	18
Micrograms per liter, definition of .....	18
Microsiemens per centimeter, definition of .....	18
Milligrams per liter, definition of .....	18
Miscellaneous site, definition of .....	18
Most probable number (MPN), definition of .....	18
Multiple-plate samplers, definition of .....	18
Nanograms per liter, definition of .....	18
Natural substrate, definition of .....	18
Nekton, definition of .....	18
Nephelometric turbidity unit, definition of .....	19
Open or screened interval, definition of .....	19
Organic carbon, definition of .....	19
Organic mass, definition of .....	19
Organism count, definition of	
Area, definition of .....	19
Total, definition .....	25
Volume, definition of .....	19
Organochlorine compounds, definition of .....	19
Parameter Code, definition of .....	19
Partial-record station, definition of .....	19
Particle size, definition of .....	19
Particle-size classification, definition of .....	19
Percent composition, definition of .....	20
Periodic station, definition of .....	20
Periphyton, definition of .....	20
Pesticides, definition of .....	20
pH, definition of .....	20
Phytoplankton, definition of .....	20
Picocurie, definition of .....	20
Plankton, definition of .....	20
Polychlorinated biphenyls (PCB s), definition of .....	20
Polychlorinated naphthalenes, definition of .....	20