

# CALENDAR FOR WATER YEAR 2003

## 2002

OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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6	7	8	9	10	11	12	3	4	5	6	7	8	9	8	9	10	11	12	13	14
13	14	15	16	17	18	19	10	11	12	13	14	15	16	15	16	17	18	19	20	21
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27	28	29	30	31			24	25	26	27	28	29	30	29	30	31				

## 2003

JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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5	6	7	8	9	10	11	2	3	4	5	6	7	8	2	3	4	5	6	7	8
12	13	14	15	16	17	18	9	10	11	12	13	14	15	9	10	11	12	13	14	15
19	20	21	22	23	24	25	16	17	18	19	20	21	22	16	17	18	19	20	21	22
26	27	28	29	30	31		23	24	25	26	27	28		23	24	25	26	27	28	29
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APRIL							MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
		1	2	3	4	5					1	2	3	1	2	3	4	5	6	7
6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14
13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21
20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28
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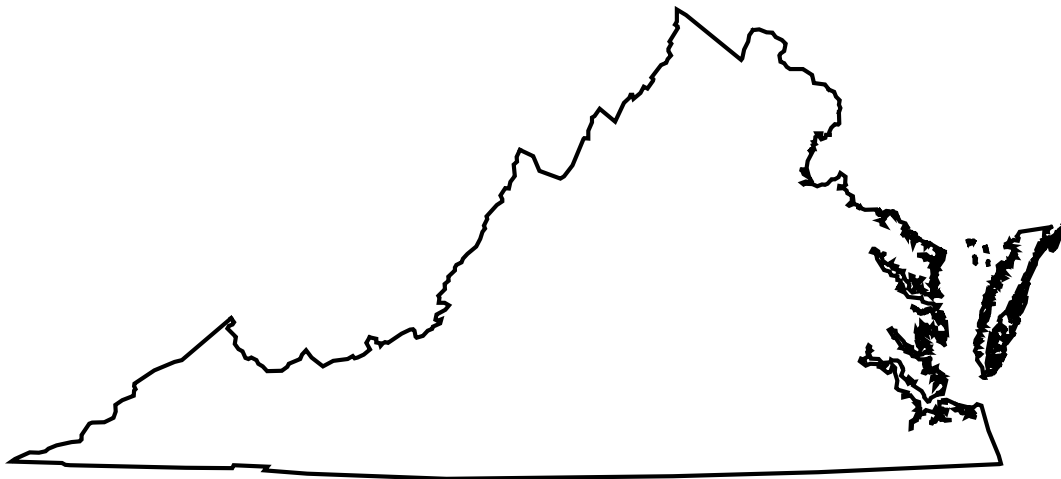
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# Water Resources Data Virginia Water Year 2003

## Volume 2. Ground-Water Level and Ground-Water Quality Records

By Roger K. White, Eugene D. Powell, Joel R. Guyer, and Joseph A. Owens

Water-Data Report VA-03-2



U.S. DEPARTMENT OF THE INTERIOR

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2004

## PREFACE

This volume of the annual hydrologic data report of Virginia is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's and cooperating agencies' surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and water quality 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 Virginia are contained in two volumes:

Volume 1. Surface-Water-Discharge and Surface-Water-Quality Records

Volume 2. Ground-Water-Level and Ground-Water-Quality Records

This report (Volume 2) is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey and the Virginia Department of Environmental Quality who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following personnel contributed significantly to the collection, computation, processing, and completion of this information:

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# WATER RESOURCES DATA - VIRGINIA, 2003

## VOLUME 2. GROUND-WATER-LEVEL AND GROUND-WATER-QUALITY RECORDS

### INTRODUCTION

The Water Resources Division of the U.S. Geological Survey (USGS), in cooperation with State agencies, obtains a large amount of data pertaining to the water resources of Virginia 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 - Virginia."

This series of annual reports for Virginia 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. Beginning with the 1990 water year, the quantity of data to be published made it necessary to present the data in two volumes; Volume 1 encompassed surface-water-discharge and surface-water-quality records and Volume 2 encompassed ground-water-level and ground-water-quality records.

This report is Volume 2 in our 2003 series and includes records of water levels and water quality of ground-water wells. It contains records for water levels at 354 observation wells and water quality at 64 wells. Locations of these wells are shown on figures 4 through 9. The data in this report represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Virginia.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Virginia were published in U.S. Geological Survey Water-Supply Papers. Data on water levels for the 1935 through 1974 water years were published under the title "Ground-Water Levels in the United States." These Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from U.S. Geological Survey, Branch of Information Services, Federal Center, Bldg. 41, Box 25286, 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 VA-03-2." 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, Virginia 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 (804) 261-2600.

Water resources data, including those provided in water data reports, are available through the World Wide Web on the Internet. The Universal Resource Location (URL) to the Virginia District's home page is:

<http://va.water.usgs.gov>

### COOPERATION

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

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY, Robert G. Burnley, Executive Director.

CITY OF NEWPORT NEWS, Brian Ramaley, Director, Department of Public Utilities.

HAMPTON ROADS PLANNING DISTRICT COMMISSION, Arthur L. Collins, Executive Director.

Organizations that provided data are acknowledged in station descriptions.

## RECORDS COLLECTED BY THE STATE OF VIRGINIA

In addition to data collected by the U.S. Geological Survey, there are included herein records for 183 observation wells operated by the Virginia Department of Environmental Quality. These records are published as provided and are acknowledged in the "REMARKS" paragraph of each individual well. The Virginia Department of Environmental Quality is under the direction of Robert G. Burnley, Executive Director. Published material for the ground-water wells is supplied through the Division of Water Resources, Terry D. Wagner, Director.

## SUMMARY OF HYDROLOGIC CONDITIONS

Four years of drought ended in water year 2003, which was one of the wettest years ever recorded in Virginia. The drought had reached severe, extreme, or exceptional conditions in August 2002 in virtually all of Virginia and in many other states east and west of the Mississippi River. The severity of the drought in Virginia was reduced slightly by above-average rainfall in September 2002, the end of that water year, and above-average precipitation continued in water year 2003. From October through December 2002, precipitation was above average for most of the State, ending the drought in Virginia. Average or above-average precipitation was recorded in almost every month for the remainder of the 2003 water year, culminating with Hurricane Isabel in mid-September 2003 and, one week later, with tornado-producing thunderstorms in central Virginia.

Changes in ground-water levels during the 2003 water year are illustrated by hydrographs of end-of-month measurements from a network of 12 observation wells in Virginia. Ten of the wells are in water-table aquifers (fig. 1) and two are in confined aquifers of the Coastal Plain. The wells were selected to represent general water-level conditions across the State from different physiographic regions. The physiographic regions of Virginia range from the Cumberland Plateau of the Appalachian Province (coal fields) in the west, to the Valley and Ridge, Blue Ridge, Mesozoic Basins, and Piedmont, in the center of the State, to the Coastal Plain in the east (fig. 4). Water levels in other observation wells documented in this report can differ from those in the selected wells because of differences in well construction (in particular, the diameter and the depth of the open interval of the well), differences in the time interval chosen to measure or to represent the data, or because of local differences in hydrologic conditions.

The water-table aquifers respond to changes in rates of ground-water recharge, flow, and discharge, processes which are generally controlled by natural factors but may also be affected by human activities. The ten network wells in water-table aquifers generally are in areas that are not influenced by pumping. Water levels in the two network wells in the confined aquifers of the Coastal Plain, however, change primarily because of ground-water pumping. The locations of the selected network wells and other observation wells documented in this report are shown in figures 4 through 9.

## Water-Table Aquifer

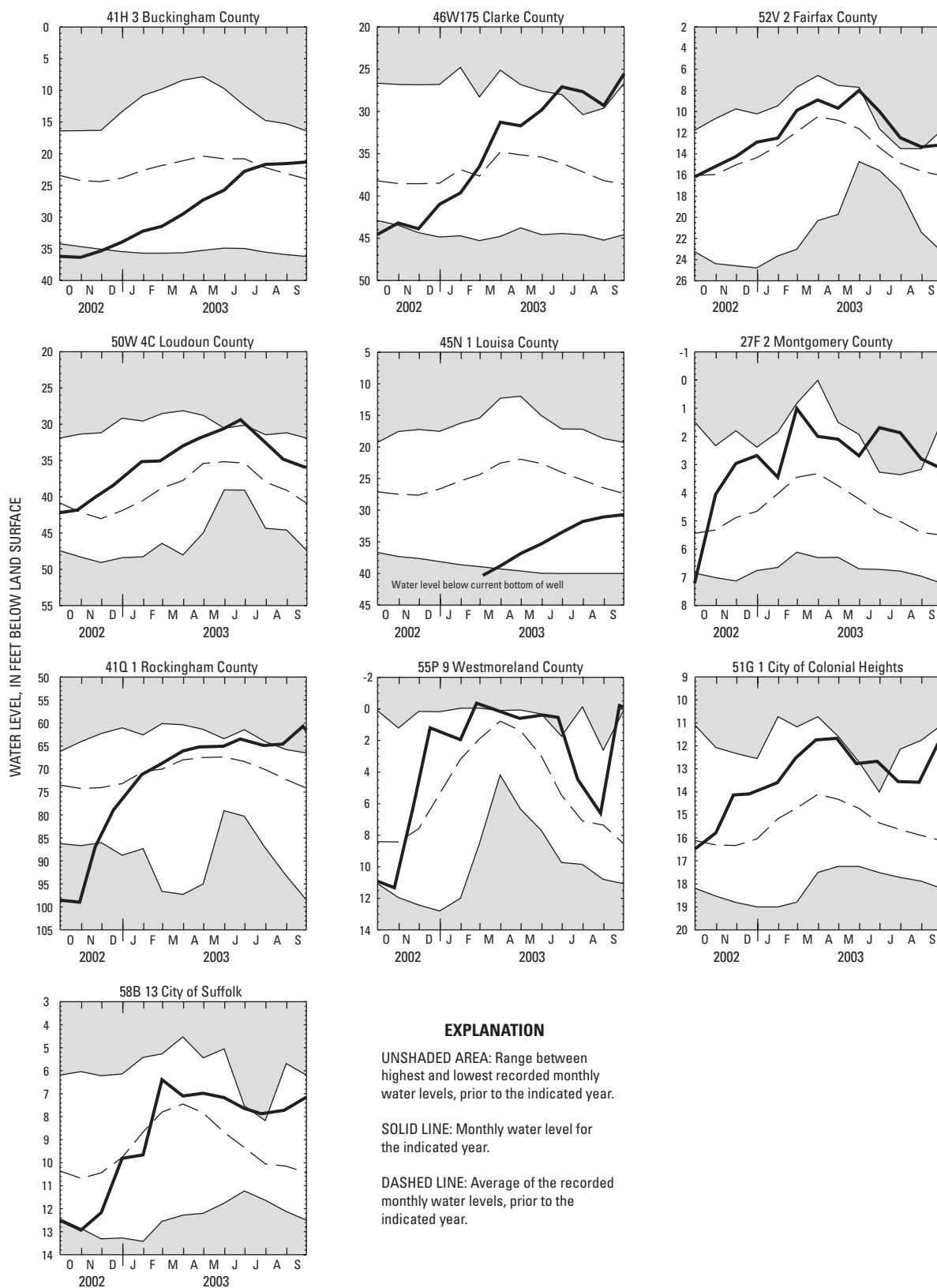
The water-table aquifers are the shallowest aquifers in Virginia and are present throughout the State. They are formed in different geologic materials at different locations. Water levels in the aquifers respond to changes in rates of recharge and evapotranspiration, but the response time depends on antecedent conditions of the unsaturated zone, on the depth of the water table below land surface, the depth of the open interval of the well, and on the materials above the open interval.

In a normal year, ground-water levels would rise when rates of recharge are highest, typically during the winter and early spring months. Ground-water recharge generally requires adequate precipitation, wet conditions near land surface to allow infiltration of water into the soil, dormant vegetation, and subsequent percolation of water to the water table. Water levels in the water-table aquifers in Virginia typically are highest in late winter or early spring when trees and other plants are dormant and evapotranspiration is low. In Virginia, ground-water levels typically begin to decline after the opening of leaves in March and April, when rates of evapotranspiration increase. Water levels normally continue to decline through the summer to seasonal lows in the late summer and early fall when evapotranspiration is high and soil moisture can become depleted. The resulting dry soil typically retains much of the precipitation that falls during these periods, thereby limiting recharge to the water-table aquifer. Consequently, water levels are lowest from late summer to early winter. However, water year 2003 was not a typical year.

End-of-month water levels for each network well were plotted against average, minimum, and maximum water levels from each well's period of record (fig. 1). The hydrographs indicate variations in water year 2003 from the typical seasonal cycles and record extremes. At the beginning of the water year, water levels in all of the water-table wells were below the normal monthly averages. The water level in one well, however, 52V2 in Fairfax County was only slightly below the average and that in another 51G 1 in Colonial Heights was marginally below the average. The water level in a third well 50W 4C in Loudoun County began the year not much more than 1 foot below average. The remaining seven observation wells in the water-table aquifers were far below the average, and because of the drought, all of these wells were at or below record lows. Observation well 45N 1 in Louisa County was dry.

Water levels in three network wells-- 41Q 1, 55P 9, and 58B 13-- continued to decline for one month after the beginning of the water year. The water levels in 41H 3 remained steady for one month. Water levels in four wells increased from the beginning of the water year in October through November, 2002, presumably in response to the above-normal precipitation. Water levels in eight of the wells rose through November and December 2002, some dramatically in response to the above-normal precipitation. Water levels in five of those wells were above average by January 2003. Water levels in well 46W175 in Clarke County declined slightly in November before rising in December. By the end of February 2003, water levels in eight of the ten wells were above average, and all of those wells rose above the previous record highs at some time during the remainder of the water year. Water levels well 41H 3 in Buckingham County rose steadily through the water year from a depth of about 12 feet below average, but did not rise above average until the end of July. The Louisa County well remained dry until the end of February, then water levels rose steadily from a depth of about 15 feet below average, however, the level never reached average by the end of the water year.

In summary, most water levels in the wells in the water-table aquifers responded quickly to the end of the drought early in the 2003 water year, rose above average by the middle of the year, and hit new record highs at some period during the remainder of the water year. The exceptions were the water levels in two wells that began the water year with the lowest water levels.



**Figure 1.** Monthly ground-water levels at index observation wells in water-table aquifers.

### Confined Coastal Plain Aquifers

The Coastal Plain of Virginia is in the eastern part of the State (fig. 4) and is underlain by a system of sandy aquifers separated by silty and clayey confining units. These aquifers are laterally continuous throughout the Coastal Plain of Virginia and extend into adjacent states. The confined aquifers are among the highest water-yielding aquifers in Virginia. Consequently, large amounts of water are withdrawn by industrial, municipal, agricultural, and domestic users. The Coastal Plain aquifer system increases in thickness toward the east, and the greatest depths from which water can be withdrawn typically increases to the east.

Because of the lateral continuity of these aquifers, declines in water levels that result from pumping can extend over large areas. The magnitude of the decline in a particular well depends on the hydraulic properties of the aquifers and confining units, the amount of water pumped, and the proximity of the well to the pumps. Consequently, water levels in wells indicate the combined effects of regional declines from pumping throughout the aquifer system and local declines from nearby pumps.

In the early 1900's, prior to significant pumping from the confined aquifers, water levels throughout the Coastal Plain were above sea level and likely were near land surface. In the eastern part of the Coastal Plain, water flowed from many wells at land surface, indicating that water levels were above land surface. Water levels have declined in the Coastal Plain from the time that pumping began. This regional decline has been well documented in numerous data and interpretive reports.

Water levels in the two network wells (wells 55B16 in Isle of Wight County and 56H27 in James City County) indicate the history of the more recent changes in water levels. Well 55B16 is open to the middle Potomac aquifer. The small, short-term changes in water levels in this well likely result from changes in local pumping (fig. 2). Water levels were likely near land surface prior to pumping and therefore the overall decline in water levels was probably about 100 ft at this location before 1960 when water levels were first measured in this well. Water levels in this well have declined an additional 100 ft since then, mostly during the 1960s. For one month in 1970, and again in 1974, water levels rose significantly in the well because of industrial shutdowns at Franklin, Virginia. When the pumping resumed, the water levels fell back to pumping levels. More recently, water levels generally changed less than earlier water levels, with the exception of September 1999 when torrential rain from Hurricane Floyd caused flooding and the shutdown of industrial wells at Franklin, Virginia. Water levels in water year 2003 generally were similar to those in 2001 but somewhat higher than those of the early to mid 1990s.

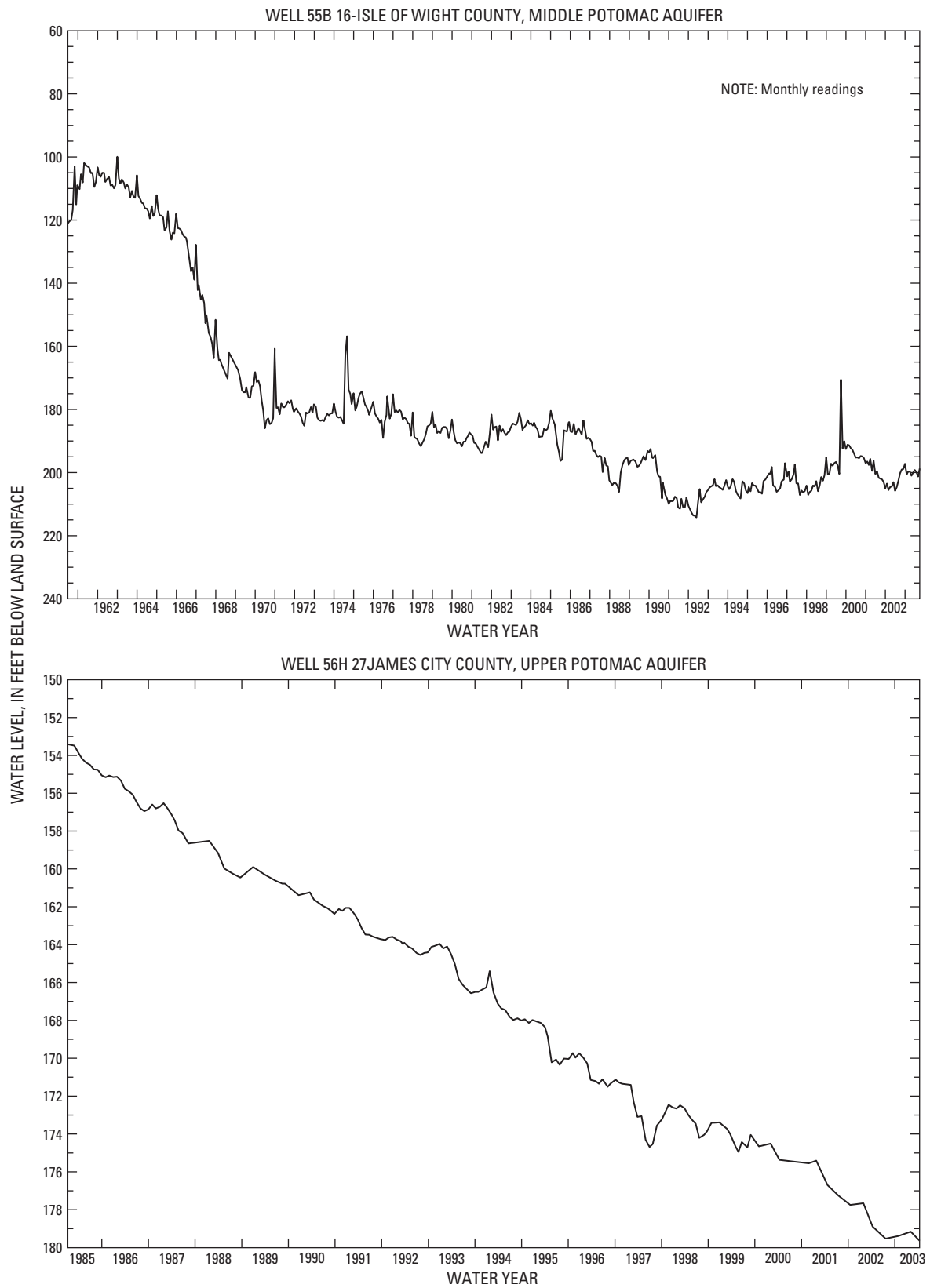
Well 56H27 is open to the Brightseat-upper Potomac aquifer. Because of the low frequency at which water levels are measured, the influence of local pumping on water levels in this well is not readily evident. The land surface altitude at this well is about 100 ft above sea level and water levels at this location likely declined 50 to 100 ft before 1985 when water levels were first measured (fig. 2). Water levels in this well have declined more than 26 ft since 1985. After a small rise in water levels at the beginning of the water year, water levels in well 56H27 again declined, establishing a record new low during the last tape down in July of 2003.

### 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-level and ground-water-quality data. The locations of the wells where the water-level data were collected are shown in figures 4 through 9. 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

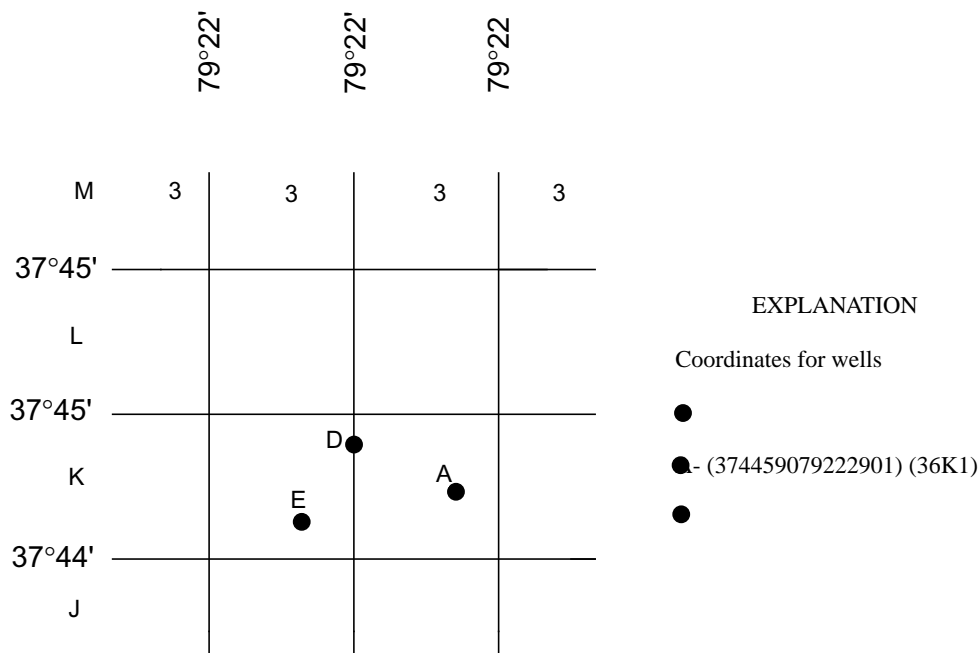
Each well in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given well and to no other. The number usually is assigned when a well is first established in U.S. Geological Survey records and is retained for that well indefinitely. The system used by the U.S. Geological Survey to assign identification numbers for ground-water well sites is based on geographic location. The "latitude-longitude" system is used for wells.



**Figure 2.** Ground-water levels in selected observation wells in confined Coastal Plain aquifers.

## 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.



**Figure 3.** System for numbering wells.

A second well-numbering system used in Virginia 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 Virginia also include the well number that is based on an indexing system used by the Virginia Department of Environmental Quality.



### Records of Ground-Water Levels

Only water-level data from a national network of observation wells are given in this report. These data are intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers. Locations of the observation wells in this network in Virginia are shown in figures 4 through 9.

### 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 data are obtained from direct measurements with a steel tape or manometer, or from graphic, punched tape, or electronic water-stage recorder. The water-level measurements in this report are given in feet with reference to 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 three parts, the station description, the data table of water levels observed during the current water year, and a graph of the water levels for the current water year or other selected period. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow 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 weekly, monthly, or some other frequency of measurement.

**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) sea level; 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 respect to land-surface datum, and the dates of their occurrence.

EXTREMES FOR CURRENT YEAR.--This entry contains the highest and lowest instantaneous water levels, along with the dates of occurrence, at sites with water-stage recorders. The values are for the current water year, and are with respect to land-surface datum.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum and all taped measurements of water level are listed. For wells equipped with recorders, only abbreviated tables are published; generally, only water-level lows are listed for every fifth day and at the end of the month (eom). The highest and lowest water levels of the water year and their dates of occurrence are 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. A hydrograph for a selected period of record follows each water-level table.

### 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 only 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 Techniques of Water-Resources Investigations" 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. 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.

### Remark Codes

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

PRINTED 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
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
M	Constituent was detected but not quantified.

### Water Quality-Control Data

Data generated from quality-control (QC) samples are a requisite for evaluating the quality of the sampling and processing techniques as well as data from the actual samples themselves. Without QC data, environmental sample data cannot be adequately interpreted because the errors associated with the sample data are unknown. The various types of QC samples collected by this district are described in the following section. Procedures have been established for the storage of water-quality-control data within the USGS. These procedures allow for storage of all derived QC data and are identified so that they can be related to corresponding environmental samples.

### Blank Samples

Blank samples are collected and analyzed to ensure that environmental samples have not been contaminated by the overall data-collection process. The blank solution used to develop specific types of blank samples is a solution that is free of the analytes of interest. Any measured value signal in a blank sample for an analyte (a specific component measured in a chemical analysis) that was absent in the blank solution is believed to be due to contamination. There are many types of blank samples possible, each designed to segregate a different part of the overall data-collection process. The types of blank samples collect in this district are:

Source solution blank - a blank solution that is transferred to a sample bottle in an area of the office laboratory with an atmosphere that is relatively clean and protected with respect to target analytes.

Ambient blank - a blank solution that is put in the same type of bottle used for an environmental sample, kept with the set of sample bottles before sample collection, and opened at the site and exposed to the ambient conditions.

Field blank - a blank solution that is subjected to all aspects of sample collection, field processing preservation, transportation, and laboratory handling as an environmental sample.

Trip blank - a blank solution that is put in the same type of bottle used for an environmental sample and kept with the set of sample bottles before and after sample collection.

Equipment blank - a blank solution that is processed through all equipment used for collecting and processing an environmental sample (similar to a field blank but normally done in the more controlled conditions of the office).

Sampler blank - a blank solution that is poured or pumped through the same field sampler used for collecting an environmental sample.

Pump blank - a blank solution that is processed through the same pump-and-tubing system used for an environmental sample.

Standpipe blank - a blank solution that is poured from the containment vessel (stand-pipe) before the pump is inserted to obtain the pump blank.

Filter blank - a blank solution that is filtered in the same manner and through the same filter apparatus used for an environmental sample.

Splitter blank - a blank solution that is mixed and separated using a field splitter in the same manner and through the same apparatus used for an environmental sample.

Preservation blank - a blank solution that is treated with the sampler preservatives used for an environmental sample.

Canister blank - a blank solution that is taken directly from a stainless steel canister just before the VOC sampler is submerged to obtain a field blank sample.

### Reference Samples

Reference material is a solution or material prepared by a laboratory whose composition is certified for one or more properties so that it can be used to assess a measurement method. Samples of reference material are submitted for analysis to ensure that an analytical method is accurate for the known properties of the reference material. Generally, the selected reference material properties are similar to the environmental sample properties.

### Replicate Samples

Replicate samples are a set of environmental samples collected in a manner such that the samples are thought to be essentially identical in composition. Replicate is the general case for which a duplicate is the special case consisting of two samples. Replicate samples are collected and analyzed to establish the amount of variability in the data contributed by some part of the collection and analytical process. There are many types of replicate samples possible, each of which may yield slightly different results in a dynamic hydrologic setting, such as a flowing stream. The types of replicate samples collected in this district are:

Concurrent sample - a type of replicate sample in which the samples are collected simultaneously with two or more samplers or by using one sampler and alternating collection of samples into two or more compositing containers.

Sequential samples - a type of replicate sample in which the samples are collected one after the other, typically over a short time.

Split sample - a type of replicate sample in which a sample is split into subsamples contemporaneous in time and space.

### Spike Samples

Spike samples are samples to which known quantities of a solution with one or more well-established analyte concentrations have been added. These samples are analyzed to determine the extent of matrix interference or degradation on the analyte concentration during sample processing and analysis.

Concurrent sample - a type of spike sample that is collected at the same time with the same sampling and compositing devices then spiked with the same spike solution containing laboratory-certified concentrations of selected analytes.

Split sample - a type of spike sample in which a sample is split into subsamples contemporaneous in time and space then spiked with the same spike solution containing laboratory-certified concentrations of selected analytes.

### 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://va.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 District Offices (See address on the back of the title page.)

## 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 ( $\text{g/m}^3$ ), and periphyton and benthic organisms in grams per square meter ( $\text{g/m}^2$ ). (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 organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample. (See also "Phytoplankton")

**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 warmblooded 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,  $[(\text{ft}^3/\text{s})/\text{d}]$ ) 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,  $(\text{ft}^3/\text{s})/\text{mi}^2$ ] 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** are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample. (See also "Phytoplankton")

**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  $\text{CaCO}_3$ ) 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** have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating “moss” in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample. (See also “Phytoplankton”)

**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 ( $\text{CaCO}_3$ ).

**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:

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

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, 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," "Bio-mass," 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 ( $m^2$ ), 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-with-drawal 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:

ClassificationSize (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, 2003, is called the “2003 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”)

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

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.

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

- 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. 41 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 pages.
- 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 programmed 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.

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

- 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 Thomas K. Edwards and G. Douglas Glysson: USGS-TWRI book 3, chap. C2. 1988. 80 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. Greenson, editors: USGS-TWRI book 5, chap. A4. 1989. 363 p.



## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

- 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 pages.
- 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. 1996. 125 p.
- 6-A7. *User's guide to SEAWAT: A computer program for simulation of three-dimensional variable 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.

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

## Section B. Instruments for Measurement of Discharge

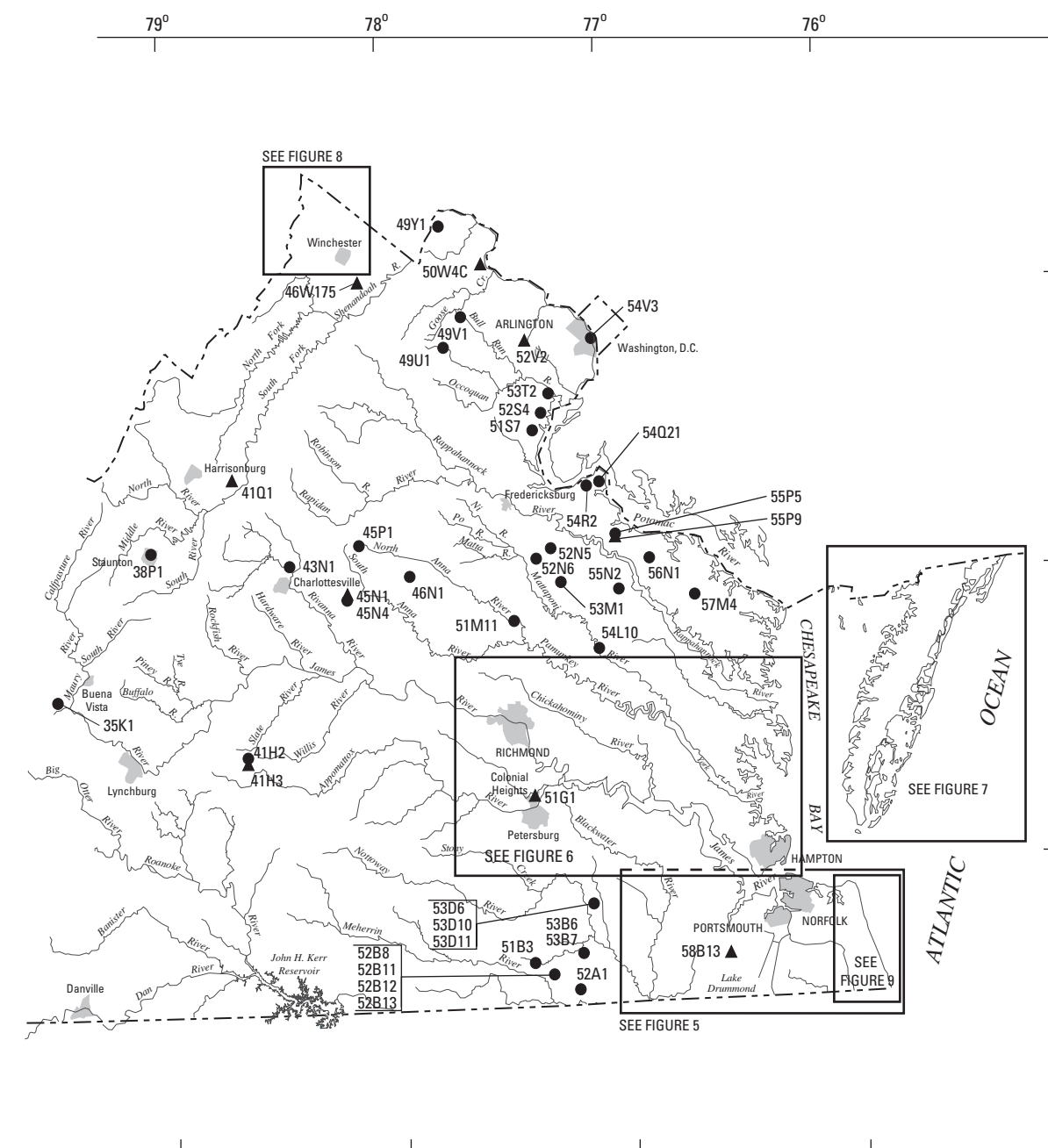
- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G.F. Smoot and C.E. Novak: USGS-TWRI book 8, chap. B2. 1968. 15 p.

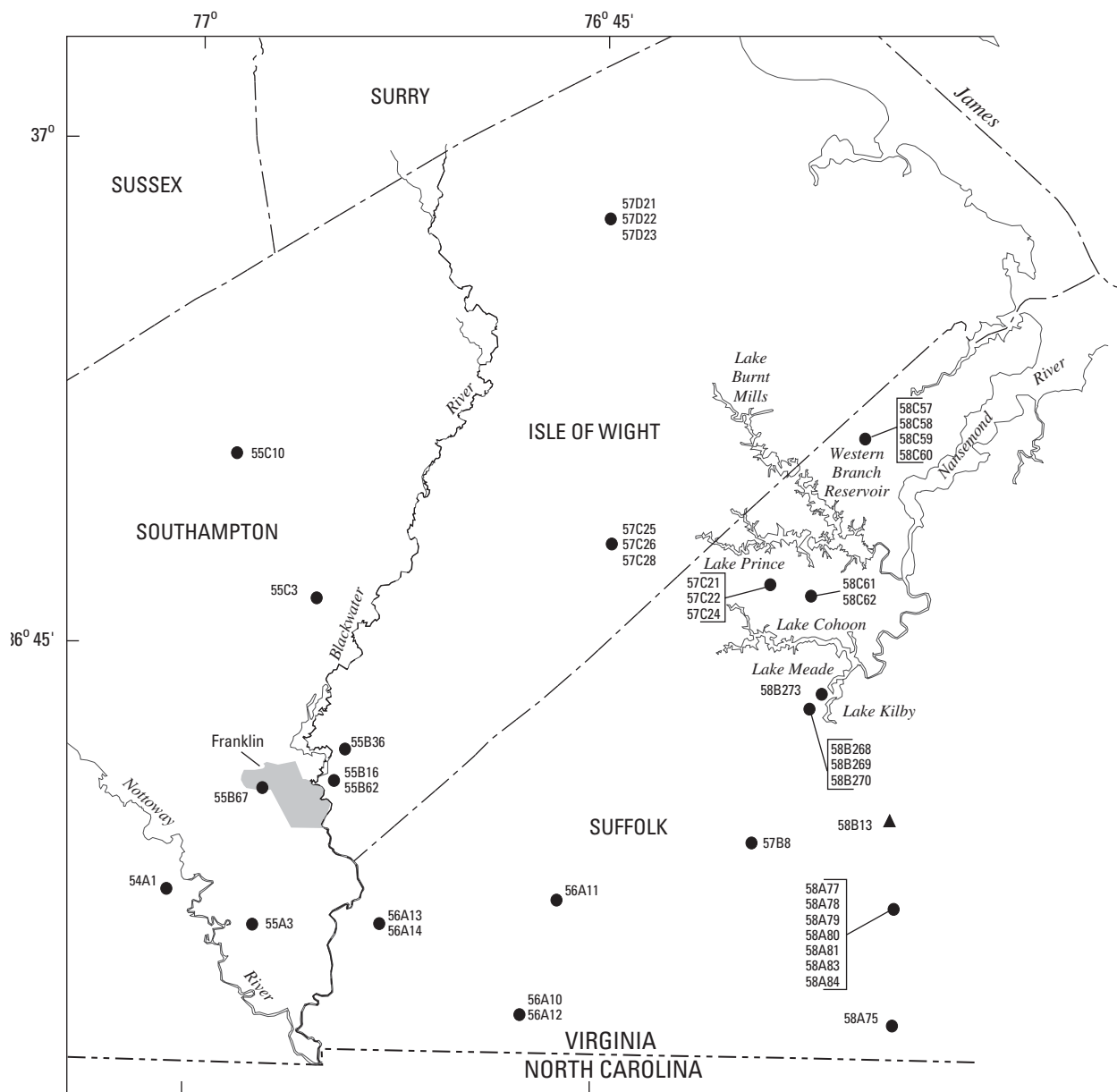
## Book 9. Handbooks for Water-Resources Investigations

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

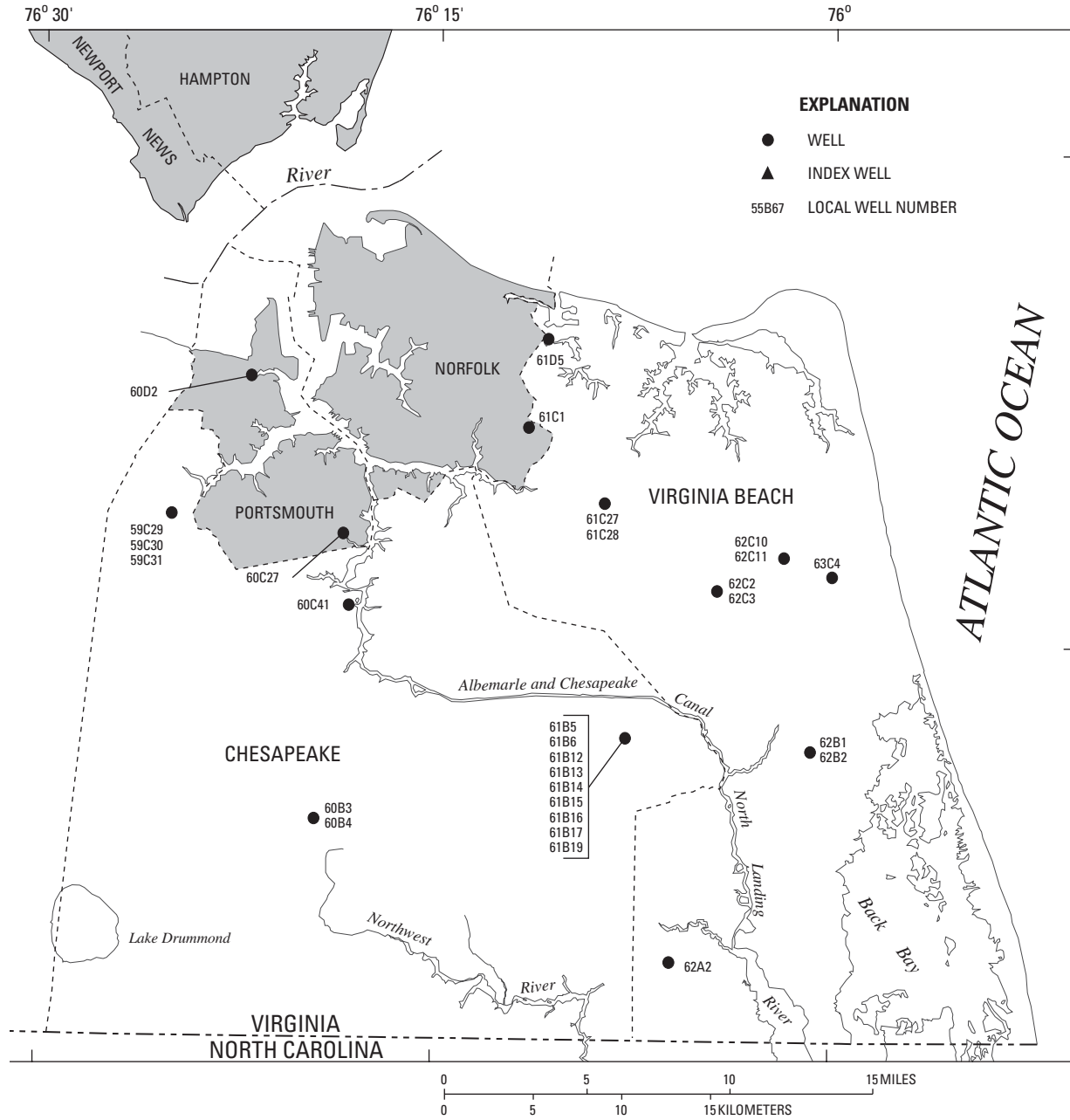
- 9-A1. *National Field Manual for the Collection of Water-Quality Data: Preparations for Water Sampling*, by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A1. 1998. 47 p.
- 9-A2. *National Field Manual for the Collection of Water-Quality Data: Selection of Equipment for Water Sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibbs, 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 Gibbs, 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 Gibbs, 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 Gibbs, 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*, by D.N. Myers and F.D. Wilde: USGS-TWRI book 9, chap. A7. 1997. 49 p.
- 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.







**Figure 5.** Location of ground-water observation wells in southeastern Virginia.



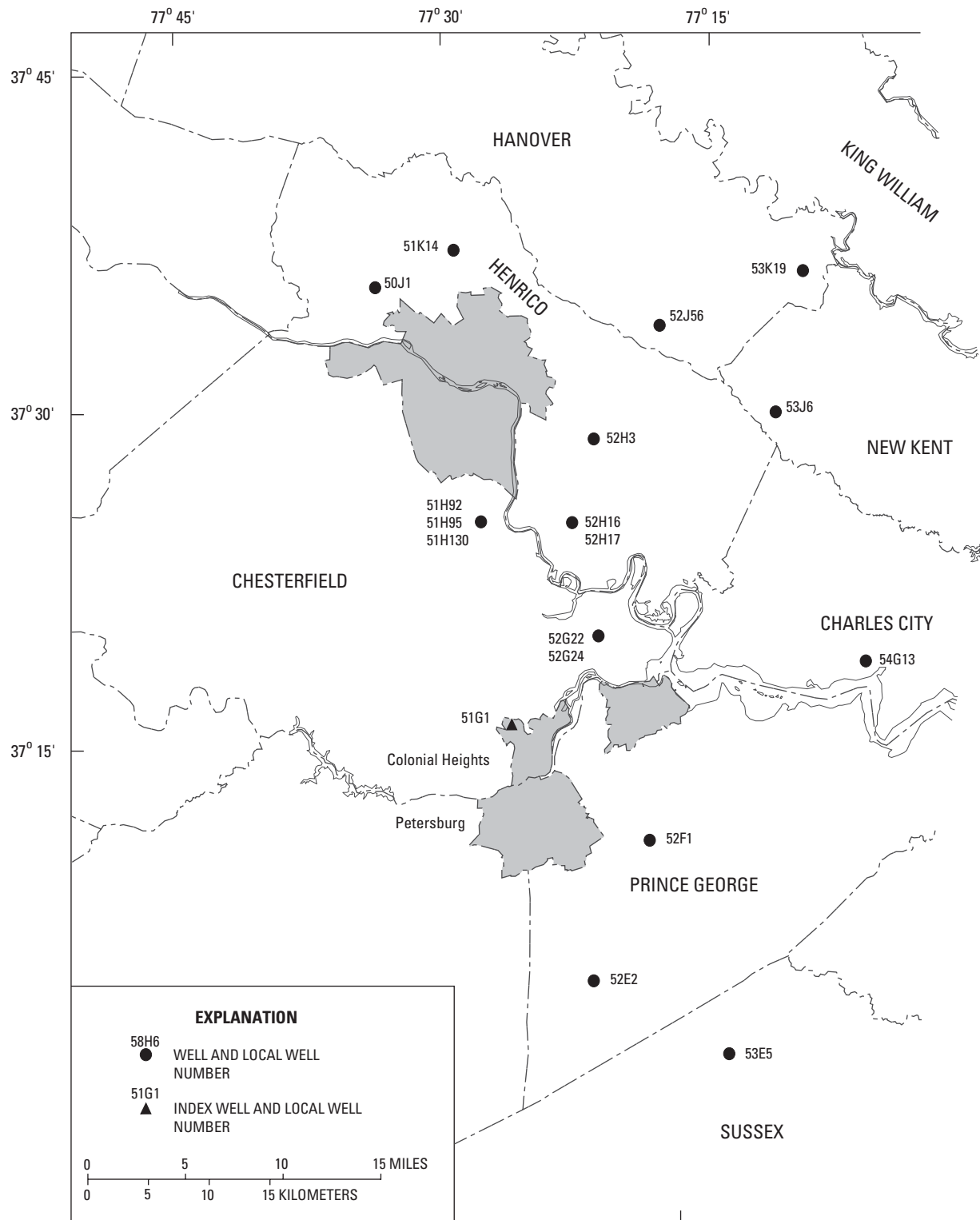
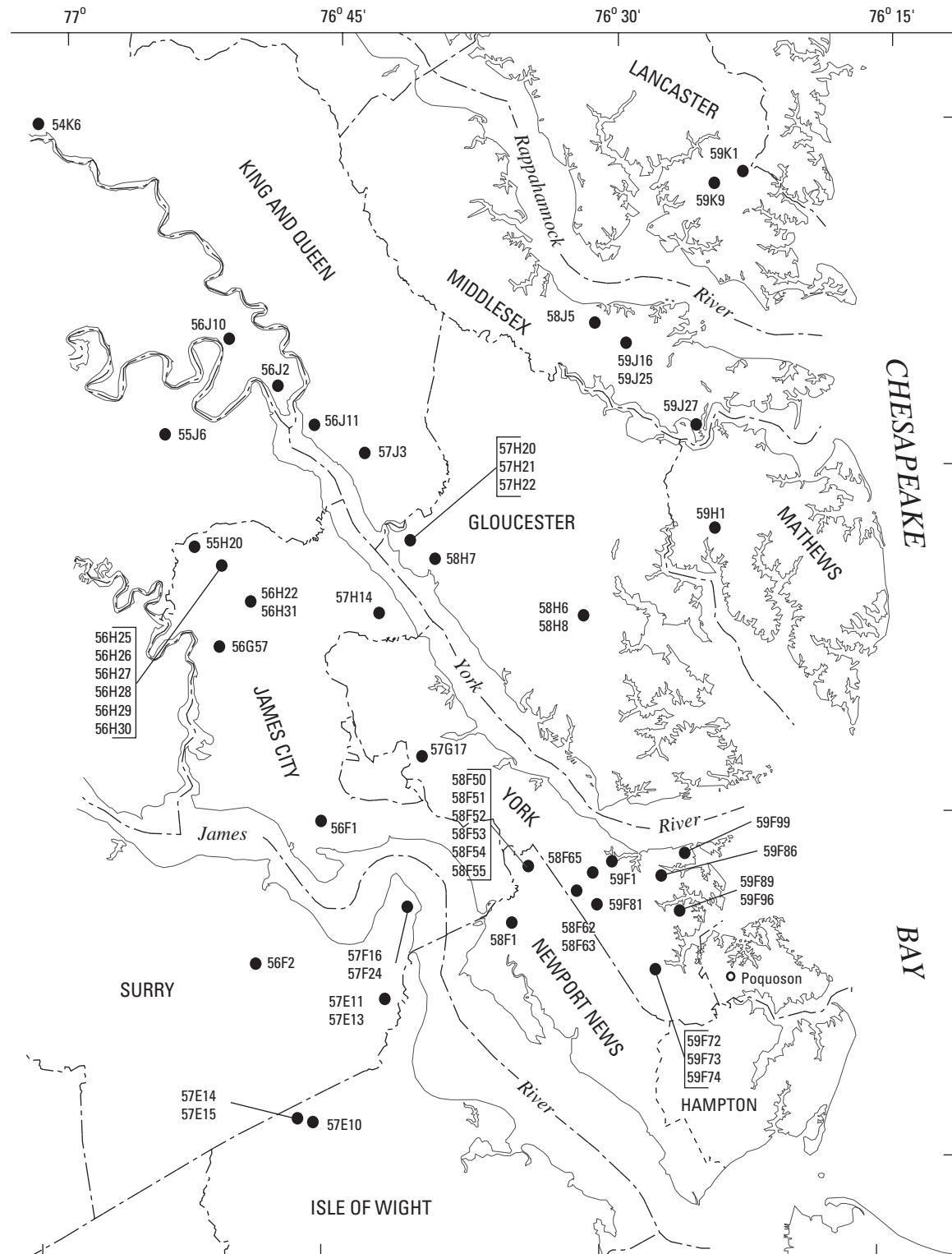
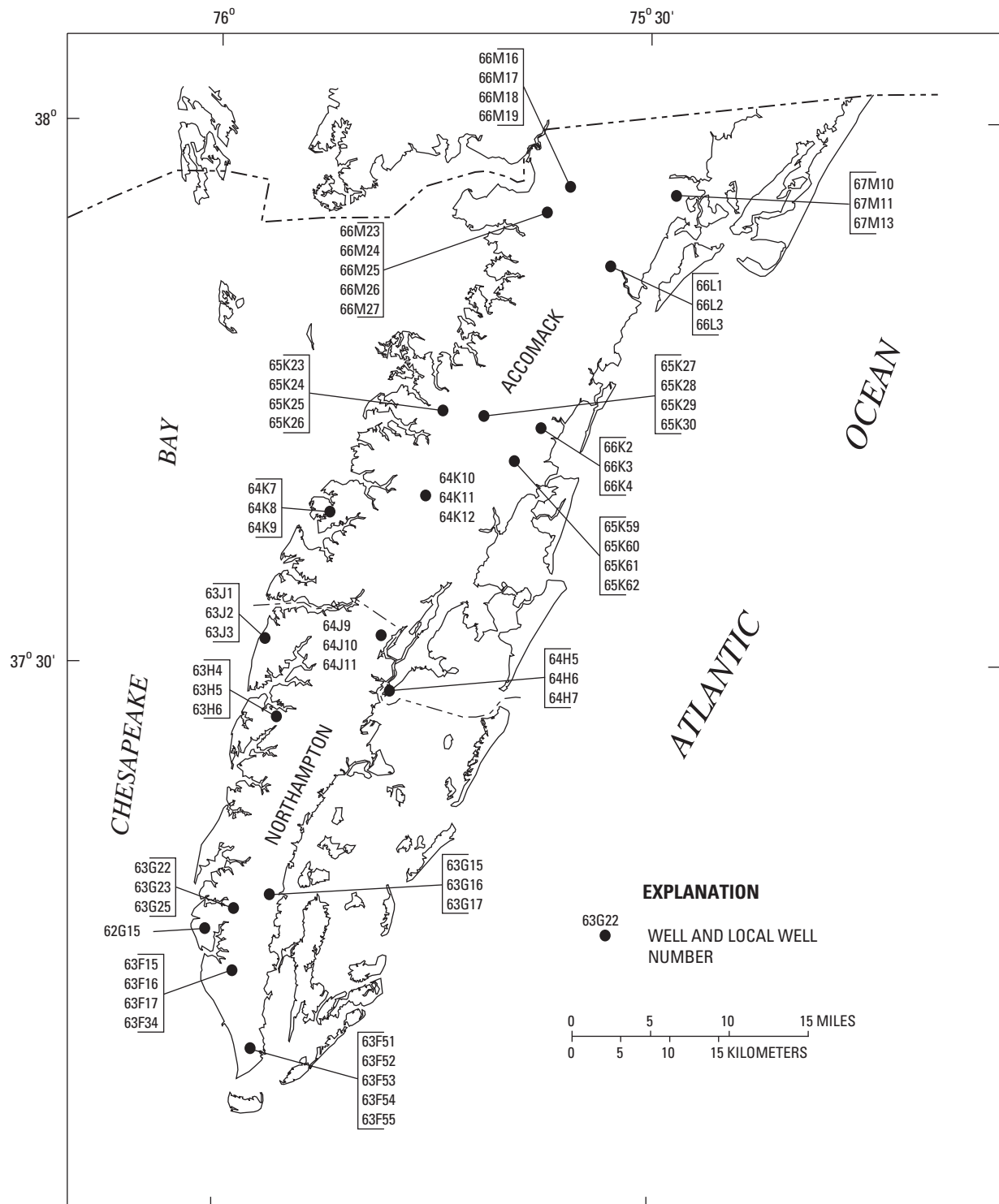


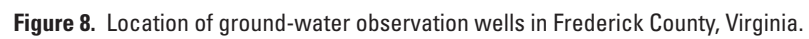
Figure 6. Location of ground-water observation wells on York-James peninsula and vicinity.



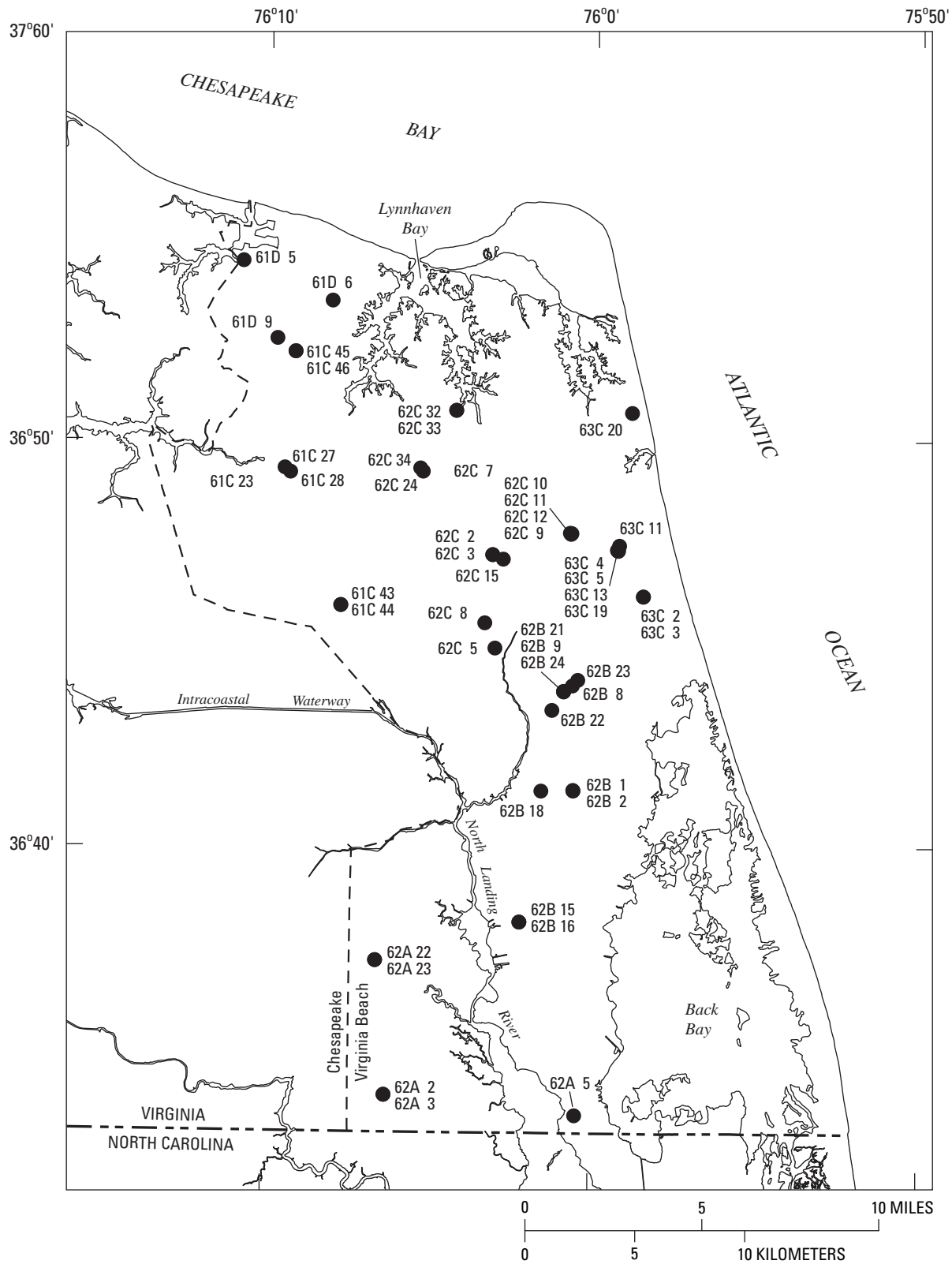




**Figure 7.** Location of ground-water observation wells on Delmarva peninsula.



**Figure 8.** Location of ground-water observation wells in Frederick County, Virginia.



**Figure 9.** Location of ground-water observation wells in Virginia Beach, Virginia.

GROUND-WATER-LEVEL RECORDS

ACCOMACK COUNTY

372922076470101. Local number, 64H 5 SOW 102C.

LOCATION.--Lat 37°29'21", long 75°47'04", NAD83, Hydrologic Unit 02080110, at entrance to Virginia Landing, 0.2 mi south from end of State Highway 605, 2.0 mi southeast of Willis Wharf, and 5.2 mi southwest of intersection of State Highways 605 and 182. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

**WELL CHARACTERISTICS.**--Drilled observation water well, diameter 4 in., depth 306 ft, screened 296 to 306 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Nov. 13, 1985, to July 24, 1995, bimonthly measurement with chalked tape. Prior to Nov. 13, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 6 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.3 ft above land-surface datum prior to Mar. 1, 1988; 1.1 ft thereafter.

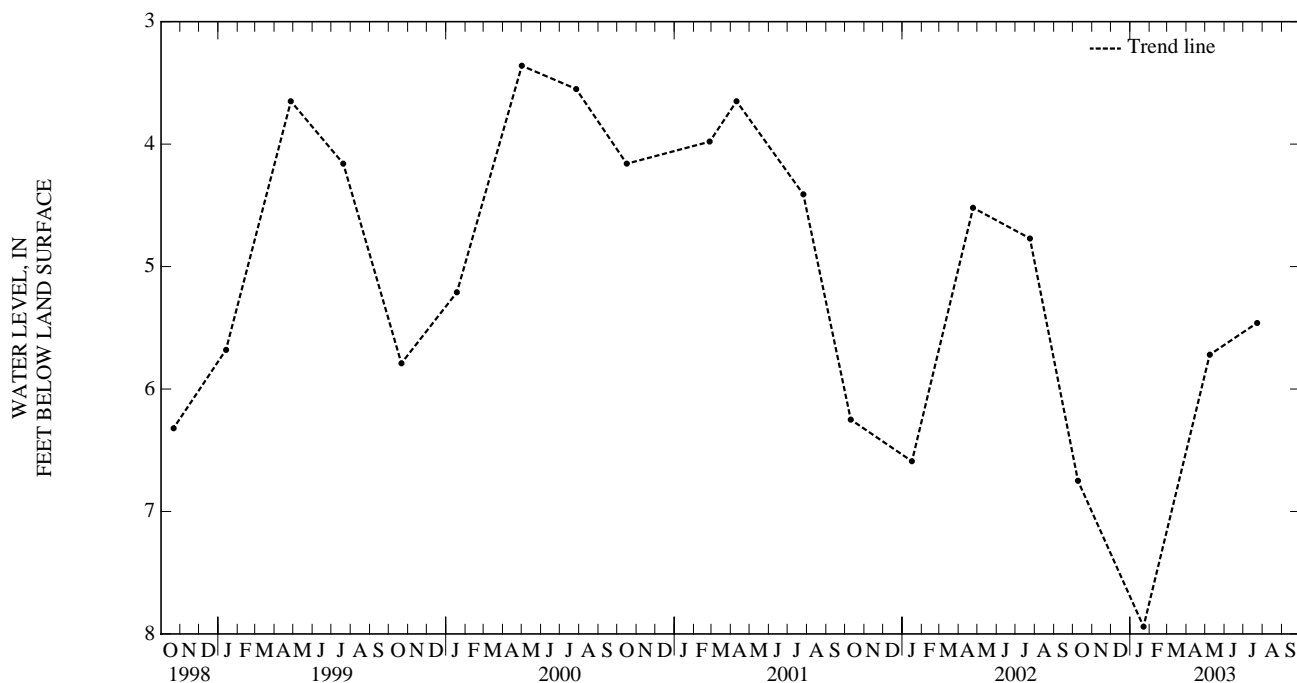
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--June 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.70 ft below land-surface datum, June 6, 1984; lowest measured, 7.94 ft below land-surface datum, Jan. 22, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	6.75	JAN 22	7.94	MAY 08	5.72	JUL 23	5.46
WATER YEAR 2003	HIGHEST	5.46	JUL 23, 2003	LOWEST	7.94	JAN 22, 2003	



## ACCOMACK COUNTY—Continued

372905075474002. Local number, 64H 6 SOW 102A.

LOCATION.--Lat 37°29'21", long 75°47'04", NAD83, Hydrologic Unit 02080110, at entrance to Virginia Landing, 0.2 mi south from end of State Highway 605, 2.0 mi southeast of Willis Wharf, and 5.2 mi southwest of intersection of State Highways 605 and 182. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 154 ft, screened 144 to 154 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Nov. 13, 1985, to July 24, 1995, bimonthly measurement with chalked tape. Prior to Nov. 13, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 6 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.7 ft above land-surface datum.

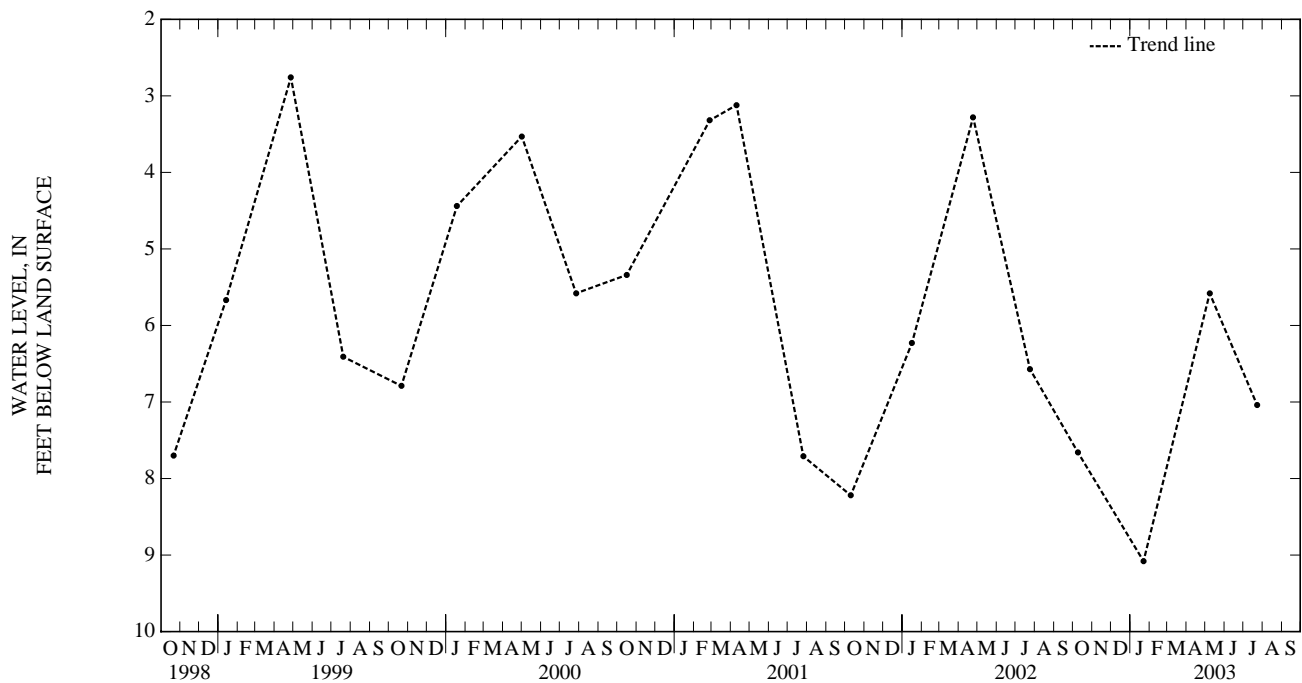
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--June 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.33 ft below land-surface datum, Oct. 30, 1984; lowest measured, 9.63 ft below land-surface datum, Sept. 1, 1977.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	7.66	JAN 22	9.08	MAY 08	5.58	JUL 23	7.04
WATER YEAR 2003 HIGHEST		5.58	MAY 08, 2003	LOWEST		9.08	JAN 22, 2003



GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

372905075474001. Local number, 64H 7 SOW 102B.

LOCATION.--Lat 37°29'21", long 75°47'04", NAD83, Hydrologic Unit 02080110, at entrance to Virginia Landing, 0.2 mi south from end of State Highway 605, 2.0 mi southeast of Willis Wharf, and 5.2 mi southwest of intersection of State Highways 605 and 182. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 220 ft, screened 210 to 220 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Nov. 13, 1985, to July 24, 1995, bimonthly measurement with chalked tape. Prior to Nov. 13, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 6 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.

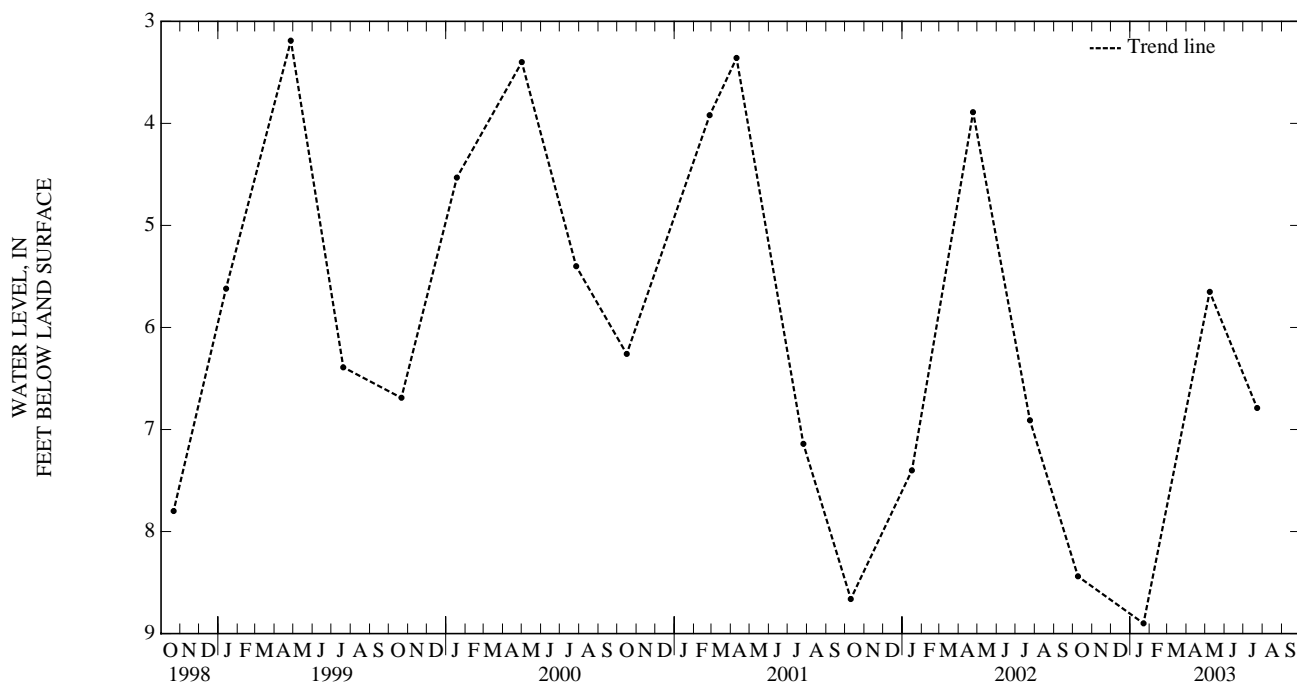
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--June 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.19 ft below land-surface datum, July 10, 1984; lowest measured, 8.90 ft below land-surface datum, Jan. 22, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	8.44	JAN 22	8.90	MAY 08	5.65	JUL 23	6.79
WATER YEAR 2003 HIGHEST		5.65	MAY 08, 2003	LOWEST		8.90	JAN 22, 2003



## ACCOMACK COUNTY—Continued

373845075522501. Local number, 64K 7 SOW 106C.

LOCATION.--Lat 37°38'45", long 75°52'24", NAD83, Hydrologic Unit 02080109, 100 ft north of State Highway 633, 0.3 mi northwest of intersection of State Highways 631 and 633, and 0.3 mi northwest of Hacksneck. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 176 ft, screened 166 to 176 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 3 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.73 ft above land-surface datum.

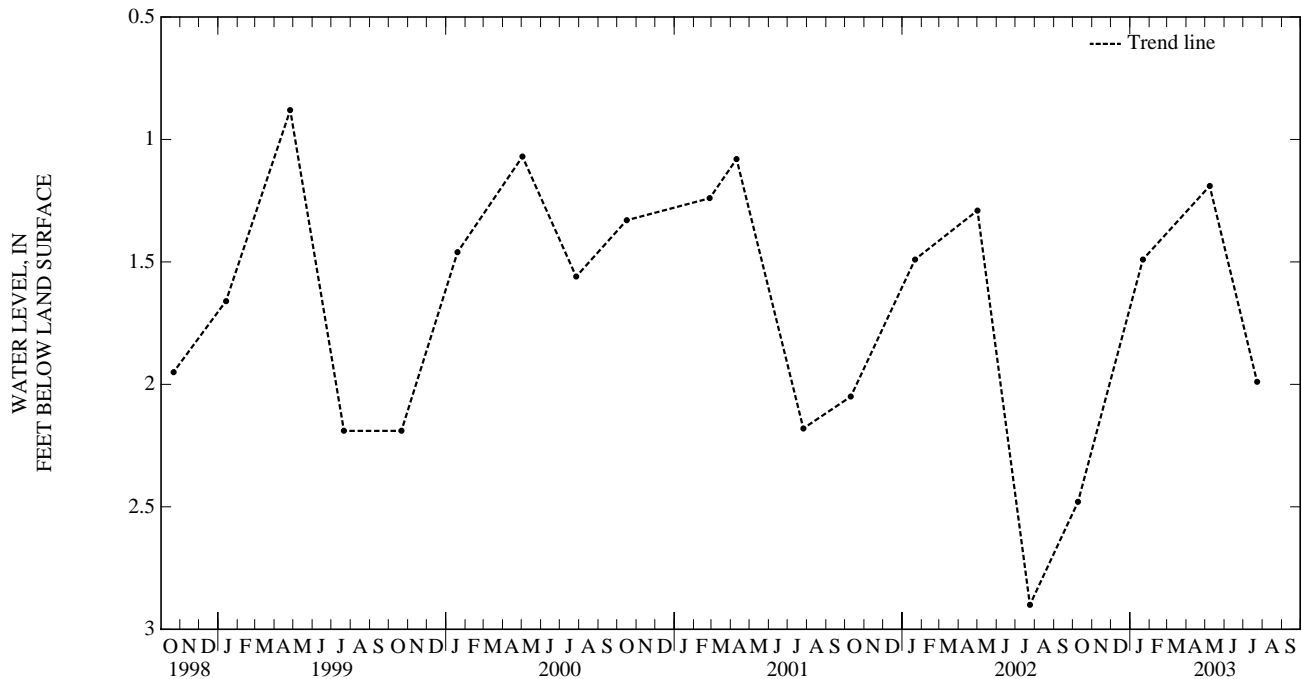
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--October 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.31 ft below land-surface datum, May 22, 1991; lowest measured, 2.90 ft below land-surface datum, July 24, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	2.48	JAN 21	1.49	MAY 08	1.19	JUL 23	1.99
WATER YEAR 2003		HIGHEST	1.19	MAY 08, 2003	LOWEST	2.48	OCT 09, 2002





GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

373845075522503. Local number, 64K 8 SOW 106B.

LOCATION.--Lat 37°38'45", long 75°52'24", NAD83, Hydrologic Unit 02080109, 100 ft north of State Highway 633, 0.3 mi northwest of intersection of State Highways 631 and 633, and 0.3 mi northwest of Hacksneck. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 95 ft, screened 85 to 95 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 3 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.7 ft above land-surface datum.

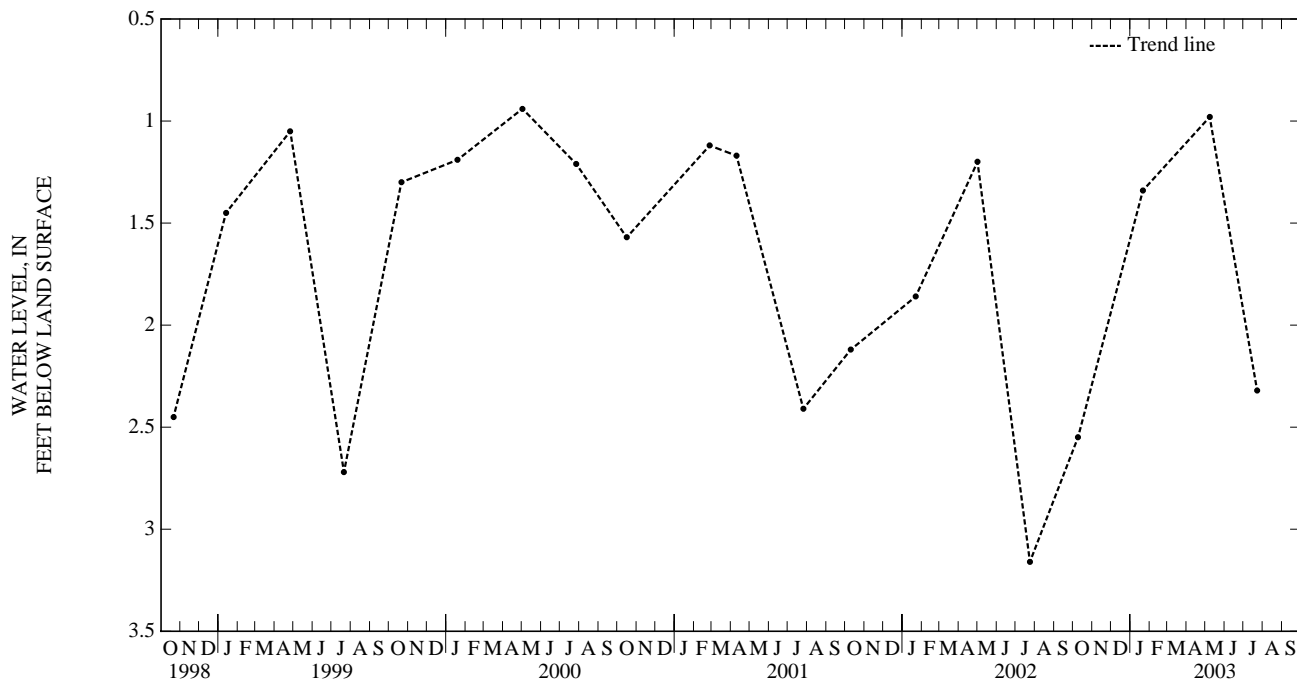
REMARKS.--Records provided by the Virginia Department of Environmental Quality. - Water Division.

PERIOD OF RECORD.--October 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.69 ft below land-surface datum, Oct. 22, 1996; lowest measured, 3.16 ft below land-surface datum, July 24, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	2.55	JAN 21	1.34	MAY 08	.98	JUL 23	2.32
WATER YEAR 2003 HIGHEST		.98	MAY 08, 2003	LOWEST		2.55	OCT 09, 2002



## ACCOMACK COUNTY—Continued

373845075522502. Local number, 64K 9 SOW 106A.

LOCATION.--Lat 37°38'45", long 75°52'24", NAD83, Hydrologic Unit 02080109, 100 ft north of State Highway 633, 0.3 mi northwest of intersection of State Highways 631 and 633, and 0.3 mi northwest of Hacksneck. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 37 ft, screened 27 to 37 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is approximately 3 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.

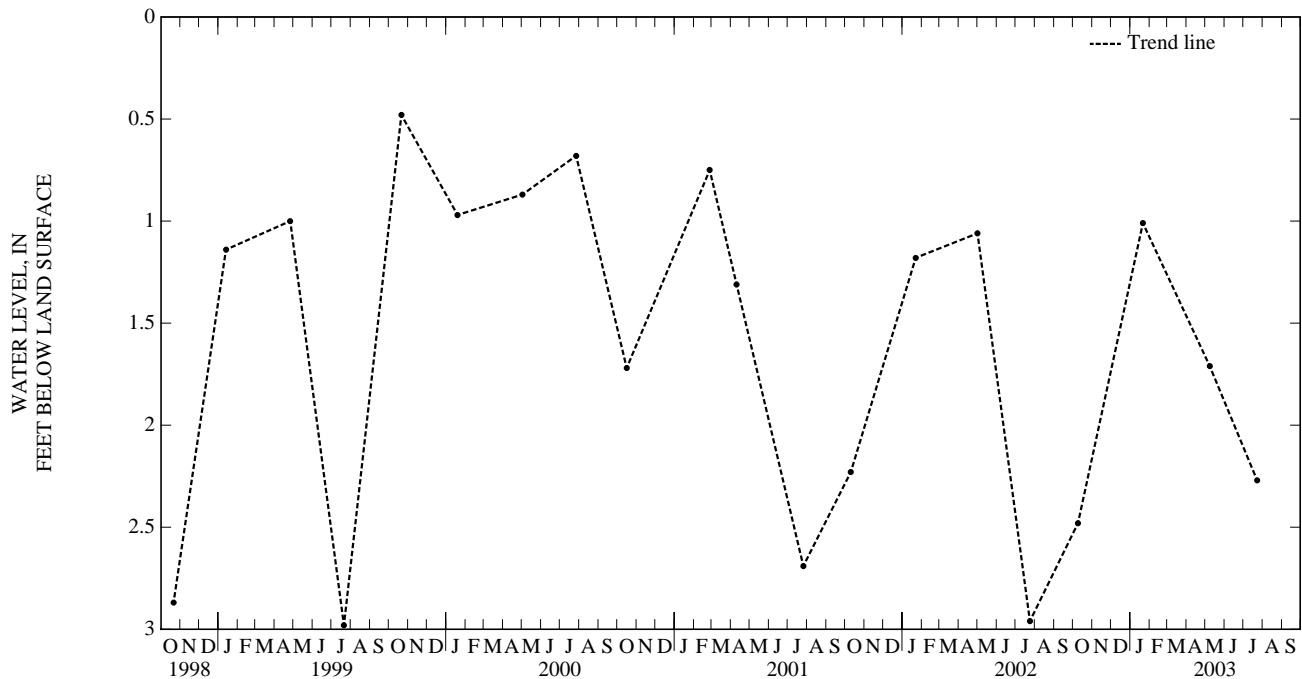
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--October 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.32 ft below land-surface datum, Feb. 24, 1994; lowest measured, 3.46 ft below land-surface datum, Sept. 14, 1987.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	2.48	JAN 21	1.01	MAY 08	1.71	JUL 23	2.27
WATER YEAR 2003 HIGHEST		1.01	JAN 21, 2003	LOWEST		2.48	OCT 09, 2002



GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

373932075452701. Local number, 64K 10 SOW 108A.

LOCATION.--Lat 37°39'32", long 75°45'26", NAD83, Hydrologic Unit 02080109, 200 ft east of State Highway 609, 0.2 mi southeast of intersection of State Highways 609 and 627, and 0.9 mi northwest of Melfa. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 50 ft, screened 40 to 50 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 47 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.22 ft above land-surface datum prior to Mar. 1, 1988; 0.75 ft thereafter.

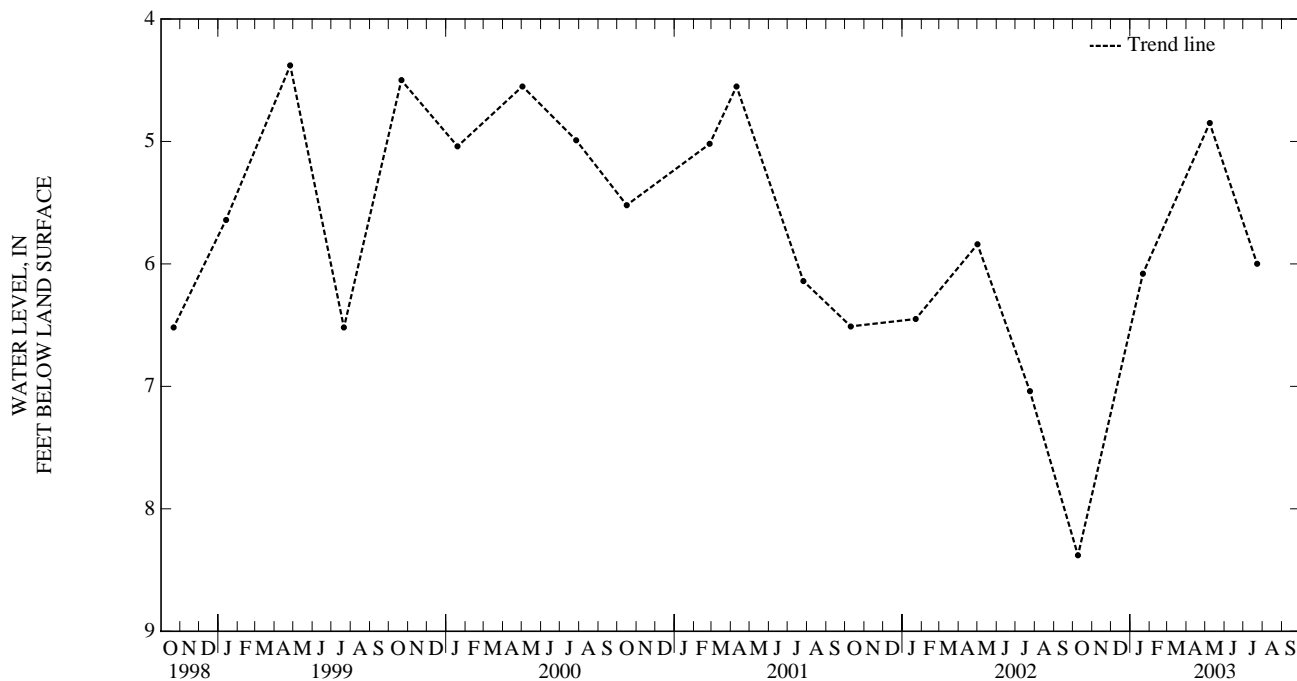
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--September 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.98 ft below land-surface datum, Apr. 21, 1983; lowest measured, 15.06 ft below land-surface datum, Jan. 30, 1985.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	8.38	JAN 21	6.08	MAY 08	4.85	JUL 23	6.00
WATER YEAR 2003 HIGHEST		4.85	MAY 08, 2003	LOWEST		8.38	OCT 09, 2002



373932075452702. Local number, 64K 11 SOW 108B.

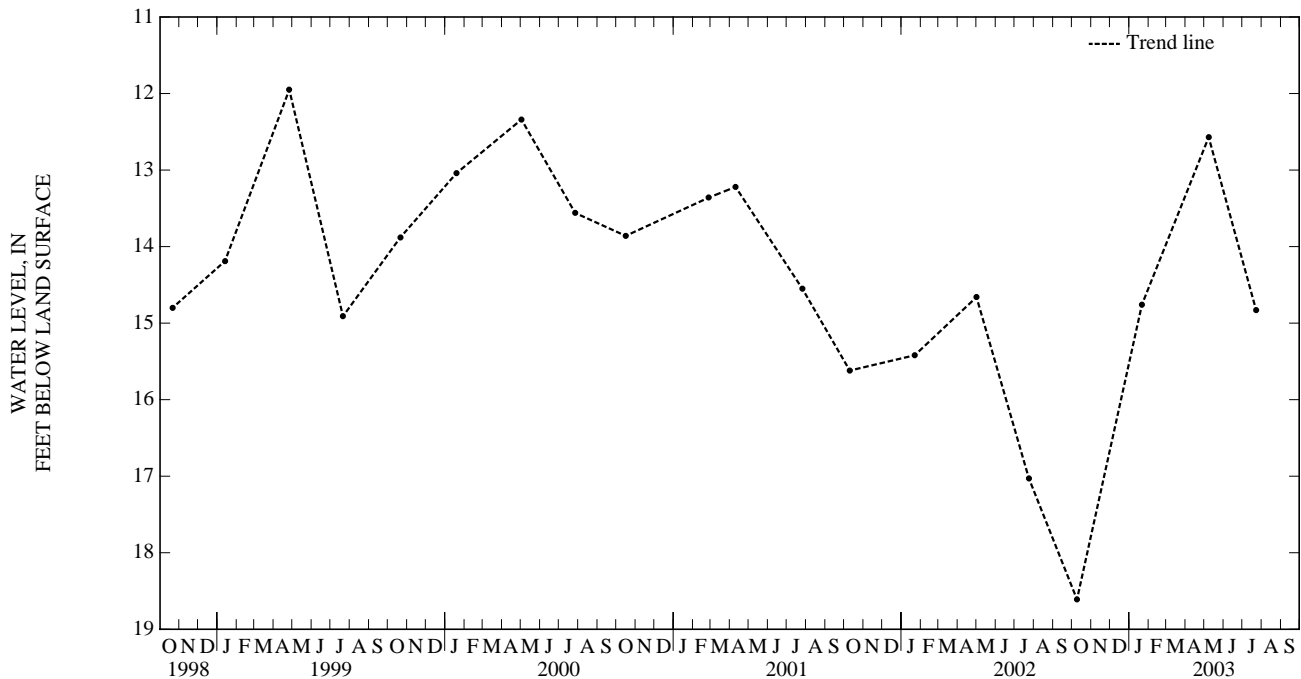
AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

**INSTRUMENTATION.**--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.03 ft below land-surface datum, Aug. 1, 1979; lowest measured, 18.61 ft below land-surface datum, Oct. 9, 2002.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	18.61	JAN 21	14.76	MAY 08	12.57	JUL 23	14.83
WATER YEAR 2003		HIGHEST	12.57	MAY 08, 2003		LOWEST	18.61
						OCT 09, 2002	



GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

373932075452703. Local number, 64K 12 SOW 108C.

LOCATION.--Lat 37°39'32", long 75°45'26", NAD83, Hydrologic Unit 02080109, 200 ft east of State Highway 609, 0.2 mi southeast of intersection of State Highways 609 and 627, and 0.9 mi northwest of Melfa. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 284 ft, screened 274 to 284 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 47 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.5 ft above land-surface datum.

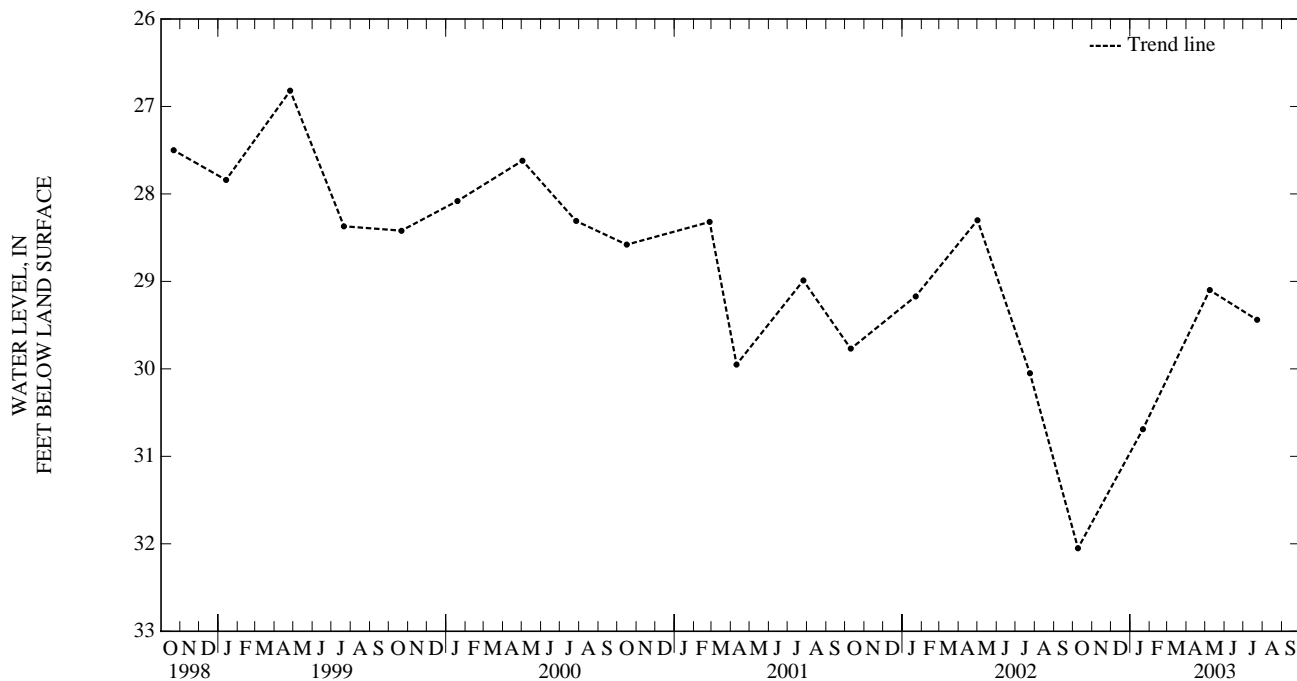
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level may be affected by local pumpage.

PERIOD OF RECORD.--September 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.50 ft below land-surface datum, Feb. 2, 1984; lowest measured, 32.05 ft below land-surface datum, Oct. 9, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	32.05	JAN 21	30.69	MAY 08	29.10	JUL 23	29.44
WATER YEAR 2003 HIGHEST		29.10	MAY 08, 2003	LOWEST	32.05	OCT 09, 2002	



## ACCOMACK COUNTY—Continued

374442075432501. Local number, 65K 23 SOW 109C.

LOCATION.--Lat 37°44'42", long 75°43'24", NAD83, Hydrologic Unit 02080109, 50 ft north of State Highway 658, 0.1 mi northeast of intersection of State Highways 658 and 660, and 2.2 mi southeast of Deep Creek. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 290 ft, screened 280 to 290 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 13 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.3 ft above land-surface datum.

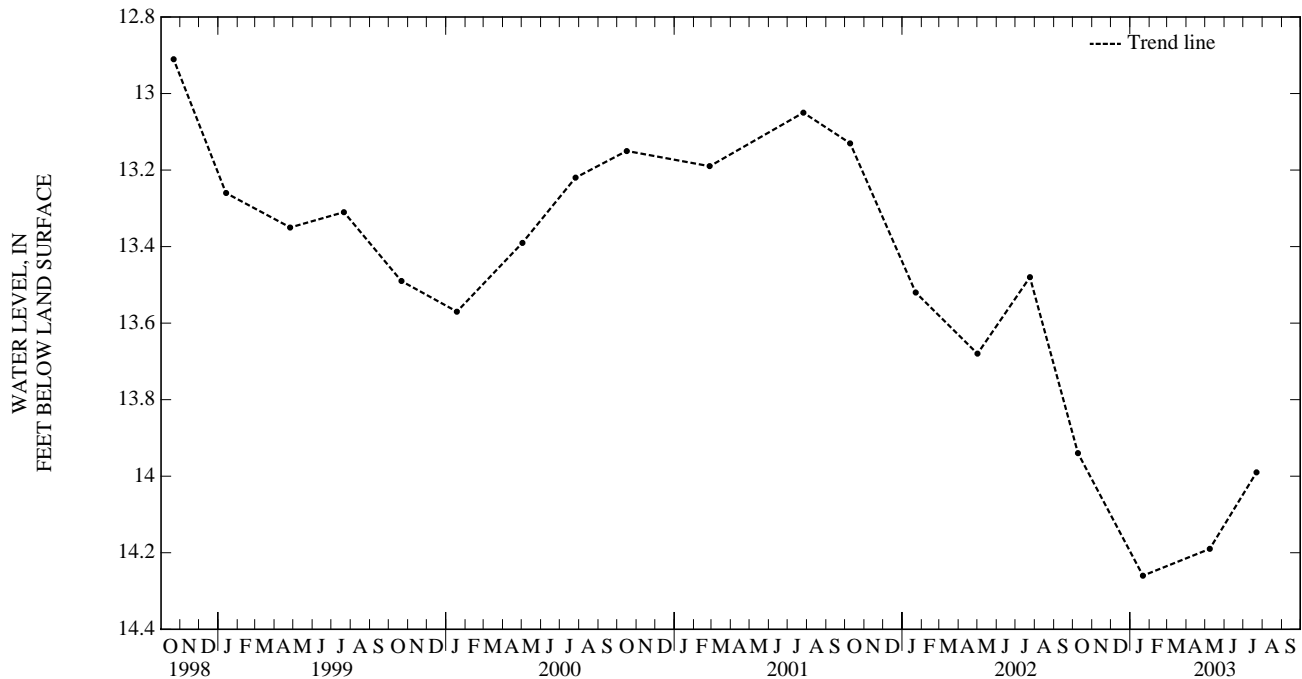
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level may be affected by local pumpage.

PERIOD OF RECORD.--June 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.36 ft below land-surface datum, Dec. 30, 1982; lowest measured, 16.65 ft below land-surface datum, Mar. 12, 1980.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	13.94	JAN 21	14.26	MAY 08	14.19	JUL 22	13.99
WATER YEAR 2003 HIGHEST 13.94		OCT 09, 2002 LOWEST 14.26		JAN 21, 2003			



GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

374442075432502. Local number, 65K 24 SOW 109A.

LOCATION.--Lat 37°44'42", long 75°43'24", NAD83, Hydrologic Unit 02080109, 50 ft north of State Highway 658, 0.1 mi northeast of intersection of State Highways 658 and 660, and 2.2 mi southeast of Deep Creek. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 130 ft, screened 120 to 130 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 13 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.

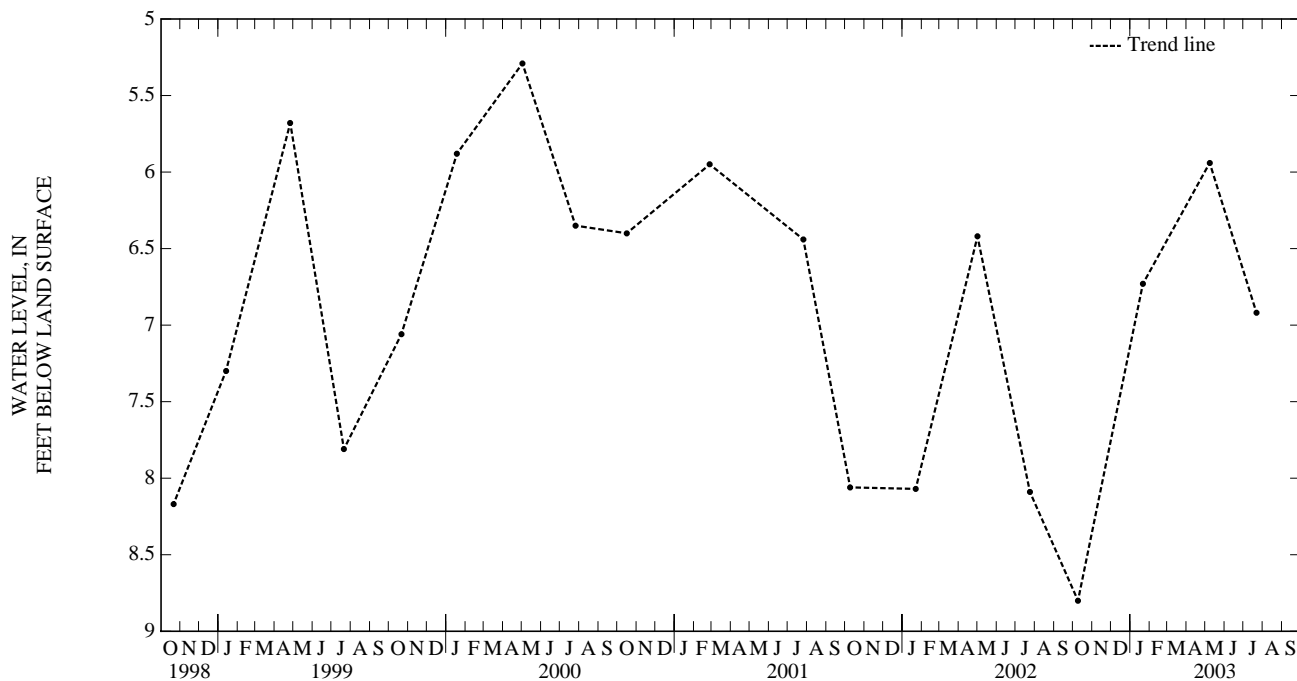
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--June 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.35 ft below land-surface datum, Apr. 21, 1983; lowest measured, 9.27 ft below land-surface datum, Oct. 23, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	8.80	JAN 21	6.73	MAY 08	5.94	JUL 22	6.92
WATER YEAR 2003 HIGHEST		5.94	MAY 08, 2003	LOWEST		8.80	OCT 09, 2002



## ACCOMACK COUNTY—Continued

374442075432503. Local number, 65K 25 SOW 109B.

LOCATION.--Lat 37°44'42", long 75°43'24", NAD83, Hydrologic Unit 02080109, 50 ft north of State Highway 658, 0.1 mi northeast of intersection of State Highways 658 and 660, and 2.2 mi southeast of Deep Creek. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 228 ft, screened 218 to 228 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 13 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.85 ft above land-surface datum.

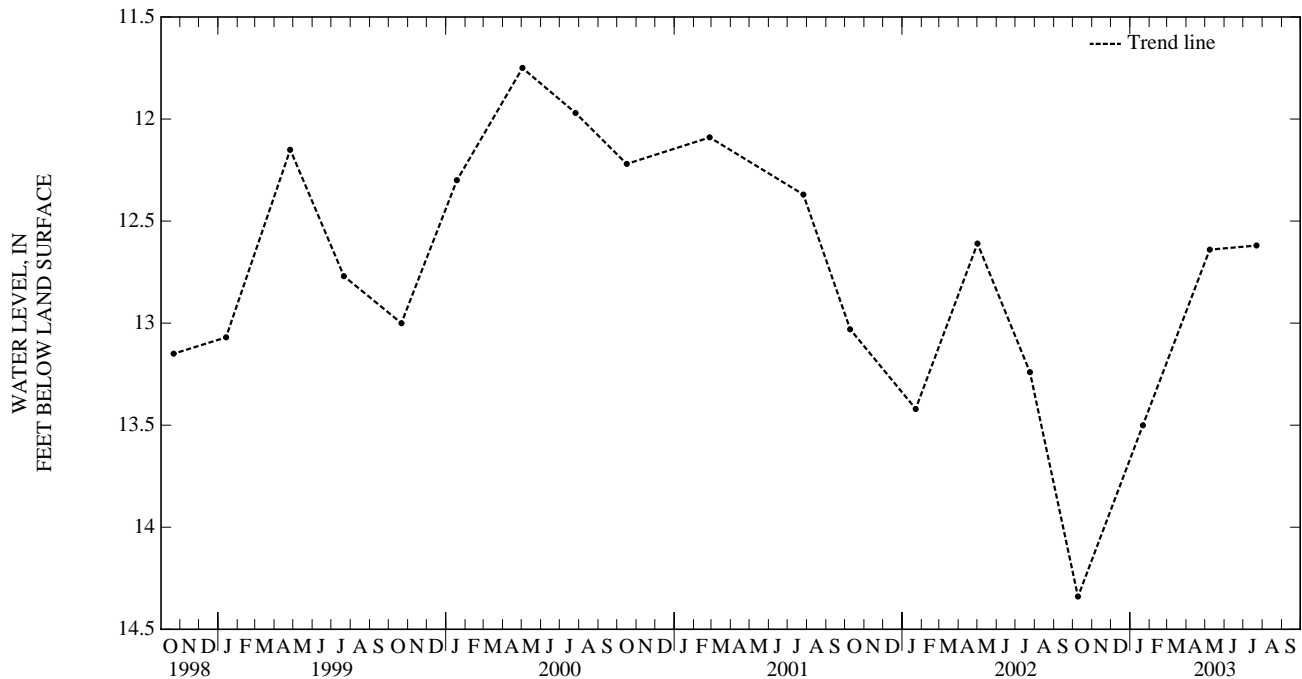
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--June 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.15 ft below land-surface datum, June 20, 1984; lowest measured, 14.34 ft below land-surface datum, Sept. 10, 1991 and Oct. 9, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	14.34	JAN 21	13.50	MAY 08	12.64	JUL 22	12.62
WATER YEAR 2003 HIGHEST		12.62	JUL 22, 2003	LOWEST	14.34	OCT 09, 2002	





GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

374442075432504. Local number, 65K 26 SOW 109S.

LOCATION.--Lat 37°44'42", long 75°43'24", NAD83, Hydrologic Unit 02080109, 50 ft north of State Highway 658, 0.1 mi northeast of intersection of State Highways 658 and 660, and 2.2 mi southeast of Deep Creek. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 25 ft, screened 15 to 25 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 13 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.37 ft above land-surface datum prior to Mar. 1, 1988; 0.5 ft thereafter.

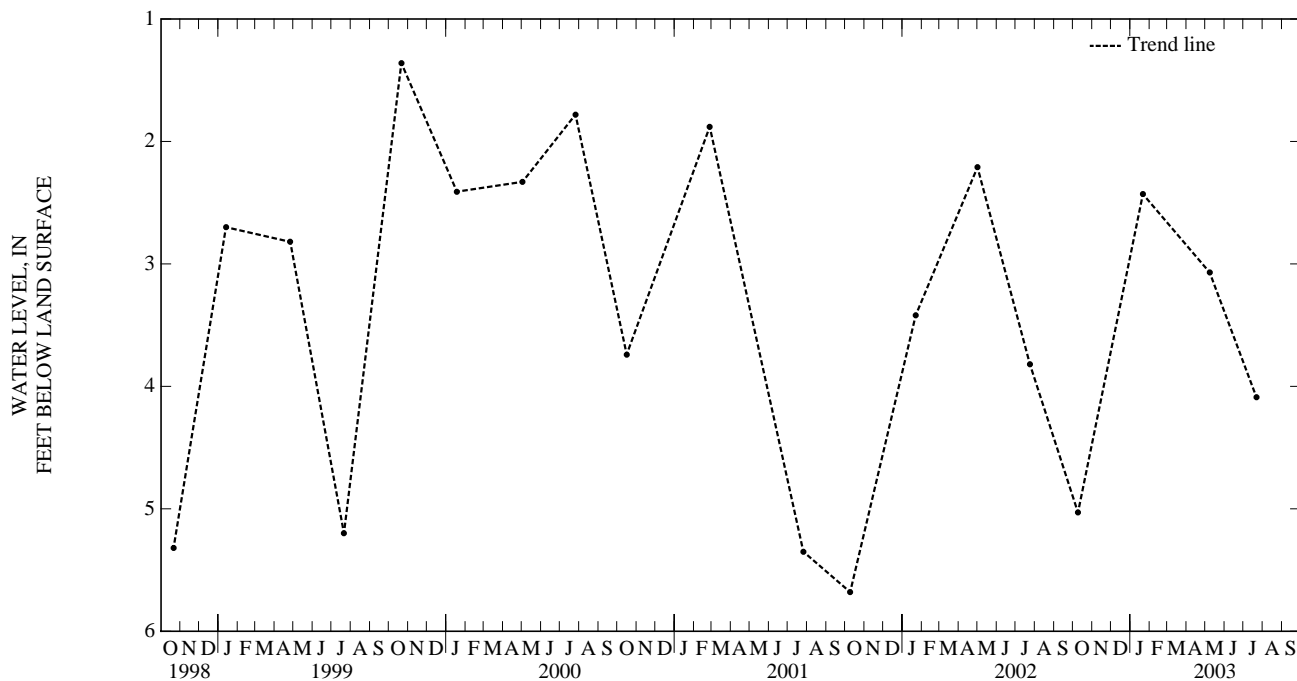
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--June 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.03 ft below land-surface datum, Feb. 24, 1994; lowest measured, 6.57 ft below land-surface datum, Oct. 31, 1978.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	5.03	JAN 21	2.43	MAY 08	3.07	JUL 22	4.09
WATER YEAR 2003 HIGHEST		2.43	JAN 21, 2003	LOWEST		5.03	OCT 09, 2002



## ACCOMACK COUNTY—Continued

374425075400001. Local number, 65K 27 SOW 114A.

LOCATION.--Lat 37°44'25", long 75°39'59", NAD83, Hydrologic Unit 02080109, 0.2 mi northwest of intersection of State Highway 662 and U.S. Highway 13, 0.6 mi northwest of State Highway 662, and 0.9 mi east of Greenbush. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 160 ft, screened 150 to 160 ft.

INSTRUMENTATION.--Continuous strip-chart recorder. Prior to July 20, 1985, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 45 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder shelf, 1.4 ft above land-surface datum prior to Feb. 27, 1990; 1.5 ft thereafter.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage. Missing record due to recorder malfunction.

PERIOD OF RECORD.--March 1980 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

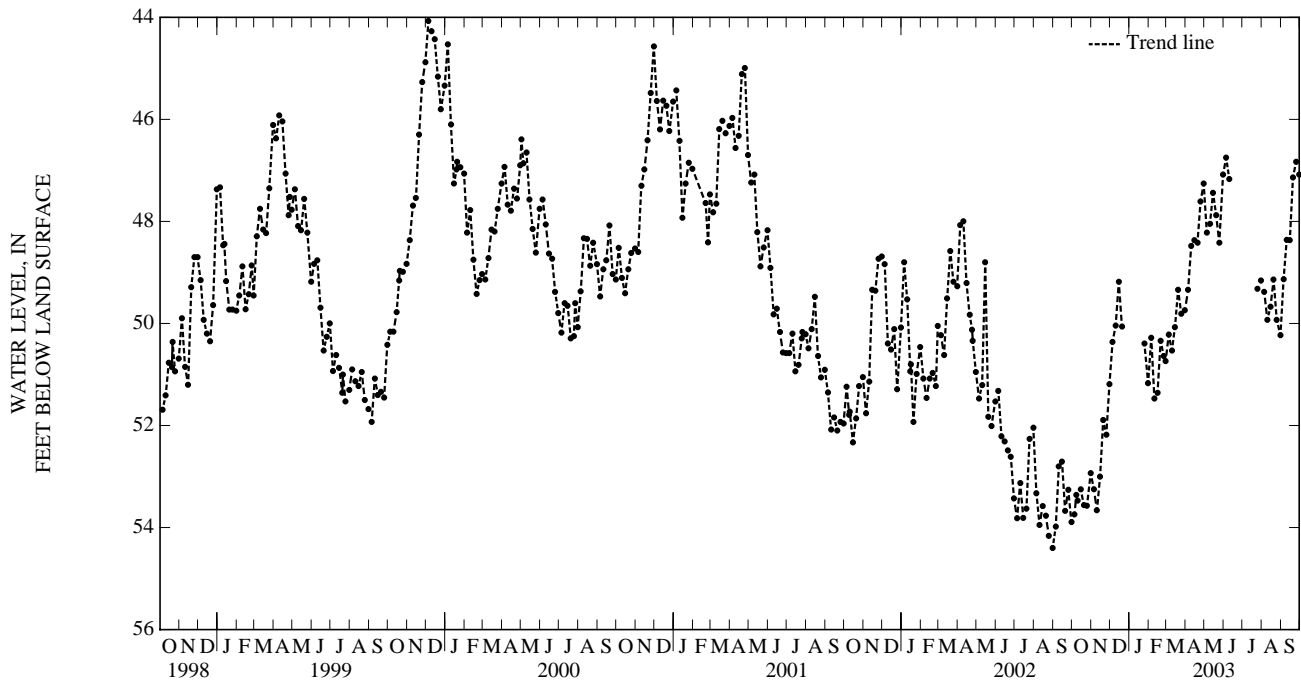
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.59 ft below land-surface datum, June 6, 1984; lowest measured, 54.72 ft below land-surface datum, Sept. 2, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 46.37 ft below land-surface datum, Sept. 23, 24; lowest instantaneous water-level, 53.87 ft below land-surface datum, Oct. 5.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	53.74	53.25	50.36	---	50.28	50.22	49.34	48.22	46.75	---	49.38	49.13
10	53.47	53.66	50.04	---	51.47	50.53	48.48	48.05	47.17	---	49.93	48.36
15	53.25	53.00	49.18	---	51.36	50.07	48.37	47.44	---	---	49.67	48.37
20	53.56	51.89	50.06	---	50.34	49.34	48.42	47.88	---	---	49.14	47.14
25	53.57	52.18	---	50.39	50.64	49.81	47.61	48.42	---	49.32	49.93	46.83
EOM	52.93	51.19	---	51.17	50.74	49.74	47.26	47.08	---	49.16	50.23	47.08

WATER YEAR 2003    HIGHEST 46.75 JUN 05, 2003    LOWEST 53.74 OCT 05, 2002



GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

374425075400002. Local number, 65K 28 SOW 114B.

LOCATION.--Lat 37°44'25", long 75°39'59", NAD83, Hydrologic Unit 02080109, 0.2 mi northwest of intersection of State Highway 662 and U.S. Highway 13, 0.6 mi northwest of State Highway 662, and 0.9 mi east of Greenbush. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 230 ft, screened 220 to 230 ft.

INSTRUMENTATION.--Continuous strip-chart recorder. Prior to July 20, 1985, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 45 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder shelf, 1.5 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Missing record due to recorder malfunction. Water level affected by local pumpage.

PERIOD OF RECORD.--March 1980 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

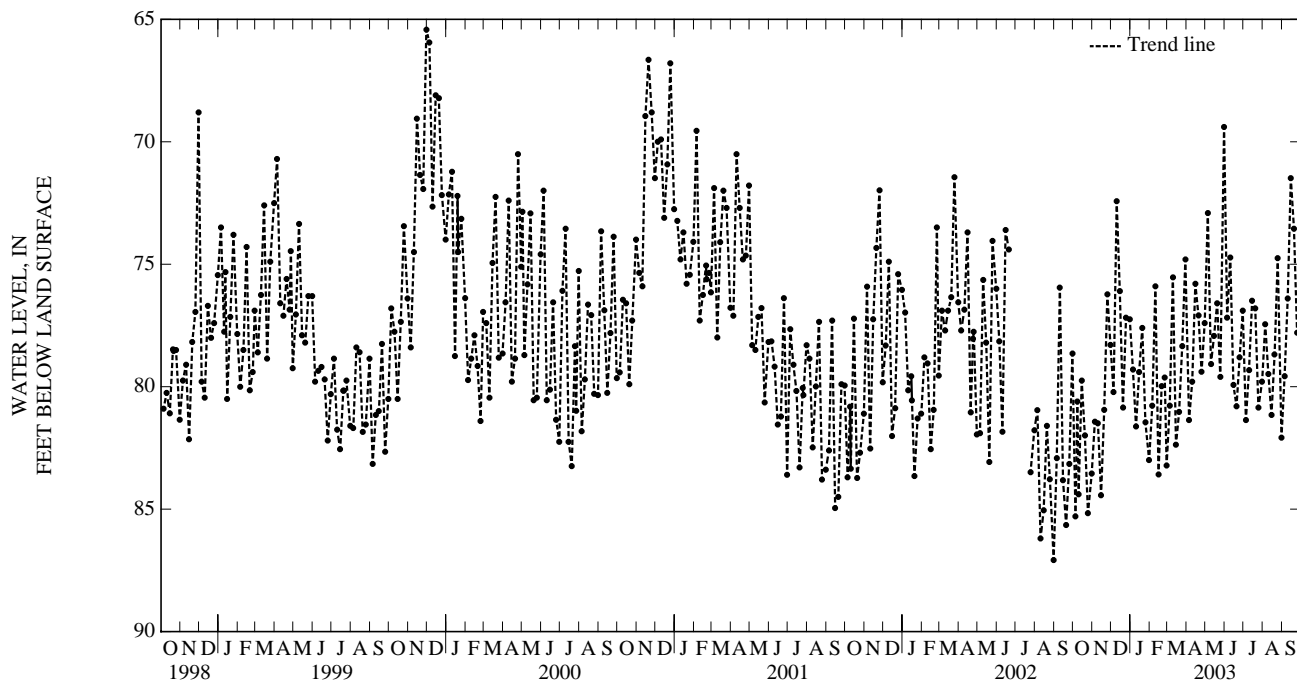
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 49.40 ft below land-surface datum, June 6, 1987; lowest recorded, 87.22 ft below land-surface datum, Sept. 1, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 69.40 ft below land-surface datum, June 2; lowest instantaneous water-level, 85.38 ft below land-surface datum, Oct. 12.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	85.30	81.43	80.22	79.30	80.78	80.77	81.36	72.91	77.18	81.36	77.45	79.57
10	84.39	81.50	72.42	81.62	75.90	75.53	79.80	79.08	74.72	79.32	79.48	76.40
15	79.75	84.43	76.10	79.40	83.59	82.37	75.80	77.93	79.93	76.49	81.15	71.49
20	81.99	80.95	80.85	77.60	79.98	81.03	77.09	76.60	80.80	76.80	78.68	73.55
25	85.17	76.23	77.18	81.46	79.62	78.34	79.39	79.60	78.80	80.85	74.75	77.80
EOM	83.55	78.29	77.25	83.00	83.22	74.80	77.40	69.40	76.90	79.79	82.08	74.25

WATER YEAR 2003    HIGHEST    69.40 MAY 31, 2003    LOWEST    85.30 OCT 05, 2002



## ACCOMACK COUNTY—Continued

374425075400003. Local number, 65K 29 SOW 114C.

LOCATION.--Lat 37°44'27", long 75°39'59", NAD83, Hydrologic Unit 02080109, 0.2 mi northwest of intersection of State Highway 662 and U.S. Highway 13, 0.6 mi northwest of State Highway 662, and 0.9 mi east of Greenbush. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 315 ft, screened 305 to 315 ft.

INSTRUMENTATION.--Continuous strip-chart recorder. Prior to July 20, 1985, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 45 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder shelf, 1.5 ft above land-surface datum prior to Feb. 27, 1990; 1.6 ft thereafter.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage. Missing record due to recorder malfunction.

PERIOD OF RECORD.--March 1980 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

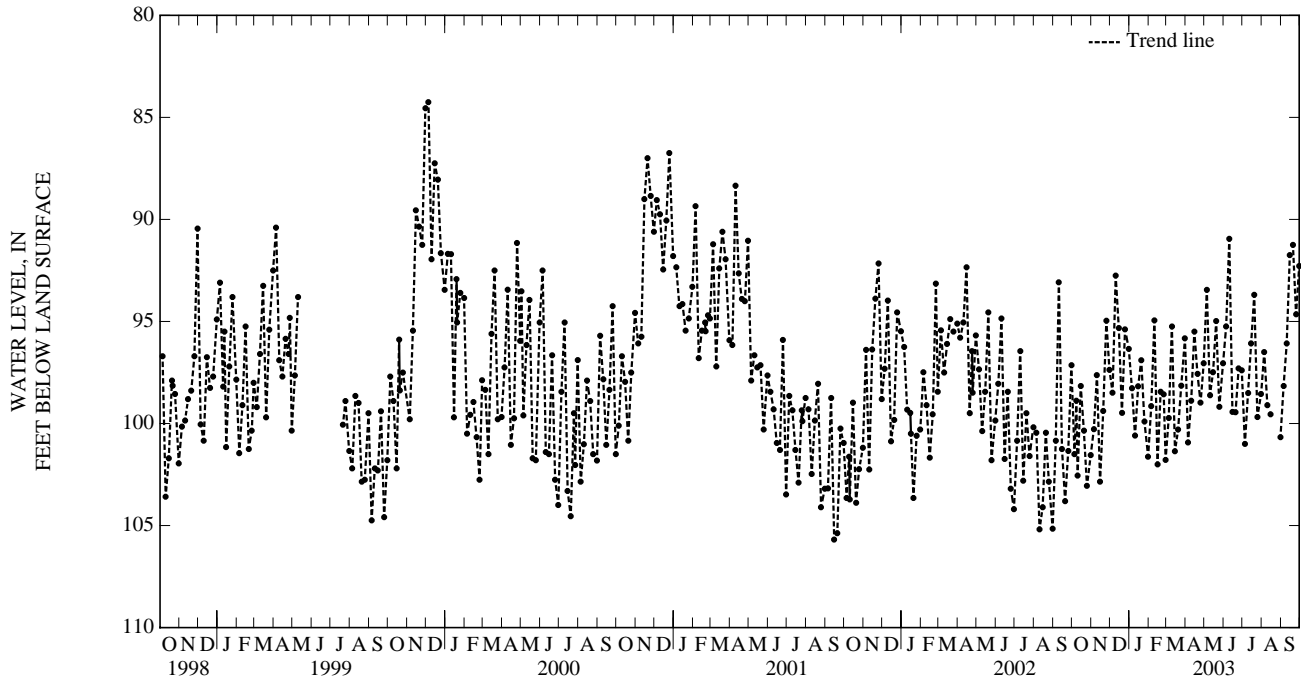
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 71.50 ft below land-surface datum, Feb. 24, 1986; lowest recorded, 108.92 ft below land-surface datum, Aug. 17, 1991.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 88.52 ft below land-surface datum, Sept. 23; lowest instantaneous water level, 103.97 ft below land-surface datum, Nov. 9.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	101.50	100.28	98.49	98.27	99.15	99.73	100.93	93.45	95.24	101.00	96.50	98.16
10	102.55	97.63	92.75	100.59	94.95	95.25	98.88	98.61	90.95	98.50	99.10	96.08
15	98.16	102.85	95.32	98.18	102.00	101.36	95.49	97.49	99.43	96.08	99.55	91.75
20	100.35	99.39	99.48	96.90	98.45	100.30	97.57	94.98	99.45	93.70	---	91.25
25	103.06	94.96	95.38	99.90	98.57	98.15	98.98	99.18	97.30	99.68	---	94.65
EOM	101.55	97.37	96.35	101.62	101.78	95.83	97.05	97.05	97.39	98.55	100.67	92.28

WATER YEAR 2003 HIGHEST 90.95 JUN 10, 2003 LOWEST 103.06 OCT 25, 2002



GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

374425075400004. Local number, 65K 30 SOW 114S.

LOCATION.--Lat 37°44'25", long 75°39'59", NAD83, Hydrologic Unit 02080109, 0.2 mi northwest of intersection of State Highway 662 and U.S. Highway 13, 0.6 mi northwest of State Highway 662, and 0.9 mi east of Greenbush. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 40 ft, screened 30 to 40 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 45 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum prior to Mar. 1, 1988; 1.5 ft thereafter.

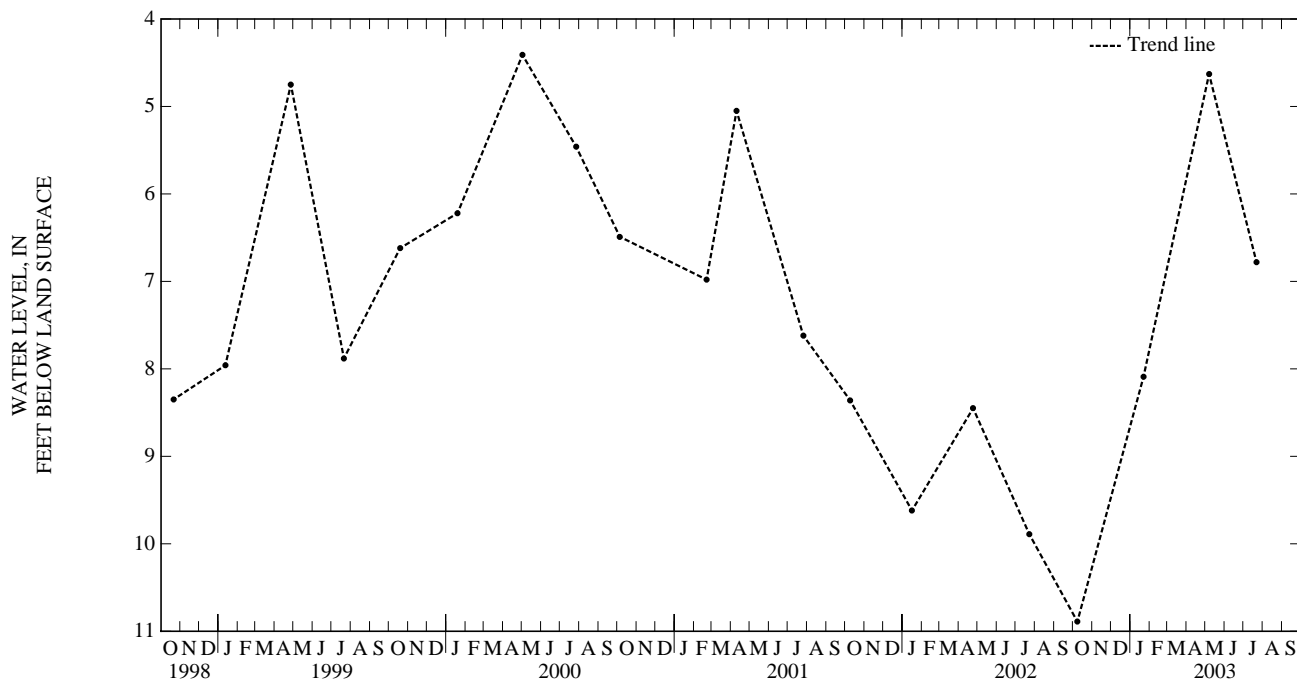
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--March 1980 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.06 ft below land-surface datum, Oct. 21, 1996; lowest measured, 20.10 ft below land-surface datum, Dec. 9, 1981.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	10.89	JAN 22	8.09	MAY 07	4.63	JUL 22	6.78
WATER YEAR 2003 HIGHEST		4.63	MAY 07, 2003	LOWEST		10.89	OCT 08, 2002



## ACCOMACK COUNTY—Continued

374314075401402. Local number, 65K 59 SOW 183A.

LOCATION.--Lat 37°43'14", long 75°40'13", NAD83, Hydrologic Unit 02080109, at Accomac, 500 ft north of U.S. Highway 13 (Business), 700 ft east of intersection of State Highway 764, and U.S. Highway 13 (Business). Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 250 ft, diameter 2 in. from 250 to 285 ft, depth 285 ft, screened 275 to 285 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Aug. 6, 1990 to Jan. 28, 1997, continuous strip-chart recorder. Prior to Aug. 7, 1990, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 35 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.

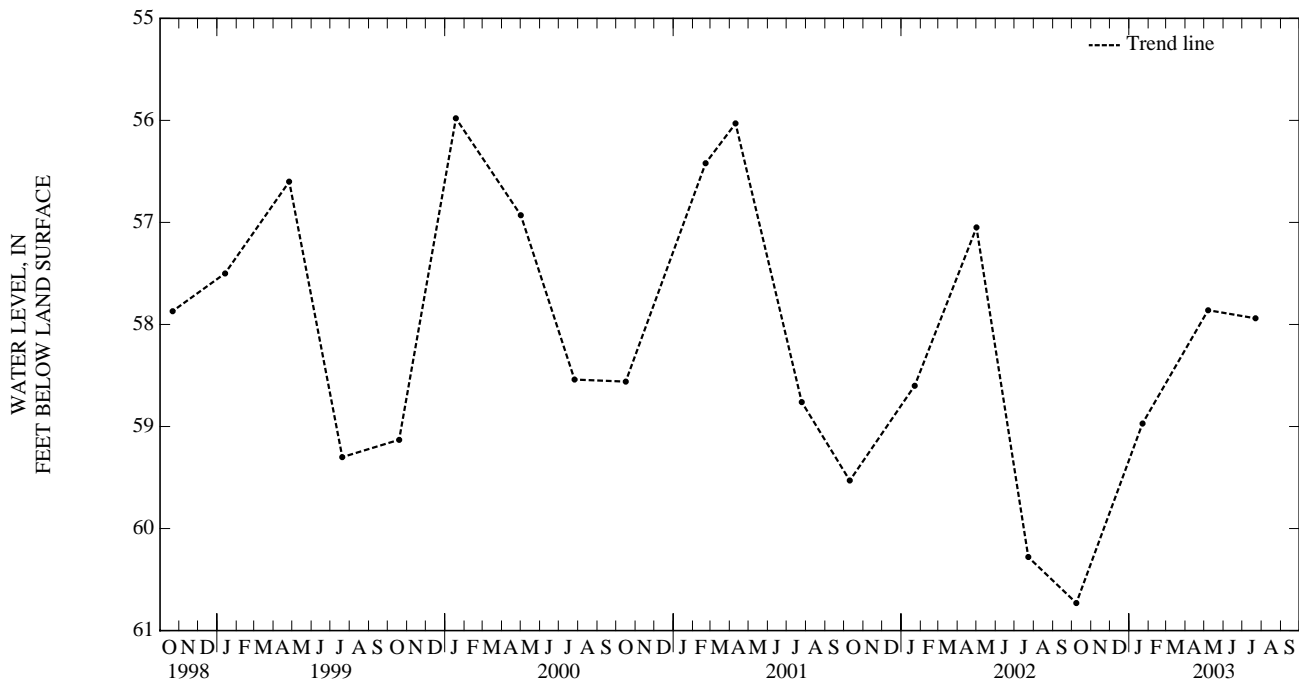
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage. Missing record due to recorder malfunction.

PERIOD OF RECORD.--May 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 52.28 ft below land-surface datum, Jan. 13, 1993; lowest recorded, 61.24 ft below land-surface datum, Sept. 29, 1991.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	60.73	JAN 22	58.97	MAY 07	57.86	JUL 22	57.94
WATER YEAR 2003		HIGHEST	57.86	MAY 07, 2003	LOWEST	60.73	OCT 08, 2002



GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

374314075401403. Local number, 65K 60 SOW 183B.

LOCATION.--Lat 37°43'14", long 75°40'13", NAD83, Hydrologic Unit 02080109, at Accomac, 500 ft north of U.S. Highway 13 (Business), 700 ft east of intersection of State Highway 764, and U.S. Highway 13 (Business). Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 210 ft, diameter 2 in. from 210 to 235 ft, depth 235 ft, screened 225 to 235 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 20, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 35 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.

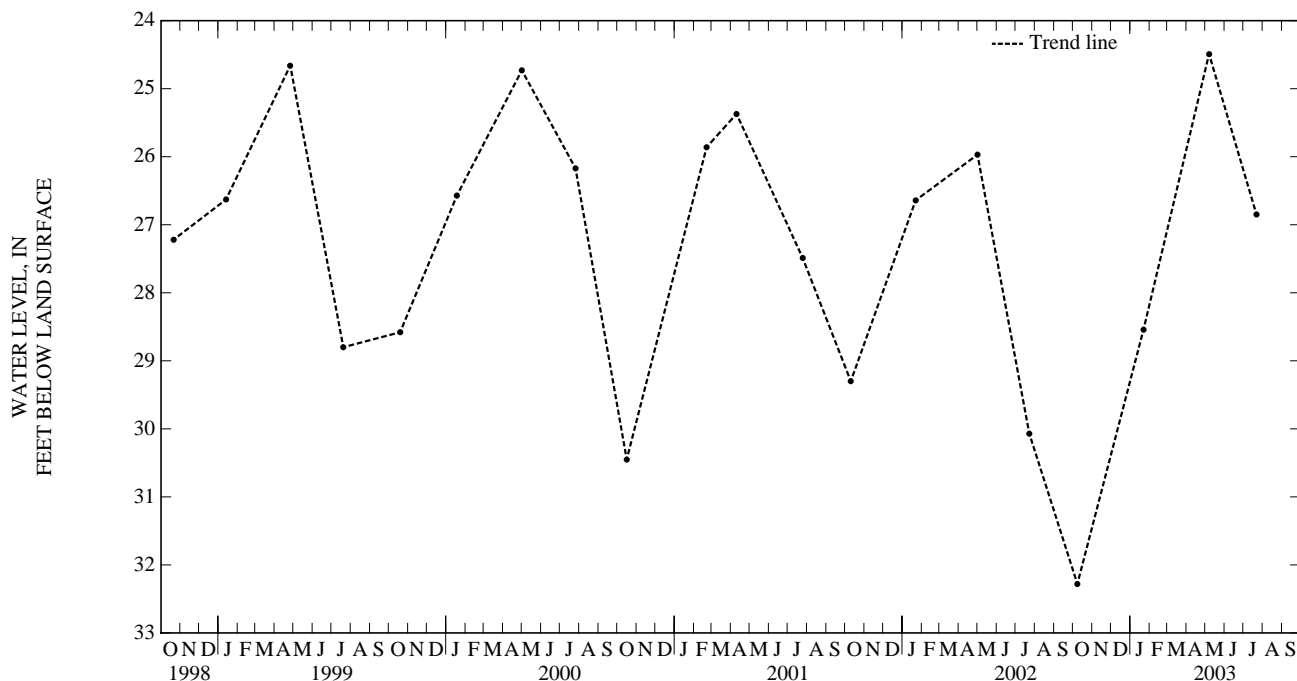
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level may be affected by local pumpage.

PERIOD OF RECORD.--May 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.50 ft below land-surface datum, May 7, 1990; lowest measured, 32.28 ft below land-surface datum, Oct. 8, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	32.28	JAN 22	28.54	MAY 07	24.49	JUL 22	26.85
WATER YEAR 2003		HIGHEST	24.49	MAY 07, 2003	LOWEST	32.28	OCT 08, 2002



## ACCOMACK COUNTY—Continued

374314075401404. Local number, 65K 61 SOW 183C.

LOCATION.--Lat 37°43'14", long 75°40'13", NAD83, Hydrologic Unit 02080109, at Accomac, 500 ft north of U.S. Highway 13 (Business), 700 ft east of intersection of State Highway 764, and U.S. Highway 13 (Business). Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 82 ft, diameter 2 in. from 82 to 134 ft, depth 134 ft, screened 124 to 134 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Aug. 6, 1990 to Jan. 28, 1997, continuous strip-chart recorder. Prior to Aug. 6, 1990, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 35 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.1 ft above land-surface datum.

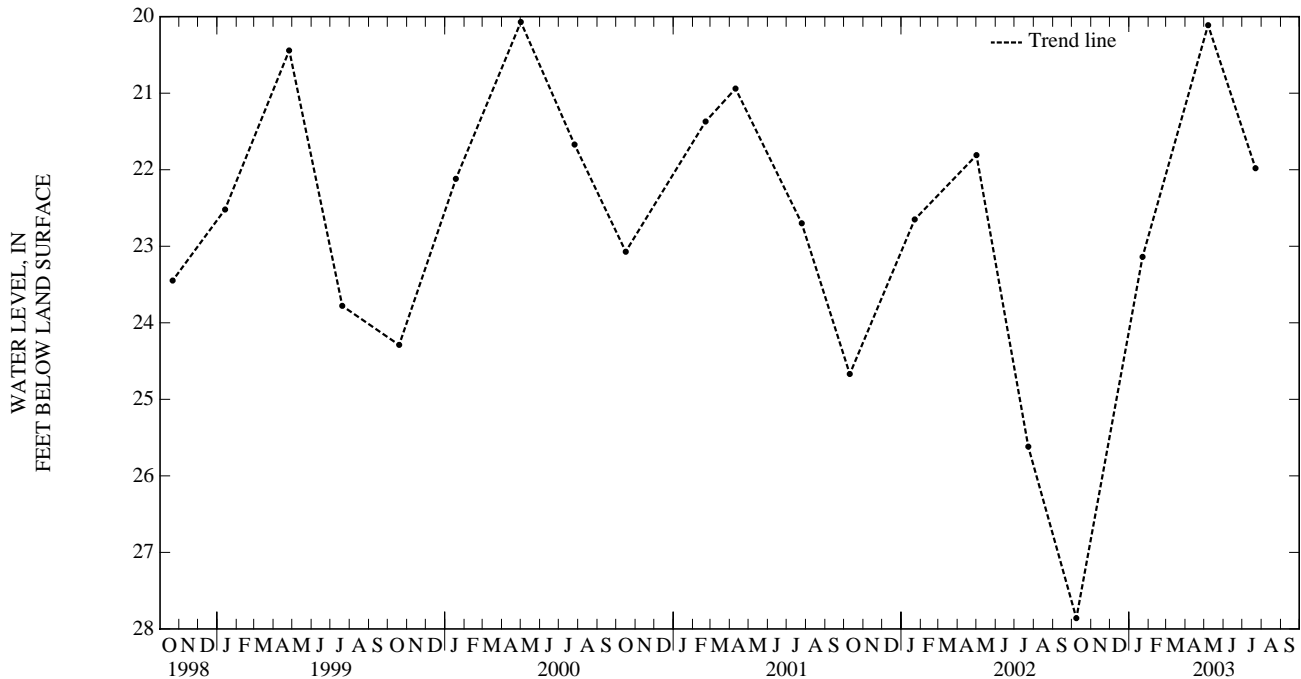
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level may be affected by local pumpage.

PERIOD OF RECORD.--May 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.20 ft below land-surface datum, May 7, 1990; lowest recorded, 27.86 ft below land-surface datum, Oct. 8, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	27.86	JAN 22	23.14	MAY 07	20.11	JUL 22	21.98
WATER YEAR 2003		HIGHEST	20.11	MAY 07, 2003	LOWEST	27.86	OCT 08, 2002





GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

374314075401405. Local number, 65K 62 SOW 183D.

LOCATION.--Lat 37°43'14", long 75°40'13", NAD83, Hydrologic Unit 02080109, at Accomac, 500 ft north of U.S. Highway 13 (Business), 700 ft east of intersection of State Highway 764, and U.S. Highway 13 (Business). Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 20 ft, screened 15 to 20 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 20, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 35 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.

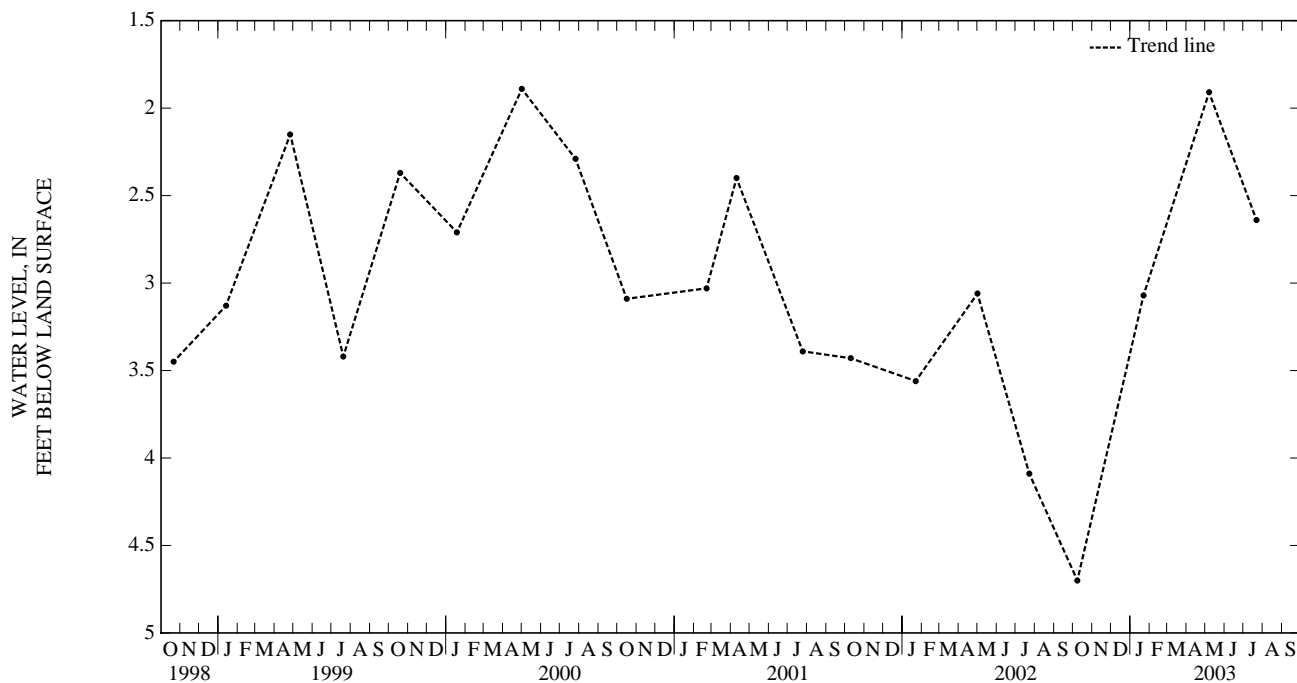
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--May 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.09 ft below land-surface datum, Jan. 4, 1993; lowest measured, 4.70 ft below land-surface datum, Oct. 8, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	4.70	JAN 22	3.07	MAY 07	1.91	JUL 22	2.64
WATER YEAR 2003		HIGHEST	1.91	MAY 07, 2003	LOWEST	4.70	OCT 08, 2002



## ACCOMACK COUNTY—Continued

374320075380501. Local number, 66K 2 SOW 101C.

LOCATION.--Lat 37°43'19", long 75°36'55", NAD83, Hydrologic Unit 02080110, 0.2 mi north of State Highway 662, 2.2 mi east of intersection of State Highway 662 and U.S. Highway 13 (Business), and 2.8 mi east of Accomac. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 292 ft, screened 282 to 292 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 10 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.4 ft above land-surface datum prior to Mar. 1, 1988; 0.6 ft thereafter.

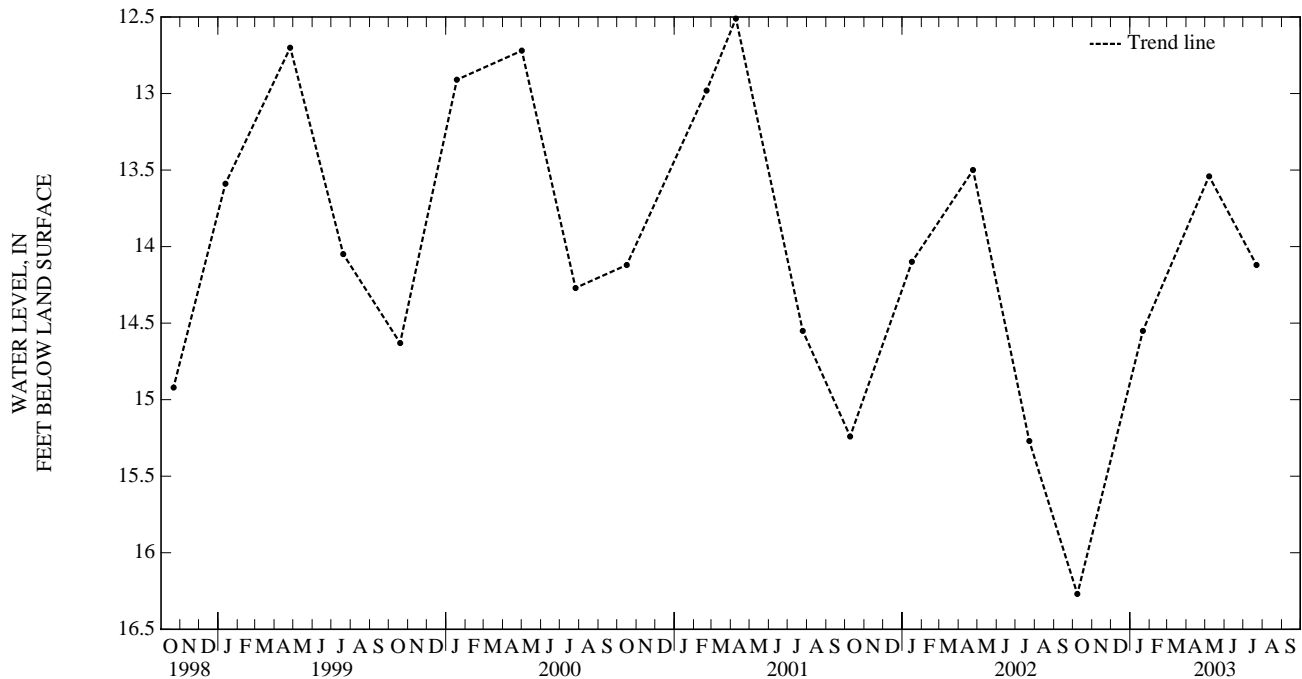
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--June 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.57 ft below land-surface datum, Apr. 25, 1984; lowest measured, 17.30 ft below land-surface datum, Aug. 5, 1986.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	16.27	JAN 21	14.55	MAY 07	13.54	JUL 22	14.12
WATER YEAR 2003 HIGHEST		13.54	MAY 07, 2003 LOWEST		16.27	OCT 08, 2002	



GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

374320075365602. Local number, 66K 3 SOW 101B.

LOCATION.--Lat 37°43'19", long 75°36'55", NAD83, Hydrologic Unit 02080110, 0.2 mi north of State Highway 662, 2.2 mi east of intersection of State Highway 662 and U.S. Highway 13 (Business), and 2.8 mi east of Accomac. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 220 ft, screened 210 to 220 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 8 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.36 ft above land-surface datum prior to Mar. 1, 1988; 0.65 ft thereafter.

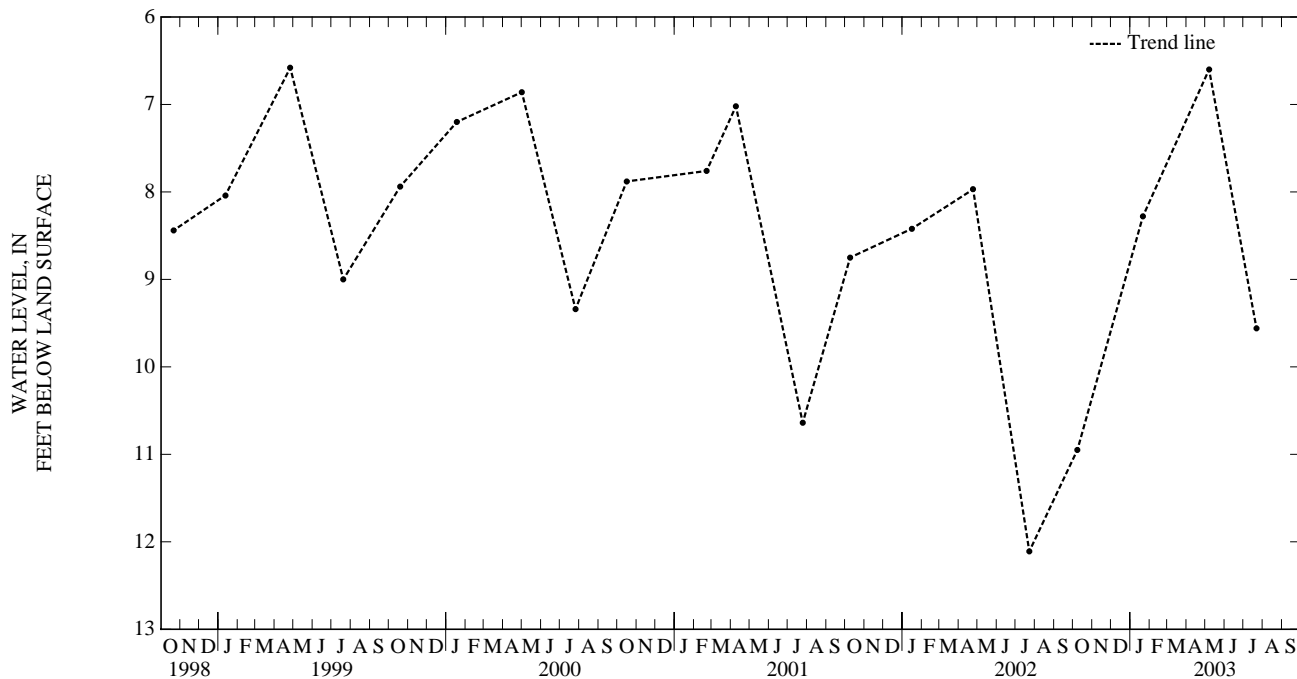
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--June 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.04 ft below land-surface datum, Apr. 25, 1984; lowest measured, 12.11 ft below land-surface datum, July 23, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	10.95	JAN 21	8.28	MAY 07	6.60	JUL 22	9.56
WATER YEAR 2003 HIGHEST		6.60	MAY 07, 2003	LOWEST		10.95	OCT 08, 2002



## ACCOMACK COUNTY—Continued

374320075365603. Local number, 66K 4 SOW 101A.

LOCATION.--Lat 37°43'19", long 75°36'55", NAD83, Hydrologic Unit 02080110, 0.2 mi north of State Highway 662, 2.2 mi east of intersection of State Highway 662 and U.S. Highway 13 (Business), and 2.8 mi east of Accomac. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 152 ft, screened 142 to 152 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 10 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.4 ft above land-surface datum prior to Mar. 1, 1988; 0.65 ft Mar. 1, 1988, to June 20, 1989; at land-surface datum June 21, 1989, to Jan. 3, 1990; 0.85 ft above land-surface datum thereafter.

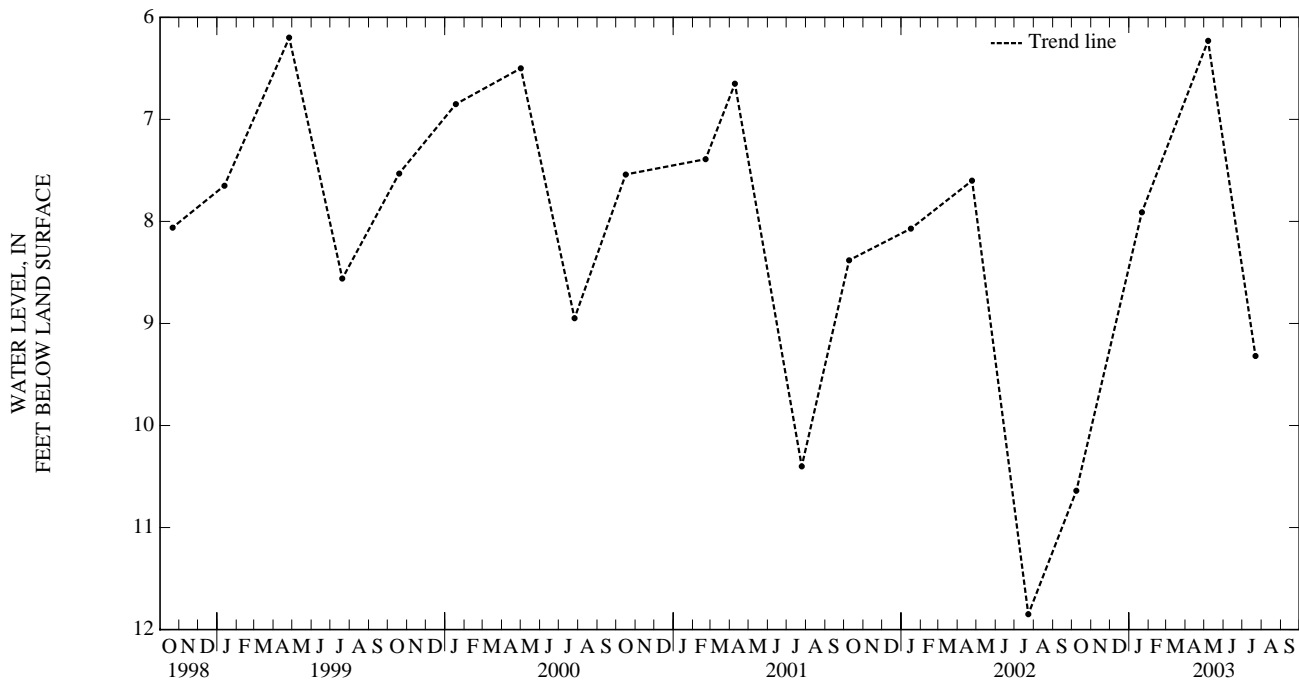
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--June 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.99 ft below land-surface datum, Apr. 25, 1984; lowest measured, 11.85 ft below land-surface datum, July 23, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	10.64	JAN 21	7.91	MAY 07	6.23	JUL 22	9.32
WATER YEAR 2003 HIGHEST		6.23	MAY 07, 2003 LOWEST		10.64	OCT 08, 2002	



GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

375225075321701. Local number, 66L 1 SOW 107C.

LOCATION.--Lat 37°52'25", long 75°32'16", NAD83, Hydrologic Unit 02080110, 0.15 mi northwest of State Highway 679, 0.45 mi northeast of intersection of State Highways 679 and 790, and 0.7 mi west of Assawoman. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 305 ft, screened 295 to 305 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 6 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.33 ft above land-surface datum prior to Mar. 1, 1988; 0.4 ft thereafter.

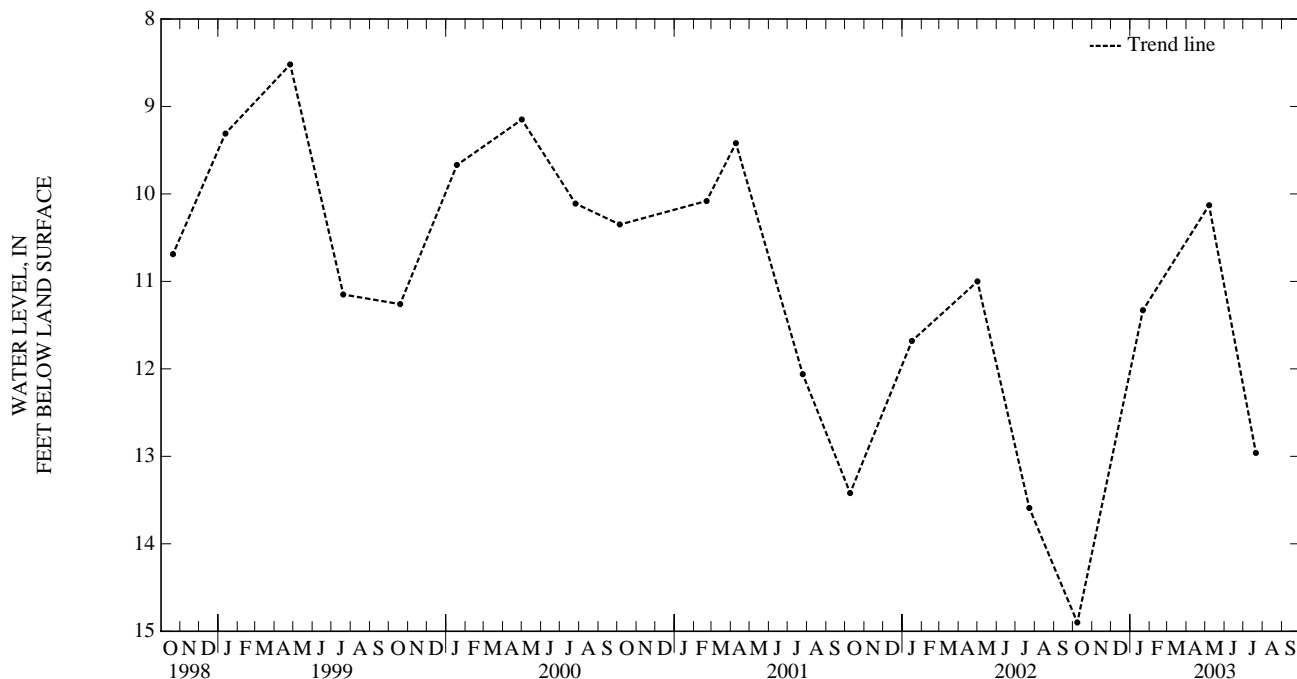
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--September 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.06 ft below land-surface datum, Jan. 4, 1984; lowest measured, 14.90 ft below land-surface datum, Oct. 8, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	14.90	JAN 21	11.33	MAY 07	10.13	JUL 21	12.96
WATER YEAR 2003 HIGHEST		10.13	MAY 07, 2003	LOWEST		14.90	OCT 08, 2002





GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

375225075321703. Local number, 66L 3 SOW 107B.

LOCATION.--Lat 37°52'25", long 75°32'16", NAD83, Hydrologic Unit 02080110, 0.15 mi northwest of State Highway 679, 0.45 mi northeast of intersection of State Highways 679 and 790, and 0.7 mi west of Assawoman. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 206 ft, screened 191 to 201 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 5 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.1 ft above land-surface datum prior to June 19, 1990; 0.3 ft thereafter.

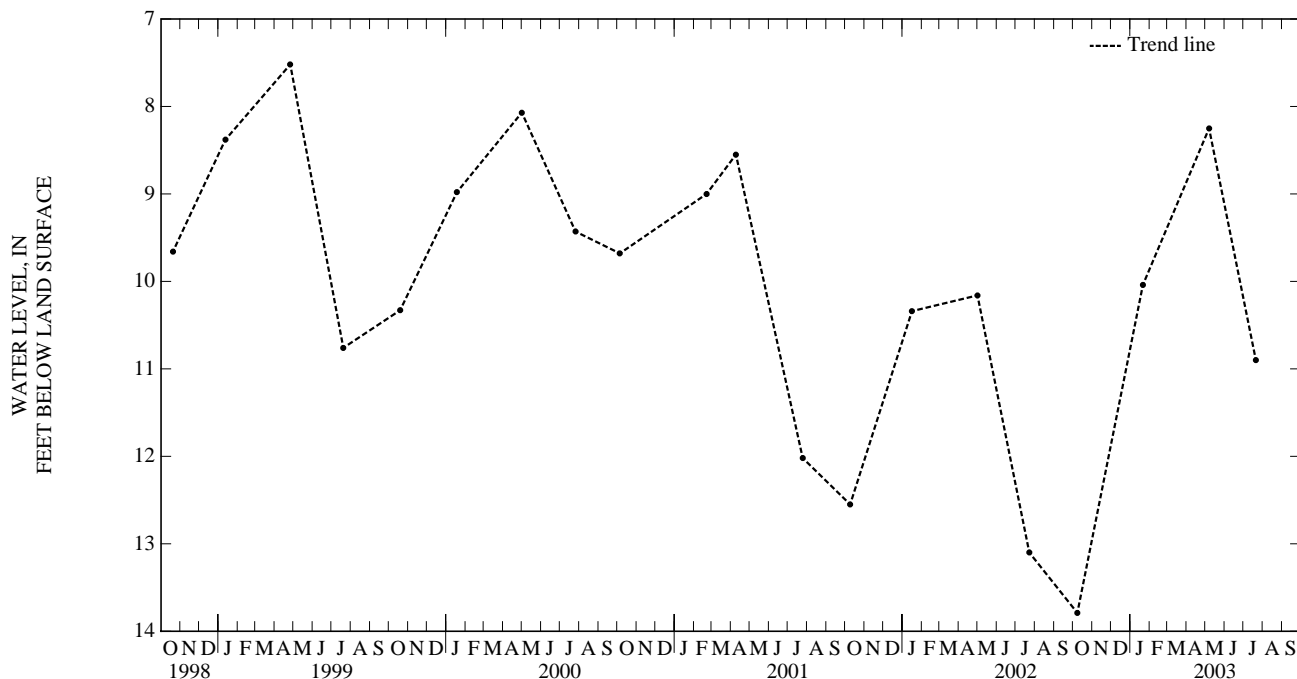
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--October 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.64 ft below land-surface datum, Apr. 25, 1984; lowest measured, 13.79 ft below land-surface datum, Oct. 8, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	13.79	JAN 21	10.04	MAY 07	8.25	JUL 21	10.90
WATER YEAR 2003		HIGHEST	8.25	MAY 07, 2003		LOWEST	13.79
		OCT 08, 2002					



## ACCOMACK COUNTY—Continued

375723075344401. Local number, 66M 16 SOW 110A.

LOCATION.--Lat 37°57'23", long 75°34'43", NAD83, Hydrologic Unit 02060009, 0.25 mi northeast of State Highway 693, 0.5 mi southeast of intersection of State Highways 693 and 706, and 2.3 mi northwest of Oak Hall. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 130 ft, screened 120 to 130 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 11 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.45 ft above land-surface datum prior to Feb. 29, 1988; 0.65 ft Mar. 1, 1988, to Oct. 3, 1989; at land-surface datum Oct. 4, 1989, to Jan. 3, 1990; 1.0 ft above land-surface datum Jan. 4, 1990, to Oct. 10, 1990; 0.70 ft thereafter.

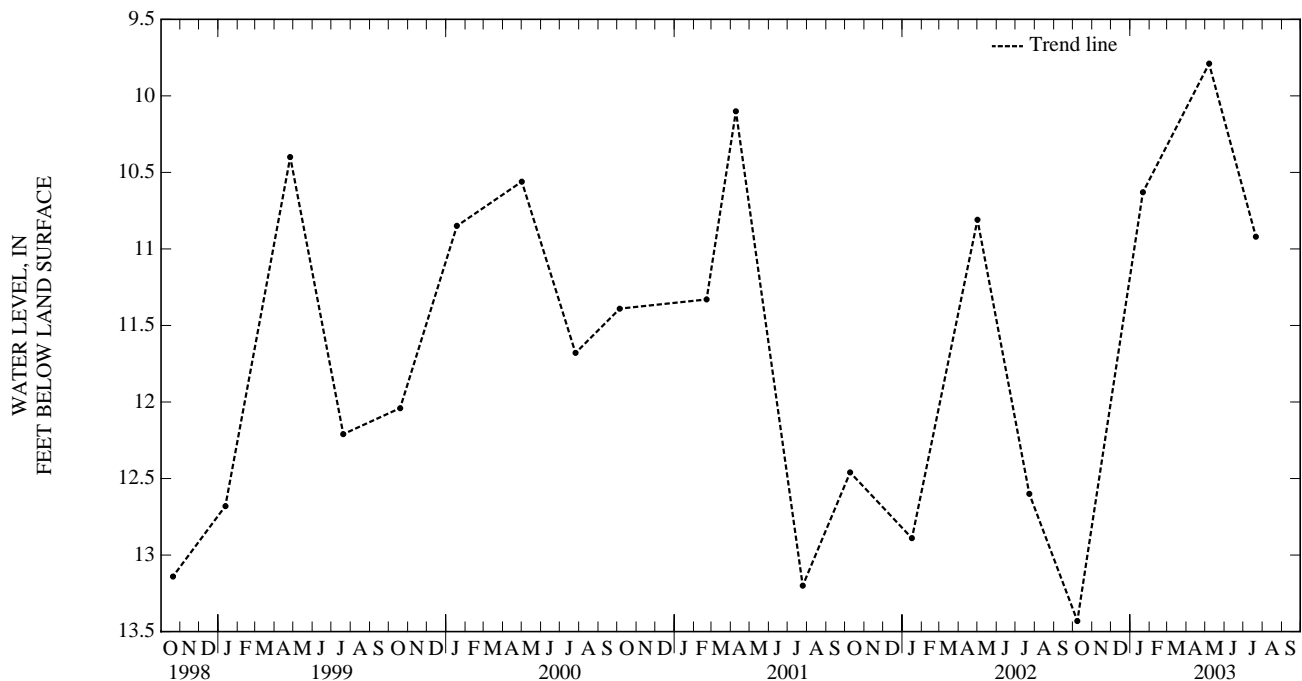
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--September 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.28 ft below land-surface datum, Feb. 19, 1986; lowest measured, 13.43 ft below land-surface datum, Oct. 8, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	13.43	JAN 21	10.63	MAY 07	9.79	JUL 21	10.92
WATER YEAR 2003 HIGHEST		9.79	MAY 07, 2003	LOWEST		13.43	OCT 08, 2002





GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

375723075344402. Local number, 66M 17 SOW 110B.

LOCATION.--Lat 37°57'23", long 75°34'43", NAD83, Hydrologic Unit 02060009, 0.25 mi northeast of State Highway 693, 0.5 mi southeast of intersection of State Highways 693 and 706, and 2.3 mi northwest of Oak Hall. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 178 ft, screened 168 to 178 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 11 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.45 ft above land-surface datum prior to Feb. 29, 1988; 0.75 ft thereafter.

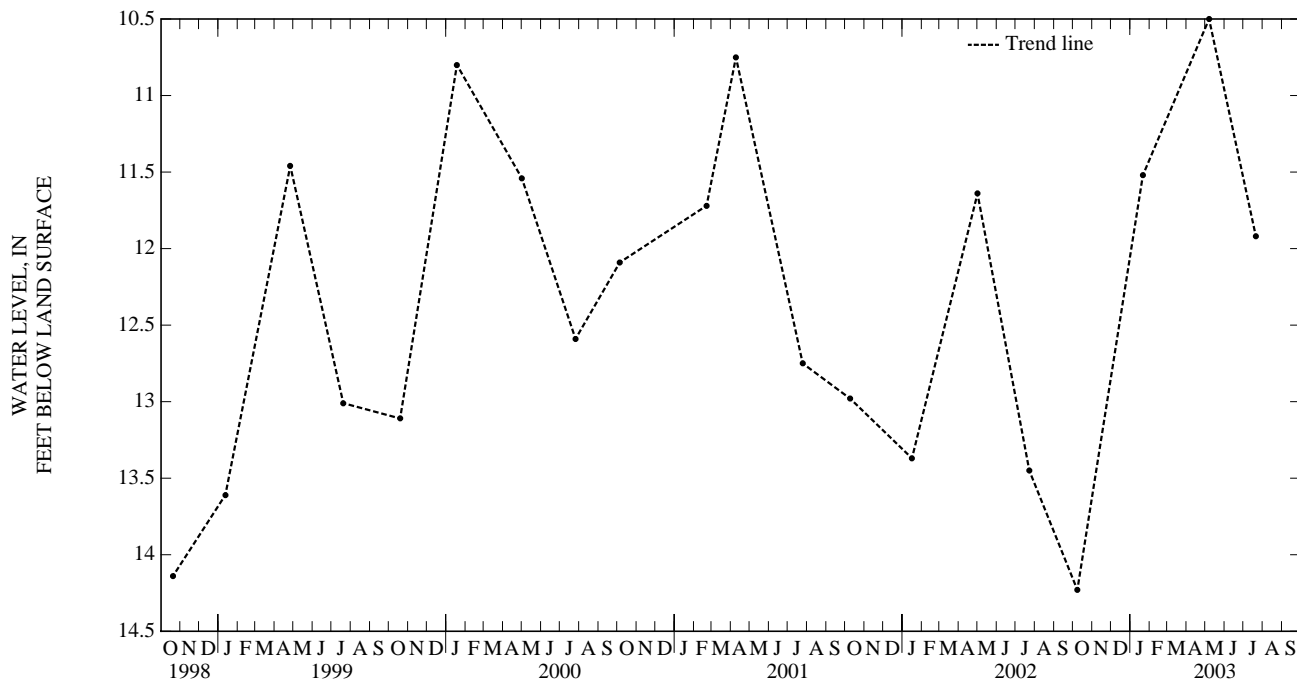
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--October 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.76 ft below land-surface datum, Apr. 1, 1980; lowest measured, 14.23 ft below land-surface datum, Oct. 8, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	14.23	JAN 21	11.52	MAY 07	10.50	JUL 21	11.92
WATER YEAR 2003		HIGHEST	10.50	MAY 07, 2003	LOWEST	14.23	OCT 08, 2002



## ACCOMACK COUNTY—Continued

375723075344403. Local number, 66M 18 SOW 110C.

LOCATION.--Lat 37°57'23", long 75°34'43", NAD83, Hydrologic Unit 02060009, 0.25 mi northeast of State Highway 693, 0.5 mi southeast of intersection of State Highways 693 and 706, and 2.3 mi northwest of Oak Hall. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 240 ft, screened 230 to 240 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 11 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.65 ft above land-surface datum.

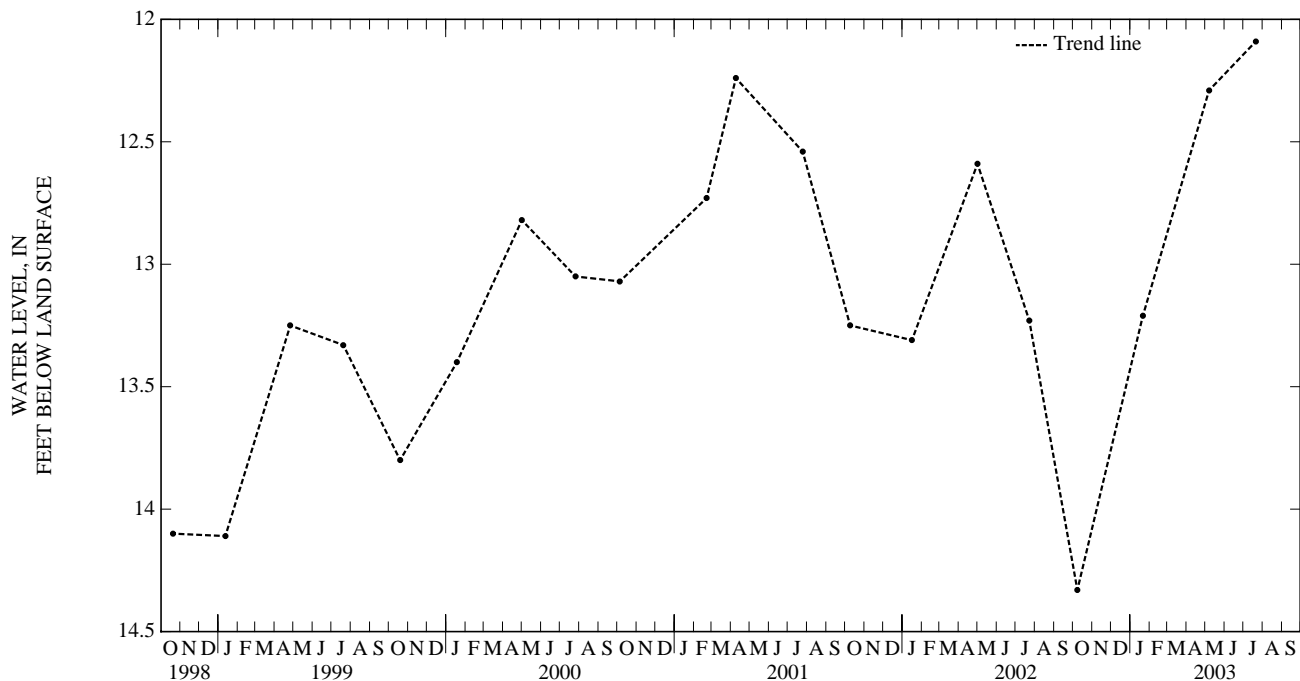
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--October 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.43 ft below land-surface datum, Aug. 12, 1981; lowest measured, 14.33 ft below land-surface datum, Oct. 8, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	14.33	JAN 21	13.21	MAY 07	12.29	JUL 21	12.09
WATER YEAR 2003 HIGHEST		12.09	JUL 21, 2003	LOWEST		14.33	OCT 08, 2002



GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

375723075344404. Local number, 66M 19 SOW 110S.

LOCATION.--Lat 37°57'23", long 75°34'43", NAD83, Hydrologic Unit 02060009, 0.25 mi northeast of State Highway 693, 0.5 mi southeast of intersection of State Highways 693 and 706, and 2.3 mi northwest of Oak Hall. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 36 ft, screened 26 to 36 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 11 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum prior to Feb. 29, 1988; 0.35 ft Mar. 1, 1988 to July 21, 2003; 1.57 ft thereafter.

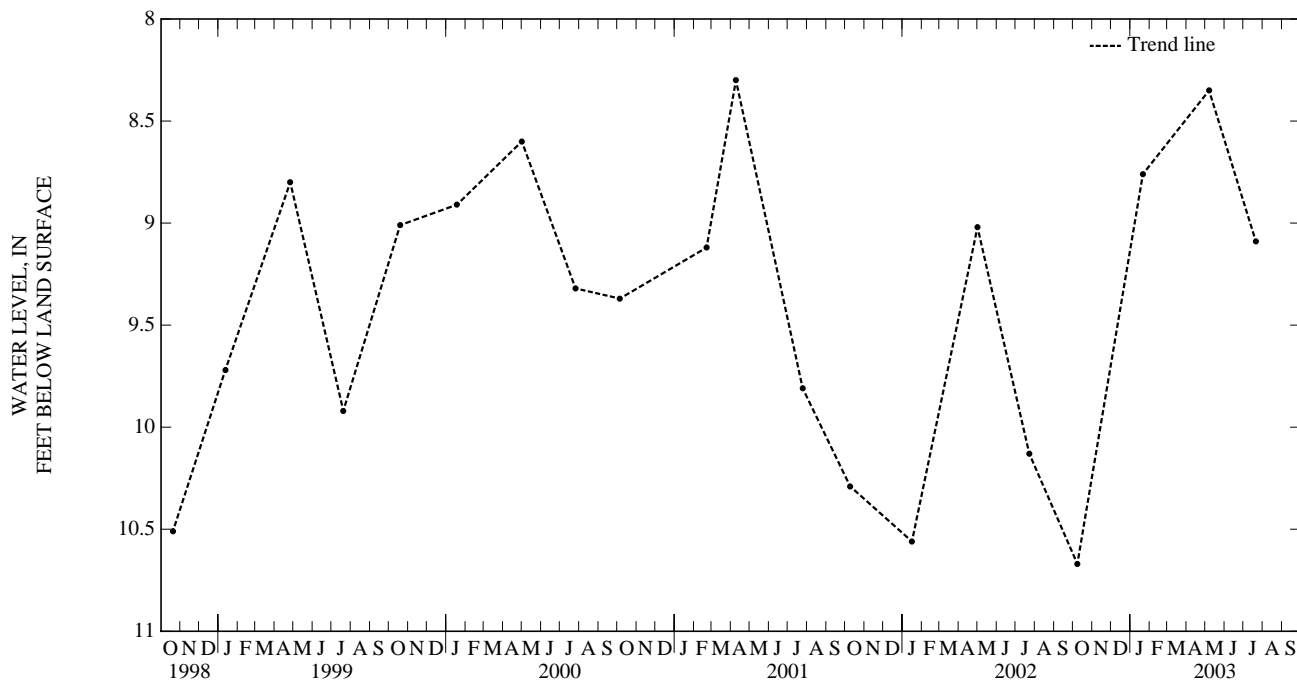
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--September 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.97 ft below land-surface datum, Oct. 21, 1996; lowest measured, 11.34 ft below land-surface datum, Nov. 6, 1981.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	10.67	JAN 21	8.76	MAY 07	8.35	JUL 21	9.09
WATER YEAR 2003 HIGHEST		8.35	MAY 07, 2003	LOWEST		10.67	OCT 08, 2002



## ACCOMACK COUNTY—Continued

375610075361801. Local number, 66M 23 SOW 181A.

LOCATION.--Lat 37°56'10", long 75°36'17", NAD83, Hydrologic Unit 02080109, 100 ft south of State Highway 703, 0.1 mi east of intersection of State Highways 701 and 703, and 2.7 mi northwest of Makemie Park. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 1,300 ft, screened 1,290 to 1,300 ft.

INSTRUMENTATION.--Occasional measurement with manometer or chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 20, 1995, bimonthly measurement with manometer or chalked tape.

DATUM.--Elevation of land-surface datum is 6 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

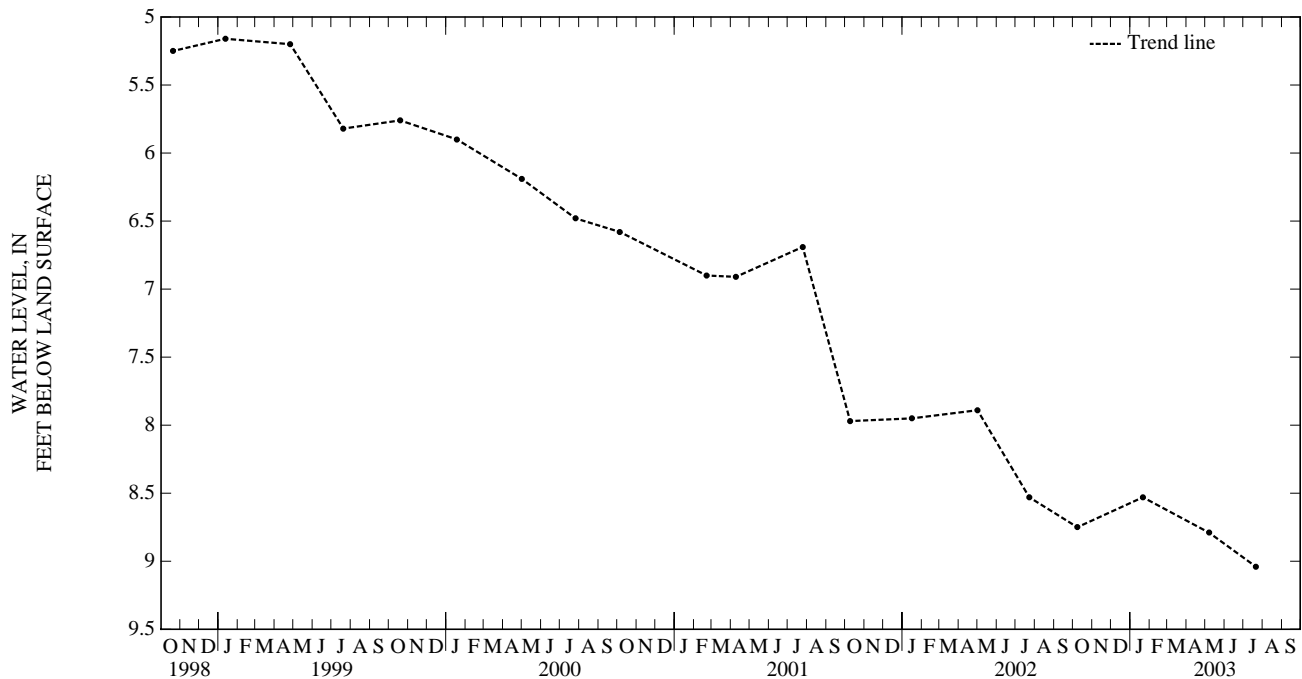
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional pumpage. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--January 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.38 ft above land-surface datum, Jan. 26, 1988; lowest measured, 9.04 ft below land-surface datum, July 21, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	8.75	JAN 21	8.53	MAY 07	8.79	JUL 21	9.04
WATER YEAR 2003 HIGHEST		8.53	JAN 21, 2003	LOWEST		9.04	JUL 21, 2003



GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

375610075361802. Local number, 66M 24 SOW 181B.

LOCATION.--Lat 37°56'10", long 75°36'17", NAD83, Hydrologic Unit 02080109, 100 ft south of State Highway 703, 0.1 mi east of intersection of State Highways 701 and 703, and 2.7 mi northwest of Makemie Park. Owner: Virginia Department of Environmental Quality.

AQUIFER.--St. Marys-Choptank aquifer of Miocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 508 ft, screened 498 to 508 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 20, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 6 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.85 ft above land-surface datum.

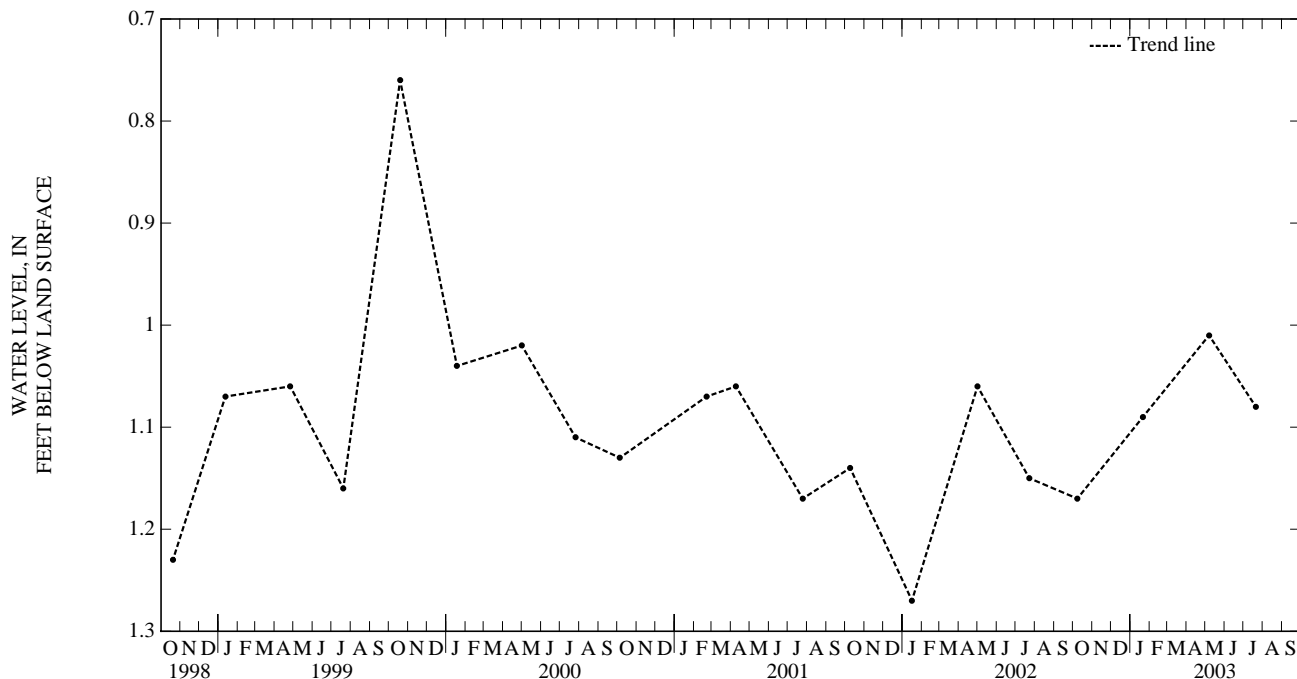
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--October 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.25 ft below land-surface datum, Mar. 7, 1989; lowest measured, 1.27 ft below land-surface datum, Jan. 16, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	1.17	JAN 21	1.09	MAY 07	1.01	JUL 21	1.08
WATER YEAR 2003 HIGHEST		1.01	MAY 07, 2003 LOWEST		1.17	OCT 08, 2002	



## ACCOMACK COUNTY—Continued

375610075361803. Local number, 66M 25 SOW 181C.

LOCATION.--Lat 37°56'10", long 75°36'17", NAD83, Hydrologic Unit 02080109, 100 ft south of State Highway 703, 0.1 mi east of intersection of State Highways 701 and 703, and 2.7 mi northwest of Makemie Park. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 340 ft, screened 330 to 340 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 20, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 6 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.95 ft above land-surface datum.

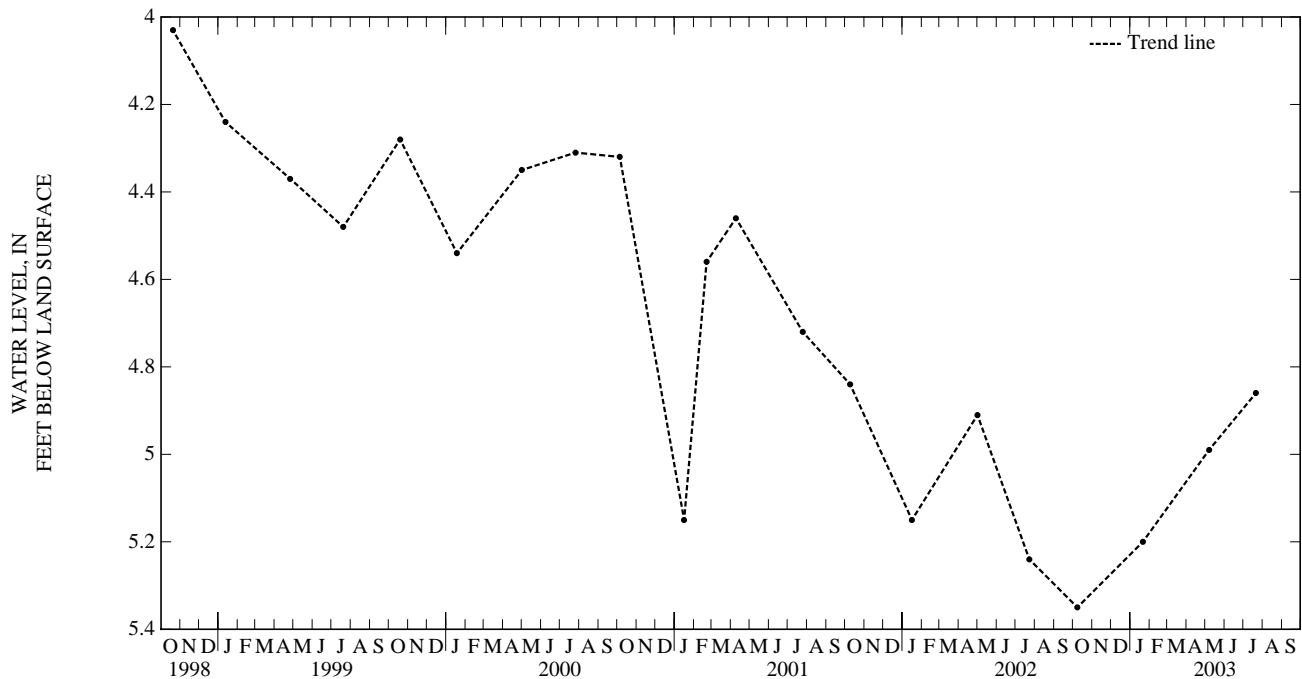
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--October 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.10 ft below land-surface datum, Apr. 28, 1993; lowest measured, 5.35 ft below land-surface datum, Oct. 8, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	5.35	JAN 21	5.20	MAY 07	4.99	JUL 21	4.86
WATER YEAR 2003 HIGHEST		4.86	JUL 21, 2003	LOWEST		5.35	OCT 08, 2002



GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

375610075361804. Local number, 66M 26 SOW 181D.

LOCATION.--Lat 37°56'10", long 75°36'17", NAD83, Hydrologic Unit 02080109, 100 ft south of State Highway 703, 0.1 mi east of intersection of State Highways 701 and 703, and 2.7 mi northwest of Makemie Park. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 230 ft, screened 220 to 230 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 20, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 6 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

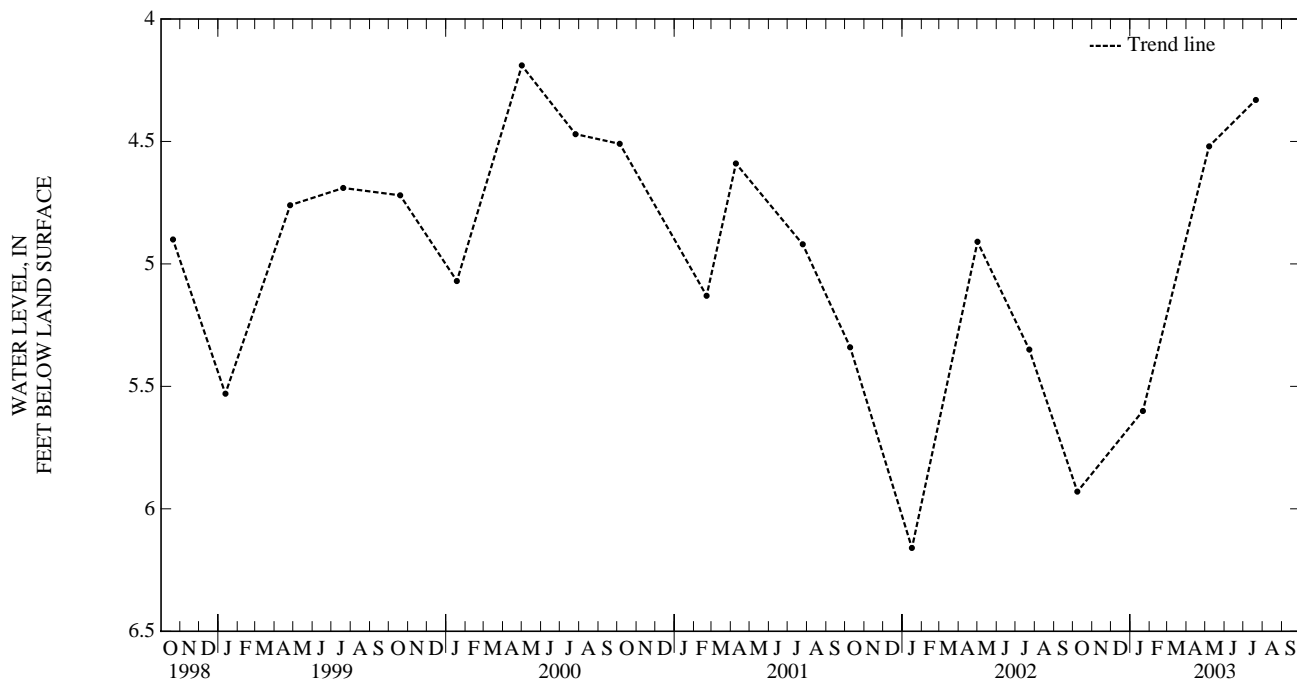
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--October 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.93 ft below land-surface datum, Apr. 28, 1993; lowest measured, 6.16 ft below land-surface datum, Jan. 16, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	5.93	JAN 21	5.60	MAY 07	4.52	JUL 21	4.33
WATER YEAR 2003 HIGHEST		4.33	JUL 21, 2003	LOWEST		5.93	OCT 08, 2002



## ACCOMACK COUNTY—Continued

375610075361805. Local number, 66M 27 SOW 181E.

LOCATION.--Lat 37°56'10", long 75°36'17", NAD83, Hydrologic Unit 02080109, 100 ft south of State Highway 703, 0.1 mi east of intersection of State Highways 701 and 703, and 2.7 mi northwest of Makemie Park. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 30 ft, screened 20 to 30 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 20, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 6 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.9 ft above land-surface datum.

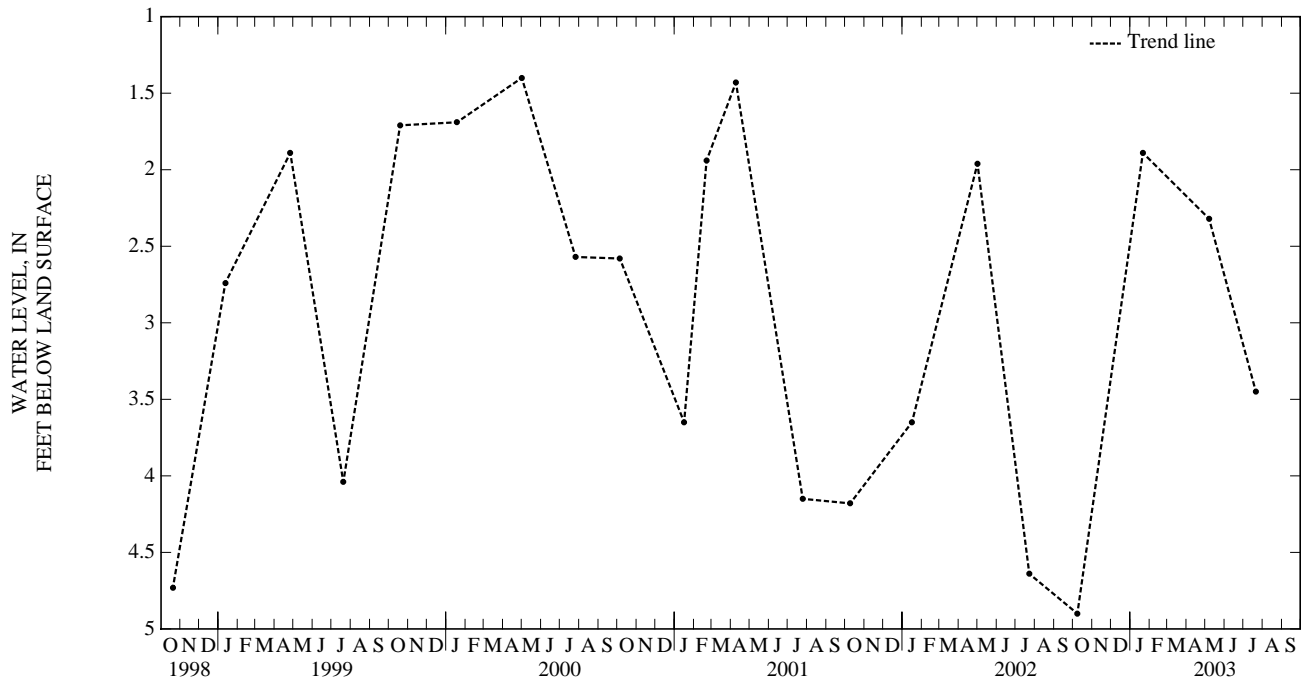
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--October 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.50 ft below land-surface datum, Aug. 8, 1989; lowest measured, 5.03 ft below land-surface datum, Oct. 10, 1995.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	4.90	JAN 21	1.89	MAY 07	2.32	JUL 21	3.45
WATER YEAR 2003 HIGHEST		1.89 JAN 21, 2003	LOWEST		4.90	OCT 08, 2002	





GROUND-WATER LEVELS  
ACCOMACK COUNTY—Continued

375635075271501. Local number, 67M 10 SOW 115A.

LOCATION.--Lat 37°56'35", long 75°27'14", NAD83, Hydrologic Unit 02060010, 200 ft east of State Highway 175, 2.4 mi east of Wattsville, and 2.5 mi northeast of intersection of State Highways 175 and 798. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 52 ft, screened 32 to 52 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 20, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 13 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.7 ft above land-surface datum prior to Feb. 28, 1988; 1.7 ft thereafter.

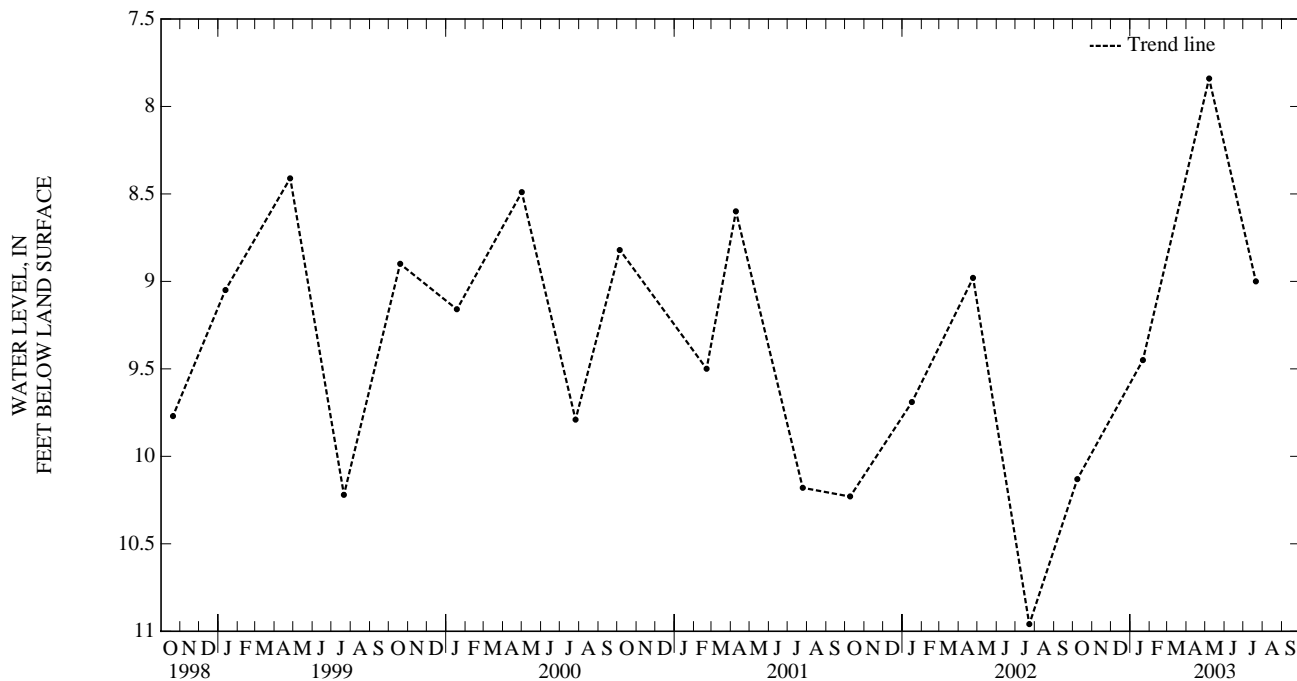
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division

PERIOD OF RECORD.--March 1981 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.72 ft below land-surface datum, Oct. 3, 1989; lowest measured, 10.96 ft below land-surface datum, July 23, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	10.13	JAN 21	9.45	MAY 07	7.84	JUL 21	9.00
WATER YEAR 2003 HIGHEST		7.84	MAY 07, 2003 LOWEST		10.13	OCT 08, 2002	



## ACCOMACK COUNTY—Continued

375635075271502. Local number, 67M 11 SOW 115B.

LOCATION.--Lat 37°56'35", long 75°27'14", NAD83, Hydrologic Unit 02060010, 200 ft east of State Highway 175, 2.4 mi east of Wattsville, and 2.5 mi northeast of intersection of State Highways 175 and 798. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 138 ft, screened 118 to 138 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 14 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.6 ft above land-surface datum prior to Feb. 29, 1988; 1.9 ft thereafter.

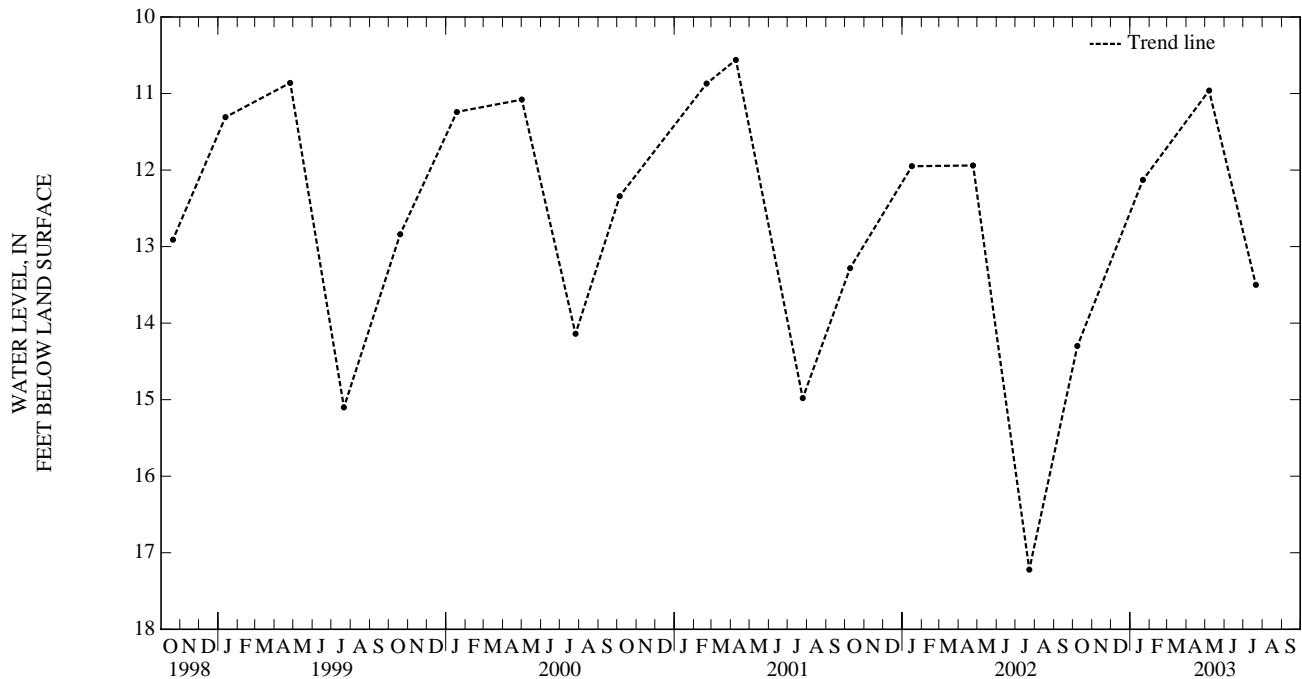
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--March 1981 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.70 ft below land-surface datum, May 6, 1982; lowest measured, 17.22 ft below land-surface datum, July 23, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	14.30	JAN 21	12.13	MAY 07	10.96	JUL 21	13.50
WATER YEAR 2003 HIGHEST		10.96 MAY 07, 2003		LOWEST		14.30 OCT 08, 2002	



LOCATION.--Lat 37°56'35", long 75°27'14", NAD83, Hydrologic Unit 02060010, 50 ft east of State Highway 175, 2.4 mi east of Wattsville, and 2.6 mi northeast of intersection of State Highways 175 and 798. Owner: Virginia Department of Environmental Quality.

**WELL CHARACTERISTICS.**--Drilled observation water well, diameter 4 in., depth 249 ft, screened 229 to 249 ft.

INSTRUMENTATION.--Continuous strip-chart recorder. Prior to Oct. 5, 1985, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 16 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.8 ft above land-surface datum prior to Aug. 8, 1989; 1.5 ft thereafter.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water levels affected by local pumpage. Missing record due to recorder malfunction.

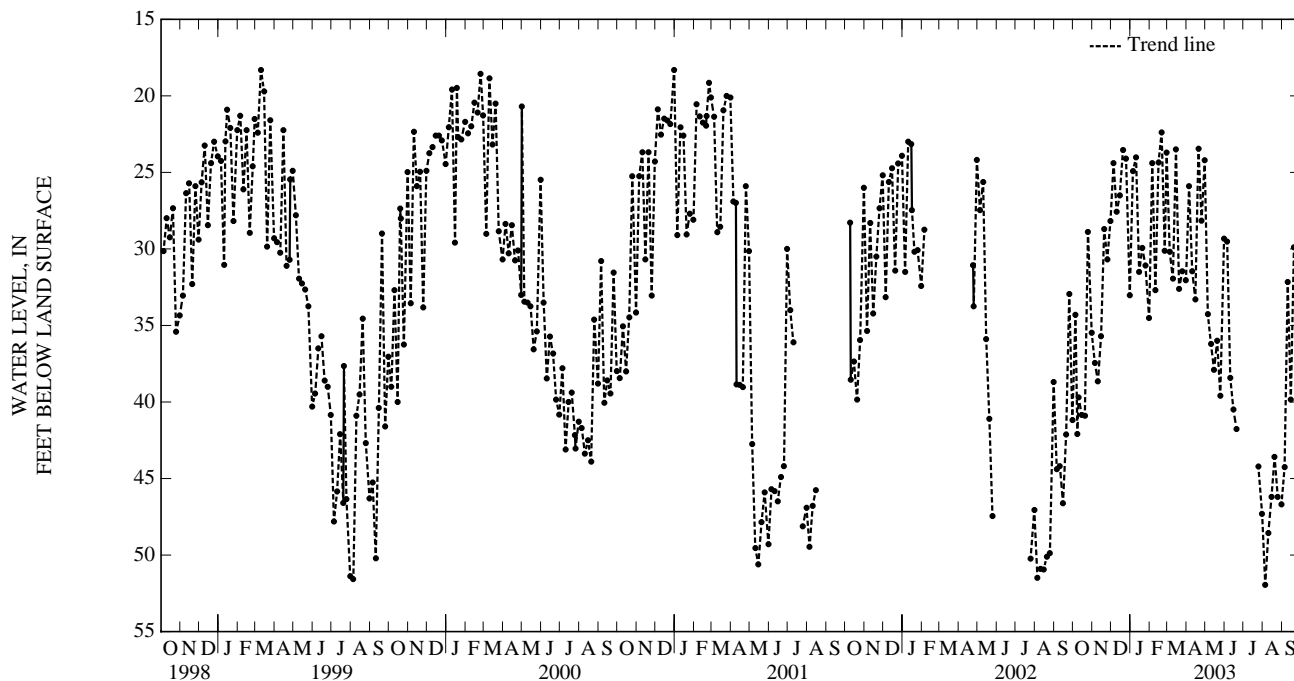
PERIOD OF RECORD.--March 1981 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.50 ft below land-surface datum, Jan. 22, 2000; lowest recorded, 53.19 ft below land-surface datum, May 14, 2001.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 18.59 ft below land-surface datum, Jan. 20; lowest instantaneous water level, 51.95 ft below land-surface datum, Aug. 5.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	34.31	37.45	24.39	24.92	24.39	30.19	25.90	34.26	29.52	---	51.95	44.25
10	39.69	38.65	27.57	24.01	32.70	31.95	31.45	36.20	38.42	---	48.55	32.16
15	40.84	35.70	26.50	31.50	24.35	23.50	33.30	37.90	40.49	---	46.20	39.85
20	40.90	28.70	23.54	29.94	22.39	32.61	23.45	36.00	41.77	---	43.59	29.90
25	28.88	30.68	24.10	31.08	30.12	31.45	28.15	39.59	---	44.22	46.19	36.58
EOM	35.48	28.18	33.02	34.52	23.70	32.04	24.21	29.32	---	47.30	46.69	36.15

WATER YEAR 2003    HIGHEST 22.39 FEB 20, 2003    LOWEST 51.95 AUG 05, 2003



## ALBEMARLE COUNTY

380333078264801. Local number, 43N 1 SOW 028.

LOCATION.--Lat 38°03'33", long 78°26'47", NAD83, Hydrologic Unit 02080204, at Key West Subdivision, 1.1 mi east of Charlottesville. Owner: Key West Development Corporation.

AQUIFER.--Lynchburg Formation of Precambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 409 ft, cased to 52 ft, open hole 52 to 409 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Apr. 10, 1981 to Oct. 19, 1995 continuous strip-chart recorder. June 25, 1974 to Apr. 10, 1981 occasional measurement with chalked tape; Prior to June 25, 1974, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 345 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.2 ft above land-surface datum.

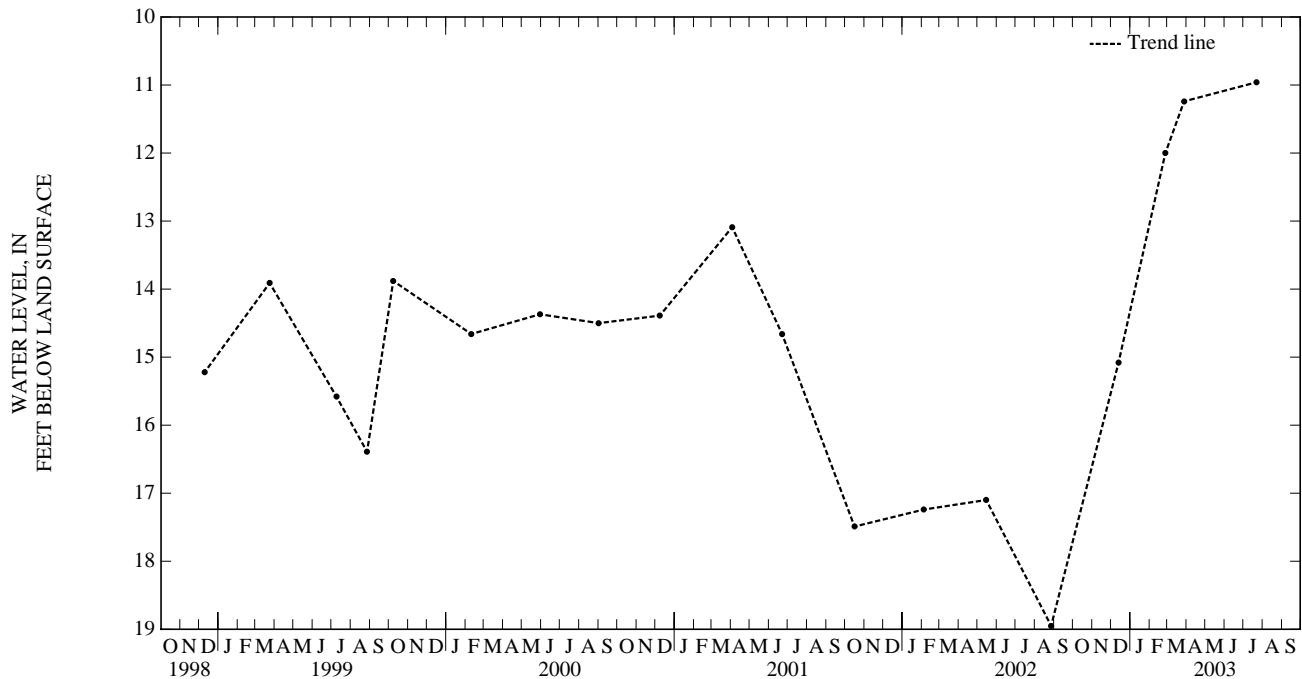
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--February 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.65 ft below land-surface datum, May 3, 1984; lowest recorded, 22.10 ft below land-surface datum, Nov. 30, 1981.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 13	15.08	FEB 26	12.00	MAR 28	11.24	JUL 22	10.96
WATER YEAR 2003		HIGHEST	10.96	JUL 22, 2003	LOWEST	15.08	DEC 13, 2002



GROUND-WATER LEVELS  
APPOMATTOX COUNTY

372514078394301. Local number, 41H 2.

LOCATION.--Lat 37°25'15", long 78°39'42", NAD83, Hydrologic Unit 02080207, 1.0 mi south of intersection of State Highway 636 on the east side of State Highway 640, 2.8 mi southeast of Sliders. Owner: U.S. Geological Survey.

AQUIFER.--Metagraywacke, quartzose schist, and melange of Cambrian age.

WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in. to 68 ft, diameter 1.25 in. from 68 to 73 ft, depth 73 ft, screened 68 to 73 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. August 1970 to October 1974, digital recorder 60-minute punch. Prior to August 1970, occasional measurement with chalked tape.

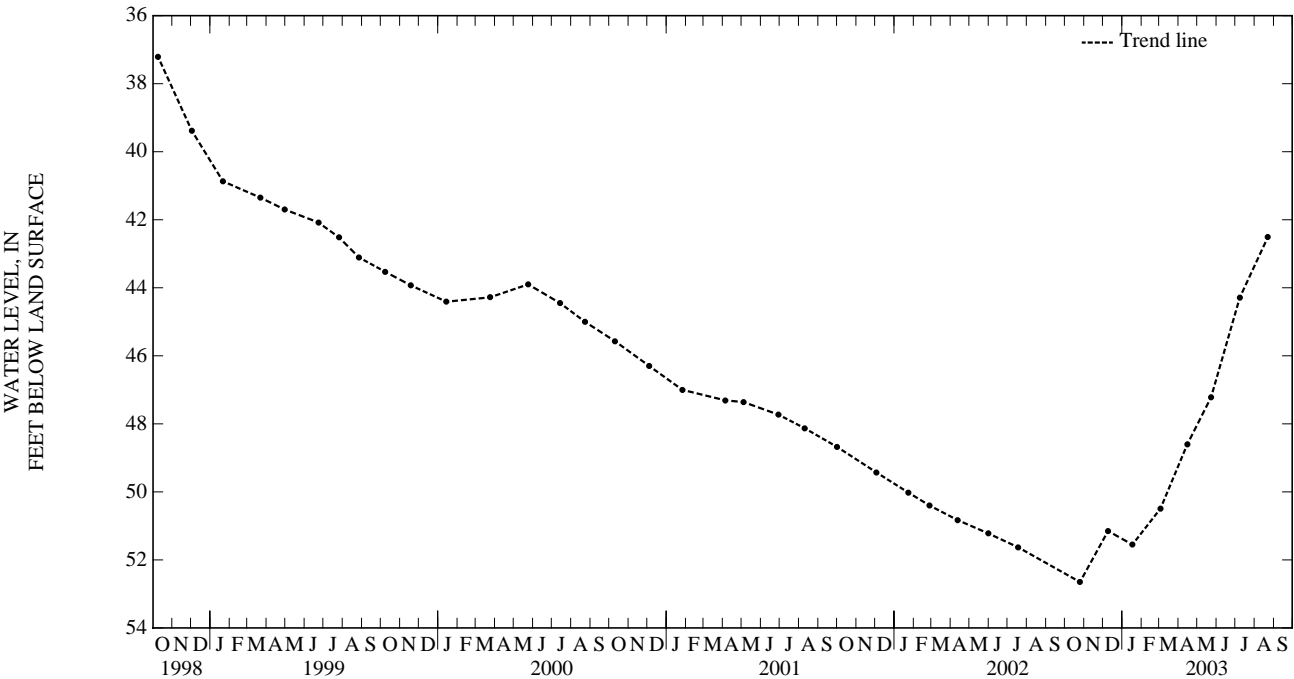
DATUM.--Elevation of land-surface datum is 640 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

PERIOD OF RECORD.--March 1970 to current year. Unpublished records available prior to October 1977 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.56 ft below land-surface datum, May 11, 1998; lowest measured, 52.65 ft below land-surface datum, Oct. 25, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	52.65	JAN 17	51.55	APR 15	48.60	JUL 08	44.29
DEC 09	51.15	MAR 03	50.49	MAY 23	47.22	AUG 22	42.51
WATER YEAR 2003 HIGHEST 42.51		AUG 22, 2003		LOWEST 52.65		OCT 25, 2002	



## ARLINGTON COUNTY

385253077042301. Local number, 54V 3.

LOCATION.--Lat 38°52'53", long 77°04'22", NAD83, Hydrologic Unit 02070010, at Arlington National Cemetery in Arlington. Owner: National Park Service, National Capitol Parks.

AQUIFER.--Terrace gravels of Holocene age and sand of Early Cretaceous age.

WELL CHARACTERISTICS.--Dug unused water well, diameter 48 in., depth 50 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Oct. 1, 1989 to Oct. 26, 1995, monthly measurement with chalked tape. Prior to Oct. 1, 1989, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 205 ft above NGVD of 1929, from topographic map. Measuring point: Top of brick and stone casing, 3.0 ft above land-surface datum.

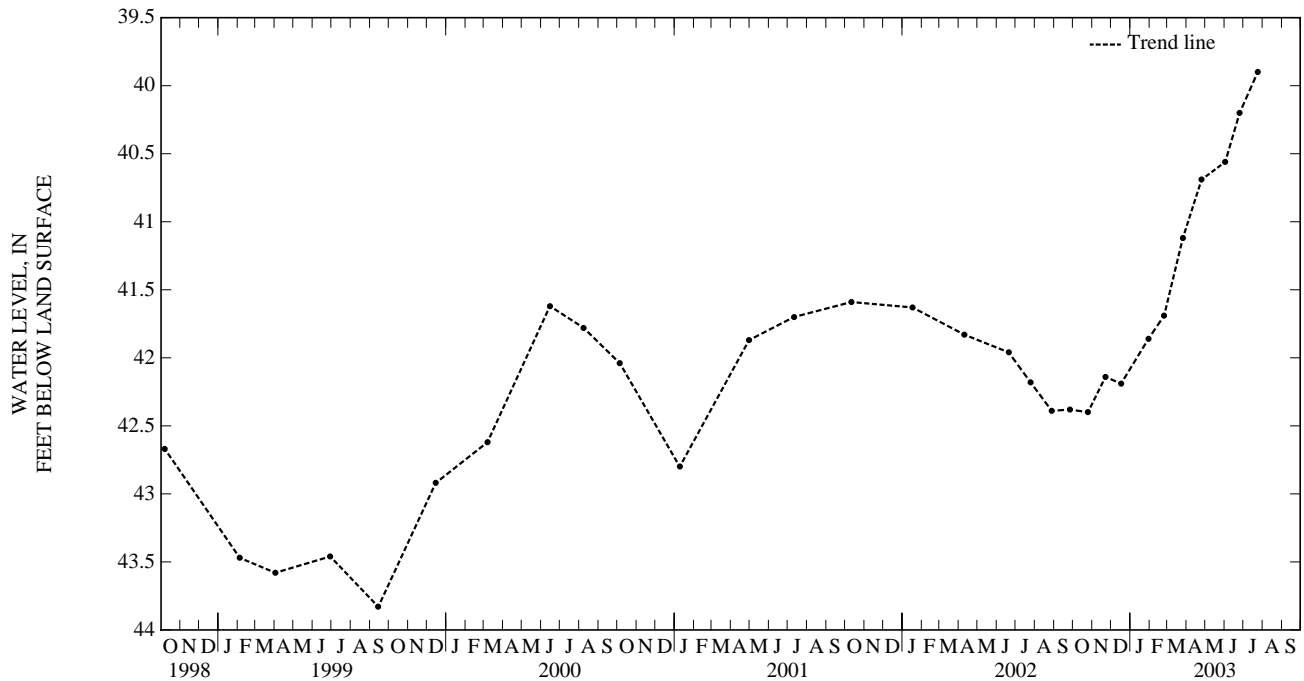
PERIOD OF RECORD.--January 1958 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 39.90 ft below land-surface datum, July 24, 2003; lowest measured, 45.28 ft below land-surface datum, Nov. 28, 1988.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	42.40	DEC 17	42.19	FEB 24	41.69	APR 25	40.69	JUN 25	40.20
NOV 22	42.14	JAN 30	41.86	MAR 26	41.12	JUN 02	40.56	JUL 24	39.90

WATER YEAR 2003    HIGHEST    39.90 JUL 24, 2003    LOWEST    42.40 OCT 25, 2002



## AUGUSTA COUNTY

382523078535501. Local number, 38P 1 SOW 070.

LOCATION.--Lat 38°07'49", long 79°04'06", NAD83, Hydrologic Unit 02070005, 100 ft east of State Highway 613, 0.5 mi south of intersection of State Highway 613 and U.S. Highway 11, and 0.9 mi south of Dogwood Hill. Owner: Augusta County Water Authority.

AQUIFER.--Beekmantown Group of Early Ordovician age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in. to 30 ft, diameter 6 in. from 30 to 97 ft, depth 250 ft, open hole from 97 to 250 ft.

INSTRUMENTATION.--Continuous strip-chart recorder. Prior to Jan. 10, 1974, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 1,490 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Missing record due to recorder malfunction.

PERIOD OF RECORD.--December 1973 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

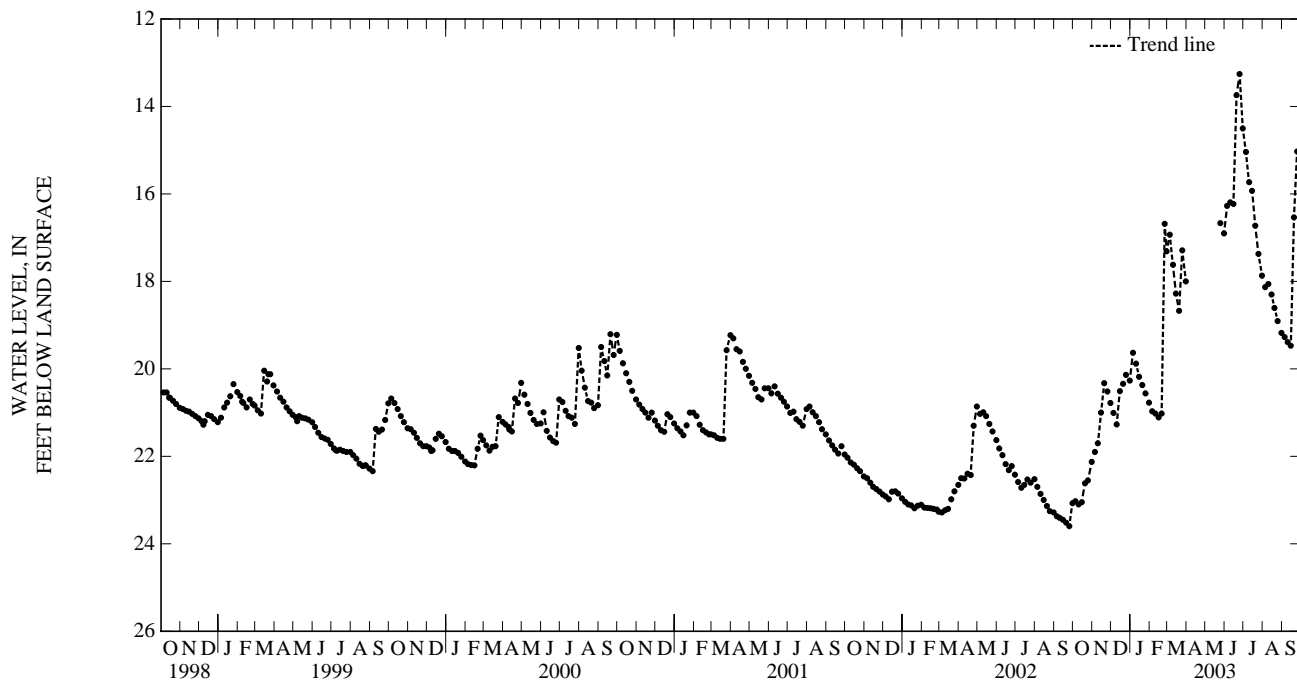
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.02 ft below land-surface datum, Feb. 20, 1998; lowest recorded, 27.02 ft below land-surface datum, Oct. 16, 1977.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 12.17 ft below land-surface datum, June 21; lowest instantaneous water level, 23.10 ft below land-surface datum, Oct. 10-12.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	23.03	21.90	21.01	19.63	20.97	16.93	---	---	16.27	15.04	18.13	19.27
10	23.10	21.70	21.27	19.88	21.02	17.62	---	---	16.19	15.73	18.06	19.39
15	23.05	21.00	20.51	20.18	21.11	18.28	---	---	16.23	15.93	18.30	19.47
20	22.62	20.33	20.34	20.37	21.02	18.67	---	---	13.74	16.73	18.61	16.54
25	22.55	20.52	20.14	20.56	16.68	17.29	---	16.67	13.26	17.37	18.91	15.03
EOM	22.13	20.78	20.27	20.77	17.31	18.00	---	16.90	14.50	17.87	19.18	16.27

WATER YEAR 2003    HIGHEST    13.26    JUN 25, 2003    LOWEST    23.10    OCT 10, 2002



## BUCKINGHAM COUNTY

372608078404601. Local number, 41H 3.

LOCATION.--Lat 37°26'09", long 78°40'45", NAD83, Hydrologic Unit 02080207, 0.85 mi west of Ranger Headquarters on south side of dirt road off State Highway 636, 1.5 mi south of Sliders. Owner: U.S. Geological Survey.

AQUIFER.--Metagraywacke, quartzose schist, and melange of Cambrian age.

WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in. to 49 ft, diameter 1.25 in. from 49 to 54 ft, depth 54 ft, screened 49 to 54 ft.

INSTRUMENTATION.--Electronic pressure transducer data logger 60-minute record interval. October 1974 to June 12, 1998, occasional measurement with chalked tape by USGS personnel. August 1970 to October 1974, digital recorder 60-minute punch. Prior to August 1970, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 683.8 ft above NGVD of 1929. Measuring point: Top of casing, 1.3 ft above land-surface datum.

REMARKS.--Missing record due to recorder malfunction. Prior to Oct. 1, 1981, well was reported as being located in Appomattox County.

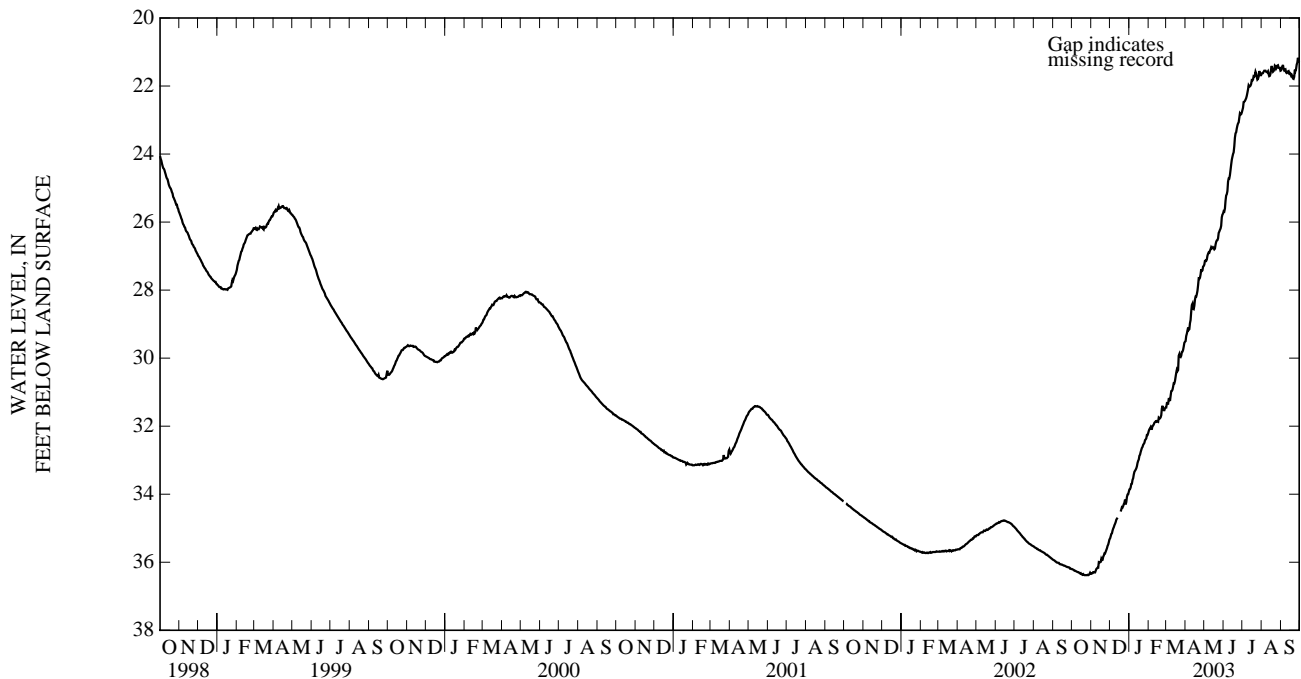
PERIOD OF RECORD.--March 1970 to current year. Unpublished records available prior to October 1977 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.31 ft below land-surface datum, Apr. 12, 1973; lowest recorded, 36.38 ft below land-surface datum, Oct. 21-25, 27, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 21.09 ft below land-surface datum, Sept. 19, 28; lowest instantaneous water level, 36.38 ft below land-surface datum, Oct. 21-25, 27.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	36.25	36.29	35.07	33.69	32.08	31.20	29.10	27.10	25.22	22.44	21.55	21.50
10	36.29	36.18	34.82	33.31	31.90	30.96	28.63	26.84	24.72	22.10	21.60	21.62
15	36.32	36.00	---	33.02	31.86	30.67	28.46	26.74	24.08	21.94	21.64	21.62
20	36.37	35.84	34.38	32.70	31.74	30.35	28.02	26.58	23.39	21.72	21.56	21.78
25	36.38	35.64	34.16	32.49	31.53	29.93	27.54	26.28	23.07	21.81	21.46	21.50
EOM	36.34	35.33	33.93	32.21	31.45	29.52	27.29	25.75	22.78	21.68	21.55	21.30





GROUND-WATER LEVELS  
CAROLINE COUNTY

380624077172801. Local number, 52N 5.

LOCATION.--Lat 38°06'24", long 77°17'27", NAD83, Hydrologic Unit 02080104, in block pumphouse under water tank at Camp Wilcox at Fort A. P. Hill, 1.1 mi north of U.S. Highway 301, and near Bowling Green. Owner: U.S. Department of the Army.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in. to unknown depth, diameter 4 in. from unknown depth to 524 ft, depth 524 ft, screened 468 to 501 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 210 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

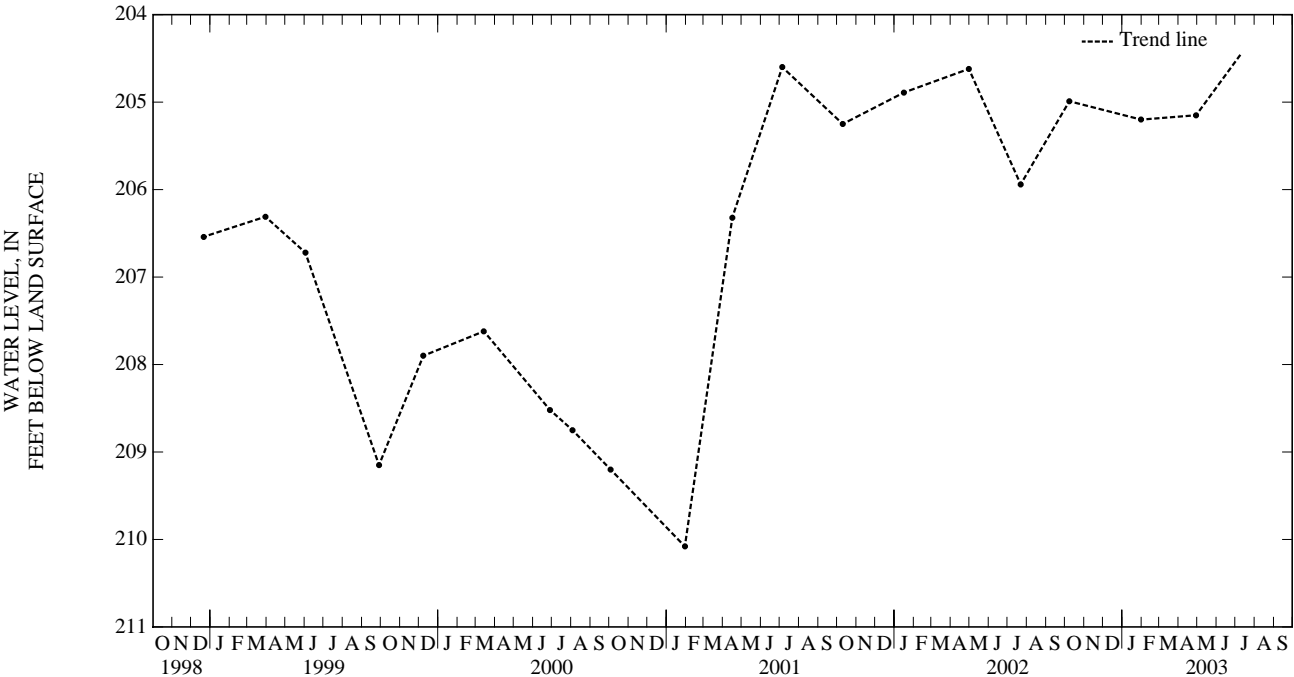
REMARKS.--Water level affected by regional drawdown.

PERIOD OF RECORD.--December 1971 to current year. Unpublished records available prior to October 1988 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 172.20 ft below land-surface datum, Dec. 16, 1971; lowest measured, 210.08 ft below land-surface datum, Jan. 30, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	204.99	JAN 31	205.20	APR 29	205.15	JUL 14	204.41
WATER YEAR 2003		HIGHEST	204.41	JUL 14, 2003	LOWEST	205.20	JAN 31, 2003





GROUND-WATER LEVELS  
CAROLINE COUNTY—Continued

375922077142901. Local number, 53M 1.

LOCATION.--Lat 37°59'22", long 77°14'28", NAD83, Hydrologic Unit 02080105, at Sparta Volunteer Fire Co., 200 ft south of State Highway 721 and 50 ft west of Maracossic Creek. Owner: U.S. Geological Survey.

AQUIFER.--Aquia aquifer of Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 110.75 ft, screened 100.75 ft to 110.75 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to October 1998, monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 89 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.75 ft above land-surface datum prior to Dec. 28, 1998; 1.44 ft thereafter.

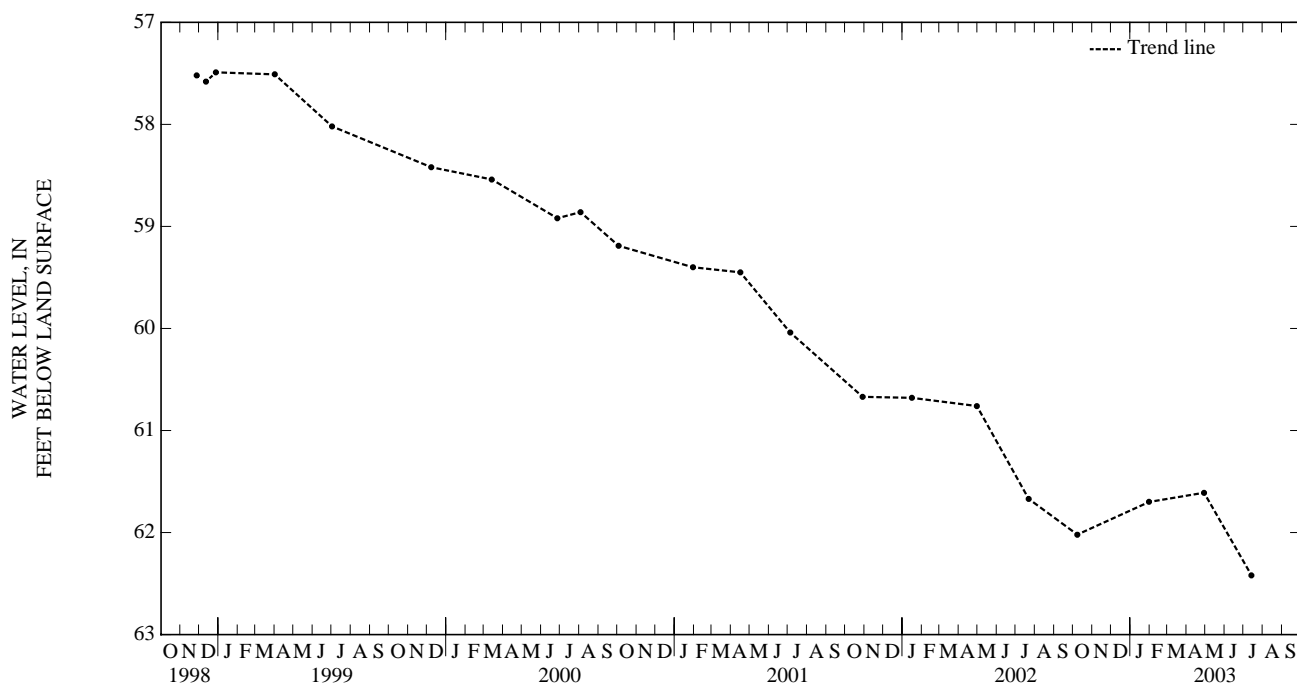
REMARKS.--Well drilled as part of Fall Zone ground-water study. Water level affected by regional drawdown.

PERIOD OF RECORD.--May 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 55.64 ft below land-surface datum, June 11, 1997; lowest measured, 62.42 ft below land-surface datum, July 14, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	62.02	JAN 31	61.70	APR 29	61.61	JUL 14	62.42
WATER YEAR 2003 HIGHEST		61.61	APR 29, 2003 LOWEST		62.42	JUL 14, 2003	



## CHARLES CITY COUNTY

371956076055101. Local number, 54G 13 SOW 067.

LOCATION.--Lat 37°19'57", long 77°05'50", NAD83, Hydrologic Unit 02080206, 0.6 mi east of Bowens Store on State Highway 5, 1.6 mi southwest of Charles City. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 227 ft, screened 222 to 227 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 35 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.4 ft above land-surface datum.

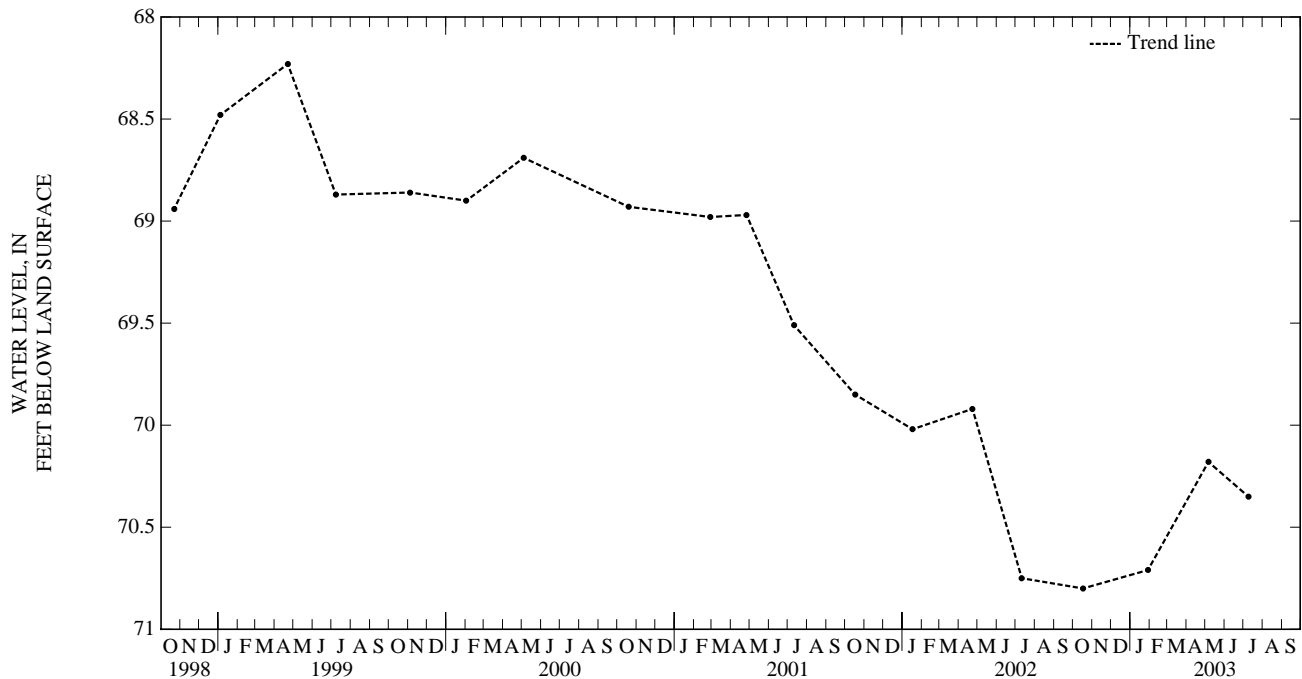
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--June 1973 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 44.63 ft below land-surface datum, June 7, 1973; lowest measured, 70.80 ft below land-surface datum, Oct. 17, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	70.80	JAN 29	70.71	MAY 06	70.18	JUL 09	70.35
WATER YEAR 2003		HIGHEST	70.18	MAY 06, 2003	LOWEST	70.80	OCT 17, 2002



## CITY OF CHESAPEAKE

364852076252201. Local number, 59C 29 SOW 163A.

LOCATION.--Lat 36°48'53", long 76°25'21", NAD83, Hydrologic Unit 02080208, 0.7 mi southeast of intersection of State Highways 191 and 337 in Chesapeake. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 35 ft, screened 25 to 35 ft.

INSTRUMENTATION.--Biweekly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Aug. 21, 1985 to Oct. 9, 1996, bimonthly measurement with chalked tape. Prior to Aug. 21, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.9 ft above land-surface datum, prior to Mar. 11, 1996; 2.45 ft Mar. 12, 1996 to May 28, 1998; 3.74 ft thereafter.

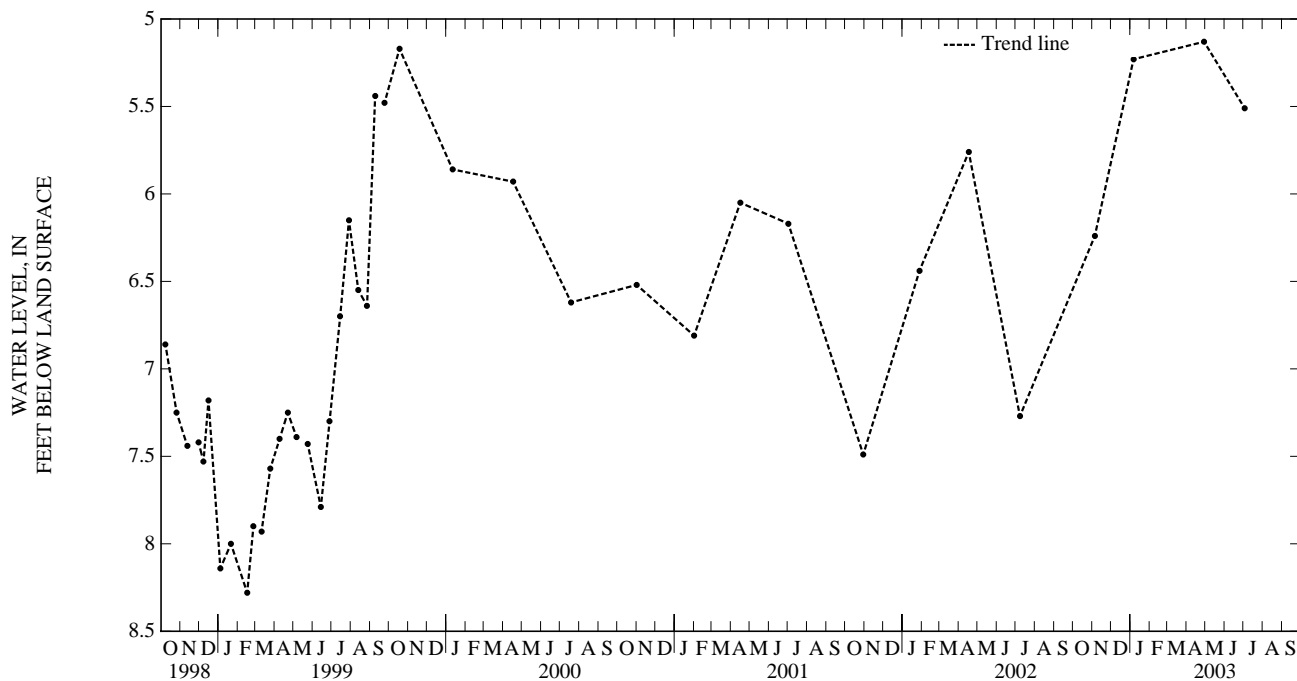
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--November 1981 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.70 ft below land-surface datum, Mar. 14, 1989; lowest measured, 18.39 ft below land-surface datum, Nov. 5, 1991.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 05	6.24	JAN 06	5.23	APR 29	5.13	JUL 03	5.51
WATER YEAR 2003 HIGHEST		5.13	APR 29, 2003	LOWEST		6.24	NOV 05, 2002



## CITY OF CHESAPEAKE—Continued

364852076252202. Local number, 59C 30 SOW 163B.

LOCATION.--Lat 36°48'53", long 76°25'21", NAD83, Hydrologic Unit 02080208, 0.7 mi southeast of intersection of State Highways 191 and 337 in Chesapeake. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 948 ft, screened 938 to 948 ft.

INSTRUMENTATION.--Biweekly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Aug. 21, 1985 to Oct. 9, 1996, bimonthly measurement with chalked tape. Prior to Aug. 21, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum, prior to Mar. 11, 1996; 2.47 ft thereafter.

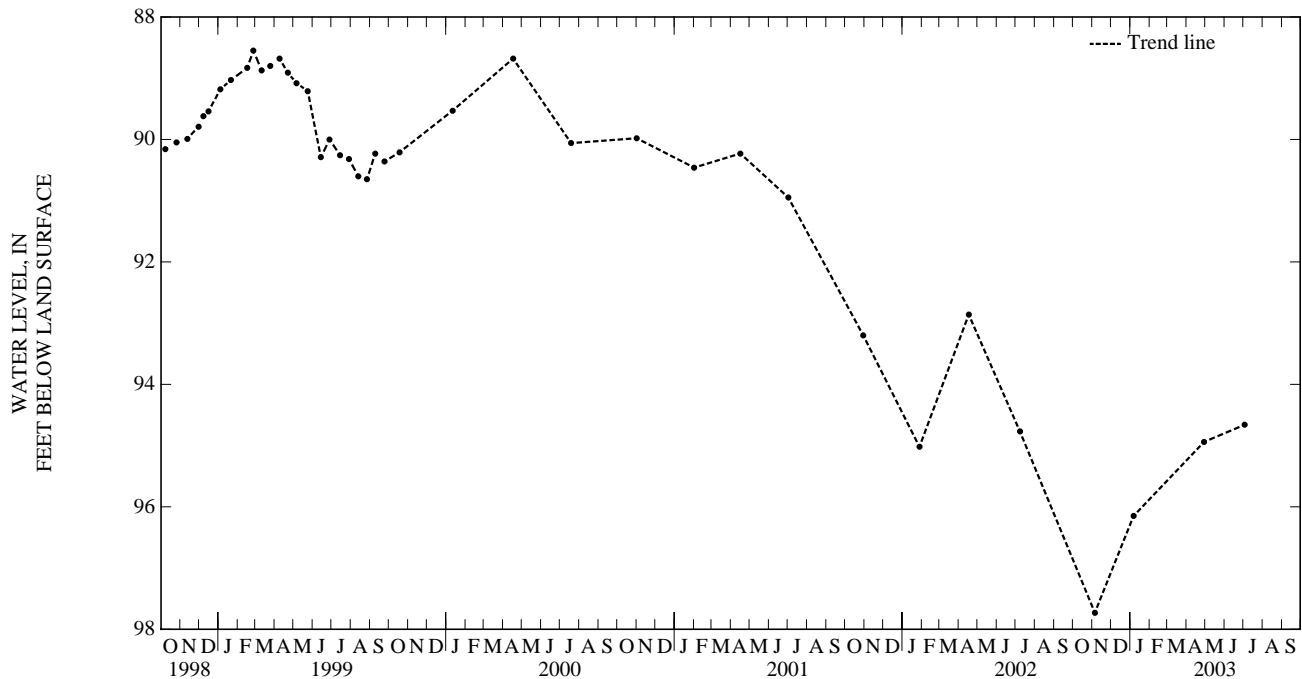
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--November 1981 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 67.06 ft below land-surface datum, May 25, 1983; lowest measured, 97.73 ft below land-surface datum, Nov. 5, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 05	97.73	JAN 06	96.15	APR 29	94.94	JUL 03	94.66
WATER YEAR 2003 HIGHEST		94.66	JUL 03, 2003 LOWEST		97.73	NOV 05, 2002	



GROUND-WATER LEVELS  
CITY OF CHESAPEAKE—Continued

364852076252203. Local number, 59C 31 SOW 163C.

LOCATION.--Lat 36°48'53", long 76°25'21", NAD83, Hydrologic Unit 02080208, 0.7 mi southeast of intersection of State Highways 191 and 337 in Chesapeake. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 631 ft, screened 621 to 631 ft.

INSTRUMENTATION.--Biweekly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Aug. 21, 1985 to Oct. 9, 1996, bimonthly measurement with chalked tape. Prior to Aug. 21, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum, prior to Mar. 11, 1996; 2.88 ft thereafter.

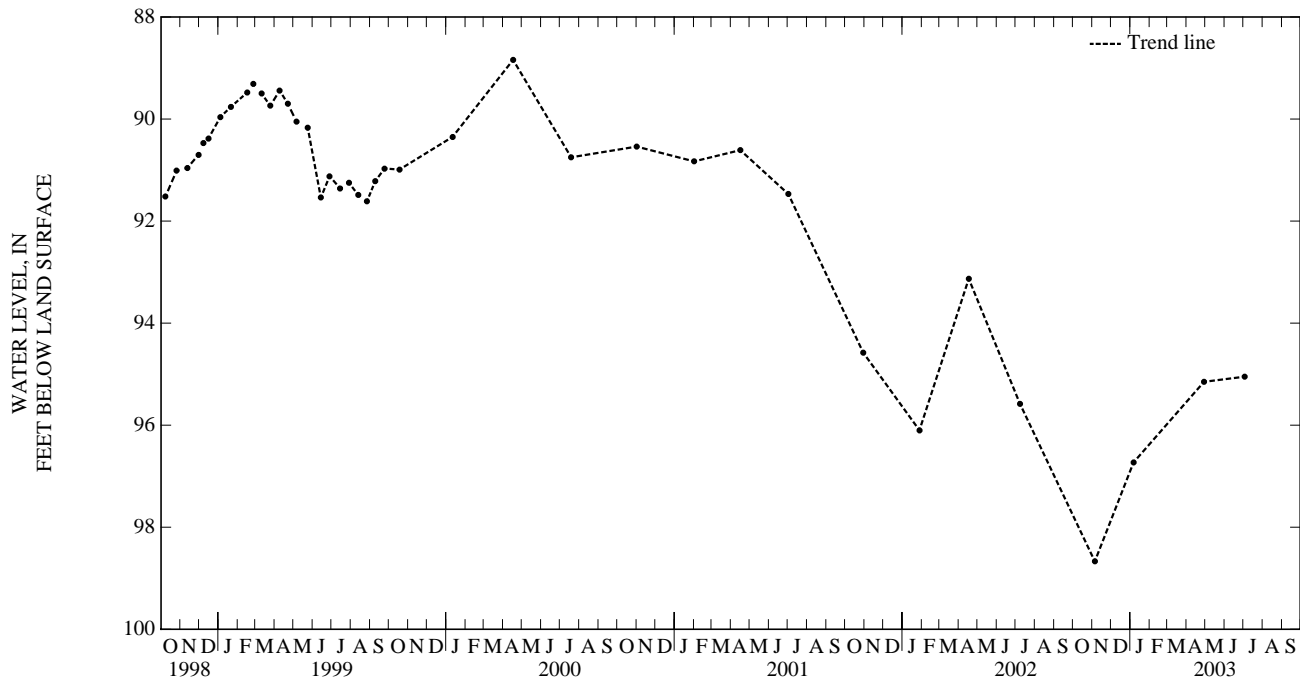
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--November 1981 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 67.13 ft below land-surface datum, Feb. 23, 1983; lowest measured, 98.67 ft below land-surface datum, Nov. 5, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 05	98.67	JAN 06	96.73	APR 29	95.15	JUL 03	95.05
WATER YEAR 2003		HIGHEST	95.05	JUL 03, 2003	LOWEST	98.67	NOV 05, 2002



## CITY OF CHESAPEAKE—Continued

363836076201701. Local number, 60B 3 SOW 090A.

LOCATION.--Lat 36°38'37", long 76°20'16", NAD83, Hydrologic Unit 03010205, 0.15 mi north of intersection of Benefit and West Roads, 1.5 mi north of Cornland. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 855 ft, screened 824 to 834 ft.

INSTRUMENTATION.-- Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Aug. 25, 1985 to Oct. 12, 1995, continuous strip-chart recorder. Prior to Aug. 25, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 16 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

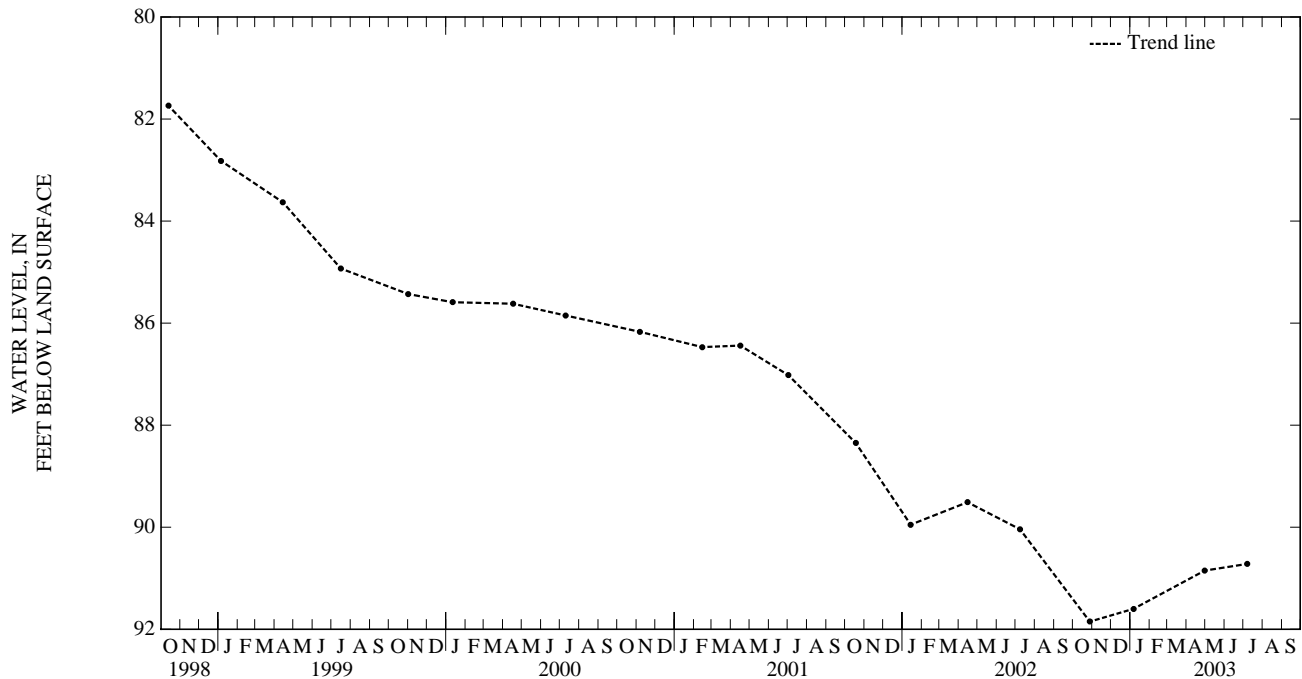
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--July 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 53.80 ft below land-surface datum, July 11, 1978; lowest recorded, 91.85 ft below land-surface datum, Oct. 28, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	91.85	JAN 06	91.60	APR 30	90.85	JUL 07	90.72
WATER YEAR 2003		HIGHEST	90.72	JUL 07, 2003	LOWEST	91.85	OCT 28, 2002





GROUND-WATER LEVELS  
CITY OF CHESAPEAKE—Continued

363836076201702. Local number, 60B 4 SOW 090B.

LOCATION.--Lat 36°38'37", long 76°20'16", NAD83, Hydrologic Unit 03010205, 0.15 mi north of intersection of Benefit and West Roads, 1.5 mi north of Cornland. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Virginia Beach aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 556 ft, screened 525 to 535 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 9, 1985, to July 6, 1995, bimonthly measurement with chalked tape. Prior to Oct. 9, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 16 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.05 ft above land-surface datum prior to Mar. 2, 1988; 1.2 ft thereafter.

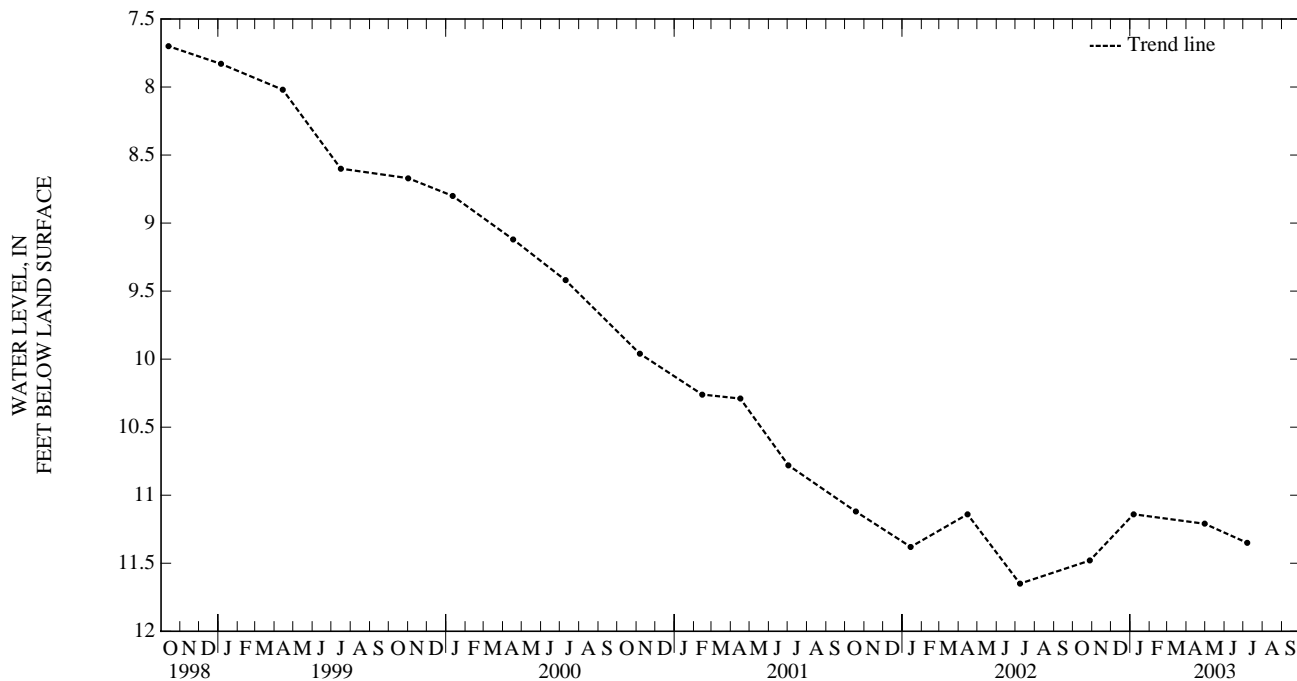
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--February 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.20 ft above land-surface datum, Feb. 1, 1978; lowest measured, 11.65 ft below land-surface datum, July 8, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	11.48	JAN 06	11.14	APR 30	11.21	JUL 07	11.35
WATER YEAR 2003		HIGHEST	11.14	JAN 06, 2003	LOWEST	11.48	OCT 28, 2002



## CITY OF CHESAPEAKE—Continued

364615076182101. Local number, 60C 41 SOW 164.

LOCATION.--Lat 36°46'16", long 76°18'20", NAD83, Hydrologic Unit 02080208, 50 ft north of entrance road to Virginia Power powerplant, 500 ft south of Military Highway in Chesapeake. Owner: Virginia Power.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in. to 400 ft, diameter 4 in. from 400 to 928 ft, depth 928 ft, screened 770 to 780 ft, 875 to 885 ft, 918 to 928 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Nov. 25, 1982 to Oct. 12, 1995, continuous strip-chart recorder. Prior to Nov. 25, 1982, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 10 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.6 ft above land-surface datum prior to July 15, 1987; 1.5 ft thereafter.

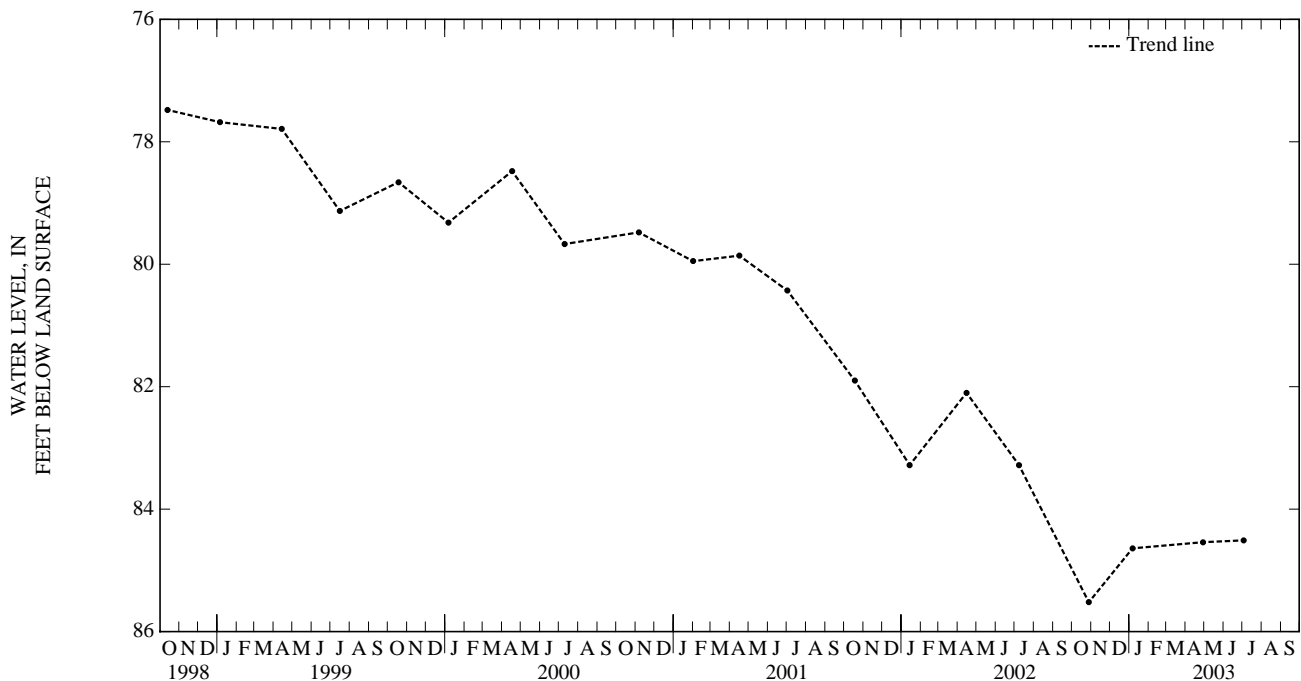
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--February 1982 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 55.22 ft below land-surface datum, Mar. 15, 1983; lowest recorded, 85.52 ft below land-surface datum, Oct. 28, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	85.52	JAN 06	84.64	APR 29	84.54	JUL 03	84.51
WATER YEAR 2003 HIGHEST 84.51 JUL 03, 2003 LOWEST 85.52 OCT 28, 2002							



GROUND-WATER LEVELS  
CITY OF CHESAPEAKE—Continued

364227076074702. Local number, 61B 5 SOW 091B.

LOCATION.--Lat 36°42'28", long 76°07'46", NAD83, Hydrologic Unit 03010205, 300 ft south of Lockheed Avenue, 0.7 mi east of intersection of State Highway 165 and Lockheed Avenue, and 3.8 mi east of Fentress. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 1,060 ft, screened 1,040 to 1,060 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 9, 1985, to July 6, 1995, bimonthly measurement with chalked tape. Prior to Oct. 9, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

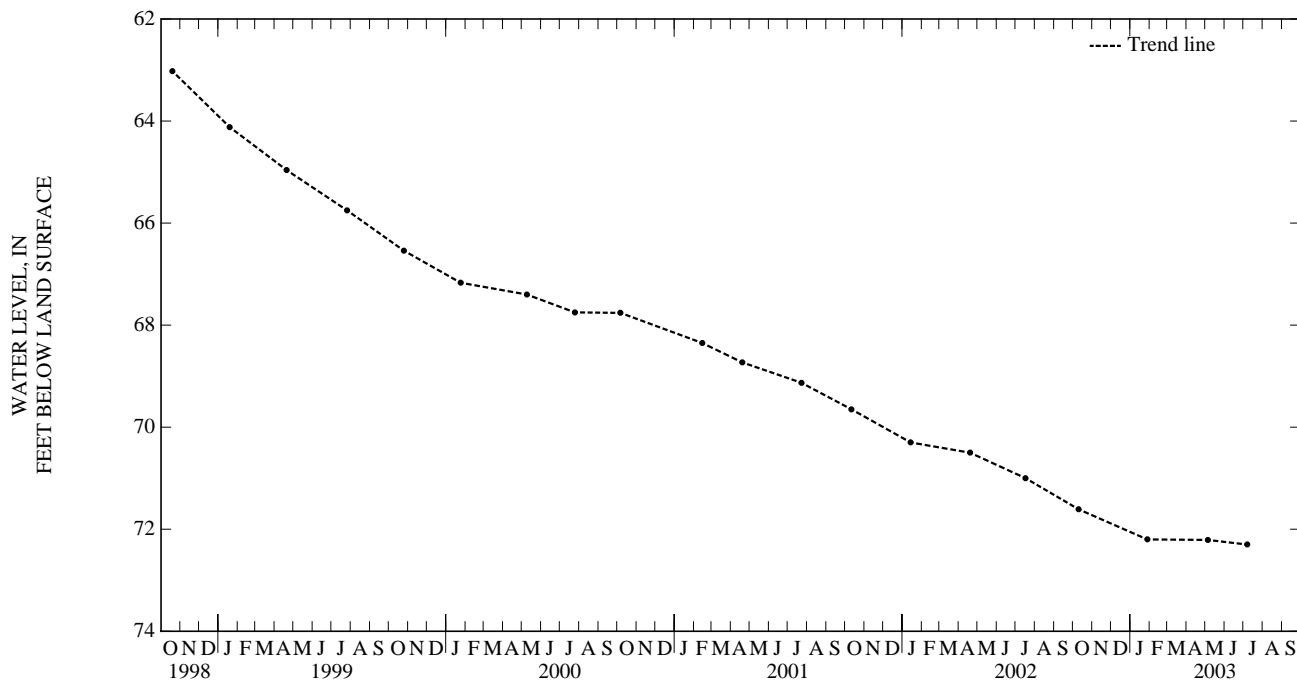
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--June 1979 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.83 ft below land-surface datum, Aug. 28, 1980; lowest measured, 72.30 ft below land-surface datum, July 7, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	71.61	JAN 28	72.20	MAY 05	72.21	JUL 07	72.30
WATER YEAR 2003 HIGHEST 71.61		OCT 10, 2002		LOWEST 72.30		JUL 07, 2003	



## CITY OF CHESAPEAKE—Continued

364227076074703. Local number, 61B 6 SOW 091C.

LOCATION.--Lat 36°42'28", long 76°07'46", NAD83, Hydrologic Unit 03010205, 300 ft south of Lockheed Avenue, 0.7 mi east of intersection of State Highway 165 and Lockheed Avenue, and 3.8 mi east of Fentress. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Virginia Beach aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 780 ft, screened 760 to 780 ft.

INSTRUMENTATION.--Occasional measurement with manometer or chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 9, 1985, to July 6, 1995, bimonthly measurement with chalked tape. Prior to Oct. 9, 1985, occasional measurement with manometer.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 7.0 ft above land-surface datum prior to Jan. 11, 1989; 1.2 ft thereafter.

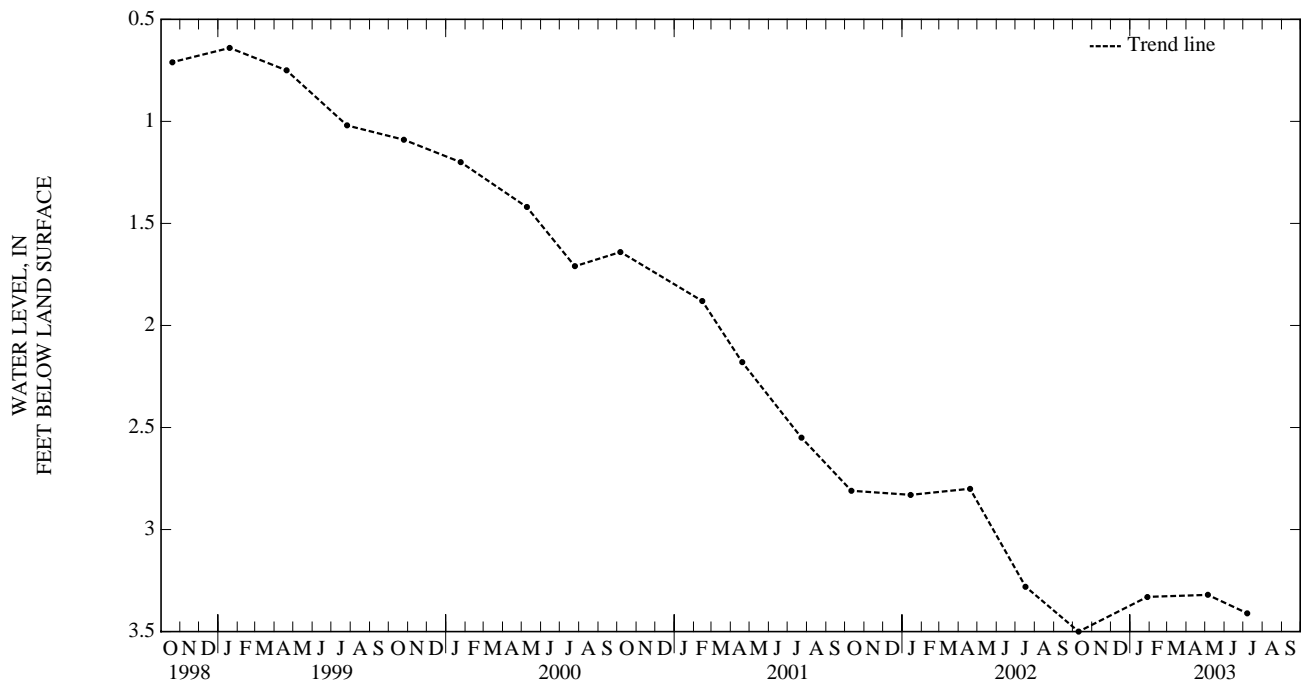
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--July 1979 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.37 ft above land-surface datum, July 26, 1979; lowest measured, 3.50 ft below land-surface datum, Oct. 10, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	3.50	JAN 28	3.33	MAY 05	3.32	JUL 07	3.41
WATER YEAR 2003 HIGHEST		3.32	MAY 05, 2003 LOWEST		3.50	OCT 10, 2002	



GROUND-WATER LEVELS  
CITY OF CHESAPEAKE—Continued

364227076074706. Local number, 61B 12 SOW 091E.

LOCATION.--Lat 36°42'28", long 76°07'46", NAD83, Hydrologic Unit 03010205, 300 ft south of Lockheed Avenue, 0.7 mi east of intersection of State Highway 165 and Lockheed Avenue, and 3.8 mi east of Fentress. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Lower Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 1,630 ft, diameter 2 in. from 1,630 to 1,830 ft, depth 1,830 ft, screened 1,820 to 1,830 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 6, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.

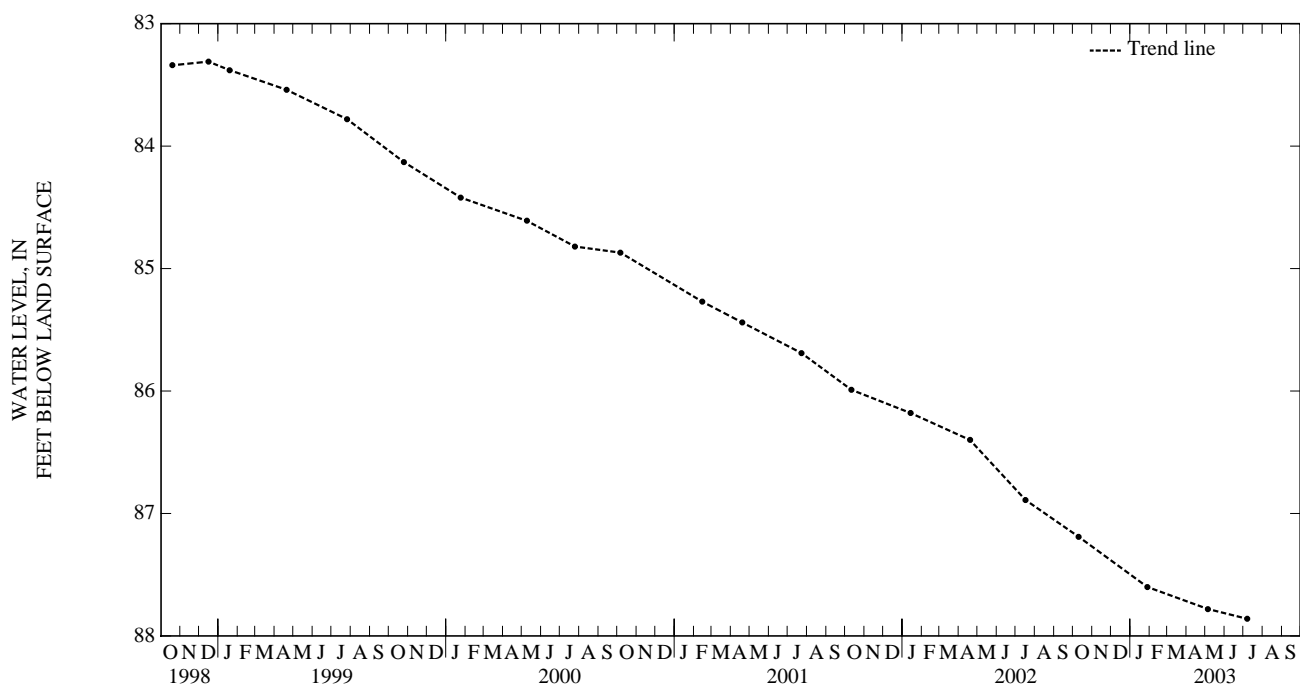
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown. Low water-level drawdown after April 1998 is the result of pumping of the well. Cause of nonrecovery to pre-pumpage level is unknown. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 41.50 ft below land-surface datum, June 21, 1989; lowest measured, 87.86 ft below land-surface datum, July 7, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	87.19	JAN 28	87.60	MAY 05	87.78	JUL 07	87.86
WATER YEAR 2003 HIGHEST 87.19		OCT 10, 2002		LOWEST 87.86		JUL 07, 2003	



## CITY OF CHESAPEAKE—Continued

364227076074707. Local number, 61B 13 SOW 091F.

LOCATION.--Lat 36°42'28", long 76°07'46", NAD83, Hydrologic Unit 03010205, 300 ft south of Lockheed Avenue, 0.7 mi east of intersection of State Highway 165 and Lockheed Avenue, and 3.8 mi east of Fentress. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 1,270 ft, diameter 2 in. from 1,270 to 1,390 ft, depth 1,390 ft, screened 1,370 to 1,380 ft.

INSTRUMENTATION.--Continuous strip-chart recorder. July 6, 1995 to Feb. 13, 1997, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 6, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.1 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L. Missing record due to recorder malfunction.

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

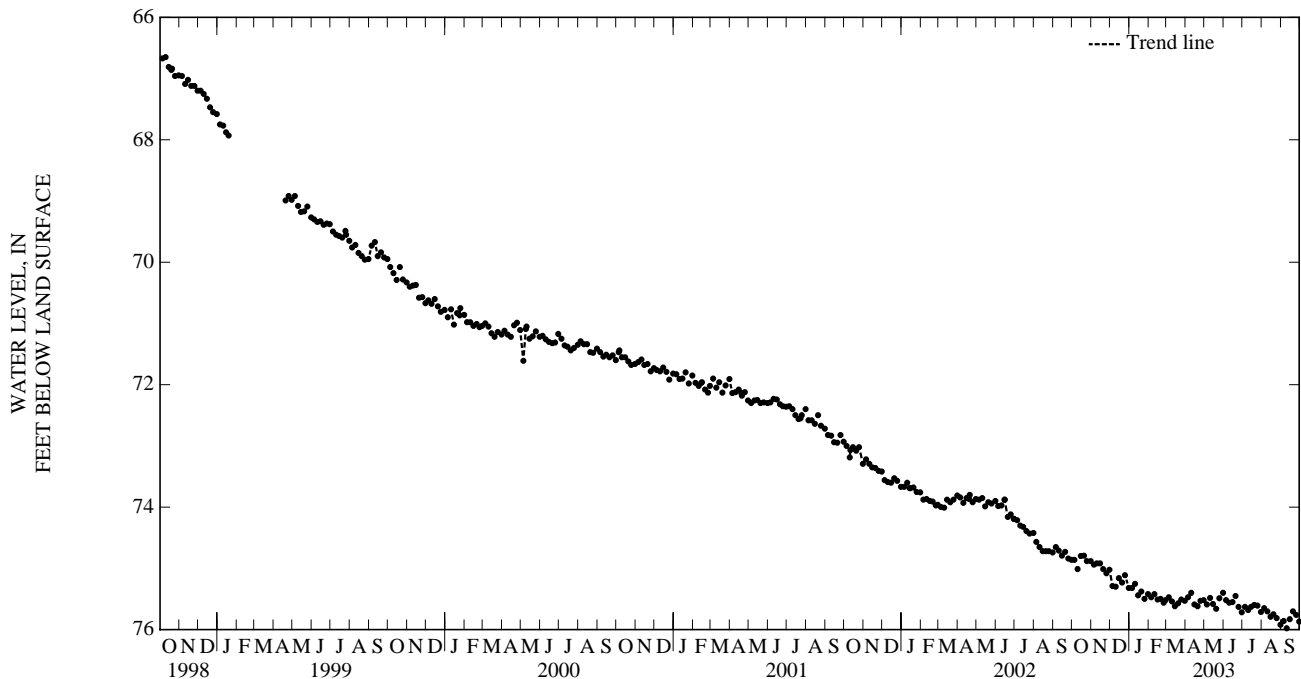
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.00 ft below land-surface datum, Aug. 10, 1989; lowest measured, 75.98 ft below land-surface datum, Sept. 10, 2003.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 74.56 ft below land-surface datum, Oct. 16; lowest instantaneous water level, 75.98 ft below land-surface datum, Sept. 10.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	74.86	74.94	75.29	75.32	75.47	75.47	75.47	75.59	75.52	75.63	75.65	75.86
10	75.01	74.92	75.30	75.25	75.42	75.54	75.40	75.48	75.56	75.68	75.70	75.98
15	74.80	74.92	75.16	75.44	75.51	75.62	75.59	75.58	75.55	75.63	75.79	75.83
20	74.79	75.01	75.23	75.38	75.50	75.57	75.62	75.66	75.45	75.60	75.75	75.70
25	74.88	75.08	75.11	75.50	75.56	75.51	75.53	75.49	75.63	75.61	75.81	75.76
EOM	74.88	75.02	75.32	75.42	75.52	75.53	75.52	75.40	75.72	75.71	75.92	75.87

WATER YEAR 2003    HIGHEST    74.79    OCT 20, 2002    LOWEST    75.98    SEP 10, 2003



GROUND-WATER LEVELS  
CITY OF CHESAPEAKE—Continued

364227076074708. Local number, 61B 14 SOW 091G.

LOCATION.--Lat 36°42'28", long 76°07'46", NAD83, Hydrologic Unit 03010205, 300 ft south of Lockheed Avenue, 0.7 mi east of intersection of State Highway 165 and Lockheed Avenue, and 3.8 mi east of Fentress. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 987 ft, diameter 2 in. from 987 to 1,110 ft, depth 1,110 ft, screened 1,090 to 1,100 ft.

INSTRUMENTATION.--Continuous strip-chart recorder. July 6, 1995 to Feb. 13, 1997, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 6, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.9 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

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

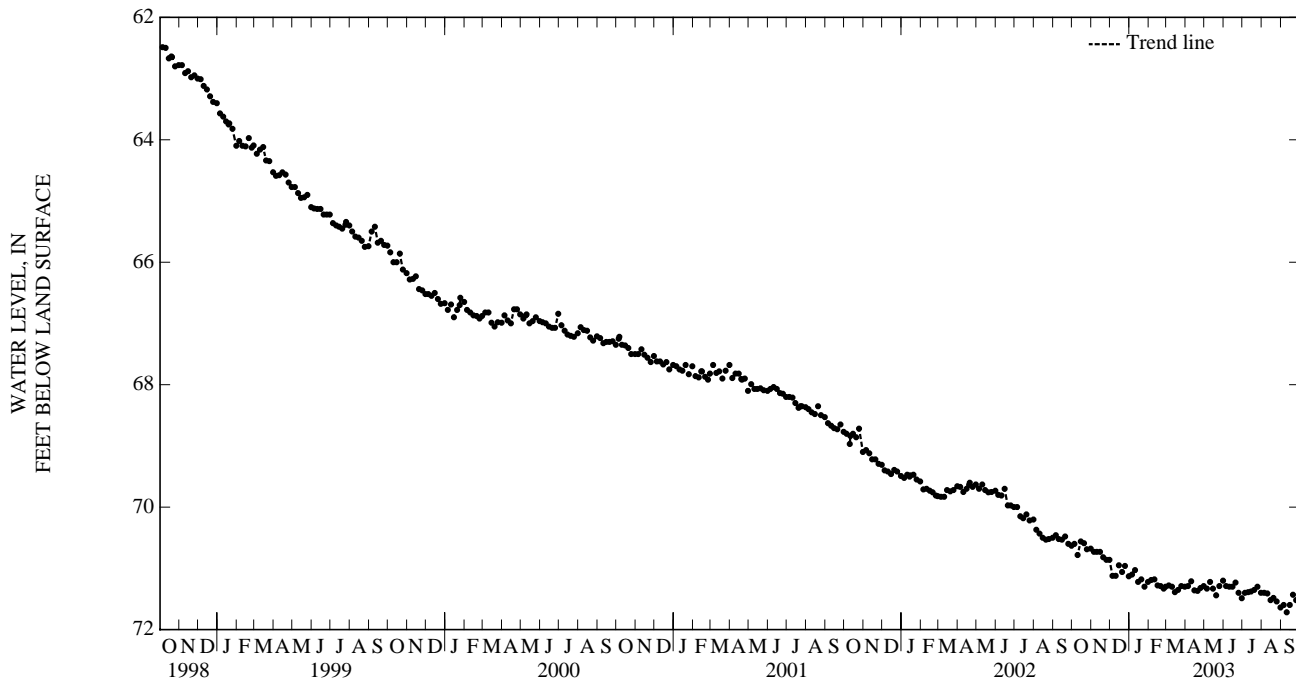
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 51.30 ft below land-surface datum, Mar. 22, 1989; lowest measured, 71.73 ft below land-surface datum, Sept. 11, 2003.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 70.36 ft below land-surface datum, Oct. 16; lowest instantaneous water level, 71.73 ft below land-surface datum, Sept. 11.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	70.60	70.73	71.12	71.10	71.19	71.28	71.29	71.33	71.29	71.40	71.40	71.60
10	70.78	70.73	71.12	71.03	71.18	71.30	71.21	71.22	71.30	71.39	71.41	71.72
15	70.56	70.73	70.95	71.22	71.28	71.39	71.36	71.33	71.30	71.38	71.52	71.60
20	70.59	70.82	71.06	71.18	71.29	71.35	71.37	71.44	71.23	71.35	71.48	71.43
25	70.69	70.86	70.96	71.30	71.33	71.29	71.32	71.29	71.40	71.30	71.54	71.52
EOM	70.68	70.86	71.13	71.22	71.30	71.30	71.29	71.20	71.49	71.40	71.64	71.62

WATER YEAR 2003    HIGHEST   70.56   OCT 15, 2002    LOWEST   71.72   SEP 10, 2003



## CITY OF CHESAPEAKE—Continued

364227076074709. Local number, 61B 15 SOW 091H.

LOCATION.--Lat 36°42'28", long 76°07'46", NAD83, Hydrologic Unit 03010205, 300 ft south of Lockheed Avenue, 0.7 mi east of intersection of State Highway 165 and Lockheed Avenue, and 3.8 mi east of Fentress. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Virginia Beach aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 700 ft, diameter 2 in. from 674 to 790 ft, depth 790 ft, screened 759 to 769 ft.

INSTRUMENTATION.--Occasional measurement with manometer or chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 6, 1995, bimonthly measurement with manometer.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.1 ft above land-surface datum.

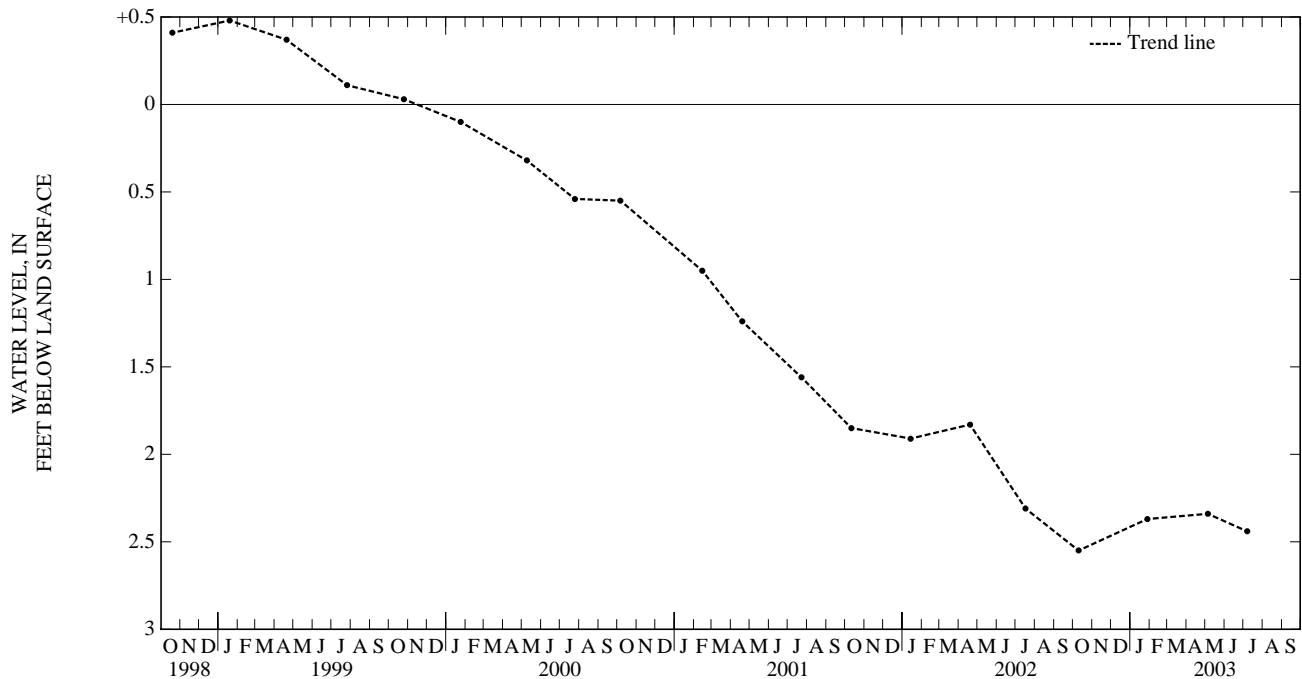
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown. Flowing well.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.75 ft above land-surface datum, Apr. 20, 1989; lowest measured, 2.55 ft below land-surface datum, Oct. 10, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	2.55	JAN 28	2.37	MAY 05	2.34	JUL 07	2.44
WATER YEAR 2003 HIGHEST		2.34	MAY 05, 2003 LOWEST		2.55	OCT 10, 2002	





GROUND-WATER LEVELS  
CITY OF CHESAPEAKE—Continued

364227076074710. Local number, 61B 16 SOW 091J.

LOCATION.--Lat 36°42'28", long 76°07'46", NAD83, Hydrologic Unit 03010205, 300 ft south of Lockheed Avenue, 0.7 mi east of intersection of State Highway 165 and Lockheed Avenue, and 3.8 mi east of Fentress. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Chickahominy-Piney Point aquifer of Eocene-Oligocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 602 ft, diameter 2 in. from 586 to 690 ft, depth 690 ft, screened 670 to 680 ft.

INSTRUMENTATION.--Occasional measurement with manometer or chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 6, 1995, bimonthly measurement with manometer.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.1 ft above land-surface datum.

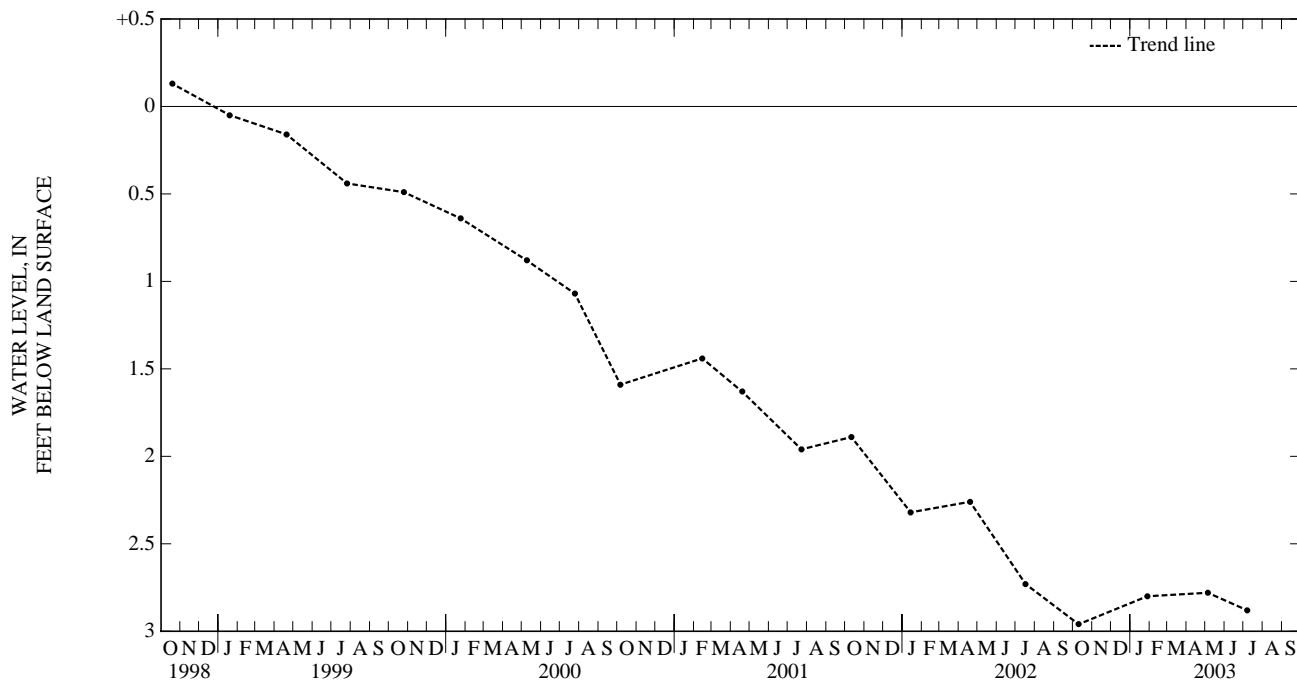
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.31 ft above land-surface datum, Mar. 13, 1989; lowest measured, 2.96 ft below land-surface datum, Oct. 10, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	2.96	JAN 28	2.80	MAY 05	2.78	JUL 07	2.88
WATER YEAR 2003 HIGHEST		2.78	MAY 05, 2003 LOWEST		2.96	OCT 10, 2002	



## CITY OF CHESAPEAKE—Continued

364227076074711. Local number, 61B 17 SOW 091K.

LOCATION.--Lat 36°42'28", long 76°07'46", NAD83, Hydrologic Unit 03010205, 300 ft south of Lockheed Avenue, 0.7 mi east of intersection of State Highway 165 and Lockheed Avenue, and 3.8 mi east of Fentress. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 78 ft, diameter 2 in. from 78 to 108 ft, depth 108 ft, screened 88 to 98 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 6, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.

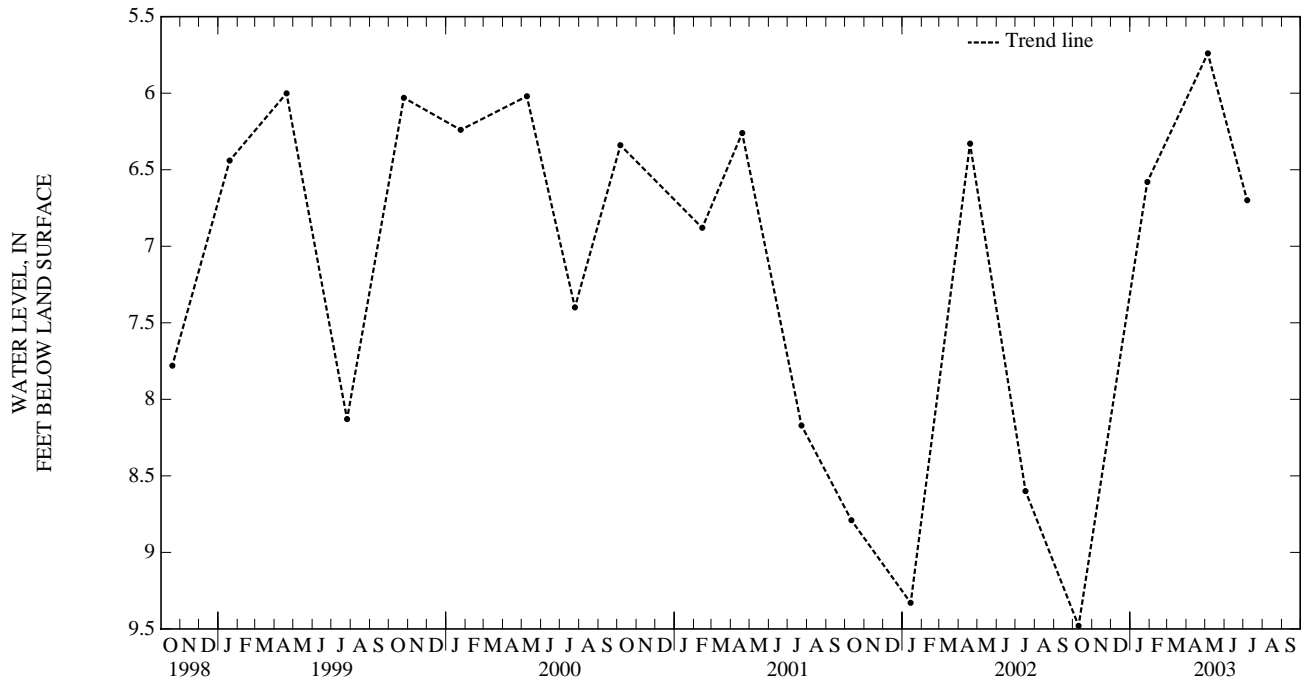
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.00 ft below land-surface datum, Jan. 30, 1991; lowest measured, 9.48 ft below land-surface datum, Oct. 10, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	9.48	JAN 28	6.58	MAY 05	5.74	JUL 07	6.70
WATER YEAR 2003 HIGHEST		5.74	MAY 05, 2003 LOWEST		9.48	OCT 10, 2002	



GROUND-WATER LEVELS  
CITY OF CHESAPEAKE—Continued

364227076074713. Local number, 61B 19 SOW 091M.

LOCATION.--Lat 36°42'28", long 76°07'46", NAD83, Hydrologic Unit 03010205, 300 ft south of Lockheed Avenue, 0.7 mi east of intersection of State Highway 165 and Lockheed Avenue, and 3.8 mi east of Fentress. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 20 ft, screened 10 to 20 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 6, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.1 ft above land-surface datum.

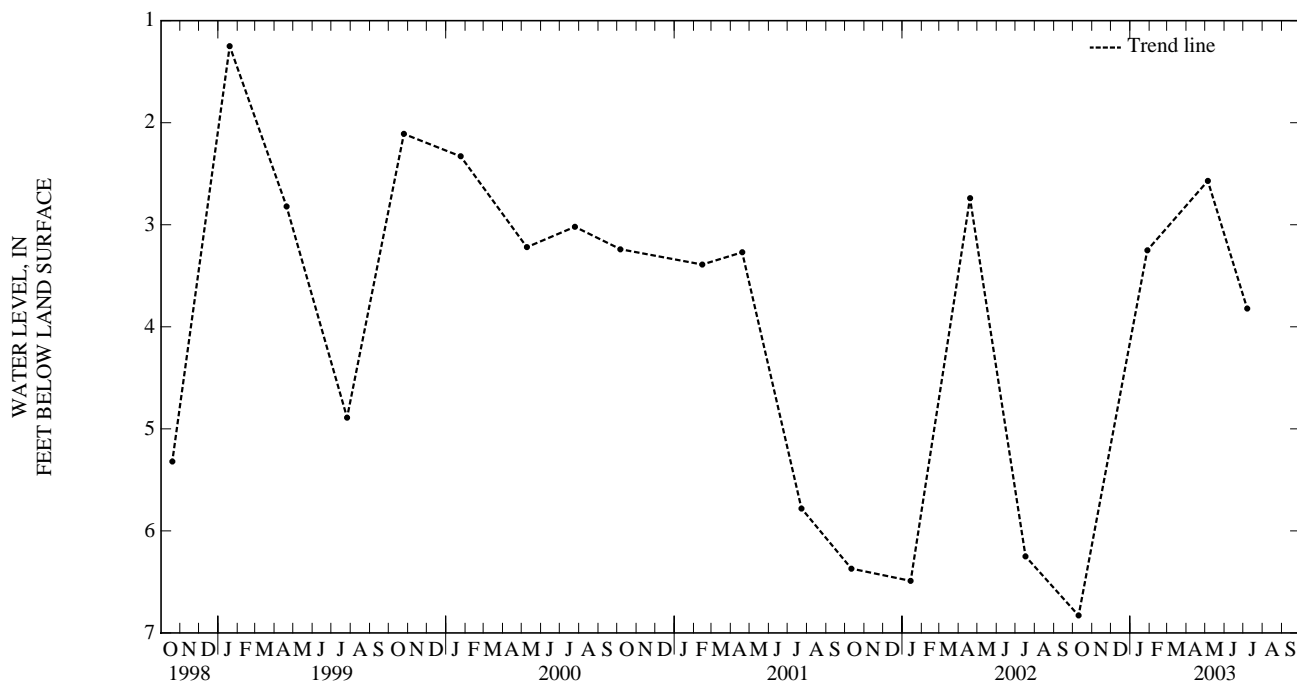
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.09 ft below land-surface datum, Feb. 26, 1992; lowest measured, 6.83 ft below land-surface datum, Oct. 10, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	6.83	JAN 28	3.25	MAY 05	2.57	JUL 07	3.82
WATER YEAR 2003 HIGHEST		2.57	MAY 05, 2003 LOWEST		6.83	OCT 10, 2002	



## CHESTERFIELD COUNTY

372519077264701. Local number, 51H 92.

LOCATION.--Lat 37°25'20", long 77°26'46", NAD83, Hydrologic Unit 02080206, 500 ft north of Alcott Road at Bensley, 0.3 mi southwest of the intersection of U.S. Highways 1 and 301 (Jefferson Davis Highway) and Alcott Road. Owner: U.S. Geological Survey.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 53 ft, screened 51 to 53 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Oct. 1, 1985, to Jan. 23, 1991, digital recorder 60-minute punch. Prior to Oct. 1, 1985, monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 103.00 ft above NGVD of 1929. Measuring point: Top of casing, 1.5 ft above land-surface datum prior to June 12, 2001; top of casing, 0.17 ft below land-surface datum thereafter.

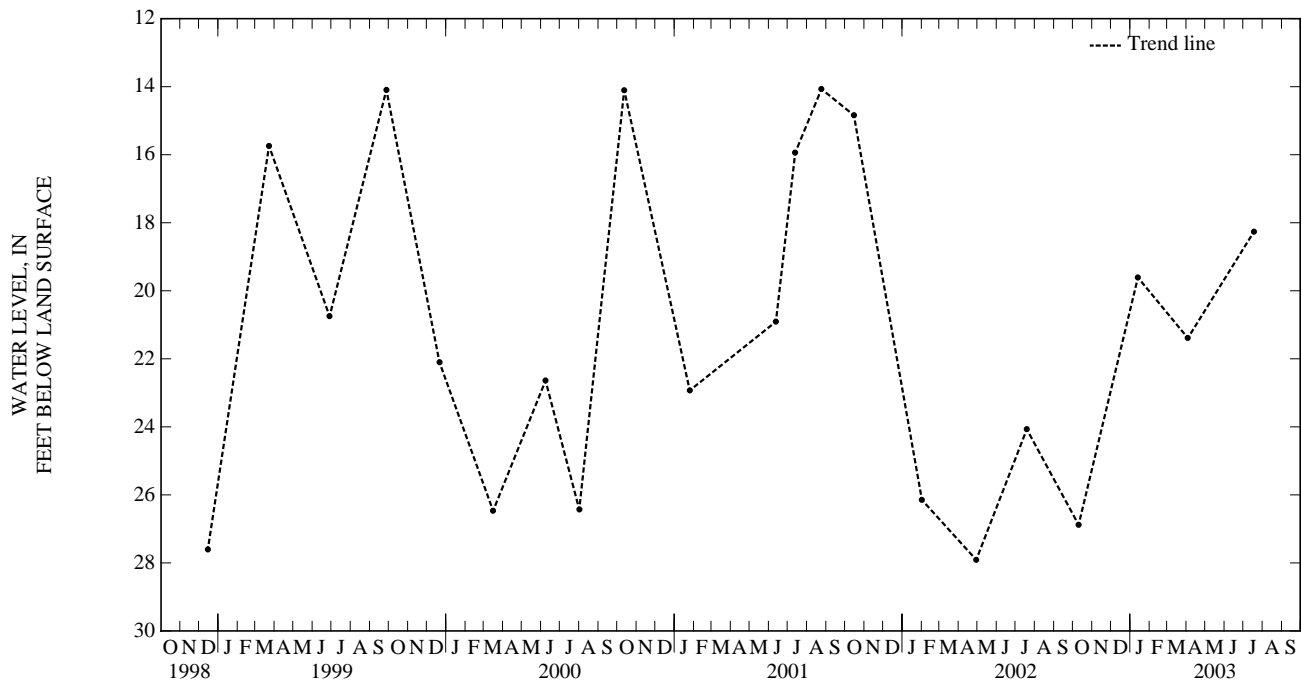
REMARKS.--Water level after Sept. 20, 1996 affected by local pumpage.

PERIOD OF RECORD.--April 1985 to current year. Unpublished records available prior to October 1987 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.95 ft below land-surface datum, June 14, 1989; lowest measured, 27.91 ft below land-surface datum, Apr. 29, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	26.88	JAN 13	19.61	APR 03	21.39	JUL 18	18.26
WATER YEAR 2003 HIGHEST		18.26	JUL 18, 2003	LOWEST		26.88	OCT 10, 2002



GROUND-WATER LEVELS  
CHESTERFIELD COUNTY—Continued

372519077264704. Local number, 51H 95.

LOCATION.--Lat 37°25'20", long 77°26'46", NAD83, Hydrologic Unit 02080206, 500 ft north of Alcott Road at Bensley and 0.3 mi southwest of the intersection of U.S. Highways 1 and 301 (Jefferson Davis Highway) and Alcott Road. Owner: U.S. Geological Survey.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 4.7 ft, screened 2.7 to 4.7 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Jan. 23, 1991, digital recorder 60-minute punch and monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 102.88 ft above NGVD of 1929. Measuring point: Top of casing, 1.9 ft above land-surface datum prior to June 12, 2001; top of casing, 0.14 ft below land-surface datum thereafter.

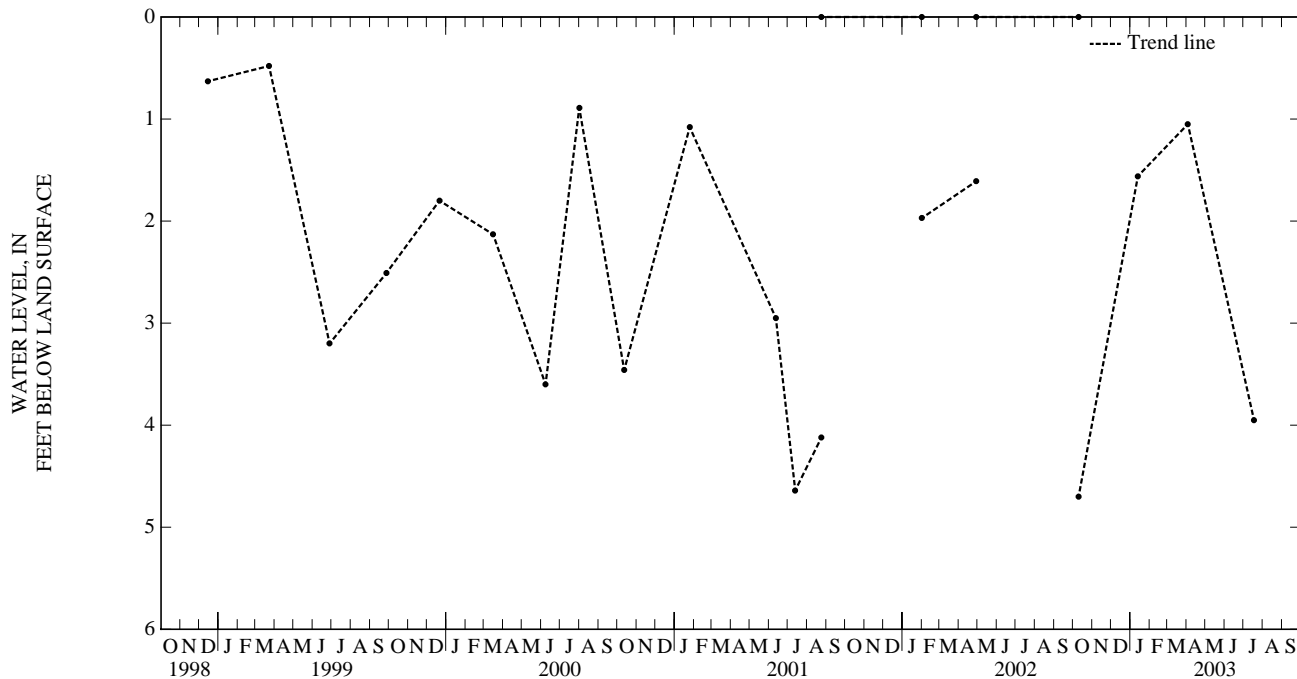
REMARKS.--Upper limit of recorded water-level data is limited by well construction. Water level affected by pumping and sampling at different times during the year.

PERIOD OF RECORD.--April 1985 to current year. Unpublished records available prior to October 1987 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.02 ft below land-surface datum, Jan. 11, 12, 1990; well was observed to be dry on Oct. 15, 2001 and July 19, 2002; lowest water level measured, 4.70 ft below land-surface datum, Oct. 10, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	4.70	JAN 13	1.56	APR 03	1.05	JUL 18	3.95
WATER YEAR 2003 HIGHEST		1.05	APR 03, 2003	LOWEST		4.70	OCT 10, 2002



## CHESTERFIELD COUNTY—Continued

372519077264605. Local number, 51H130.

LOCATION.--Lat 37°25'20", long 77°26'45", NAD83, Hydrologic Unit 02080206, 500 ft north of Alcott Road at Bensley and 0.3 mi southwest of the intersection of U.S. Highway 1 and 301 (Jefferson Davis Highway) and Alcott Road. Owner: U.S. Geological Survey.

AQUIFER.--Petersburg Granite of Mississippian age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 96 ft, cased to 71 ft, open hole 71 to 96 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Oct. 1, 1995, monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 102.70 ft above NGVD of 1929. Measuring point: Top of casing, 1.64 ft above land-surface datum prior to June 12, 2001; top of casing, 0.34 ft below land-surface datum thereafter.

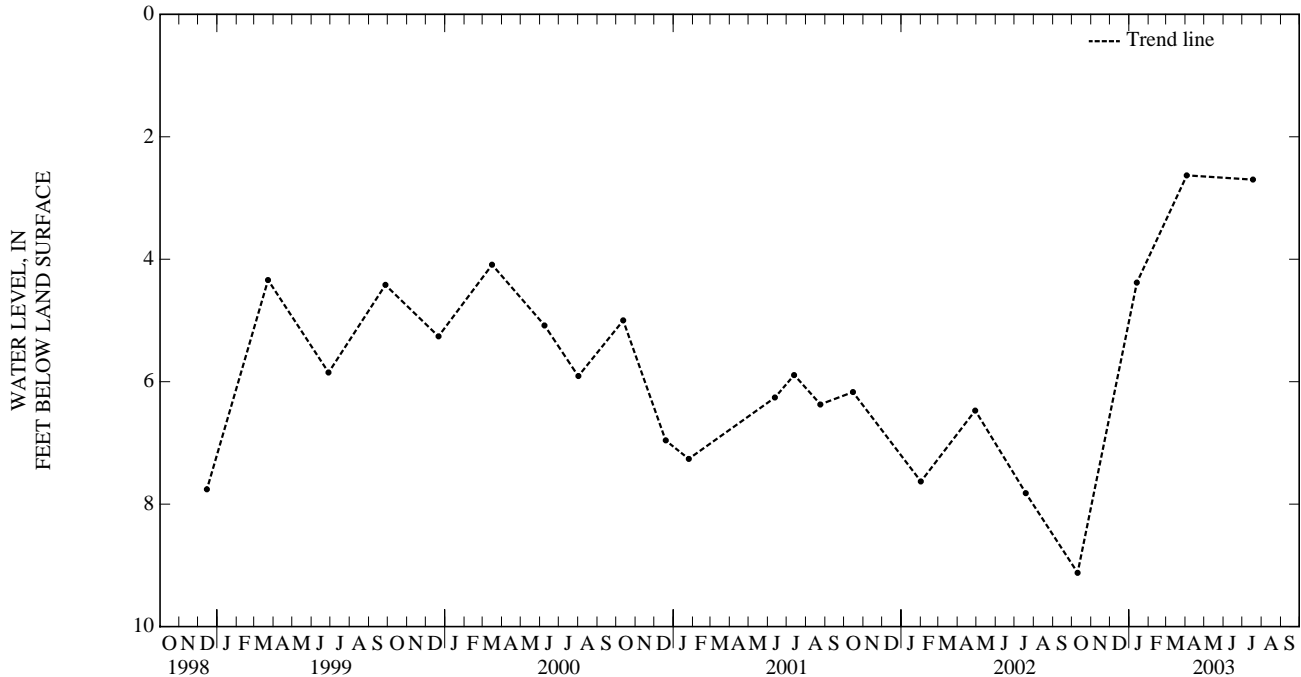
REMARKS.--Water level affected by pumping and sampling at different times during the year.

PERIOD OF RECORD.--May 1985 to current year. Unpublished records available prior to October 1988 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.64 ft above land-surface datum, June 1, 1989; lowest measured, 9.12 ft below land-surface datum, Oct. 10, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	9.12	JAN 13	4.38	APR 03	2.63	JUL 18	2.70
WATER YEAR 2003		HIGHEST	2.63	APR 03, 2003	LOWEST	9.12	OCT 10, 2002



GROUND-WATER LEVELS  
CHESTERFIELD COUNTY—Continued

372031077200001. Local number, 52G 22.

LOCATION.--Lat 37°20'32", long 77°19'59", NAD83, Hydrologic Unit 02080206, at Virginia Department of Transportation salt storage facility, 200 ft east of intersection of State Highway 10 and Interstate 295. Owner: U.S. Geological Survey.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 16.77 ft, screened 11.77 ft to 16.77 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Unpublished digital recorder data Nov. 13, 1995, to Apr. 2, 1996.

DATUM.--Elevation of land-surface datum is 70 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.59 ft above land-surface datum.

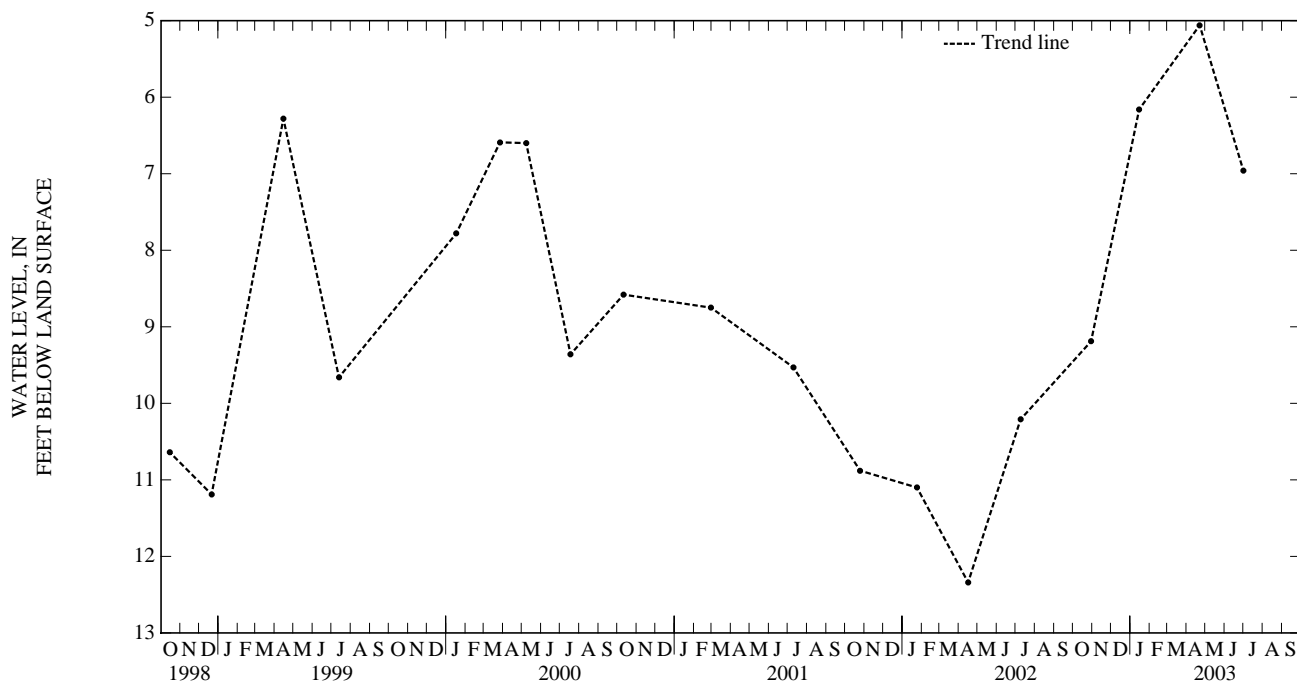
REMARKS.--Records provided by Virginia Department of Environmental Quality - Water Division. Well drilled as part of Fall Zone ground-water study.

PERIOD OF RECORD.--August 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.06 ft below land-surface datum, Apr. 22, 2003; lowest measured, 13.39 ft below land-surface datum, Oct. 21, 1997.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	9.19	JAN 15	6.16	APR 22	5.06	JUL 01	6.96
WATER YEAR 2003 HIGHEST		5.06	APR 22, 2003	LOWEST		9.19	OCT 30, 2002



## CHESTERFIELD COUNTY—Continued

372031077200003. Local number, 52G 24.

LOCATION.--Lat 37°20'32", long 77°19'59", NAD83, Hydrologic Unit 02080206, at Virginia Department of Transportation salt storage facility, 200 ft east of intersection of State Highway 10 and Interstate 295. Owner: U.S. Geological Survey.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 64.79 ft, screened 59.79 ft to 64.79 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Unpublished digital recorder data Mar. 5, 1996, to Apr. 2, 1996.

DATUM.--Elevation of land-surface datum is 70 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.35 ft above land-surface datum.

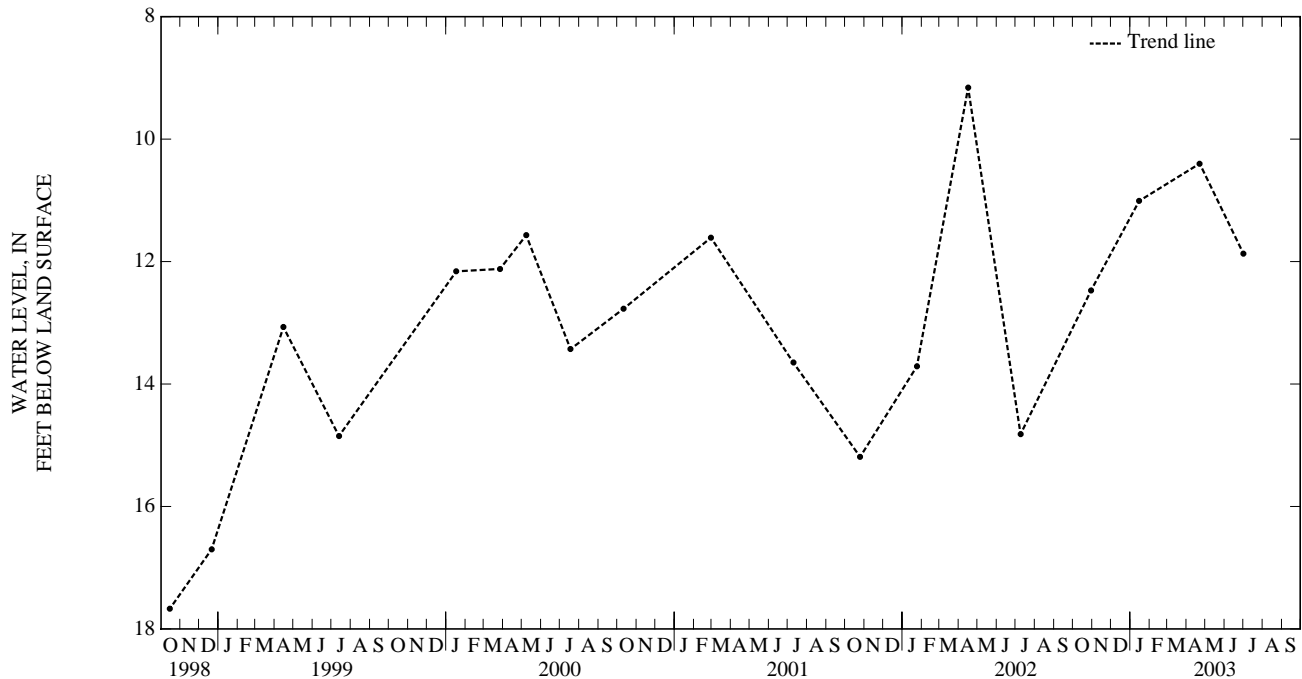
REMARKS.--Records provided by Virginia Department of Environmental Quality - Water Division. Well drilled as part of Fall Zone ground-water study.

PERIOD OF RECORD.--August 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.16 ft below land-surface datum, Apr. 16, 2002; lowest measured, 17.67 ft below land-surface datum, Oct. 15, 1998.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	12.47	JAN 15	11.01	APR 22	10.40	JUL 01	11.87
WATER YEAR 2003 HIGHEST		10.40	APR 22, 2003	LOWEST		12.47	OCT 30, 2002





## CLARKE COUNTY

390348078035501. Local number, 46W175.

LOCATION.--Lat 39°03'48", long 78°03'54", NAD83, Hydrologic Unit 02070007, 1.5 mi east of the intersection of U.S. Highways 17/50 and 340 at Blandy Experimental Farm. Owner: University of Virginia.

AQUIFER.--Conococheague Limestone of Middle Cambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 80.4 ft, cased to 24 ft, open hole 24 to 80.4 ft.

INSTRUMENTATION.--Electronic data logger 60-minute record interval. Prior to February 28, 2000, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 600 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 3.7 ft above land-surface datum.

REMARKS.--Missing record due to recorder malfunction.

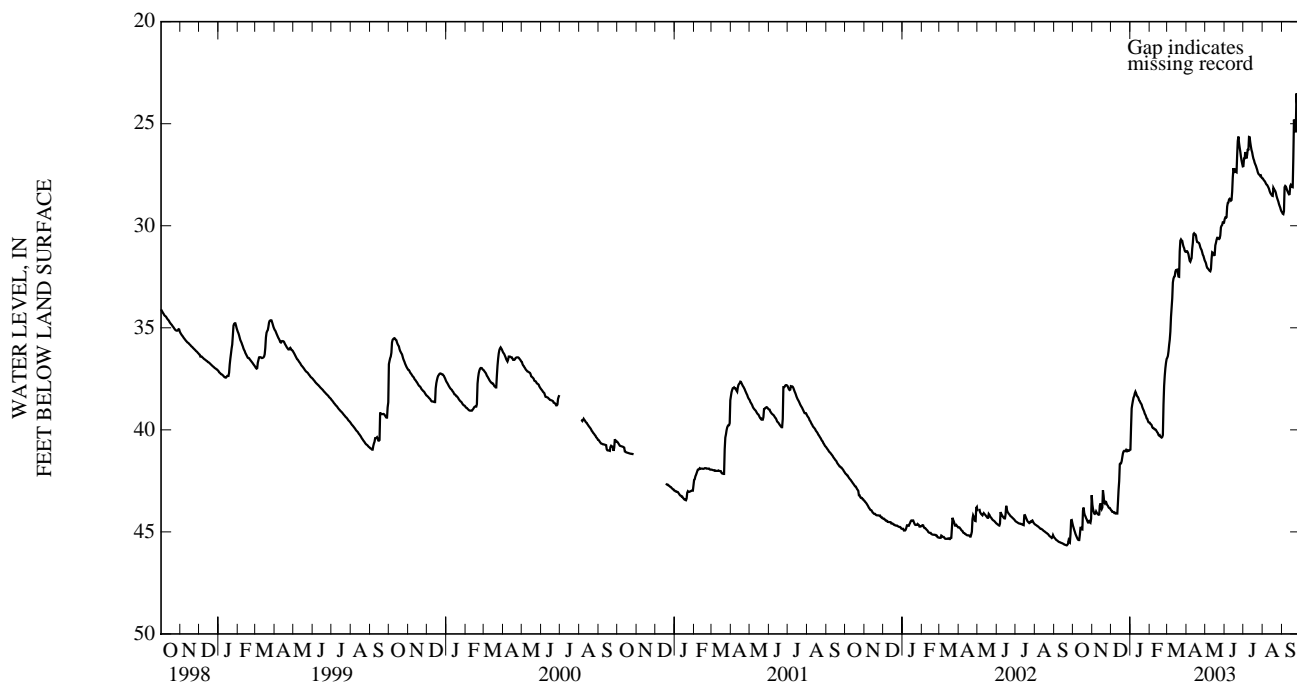
PERIOD OF RECORD.--July 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 22.87 ft below land-surface datum, Sept. 23, 2003; lowest recorded, 45.66 ft below land-surface datum, Sept. 21, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 22.87 ft below land-surface datum, Sept. 23; lowest instantaneous water level, 45.40 ft below land-surface datum, Oct. 10, 11.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	45.10	44.12	44.03	38.57	39.87	35.59	31.57	32.09	29.06	26.54	27.86	28.11
10	45.40	44.14	44.10	38.20	39.98	32.78	31.12	32.12	28.72	25.65	28.12	28.33
15	44.87	43.79	41.68	38.56	40.25	32.17	30.42	31.44	27.18	26.40	28.48	27.99
20	44.19	43.55	41.15	38.88	40.38	32.50	30.83	30.59	27.38	26.99	28.25	24.80
25	44.54	43.69	40.99	39.26	37.34	30.74	31.19	30.47	26.17	27.45	28.73	24.01
EOM	43.20	43.88	40.99	39.64	36.53	31.28	31.70	29.84	27.09	27.67	29.30	25.53



GROUND-WATER LEVELS  
CITY OF COLONIAL HEIGHTS

113

371644077244601. Local number, 51G 1.

LOCATION.--Lat 37°16'45", long 77°24'45", NAD83, Hydrologic Unit 02080207, 200 ft west of U.S. Highways 1 and 301, 0.5 mi south of the intersection of State Highway 144 (Ashby Avenue) and U.S. Highways 1 and 301 (Boulevard) in Colonial Heights. Owner: Dean Whittington.

AQUIFER.--Petersburg Granite of Mississippian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 100 ft, cased to 50 ft, open hole 50 to 100 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 57.30 ft above NGVD of 1929. Measuring point: Top of casing, 1.0 ft above land-surface datum.

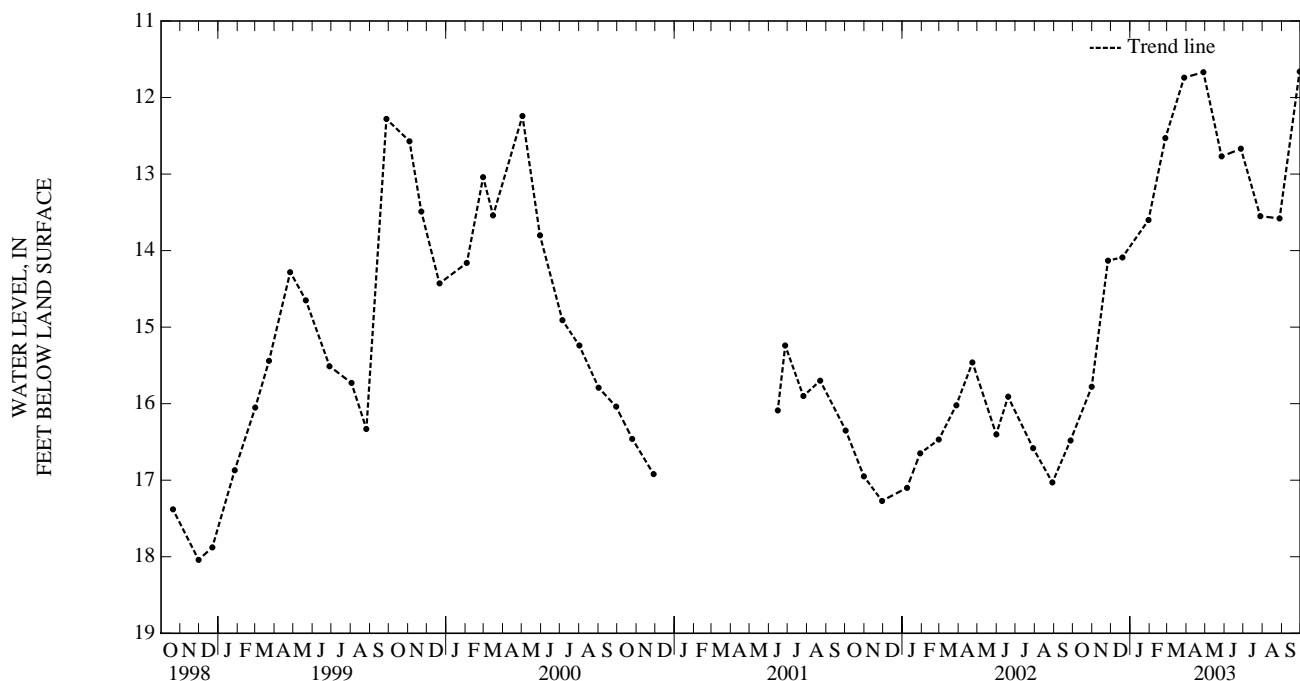
PERIOD OF RECORD.--October 1939 to November 2000, June 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.73 ft below land-surface datum, Jan. 26, 1978, Mar. 31, 1998; lowest measured, 19.26 ft below land-surface datum, Dec. 3, 1963.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, 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 31	15.78	DEC 19	14.09	FEB 26	12.53	APR 28	11.67	JUN 27	12.67	AUG 28	13.58
NOV 26	14.13	JAN 30	13.60	MAR 28	11.74	MAY 27	12.77	JUL 28	13.55	SEP 29	11.66

WATER YEAR 2003    HIGHEST   11.66 SEP 29, 2003    LOWEST   15.78 OCT 31, 2002



## GROUND-WATER LEVELS

## ESSEX COUNTY

380024076585801. Local number, 55N 2.

LOCATION.--Lat 38°00'24", long 76°58'57", NAD83, Hydrologic unit 02080104, 250 feet north east of U.S. Highway 17, 1.6 mi north west of State Highway 624, 1.2 mi southeast of Champlain on the north bound side of U.S. Highway 17. Owner: Ray Ellis.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 516 ft, casing 0 to 494, 514 to 516, screened 494 to 514.

INSTRUMENTATION.--Occasional measurement with chalk tape by USGS personal.

DATUM.--Elevation of land surface datum is 141 ft above NGVD of 1929, from topographic map. Measuring point: Top of sanitary seal, 1.96 ft above land surface datum.

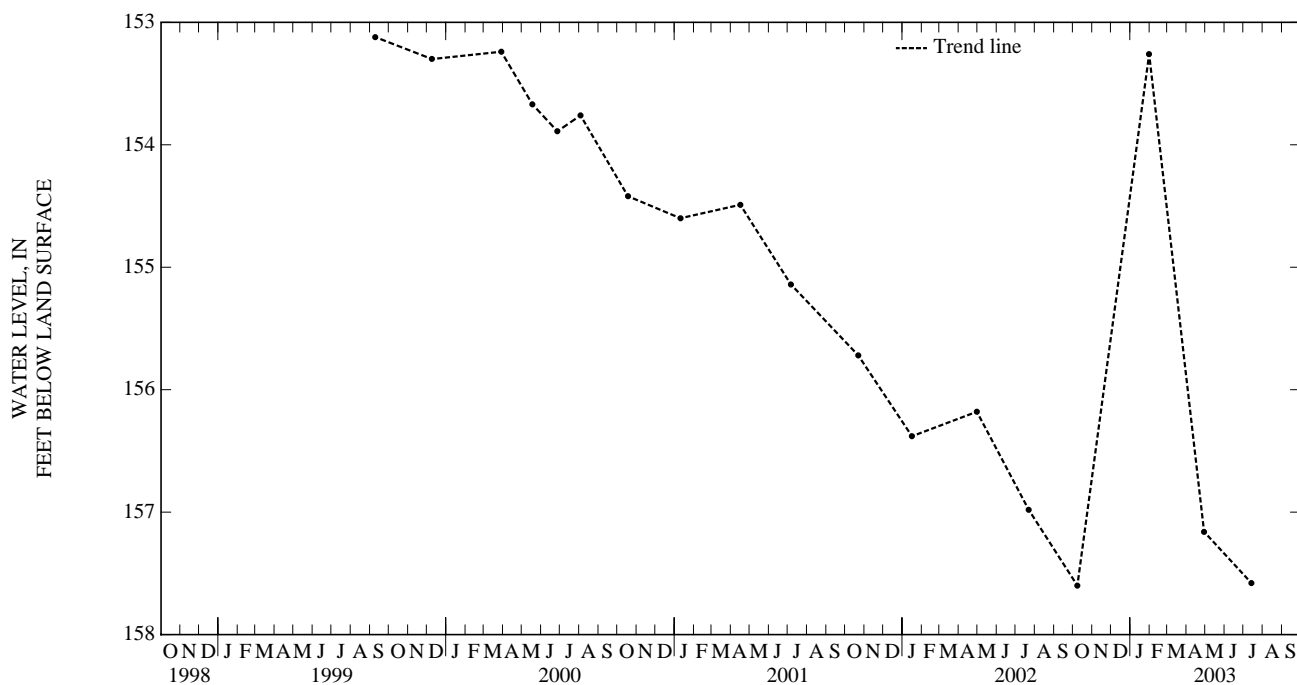
REMARKS.--Water level affected by regional drawdown.

PERIOD OF RECORD.--September 1999 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 153.12 ft below land-surface datum, Sept. 9, 1999; lowest measured, 157.60 ft below land-surface datum Oct. 8, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	157.60	JAN 31	153.26	APR 29	157.16	JUL 14	157.58
WATER YEAR 2003    HIGHEST 153.26 JAN 31, 2003    LOWEST 157.60 OCT 08, 2002							



## FAIRFAX COUNTY

385638077220101. Local number, 52V 2.

LOCATION.--Lat 38°56'58", long 77°22'00", NAD83, Hydrologic Unit 02070008, at U.S. Geological Survey National Center in Reston. Owner: U.S. Geological Survey.

AQUIFER.--Manassas Sandstone of Triassic age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 8 in., depth 205 ft, cased to 35 ft, open hole 35 to 205 ft.

INSTRUMENTATION.--Satellite data collection platform 15-minute record interval. Sept. 1, 1996 to Sept. 13, 1999, electronic data logger 15-minute record interval. Prior to Sept. 1, 1996, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 390 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

REMARKS.--Missing record due to recorder malfunction.

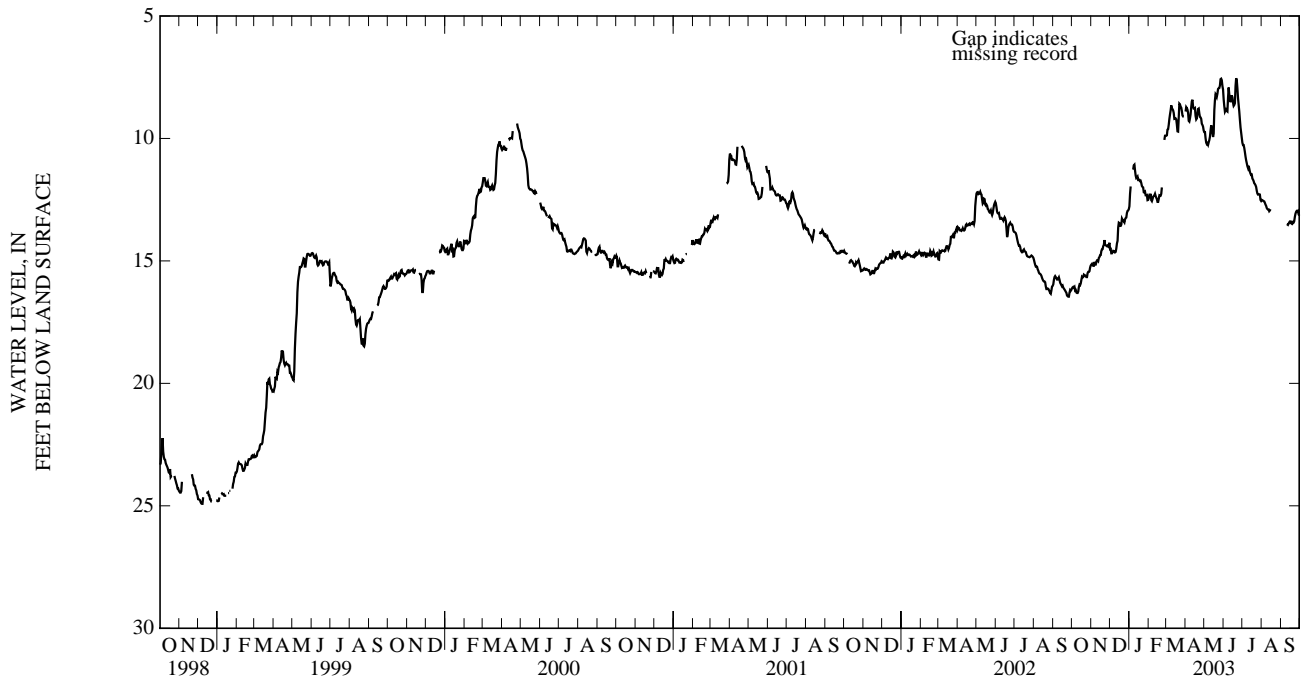
PERIOD OF RECORD.--October 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.47 ft below land-surface datum, Mar. 30, 1984; lowest recorded, 24.92 ft below land-surface datum, Dec. 7-8, 1998.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 7.44 ft below land-surface datum, June 21, 22; lowest instantaneous water level, 16.31 ft below land-surface datum, Oct. 9, 10.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.06	15.20	14.65	---	12.52	9.44	8.96	10.23	8.76	10.56	12.57	---
10	16.31	14.98	14.63	11.31	12.32	8.76	8.72	9.93	8.20	11.21	12.88	13.50
15	15.92	14.77	13.44	11.70	12.59	9.19	8.78	9.94	8.32	11.49	12.89	13.39
20	15.56	14.40	13.27	11.82	12.34	9.72	8.99	8.23	7.86	11.83	---	13.46
25	15.66	14.38	13.30	12.21	---	8.74	9.14	7.94	8.63	12.25	---	13.00
EOM	15.19	14.26	12.89	12.51	9.89	---	9.68	8.00	9.98	12.55	---	13.15



## CITY OF FRANKLIN

364033076562604. Local number, 55B 67 SOW 145D.

LOCATION.--Lat 36°40'34", long 76°56'25", NAD83, Hydrologic Unit 03010202, at P. D. Camp Community College in Franklin. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Aquia aquifer of Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 140 ft, screened 130 to 140 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 34 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.15 ft above land-surface datum.

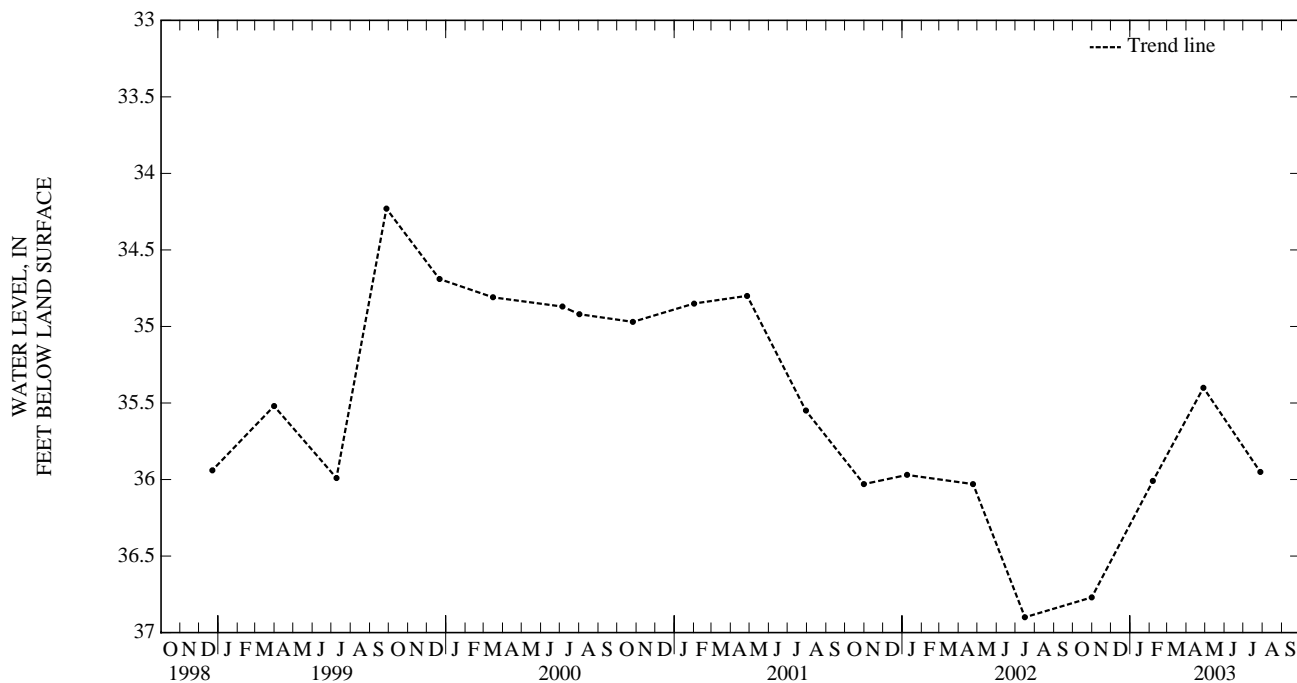
REMARKS.--Water level affected by regional drawdown.

PERIOD OF RECORD.--November 1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.51 ft below land-surface datum, Mar. 19, 1985; lowest measured, 36.90 ft below land-surface datum, July 16, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	36.77	FEB 06	36.01	APR 28	35.40	JUL 28	35.95
WATER YEAR 2003		HIGHEST	35.40	APR 28, 2003	LOWEST	36.77	OCT 31, 2002



390546078191701. Local number, 44W 2.

AQUIFER.--Elbrook Formation of Middle to Upper Cambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 300 ft, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

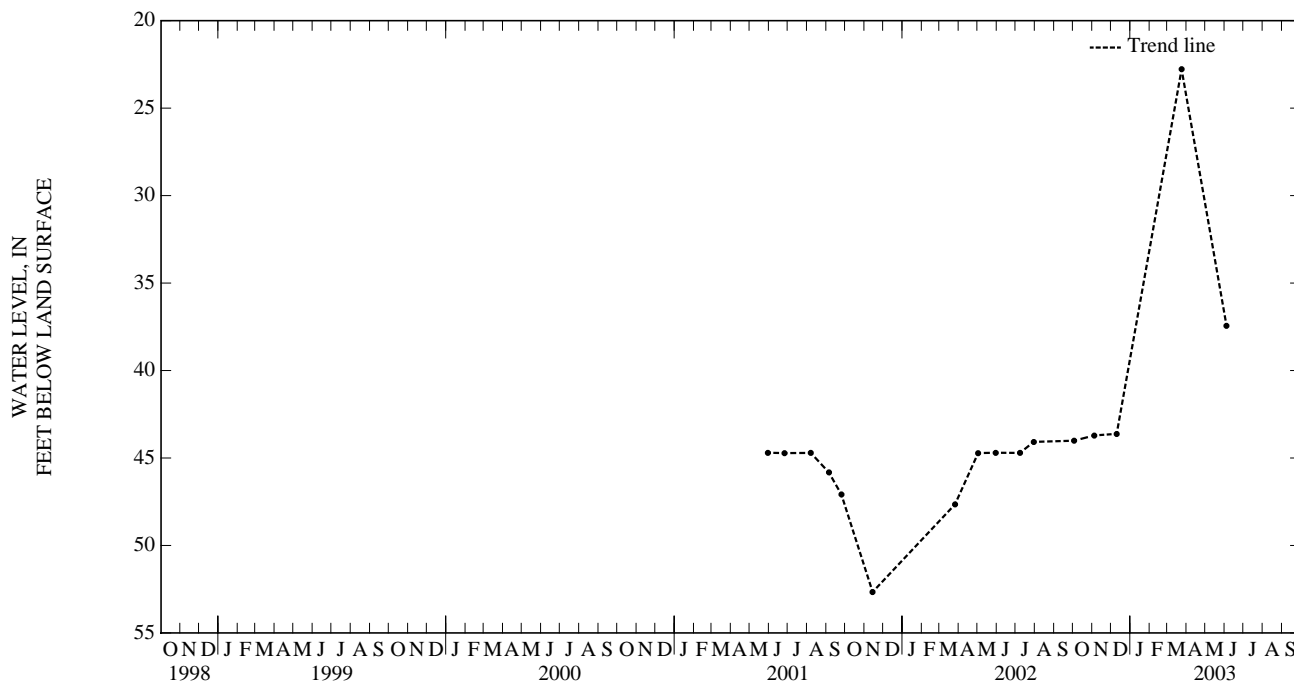
DATUM.--Elevation of land-surface datum is 827.78 ft above NGVD of 1929. Measuring point: Top of casing, 0.9 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.78 ft below land-surface datum, Mar. 24, 2003; lowest measured, 52.66 ft below land-surface datum, Nov. 14, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	44.01	NOV 04	43.71	DEC 10	43.62	MAR 24	22.78	JUN 04	37.45
WATER YEAR 2003		HIGHEST	22.78	MAR 24, 2003		LOWEST	44.01	OCT 03, 2002	



GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

390558078190001. Local number, 44W 4.

LOCATION.--Lat 39°05'58.44", long 78°18'59.87", NAD83, Hydrologic Unit 02070006, 0.39 mi. northeast of the intersection of Fromans Road and Cedar Creek Grade and 385 ft southeast of Cedar Creek Grade. Owner: Dwight Rinard.

AQUIFER.--Elbrook Formation of Middle to Upper Cambrian age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 300 ft, cased to 60 ft, open hole 60 to 300 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

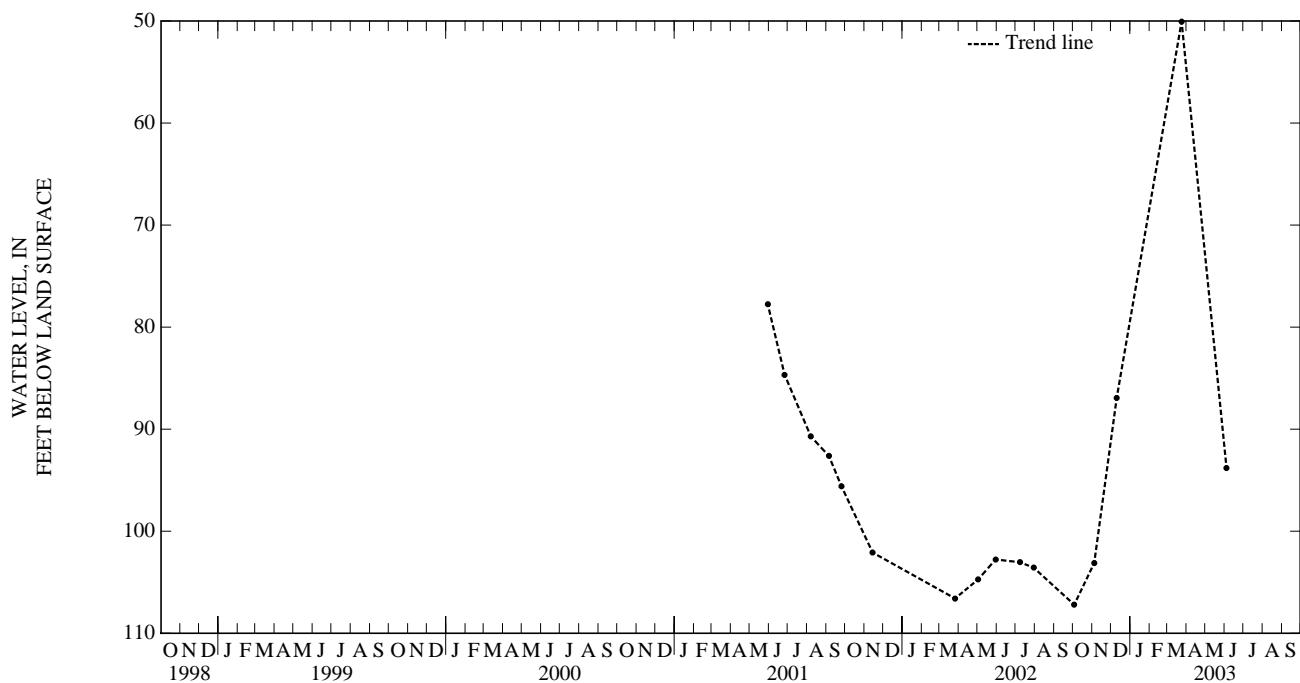
DATUM.--Elevation of land-surface datum is 845 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.8 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 50.07 ft below land-surface datum, Mar. 24, 2003; lowest measured, 107.20 ft below land-surface datum, Oct. 3, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	107.20	NOV 04	103.12	DEC 10	86.95	MAR 24	50.07	JUN 04	93.82
WATER YEAR 2003		HIGHEST	50.07	MAR 24, 2003	LOWEST	107.20	OCT 03, 2002		



## FREDERICK COUNTY—Continued

390514078191901. Local number, 44W 5.

LOCATION.--Lat 39°05'14.27", long 78°19'18.84", NAD83, Hydrologic Unit 02070006, 0.38 mi. north of the intersection of Middle Road and Cedar Creek Grade and 100 ft west of Cedar Creek Grade. Owner: Cedar Creek Primitive Baptist Church.

AQUIFER.--Elbrook Formation of Middle to Upper Cambrian age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth 98 ft, cased to 24 ft, open hole 24 to 98 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

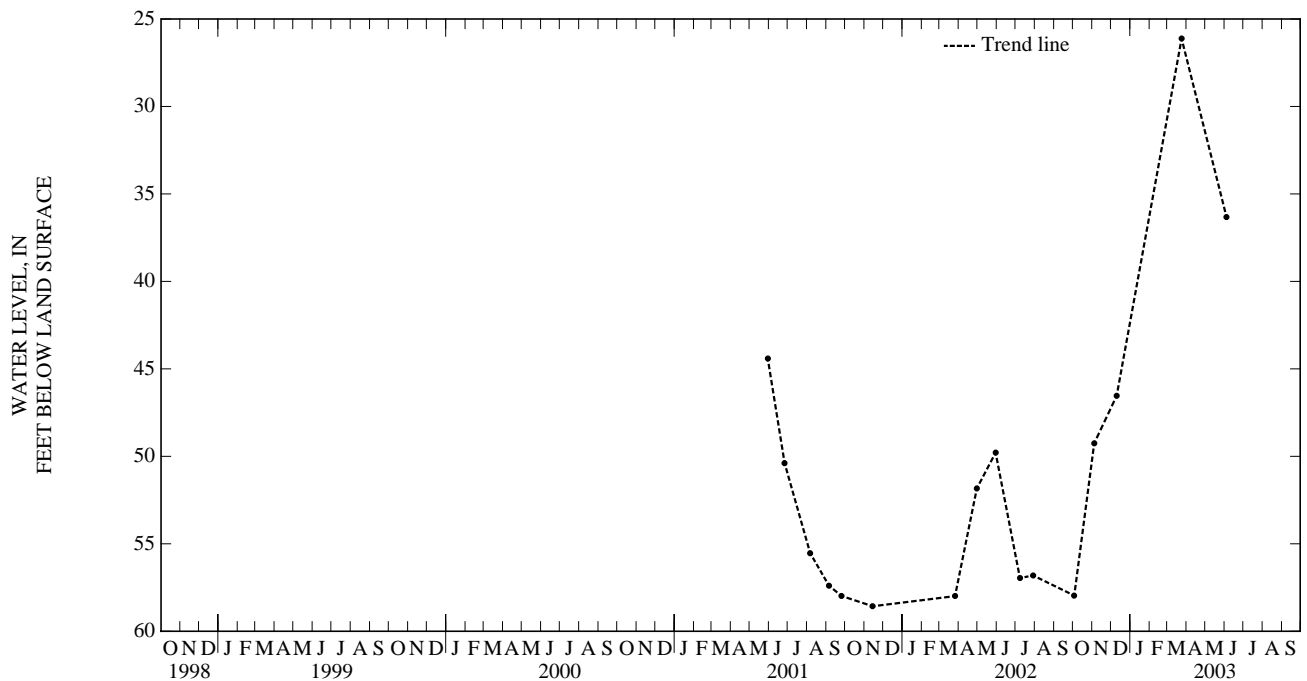
DATUM.--Elevation of land-surface datum is 730 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.25 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.12 ft below land-surface datum, Mar. 24, 2003; lowest measured, 58.57 ft below land-surface datum, Nov. 14, 2001.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	57.96	NOV 04	49.25	DEC 10	46.54	MAR 24	26.12	JUN 04	36.33
WATER YEAR 2003    HIGHEST    26.12    MAR 24, 2003    LOWEST    57.96    OCT 03, 2002									





GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

390456078191501. Local number, 44W 6.

LOCATION.--Lat 39°04'55.92", long 78°19'14.61", NAD83, Hydrologic Unit 02070006, 400 ft northeast of the intersection of Middle Road and Cedar Creek Grade and 45 ft west of Middle Road. Owner: Cedar Creek Presbyterian Church.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth unknown, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

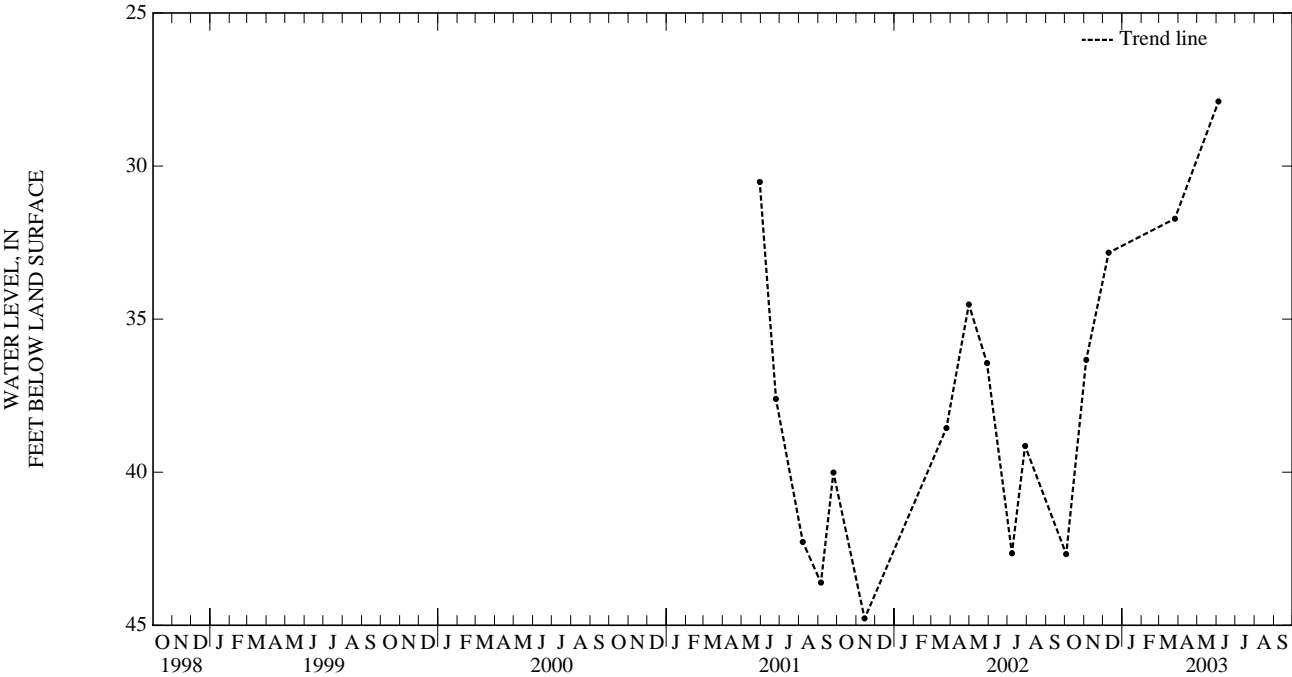
DATUM.--Elevation of land-surface datum is 725 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.25 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.89 ft below land-surface datum, June 4, 2003; lowest measured, 44.78 ft below land-surface datum, Nov. 14, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	42.68	NOV 04	36.33	DEC 10	32.83	MAR 26	31.72	JUN 04	27.89
WATER YEAR 2003    HIGHEST   27.89   JUN 04, 2003    LOWEST   42.68   OCT 03, 2002									



## FREDERICK COUNTY—Continued

390421078191701. Local number, 44W 7.

LOCATION.--Lat 39°04'20.97", long 78°19'16.68", NAD83, Hydrologic Unit 02070006, 0.13 mi. east of the intersection of Chapel Road and Mine Bank Road and 30 ft south of Chapel Road. Owner: Hites Chapel United Methodist Church.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth unknown, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

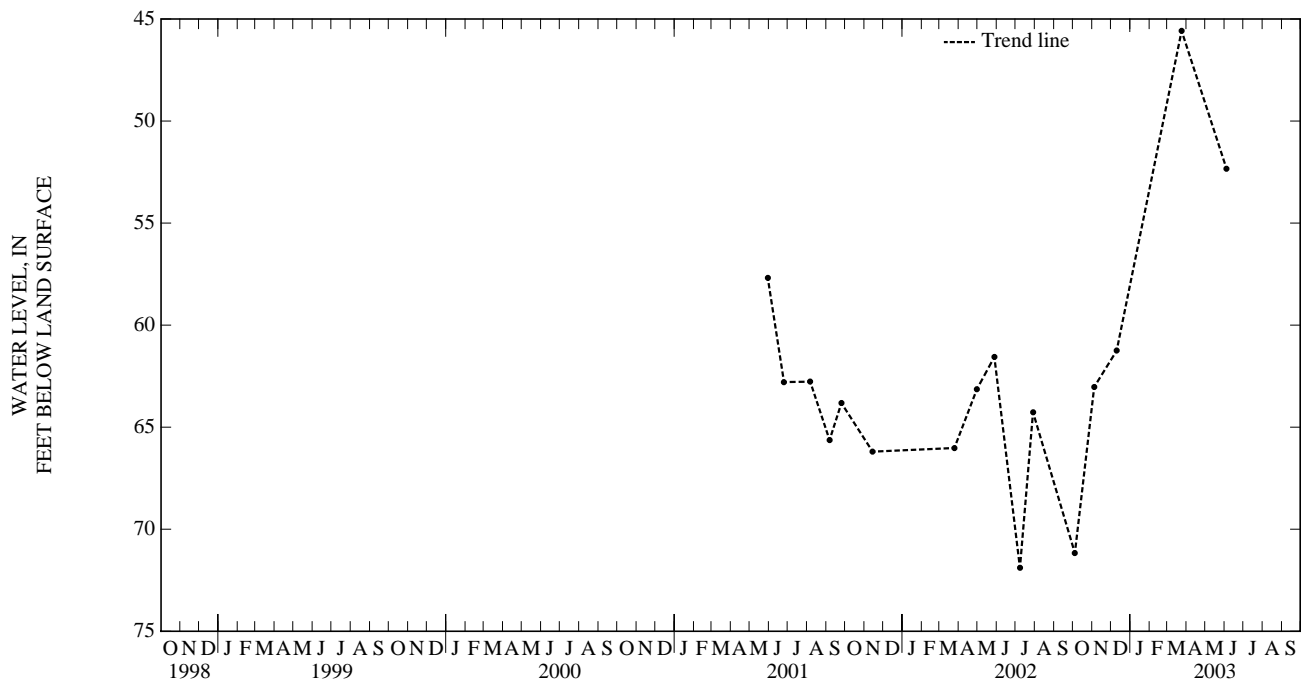
DATUM.--Elevation of land-surface datum is 765 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.3 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 45.58 ft below land-surface datum, Mar. 24, 2003; lowest measured, 71.89 ft below land-surface datum, July 8, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04	71.17	NOV 04	63.03	DEC 10	61.25	MAR 24	45.58	JUN 04	52.34
WATER YEAR 2003    HIGHEST   45.58   MAR 24, 2003    LOWEST   71.17   OCT 04, 2002									



GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

390226078170601. Local number, 44W 8.

LOCATION.--Lat 39°02'26.08", long 78°17'06.00", NAD83, Hydrologic Unit 02070006, 300 ft northwest of the intersection of Chapel Road and Veterans Road and 25 ft west of Chapel Road. Owner: Middletown Baptist Church.

AQUIFER.--Rockdale Run Formation of the Beekmantown Group of Lower to Middle Ordovician age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 155 ft, cased to 81.5 ft, open hole 81.5 to 155 ft.

INSTRUMENTATION.--Electronic pressure transducer data logger 60-minute record interval.

DATUM.--Elevation of land-surface datum is 735 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

REMARKS.--Missing record due to recorder malfunction.

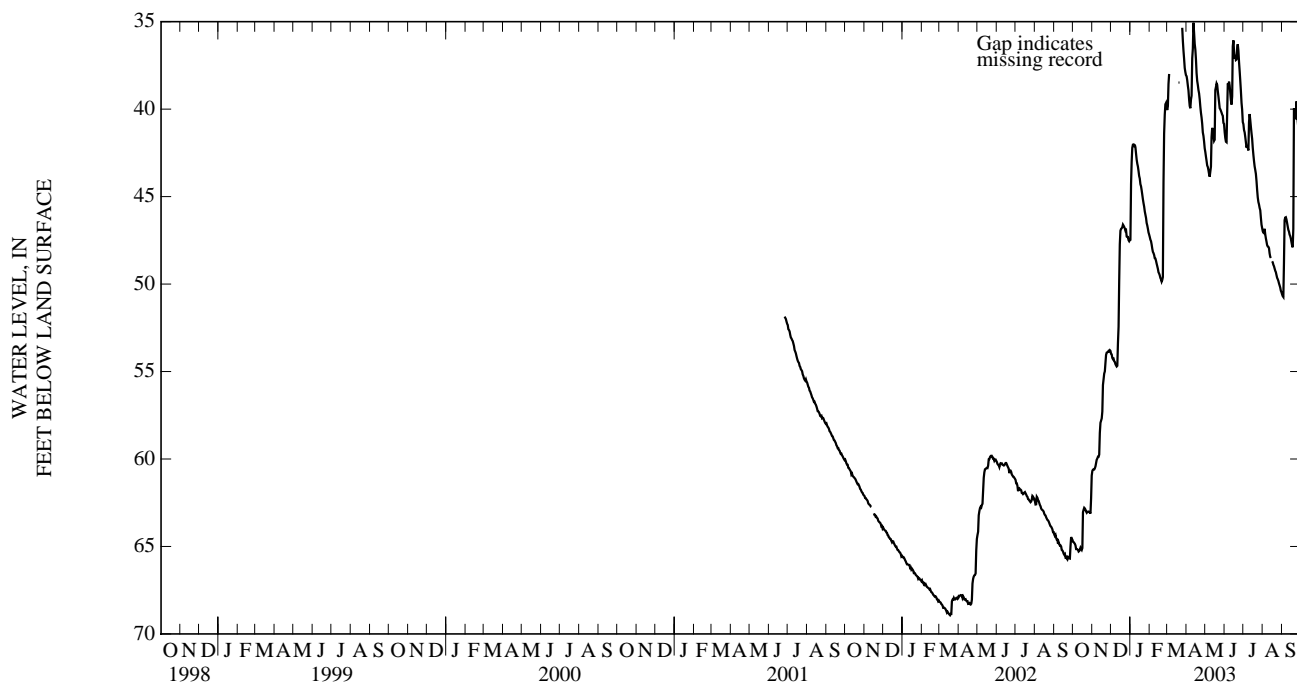
PERIOD OF RECORD.--May 2001 to current year.

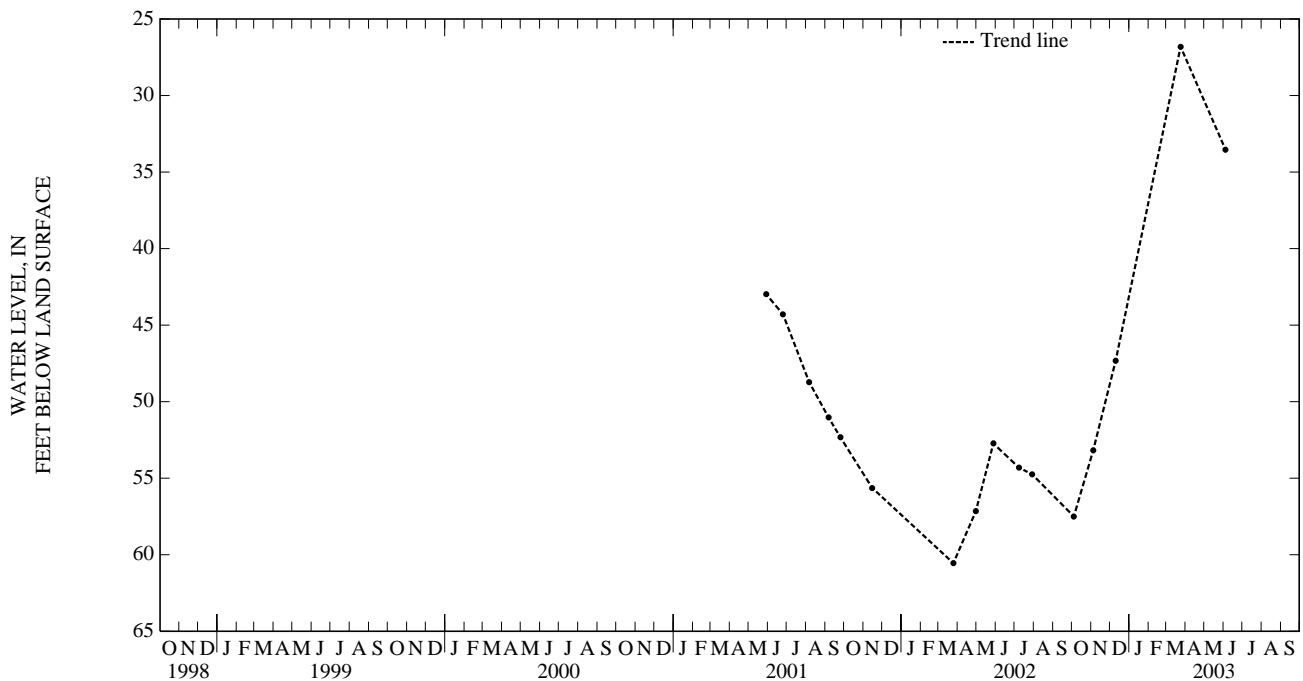
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, not determined, greater than 34.46 ft below land-surface datum, occurred during period of missing record, March 5-24, 2003; lowest recorded, 68.93 ft below land-surface datum, Mar. 18, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, not determined, greater than 34.46 ft below land-surface datum, occurred during period of missing record, March 5-24; lowest instantaneous water level, 68.93 ft below land-surface datum, Mar. 18.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	64.94	60.53	54.27	42.03	47.98	---	39.44	43.31	40.24	41.90	47.15	46.35
10	65.29	59.87	54.71	42.54	48.54	---	37.10	43.29	39.08	40.73	47.87	46.71
15	65.20	57.81	47.73	43.82	49.33	---	36.60	41.81	36.07	41.70	---	47.40
20	62.83	55.12	46.60	44.89	49.86	---	38.91	38.61	37.16	43.48	49.11	39.96
25	63.03	53.90	46.92	46.03	40.32	35.35	40.49	40.01	37.83	45.31	49.72	40.03
EOM	60.95	53.82	47.49	47.17	39.90	38.06	42.24	40.84	40.74	46.79	50.47	43.29





GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

390359078163201. Local number, 44W 10.

LOCATION.--Lat 39°03'59.35", long 78°16'32.17", NAD83, Hydrologic Unit 02070006, 250 ft south of the intersection of Hités Road and Clark Road and 10 ft west of Hités Road. Owner: Eugene Snow.

AQUIFER.--Rockdale Run Formation of the Beekmantown Group of Lower to Middle Ordovician age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 136 ft, cased to 45 ft, open hole 45 to 136 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 835 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.9 ft above land-surface datum.

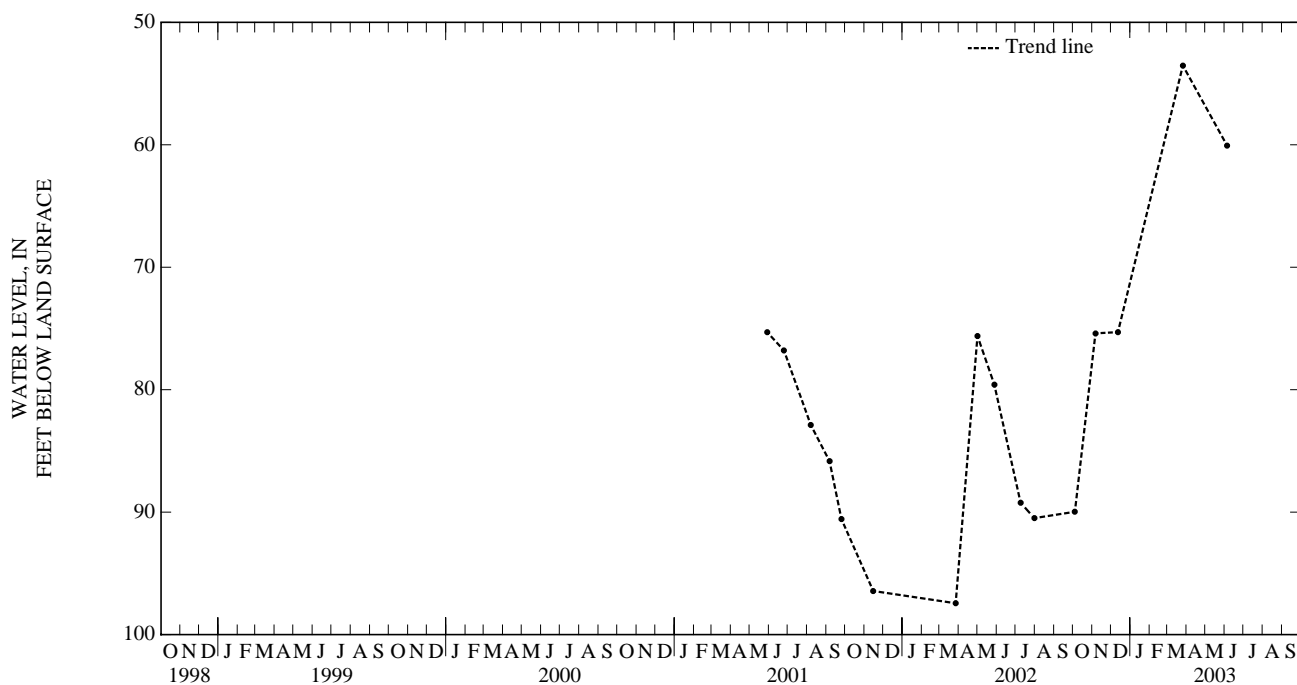
REMARKS.--Water level of Sept. 25, 2001 result of well having been recently pumped.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 53.53 ft below land-surface datum, Mar. 26, 2003; lowest measured, 97.44 ft below land-surface datum, Mar. 27, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04	89.97	NOV 06	75.40	DEC 12	75.30	MAR 26	53.53	JUN 05	60.08
WATER YEAR 2003    HIGHEST    53.53    MAR 26, 2003    LOWEST    89.97    OCT 04, 2002									



## FREDERICK COUNTY—Continued

390444078154601. Local number, 44W 11.

LOCATION.--Lat 39°04'44.01", long 78°15'46.37", NAD83, Hydrologic Unit 02070006, 0.26 mi. east of the intersection of Hités Road and Carson Lane and 60 ft south of Carson Lane. Owner: Najeeb Anwar.

AQUIFER.--Rockdale Run Formation of the Beekmantown Group of Lower to Middle Ordovician age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth unknown, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

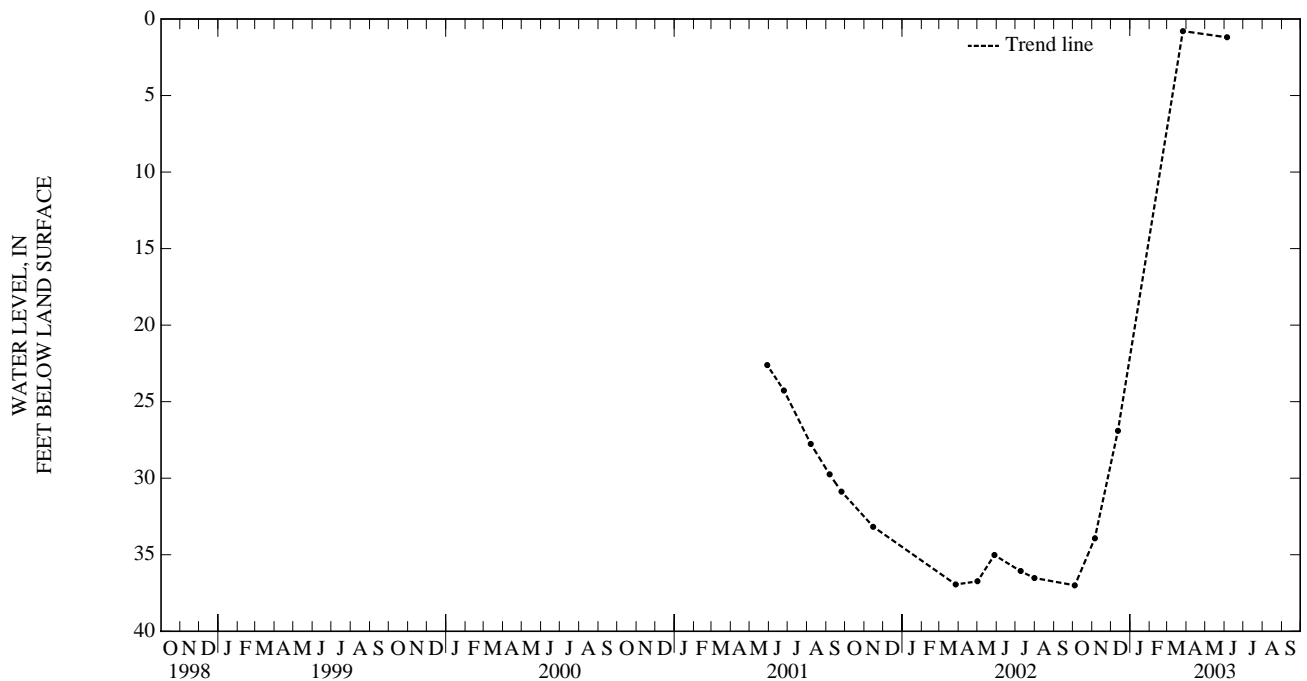
DATUM.--Elevation of land-surface datum is 780 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.79 ft below land-surface datum, Mar. 26, 2003; lowest measured, 39.49 ft below land-surface datum, Mar. 27, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04	37.00	NOV 05	33.92	DEC 12	26.90	MAR 26	.79	JUN 05	1.20
WATER YEAR 2003 HIGHEST		.79 MAR 26, 2003		LOWEST		37.00 OCT 04, 2002			



GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

390631078155301. Local number, 44W 12.

LOCATION.--Lat 39°06'30.90", long 78°15'52.87", NAD83, Hydrologic Unit 02070006, 280 ft southeast of the intersection of Middle Road and Carters Lane and 180 ft south of Carters Lane. Owner: Relief United Methodist Church.

AQUIFER.--Stonehenge Limestone of the Beekmantown Group of Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth unknown, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

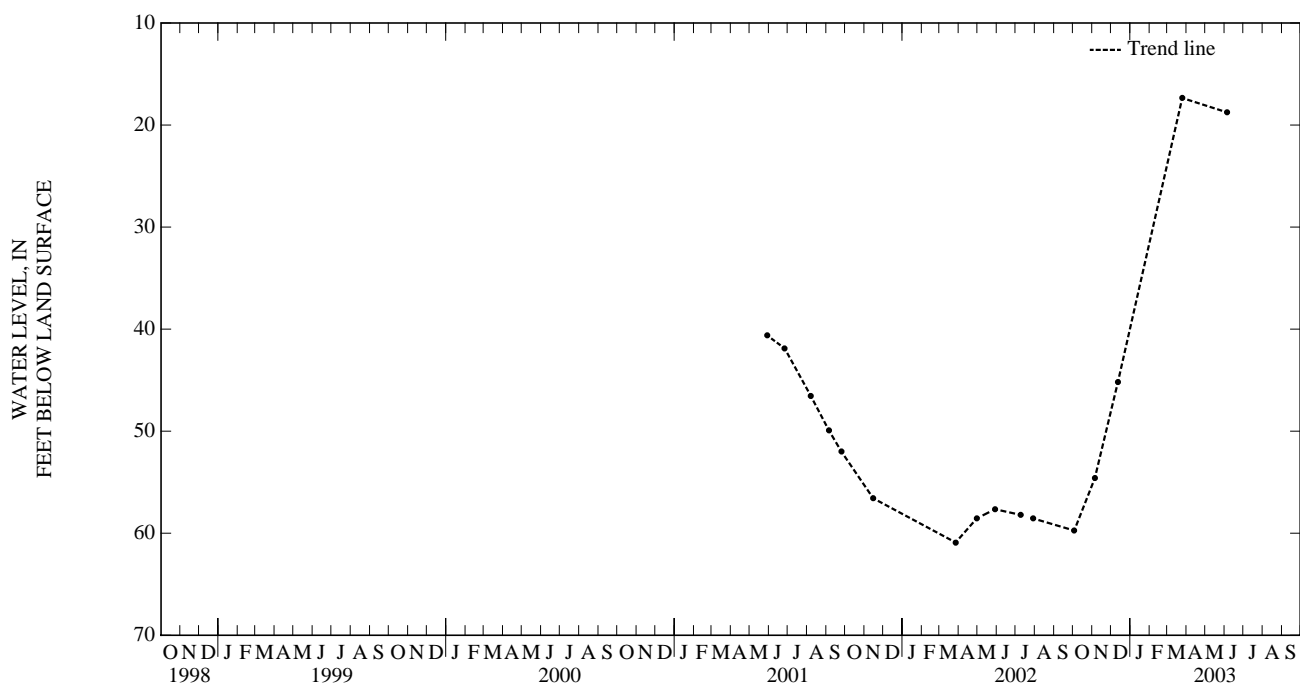
DATUM.--Elevation of land-surface datum is 835 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.8 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.35 ft below land-surface datum, Mar. 25, 2003; lowest measured, 60.91 ft below land-surface datum, Mar. 27, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	59.74	NOV 05	54.60	DEC 12	45.18	MAR 25	17.35	JUN 05	18.76
WATER YEAR 2003    HIGHEST    17.35    MAR 25, 2003    LOWEST    59.74    OCT 03, 2002									



## FREDERICK COUNTY—Continued

390647078170201. Local number, 44W 13.

LOCATION.--Lat 39°06'46.73", long 78°17'02.08", NAD83, Hydrologic Unit 02070006, 1.0 mi. west of the intersection of Middle Road and Laurel Grove Road and 750 ft south of Laurel Grove Road. Owner: Alson H. Smith, Jr. Agricultural Research and Extension Center.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth 285 ft, cased to 135 ft, open hole 135 to 285 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

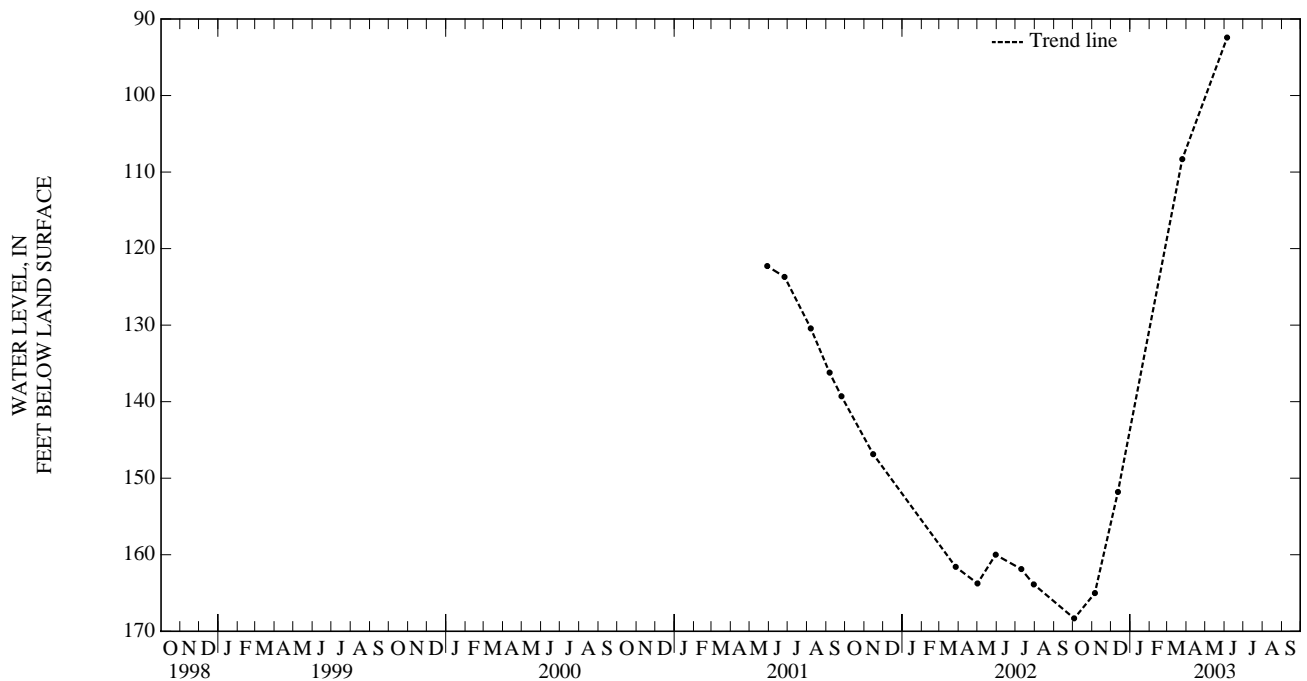
DATUM.--Elevation of land-surface datum is 930 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 92.42 ft below land-surface datum, June 5, 2003; lowest measured, 168.33 ft below land-surface datum, Oct. 3, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	168.33	NOV 05	165.02	DEC 12	151.79	MAR 25	108.33	JUN 05	92.42
WATER YEAR 2003		HIGHEST	92.42	JUN 05, 2003	LOWEST	168.33	OCT 03, 2002		





GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

390101078174801. Local number, 44W 14.

LOCATION.--Lat 39°01'01.20", long 78°17'48.31", NAD83, Hydrologic Unit 02070006, 0.28 mi. northeast of the intersection of Belle Grove Road and U.S. Highway 11 and 30 ft east of U.S. Highway 11. Owner: Joyce Brinklow.

AQUIFER.--Stickley Run Member of the Martinsburg Formation of Middle Ordovician age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 515 ft, cased to 55 ft, open hole 55 to 515 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

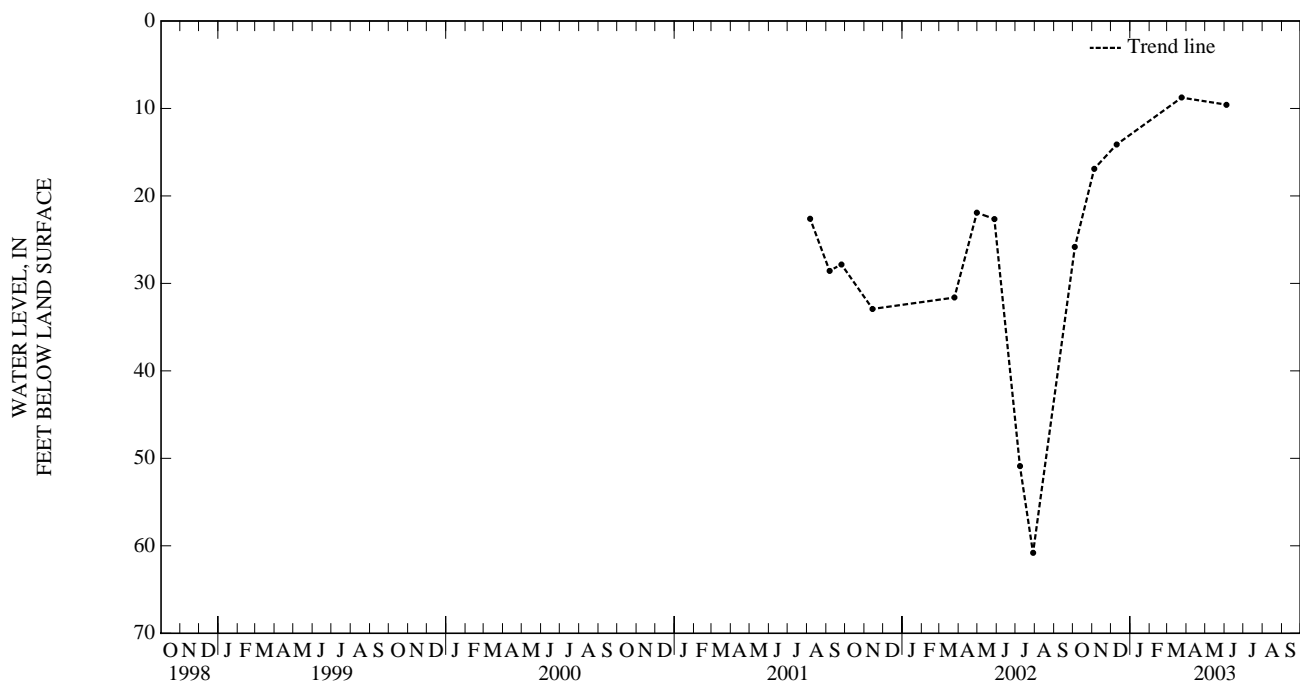
DATUM.--Elevation of land-surface datum is 730 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.7 ft above land-surface datum.

PERIOD OF RECORD.--August 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.76 ft below land-surface datum, Mar. 24, 2003; lowest measured, 60.82 ft below land-surface datum, July 29, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04	25.84	NOV 04	16.90	DEC 10	14.11	MAR 24	8.76	JUN 04	9.57
WATER YEAR 2003 HIGHEST 8.76		MAR 24, 2003		LOWEST 25.84		OCT 04, 2002			



## FREDERICK COUNTY—Continued

390405078151101. Local number, 44W 16.

LOCATION.--Lat 39°04'05.23", long 78°15'10.68", NAD83, Hydrologic Unit 02070007, 0.75 mi. northwest of the intersection of Vaulcluse Road and U.S. Highway 11 and 0.4 mi. north of Vaulcluse Road. Owner: Jason McDonald.

AQUIFER.--Stonehenge Limestone of the Beekmantown Group of Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 240 ft, cased to 72 ft, open hole 72 to 240 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

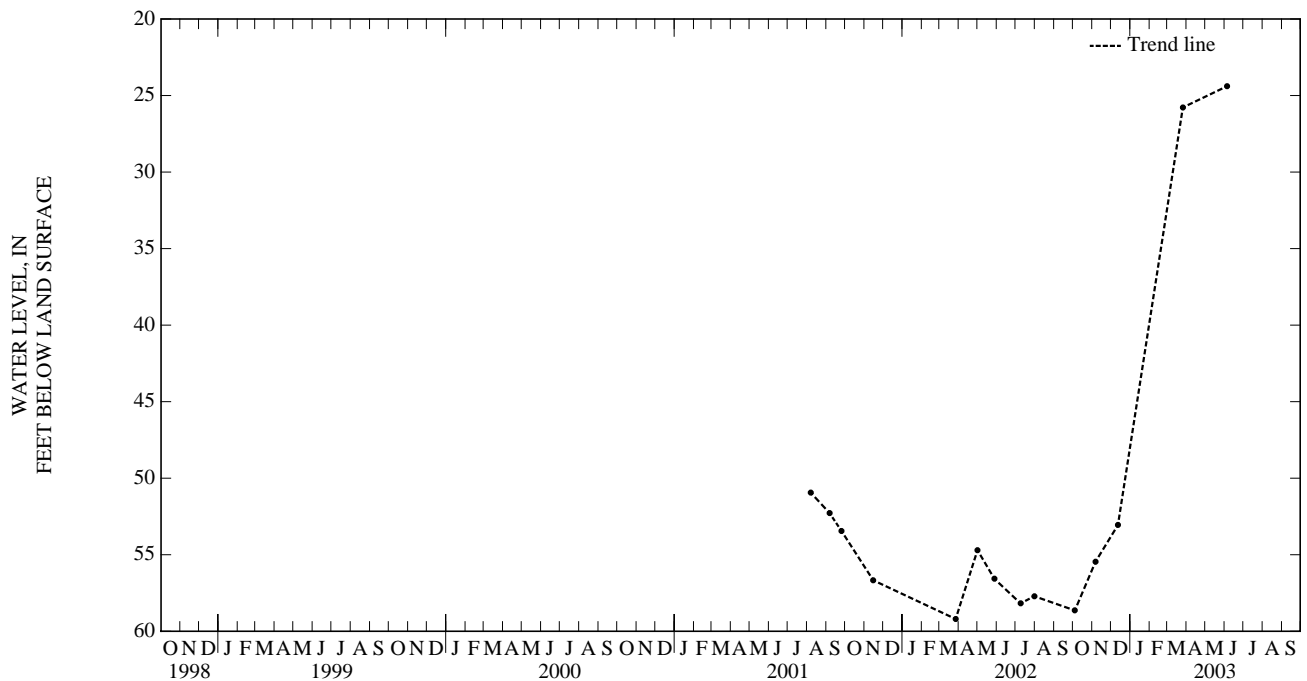
DATUM.--Elevation of land-surface datum is 765 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

PERIOD OF RECORD.--August 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.39 ft below land-surface datum, June 5, 2003; lowest measured, 59.20 ft below land-surface datum, Mar. 27, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04	58.64	NOV 06	55.46	DEC 12	53.06	MAR 26	25.78	JUN 05	24.39
WATER YEAR 2003    HIGHEST   24.39   JUN 05, 2003    LOWEST   58.64   OCT 04, 2002									



GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

390134078174701. Local number, 44W 17.

LOCATION.--Lat 39°01'33.95", long 78°17'47.13", NAD83, Hydrologic Unit 02070006, 600 ft southwest of the intersection of McCune Road and Meadow Mills Road and 200 ft southeast of Meadow Mills Road. Owner: George McFarland.

AQUIFER.--Pinesburg Station Dolomite of the Beekmantown Group of Middle Ordovician age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 145 ft, cased to 60 ft, open hole 60 to 145 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

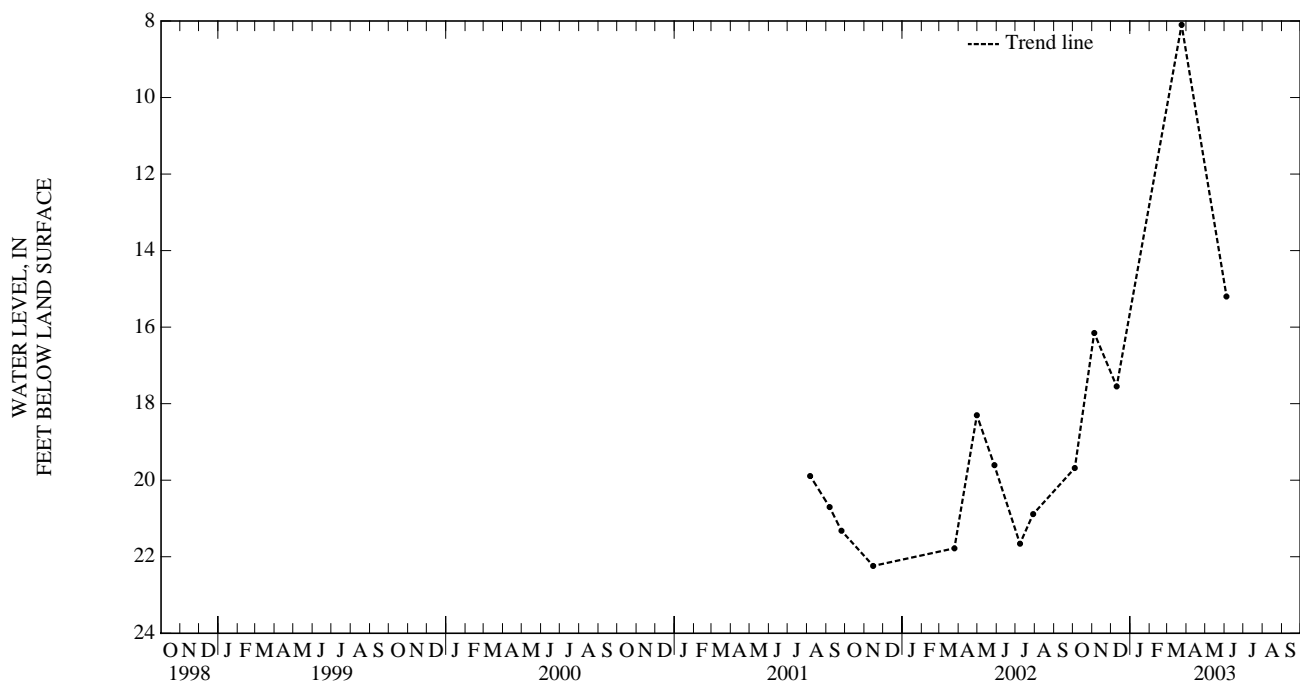
DATUM.--Elevation of land-surface datum is 645 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

PERIOD OF RECORD.--August 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.10 ft below land-surface datum, Mar. 24, 2003; lowest measured, 22.24 ft below land-surface datum, Nov. 15, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04	19.68	NOV 04	16.15	DEC 10	17.55	MAR 24	8.10	JUN 04	15.20
WATER YEAR 2003    HIGHEST    8.10    MAR 24, 2003    LOWEST    19.68    OCT 04, 2002									



## FREDERICK COUNTY—Continued

390551078155801. Local number, 44W 18.

LOCATION.--Lat 39°05'50.88", long 78°15'57.64", NAD83, Hydrologic Unit 02070006, 0.47 mi. north of the intersection of Germany Road and Marlboro Road and 0.16 mi. west of Germany Road. Owner: Michael Anderson.

AQUIFER.--Conococheague Limestone of Upper Cambrian and Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 140 ft, cased to 79 ft, open hole 79 to 140 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 875 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.45 ft above land-surface datum.

REMARKS.--Water level of July 9, 2002 result of well having been recently pumped.

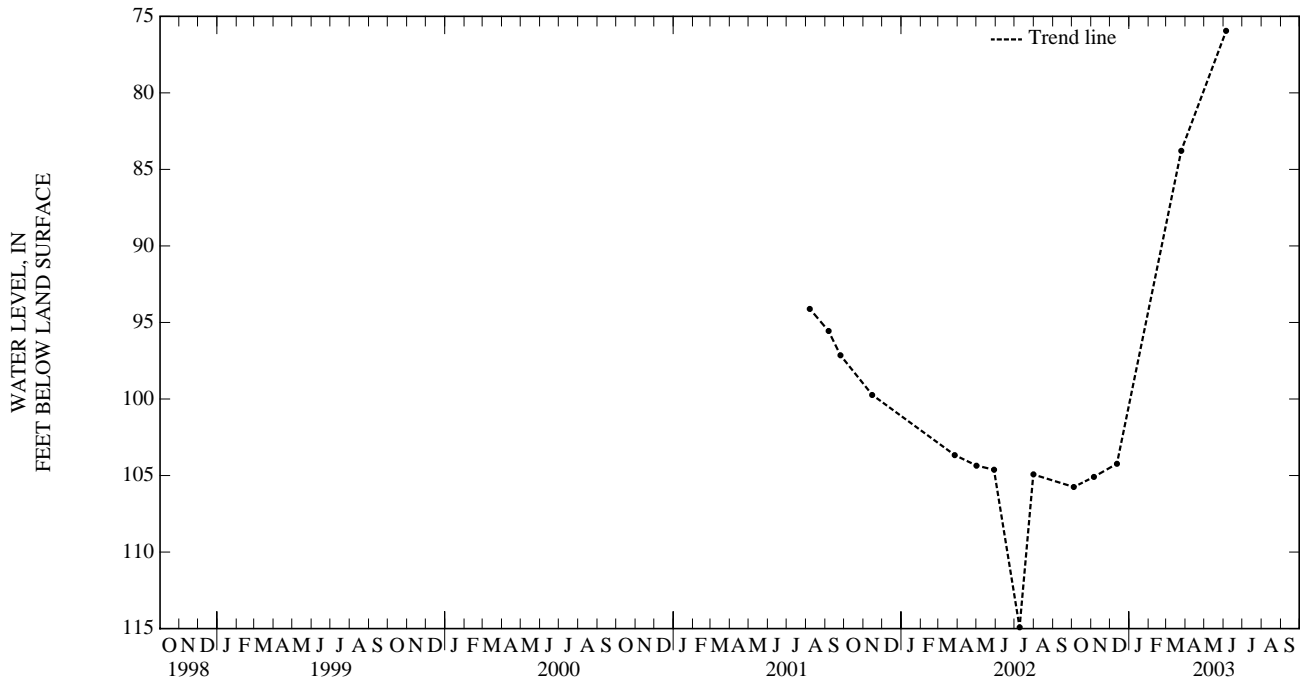
PERIOD OF RECORD.--August 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 75.95 ft below land-surface datum, June 5, 2003; lowest measured, 105.75 ft below land-surface datum, Oct. 4, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04	105.75	NOV 05	105.09	DEC 12	104.23	MAR 25	83.78	JUN 05	75.95

WATER YEAR 2003    HIGHEST    75.95    JUN 05, 2003    LOWEST    105.75    OCT 04, 2002



GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

390422078191801. Local number, 44W 19.

LOCATION.--Lat 39°04'22.12", long 78°19'18.08", NAD83, Hydrologic Unit 02070006, 550 ft east of the intersection of Chapel Road and Minebank Road and 20 ft north of Chapel Road. Owner: Ray West.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth unknown, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 760 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

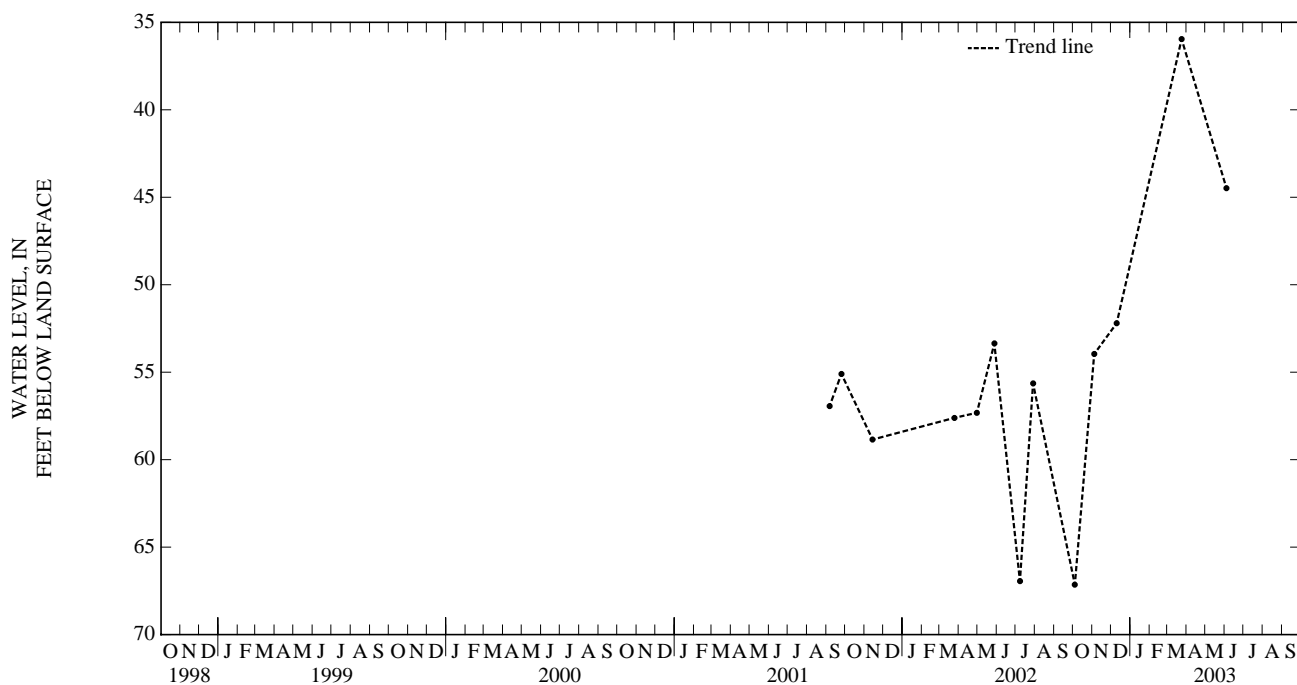
REMARKS.--Water levels of Nov. 14, 2001 and July 8, 2002 result of well having been recently pumped.

PERIOD OF RECORD.--September 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.96 ft below land-surface datum, Mar. 24, 2003; lowest measured, 57.61 ft below land-surface datum, Mar. 25, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04	67.14	NOV 04	53.96	DEC 10	52.20	MAR 24	35.96	JUN 04	44.49
WATER YEAR 2003    HIGHEST    35.96    MAR 24, 2003    LOWEST    53.96    NOV 04, 2002									



## FREDERICK COUNTY—Continued

390730078160801. Local number, 44X 2.

LOCATION.--Lat 39°07'30.36", long 78°16'08.21", NAD83, Hydrologic Unit 02070006, 0.8 mi. northwest of the intersection of Barley Lane and Middle Road and 300 ft north of Barley Lane. Owner: Sam Dillender.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 360 ft, cased to 99 ft, open hole 99 to 360 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 950 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.7 ft above land-surface datum.

REMARKS.--Water levels of Aug. 7, 2001 and July 31, 2002 result of well having been recently pumped.

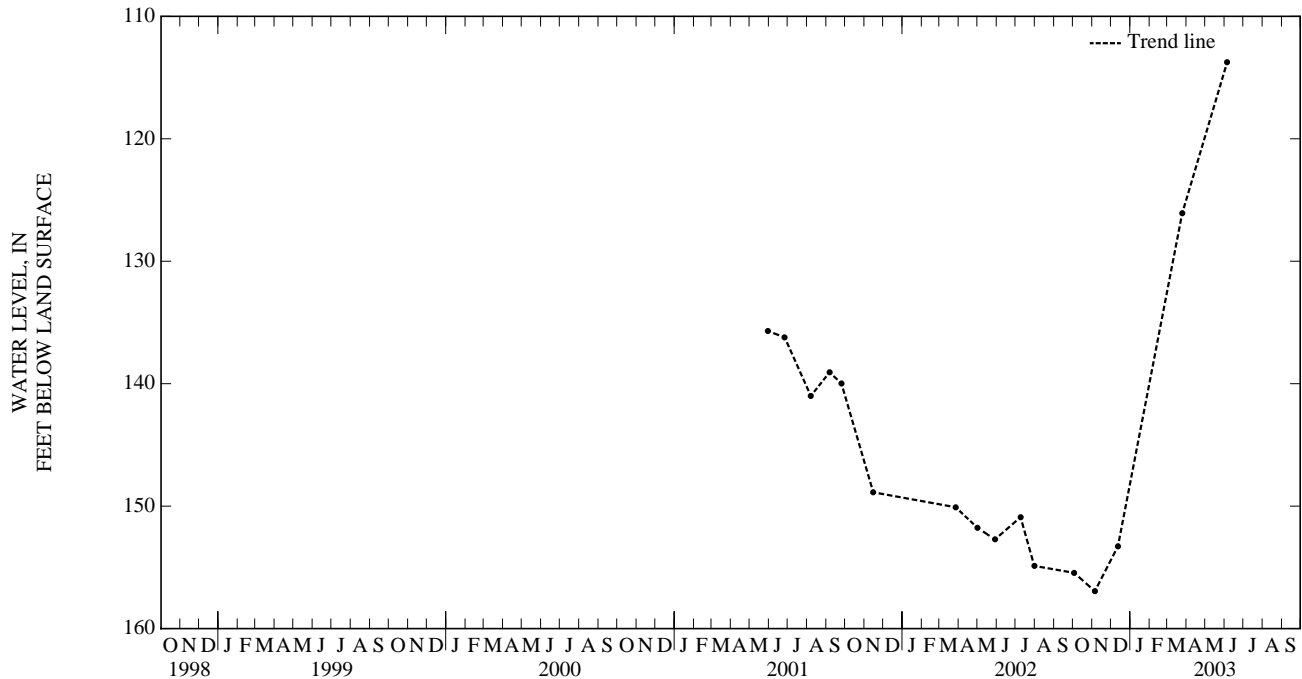
PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 113.74 ft below land-surface datum, June 5, 2003; lowest measured, 155.45 ft below land-surface datum, Oct. 3, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	155.45	NOV 05	156.95	DEC 12	153.28	MAR 25	126.08	JUN 05	113.74

WATER YEAR 2003    HIGHEST 113.74    JUN 05, 2003    LOWEST 155.45    OCT 03, 2002



GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

390849078154201. Local number, 44X 5.

LOCATION.--Lat 39°08'49.11", long 78°15'42.36", NAD83, Hydrologic Unit 02070004, 850 ft southeast of the intersection of Cedar Creek Grade and Perry Road. Owner: Marker-Miller Orchards.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth 1200 ft, cased to 40 ft, open hole 40 to 1200 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 920 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

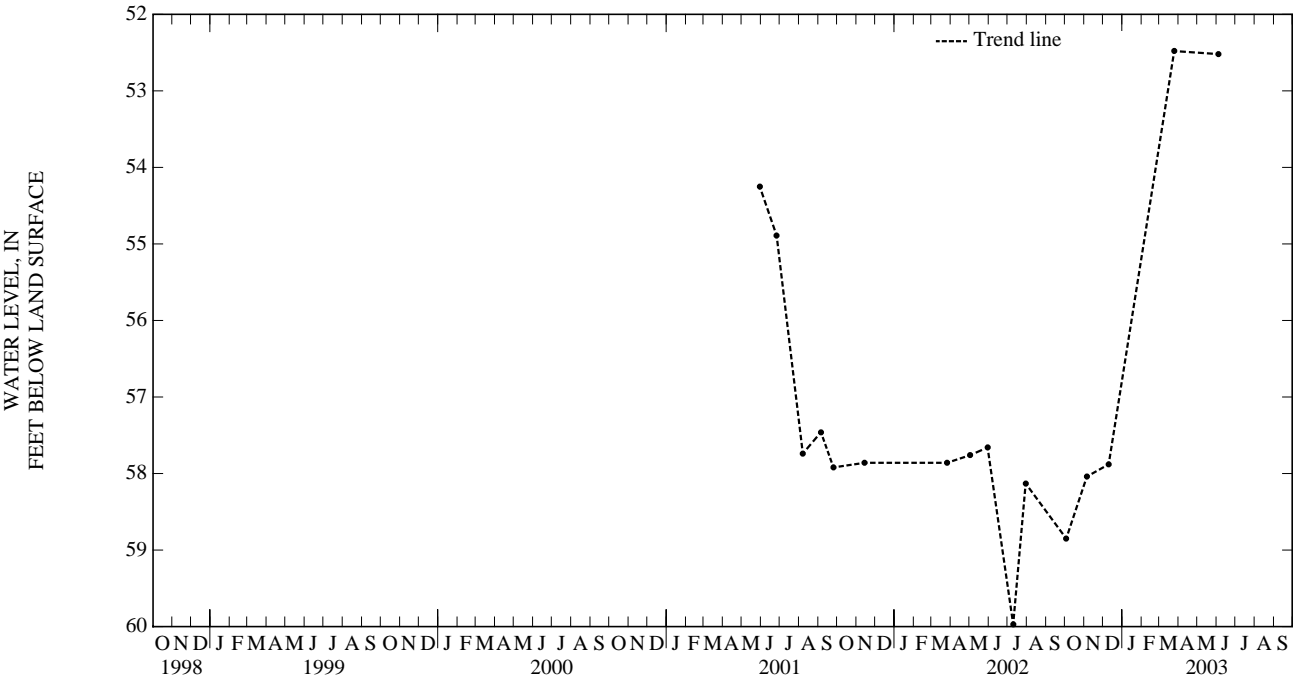
REMARKS.--Water level of Sept. 25, 2001 result of well having been recently pumped.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.48 ft below land-surface datum, Mar. 25, 2003; lowest measured, 59.97 ft below land-surface datum, July 10, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	58.85	NOV 05	58.04	DEC 10	57.88	MAR 25	52.48	JUN 04	52.52
WATER YEAR 2003    HIGHEST    52.48    MAR 25, 2003    LOWEST    59.97    NOV 05, 2002									



## FREDERICK COUNTY—Continued

390846078164201. Local number, 44X 6.

LOCATION.--Lat 39°08'46.34", long 78°16'41.60", NAD83, Hydrologic Unit 02070006, 0.40 mi. northwest of the intersection of Cedar Creek Grade and West Oaks Lane and 0.18 mi. southwest of West Oaks Lane. Owner: Snapp Brothers Orchard.

AQUIFER.--Elbrook Formation of Middle to Upper Cambrian age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth 160 ft, cased to 99 ft, open hole 99 to 160 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

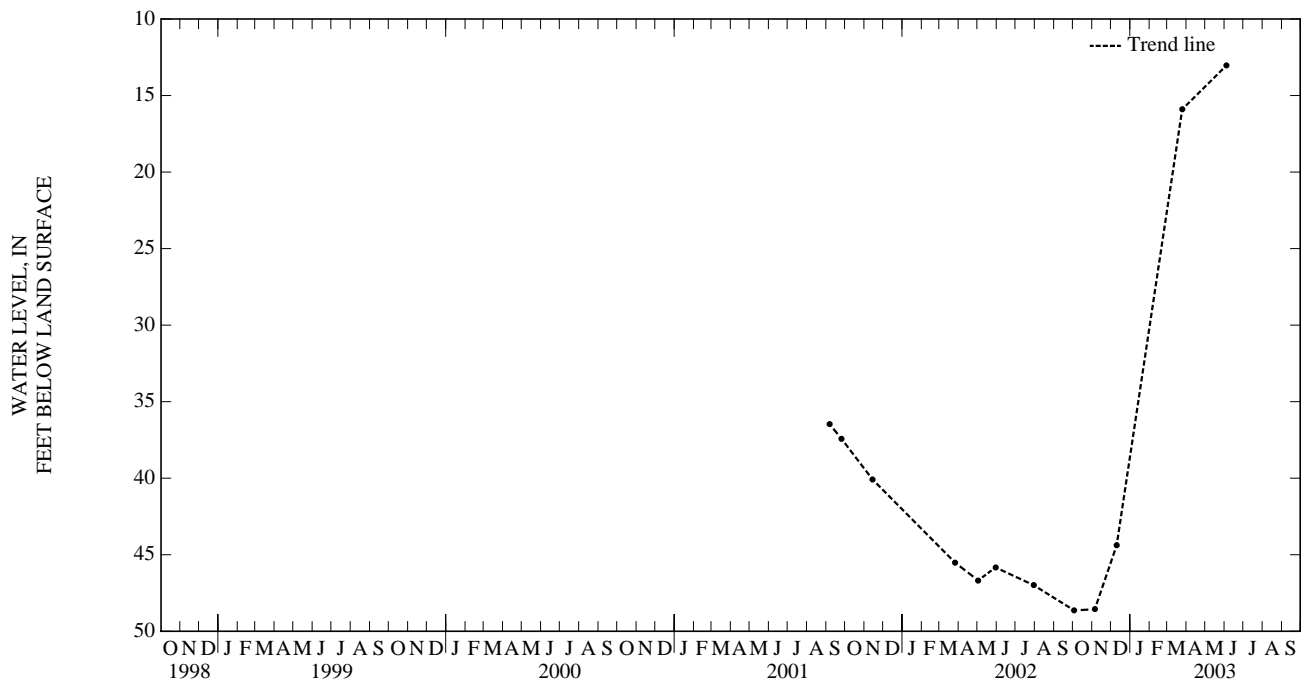
DATUM.--Elevation of land-surface datum is 920 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

PERIOD OF RECORD.--September 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.03 ft below land-surface datum, June 4, 2003; lowest measured, 48.64 ft below land-surface datum, Oct. 3, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	48.64	NOV 05	48.56	DEC 10	44.38	MAR 25	15.90	JUN 04	13.03
WATER YEAR 2003    HIGHEST    13.03    JUN 04, 2003    LOWEST    48.64    OCT 03, 2002									





GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

390542078145901. Local number, 45W 16.

LOCATION.--Lat 39°05'42.07", long 78°14'59.01", NAD83, Hydrologic Unit 02070007, 0.20 mi. northwest of the intersection of Marlboro Road and Carters Lane and 0.14 mi. north of Marlboro Road. Owner: Harold G. Nichols.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth unknown, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

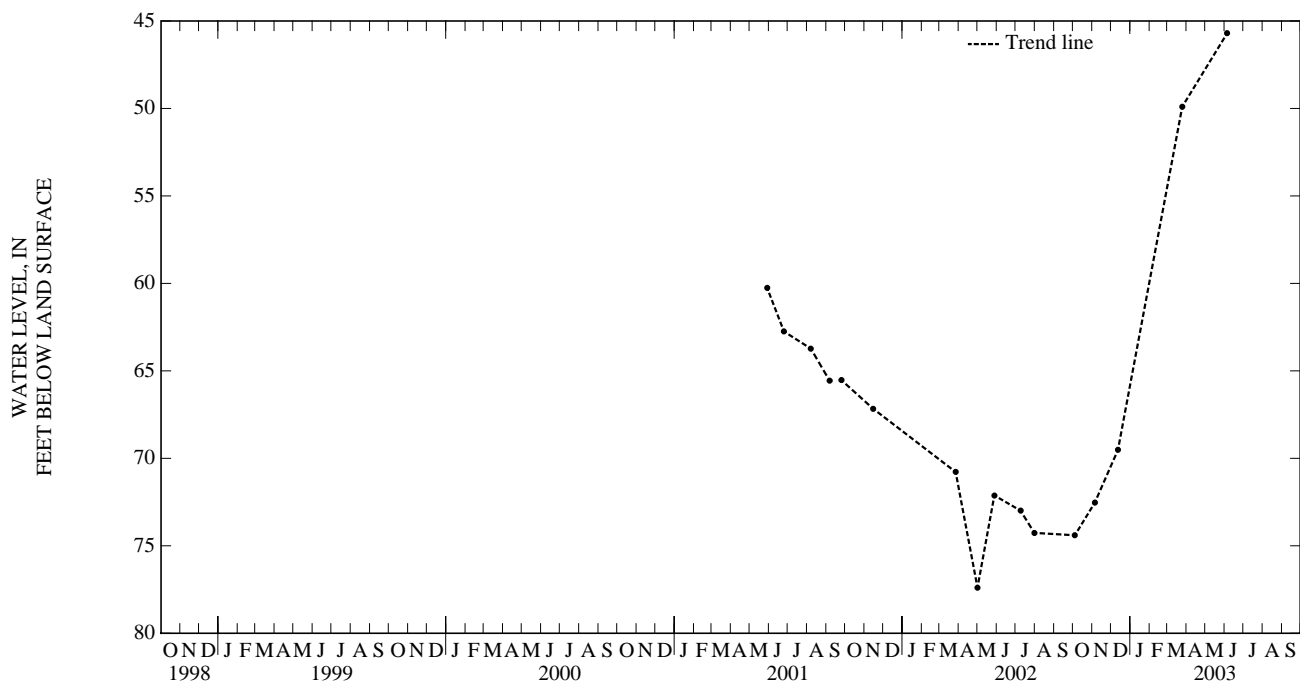
DATUM.--Elevation of land-surface datum is 835 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 45.70 ft below land-surface datum, June 5, 2003; lowest measured, 77.39 ft below land-surface datum, May 1, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04	74.40	NOV 05	72.53	DEC 12	69.52	MAR 25	49.90	JUN 05	45.70
WATER YEAR 2003    HIGHEST   45.70   JUN 05, 2003    LOWEST   74.40   OCT 04, 2002									



## FREDERICK COUNTY—Continued

390605078134701. Local number, 45W 17.

LOCATION.--Lat 39°06'04.78", long 78°13'47.19", NAD83, Hydrologic Unit 02070007, 1.18 mi. southwest of the intersection of Springdale Road and Baltimore & Ohio Railroad and 0.28 mi. southeast of Springdale Road. Owner: Long Creek Farm.

AQUIFER.--Pinesburg Station Dolomite and Rockdale Run Formation of Lower to Middle Ordovician age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 400 ft, cased to 60 ft, open hole 60 to 400 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 785 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

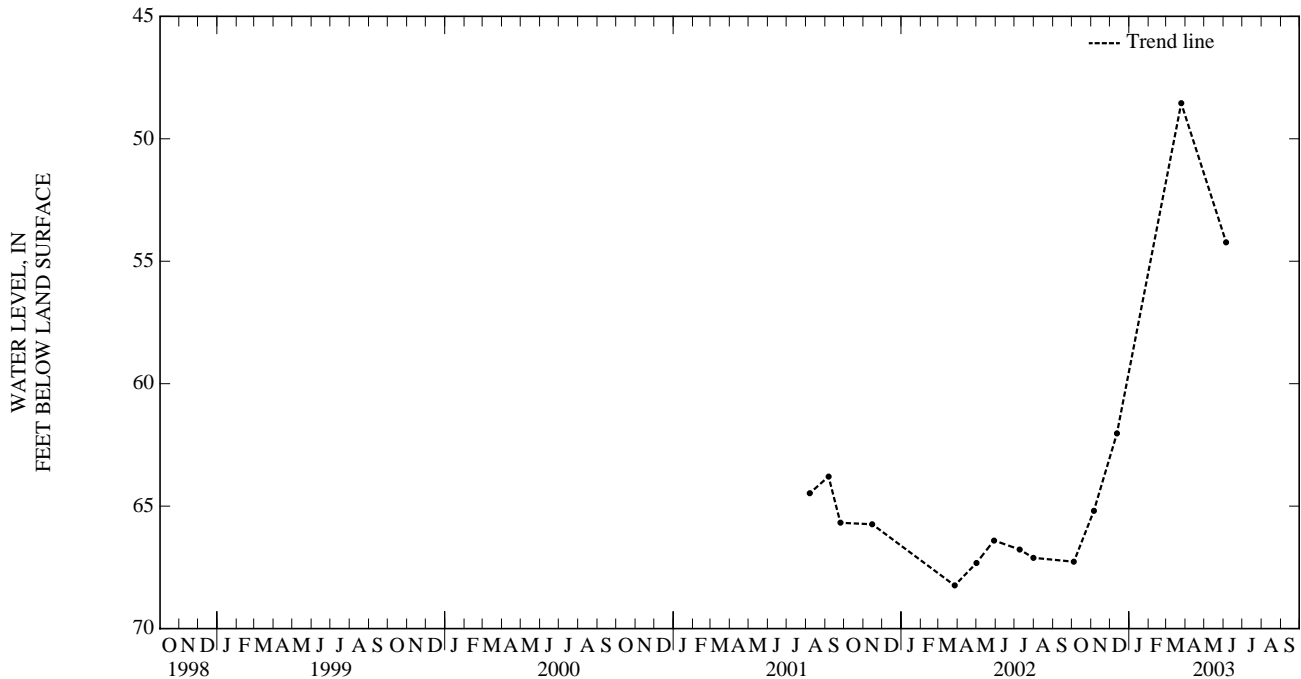
REMARKS.--Water levels of Sept. 25, 2001, Mar. 27 and May 1, 2002 are the result of well having been recently pumped.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.55 ft below land-surface datum, Mar. 25, 2003; lowest measured, 67.27 ft below land-surface datum, Oct. 4, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 04	67.27	NOV 05	65.19	DEC 12	62.03	MAR 25	48.55	JUN 05	54.23
WATER YEAR 2003    HIGHEST    48.55    MAR 25, 2003    LOWEST    67.27    OCT 04, 2002									



GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

390927078144801. Local number, 45X 3.

LOCATION.--Lat 39°09'27.33", long 78°14'48.08", NAD83, Hydrologic Unit 02070004, 90 ft north of the intersection of Cedar Creek Grade and Miller Road and 20 ft west of Miller Road. Owner: Second Opequon Presbyterian Church.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled water well, diameter 4 in., depth unknown, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 834.48 ft above NGVD of 1929. Measuring point: Top of 6 in. protector casing, 0.8 ft above land-surface datum.

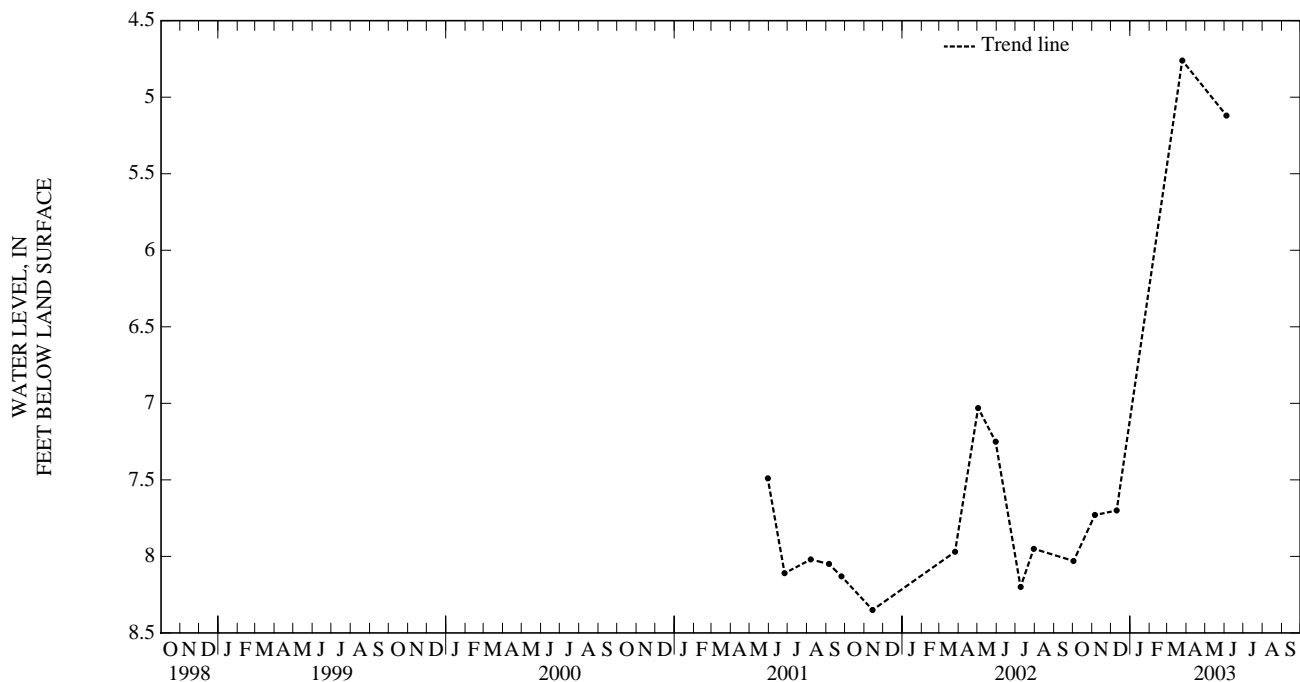
PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.76 ft below land-surface datum, Mar. 25, 2003; lowest measured, 8.35 ft below land-surface datum, Nov. 14, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	8.03	NOV 05	7.73	DEC 10	7.70	MAR 25	4.76	JUN 04	5.12

WATER YEAR 2003    HIGHEST    4.76    MAR 25, 2003    LOWEST    8.03    OCT 02, 2002



## FREDERICK COUNTY—Continued

391139078141501. Local number, 45X 4.

LOCATION.--Lat 39°11'38.62", long 78°14'14.74", NAD83, Hydrologic Unit 02070004, 0.33 mi. west of the intersection of U.S. Highway 50 and Poorhouse Road and 150 ft south of U.S. Highway 50. Owner: Round Hill United Methodist Church.

AQUIFER.--Martinsburg Formation of Middle to Upper Ordovician age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth unknown, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 920 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

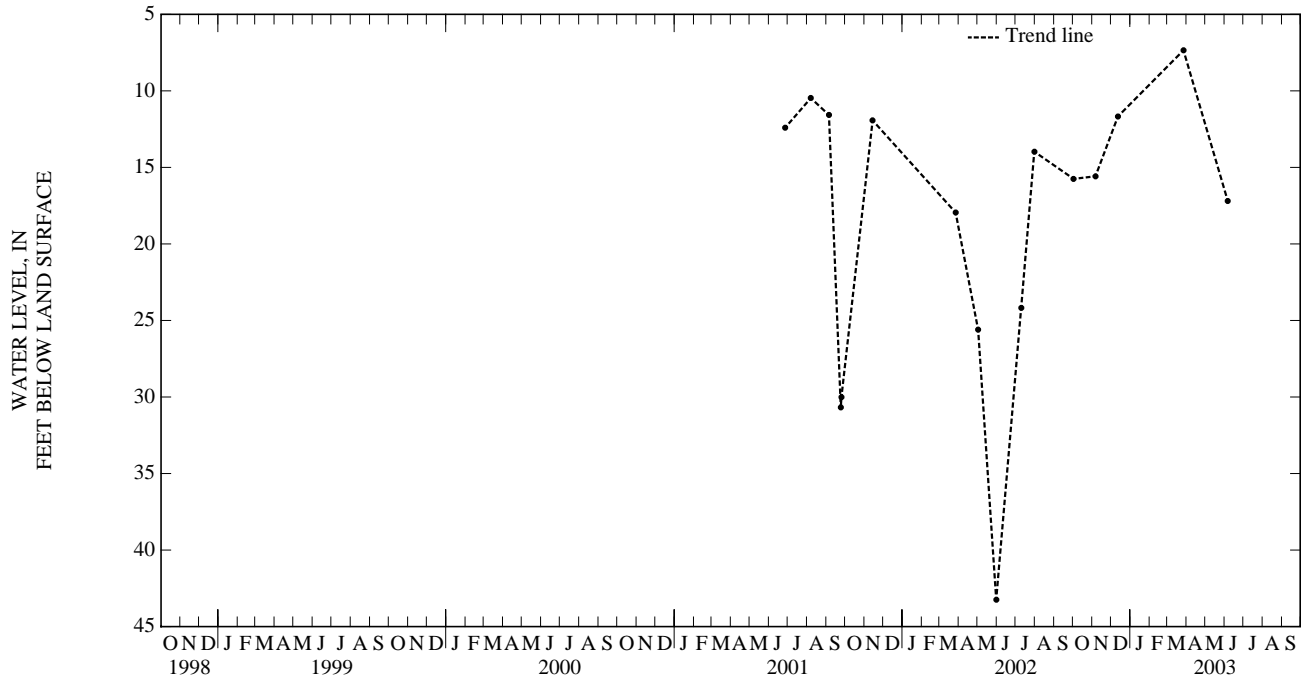
REMARKS.--Water levels of Sept. 24, 25, 2001 and May 2, 31, 2002 are the result of well having been recently pumped.

PERIOD OF RECORD.--June 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.35 ft below land-surface datum, Mar. 27, 2003; lowest measured, 24.17 ft below land-surface datum, July 10, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	15.75	NOV 06	15.58	DEC 12	11.67	MAR 27	7.35	JUN 06	17.20
WATER YEAR 2003    HIGHEST    7.35    MAR 27, 2003    LOWEST    24.17    JUN 06, 2003									



GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

391339078120701. Local number, 45X 9.

LOCATION.--Lat 39°13'39.42", long 78°12'07.18", NAD83, Hydrologic Unit 02070004, 910 ft northwest of the intersection of Burnt Church Road and U.S. Highway 522 and 170 ft north of Burnt Church Road. Owner: Burnt Presbyterian Church.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth unknown, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

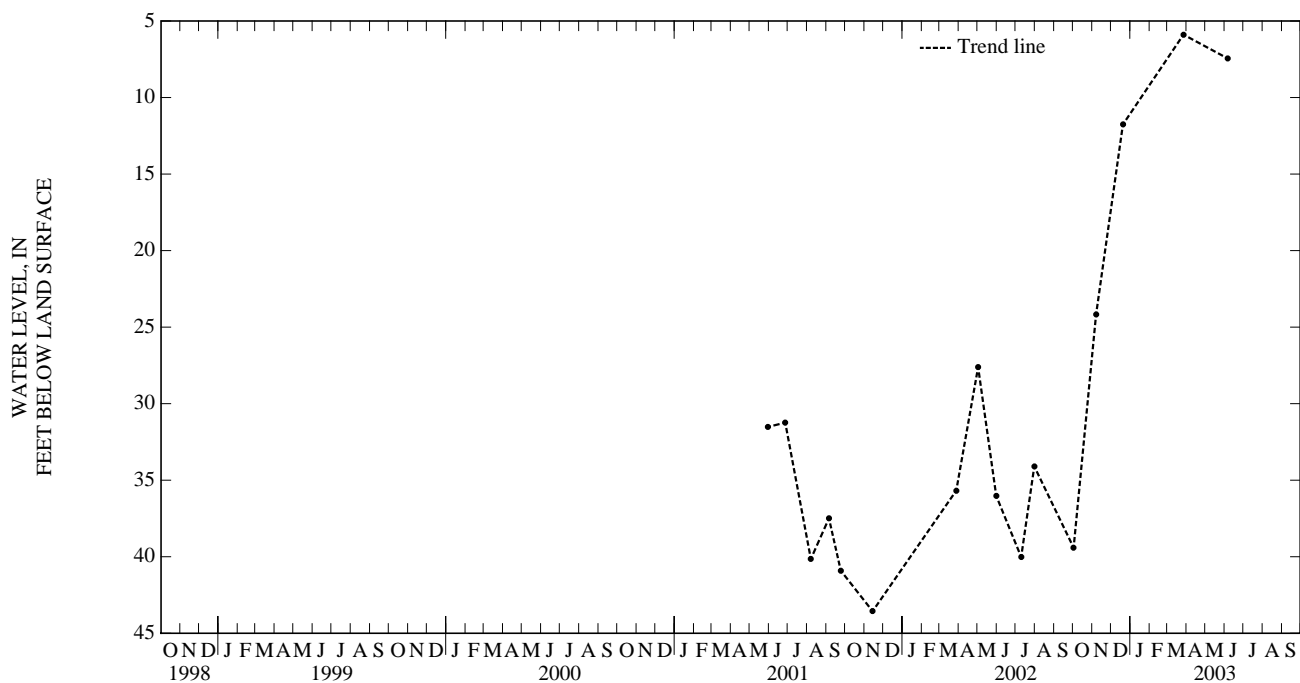
DATUM.--Elevation of land-surface datum is 925 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.28 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.89 ft below land-surface datum, Mar. 27, 2003; lowest measured, 43.56 ft below land-surface datum, Nov. 14, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	39.41	NOV 07	24.17	DEC 20	11.76	MAR 27	5.89	JUN 06	7.45
WATER YEAR 2003		HIGHEST	5.89	MAR 27, 2003	LOWEST	39.41	OCT 02, 2002		



## FREDERICK COUNTY—Continued

391233078133801. Local number, 45X 11.

LOCATION.--Lat 39°12'32.80", long 78°13'38.48", NAD83, Hydrologic Unit 02070004, 0.80 mi. southwest of the intersection of Poorhouse Road and Indian Hollow Road and 60 ft east of Poorhouse Road. Owner: Charles W. Racey.

AQUIFER.--Martinsburg Formation of Middle to Upper Ordovician age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 300 ft, cased to 59 ft, open hole 59 to 300 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

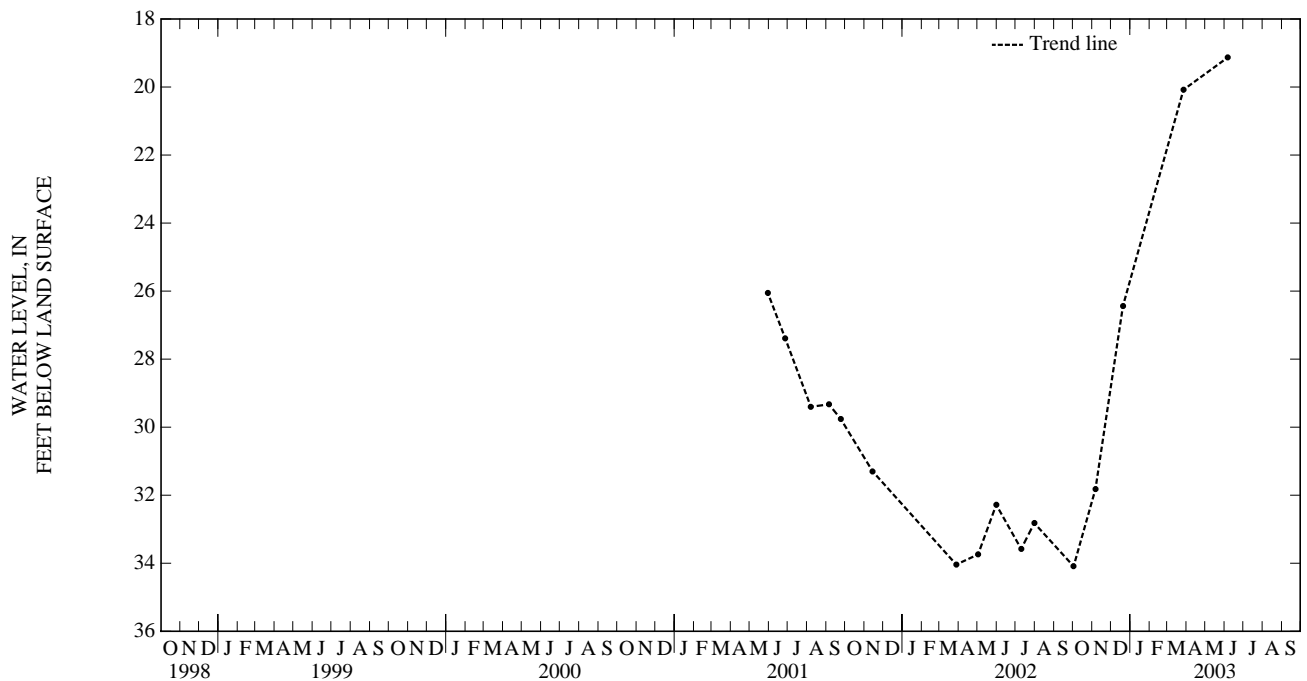
DATUM.--Elevation of land-surface datum is 945 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.13 ft below land-surface datum, June 6, 2003; lowest measured, 34.09 ft below land-surface datum, Oct. 2, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	34.09	NOV 06	31.82	DEC 20	26.44	MAR 27	20.08	JUN 06	19.13
WATER YEAR 2003    HIGHEST    19.13    JUN 06, 2003    LOWEST    34.09    OCT 02, 2002									



GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

390754078133201. Local number, 45X 12.

LOCATION.--Lat 39°07'54.05", long 78°13'32.05", NAD83, Hydrologic Unit 02070004, 750 ft west of the northern intersection of Middle Road and Old Middle Road and 330 ft northwest of Middle Road. Owner: Terry Livermore.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 180 ft, cased to 59 ft, open hole 59 to 180 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

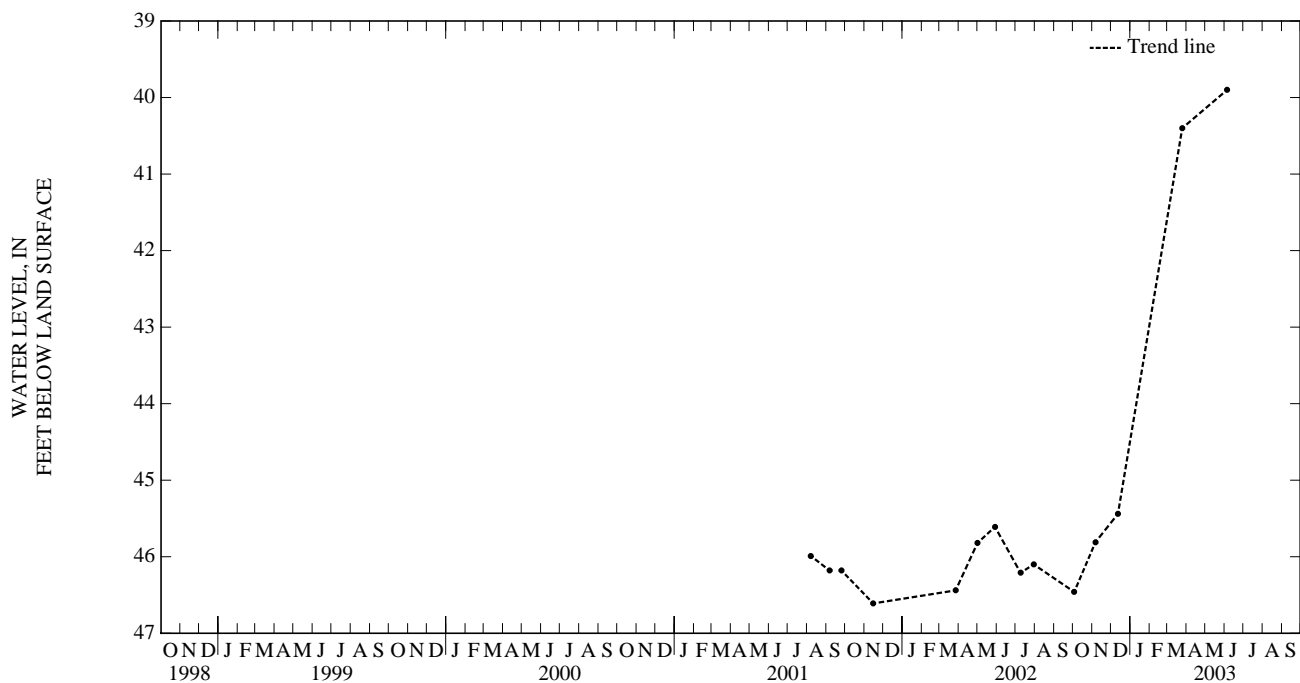
DATUM.--Elevation of land-surface datum is 800 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.

PERIOD OF RECORD.--August 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 39.90 ft below land-surface datum, June 5, 2003; lowest measured, 46.61 ft below land-surface datum, Nov. 15, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	46.46	NOV 06	45.81	DEC 12	45.44	MAR 25	40.40	JUN 05	39.90
WATER YEAR 2003    HIGHEST    39.90    JUN 05, 2003    LOWEST    46.61    OCT 03, 2002									



390748078143301. Local number, 45X 13.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

**WELL CHARACTERISTICS.**--Drilled water well, diameter 6 in., depth 250 ft, cased to 30 ft, open hole 30 to 250 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

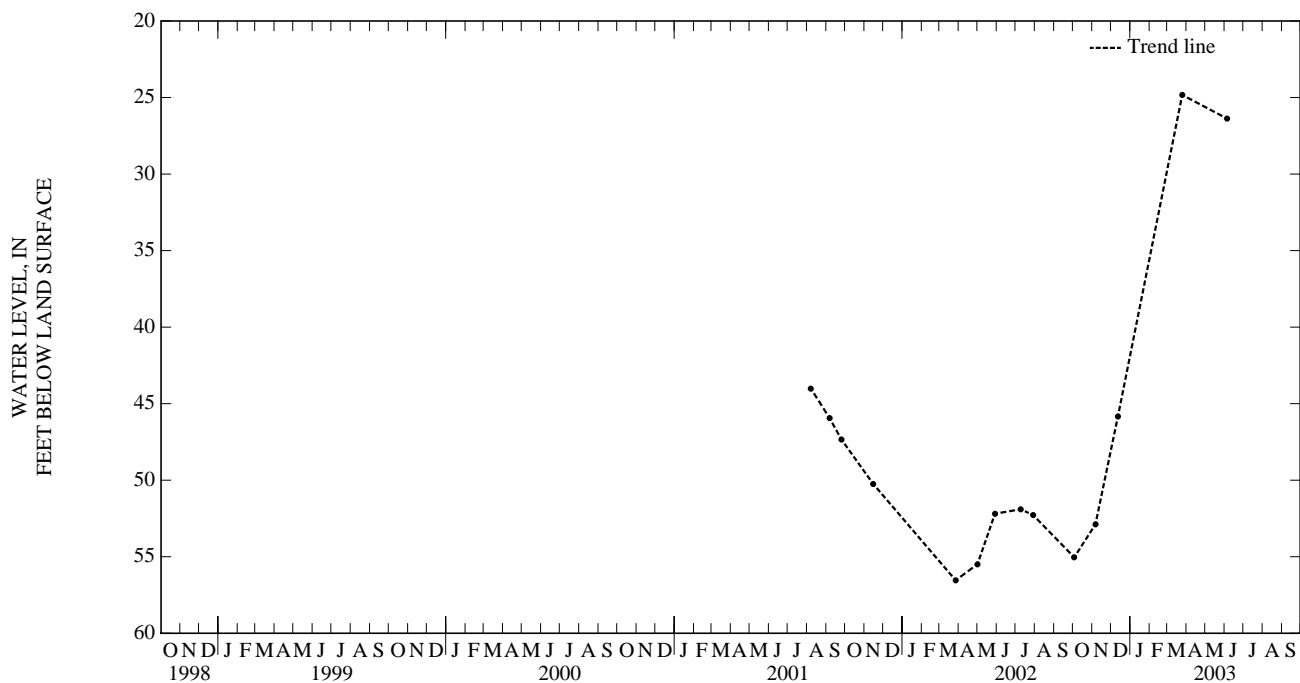
DATUM.--Elevation of land-surface datum is 860 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.

PERIOD OF RECORD.--August 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.83 ft below land-surface datum, Mar. 25, 2003; lowest measured, 56.54 ft below land-surface datum, Mar. 27, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	55.04	NOV 06	52.88	DEC 12	45.83	MAR 25	24.83	JUN 05	26.38
WATER YEAR 2003		HIGHEST	24.83	MAR 25, 2003	LOWEST	55.04	OCT 03, 2002		





GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

390930078134601. Local number, 45X 14.

LOCATION.--Lat 39°09'30.20", long 78°13'45.62", NAD83, Hydrologic Unit 02070004, 0.55 mi. west of the intersection of Cedar Creek Grade and Merriman Road and 280 ft southeast of Cedar Creek Grade. Owner: Ron Leffler.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 250 ft, cased to 84 ft, open hole 84 to 250 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

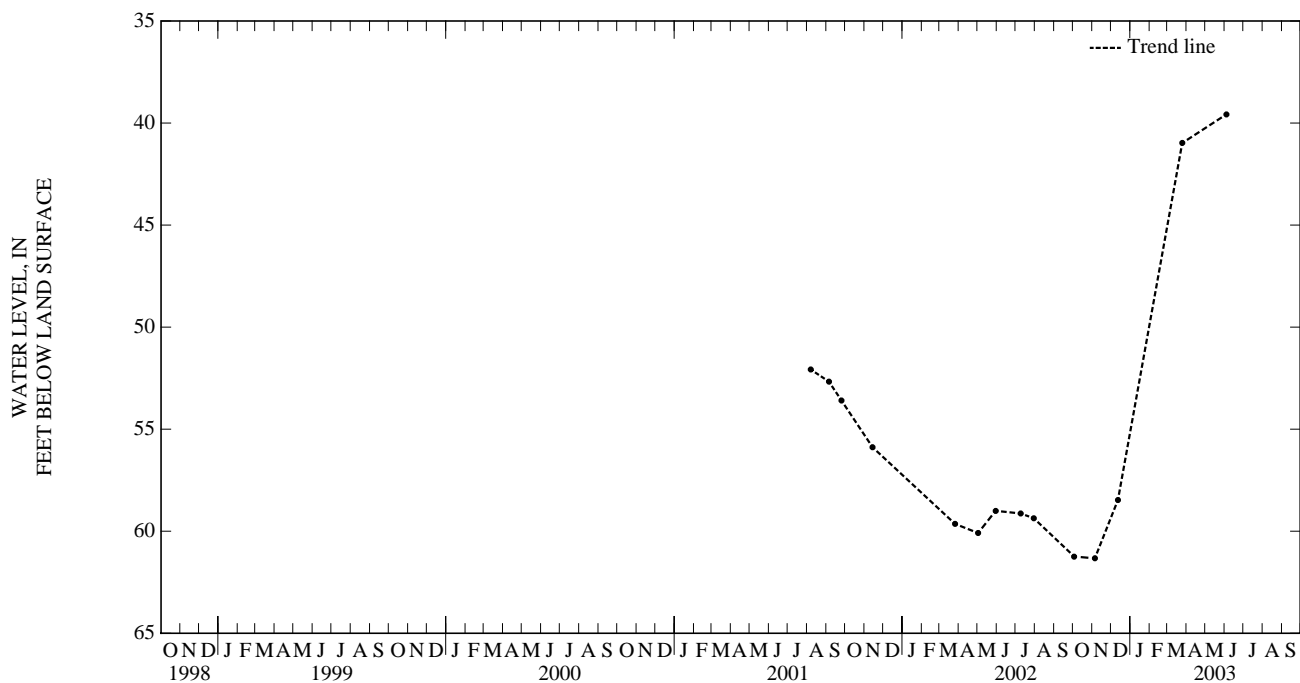
DATUM.--Elevation of land-surface datum is 850 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.

PERIOD OF RECORD.--August 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 39.57 ft below land-surface datum, June 4, 2003; lowest measured, 61.33 ft below land-surface datum, Nov. 5, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	61.24	NOV 05	61.33	DEC 12	58.47	MAR 25	40.98	JUN 04	39.57
WATER YEAR 2003		HIGHEST	39.57	JUN 04, 2003	LOWEST	61.33	NOV 05, 2002		



## FREDERICK COUNTY—Continued

390928078140001. Local number, 45X 15.

LOCATION.--Lat 39°09'28.14", long 78°13'59.75", NAD83, Hydrologic Unit 02070004, 0.76 mi. west of the intersection of Cedar Creek Grade and Merriman Road and 325 ft south of Cedar Creek Grade. Owner: Edith B. Miller.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 120 ft, cased to 99 ft, open hole 99 to 120 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

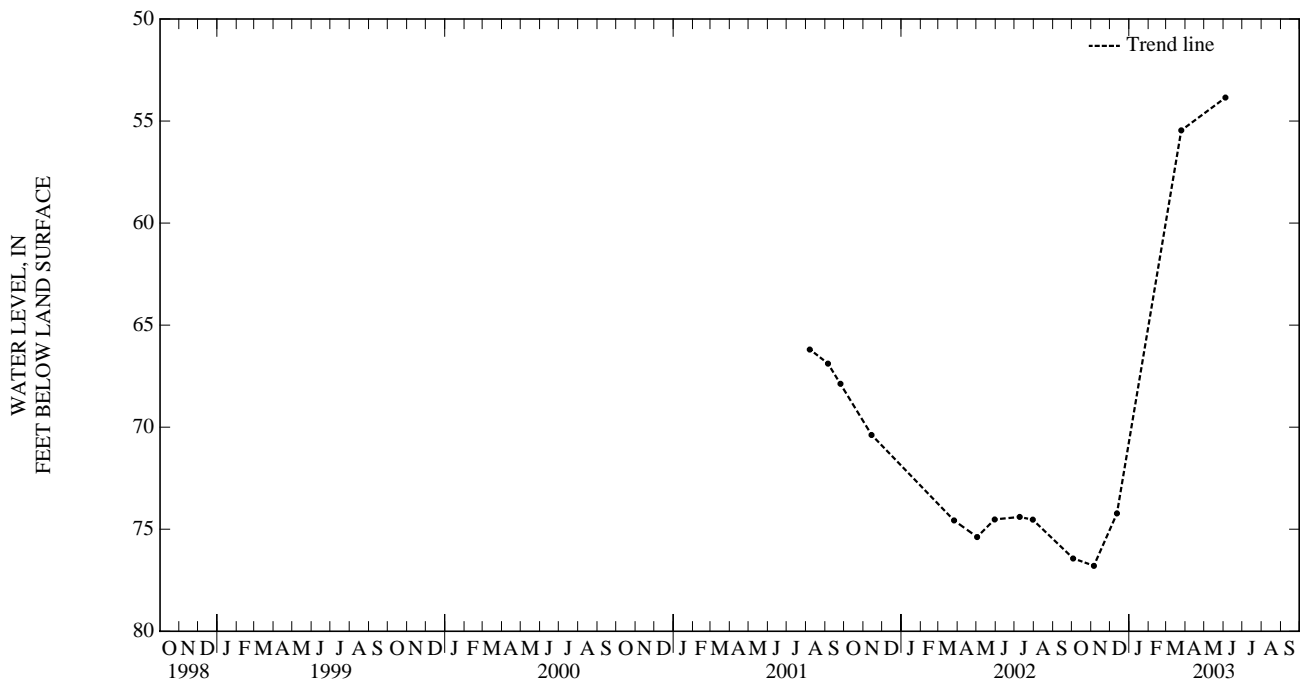
DATUM.--Elevation of land-surface datum is 865 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.6 ft above land-surface datum.

PERIOD OF RECORD.--August 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 53.85 ft below land-surface datum, June 4, 2003; lowest measured, 76.79 ft below land-surface datum, Nov. 5, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 03	76.43	NOV 05	76.79	DEC 12	74.23	MAR 25	55.46	JUN 04	53.85
WATER YEAR 2003    HIGHEST    53.85    JUN 04, 2003    LOWEST    76.79    NOV 05, 2002									



GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

391605078083601. Local number, 45Y 1.

LOCATION.--Lat 39°16'05.35", long 78°08'36.08", NAD83, Hydrologic Unit 02070004, 0.6 mi. northwest of the intersection of Branson Spring Road and Welltown Road. Owner: D.K. Russell & Sons, Inc.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Dug domestic water well, depth 24.22 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

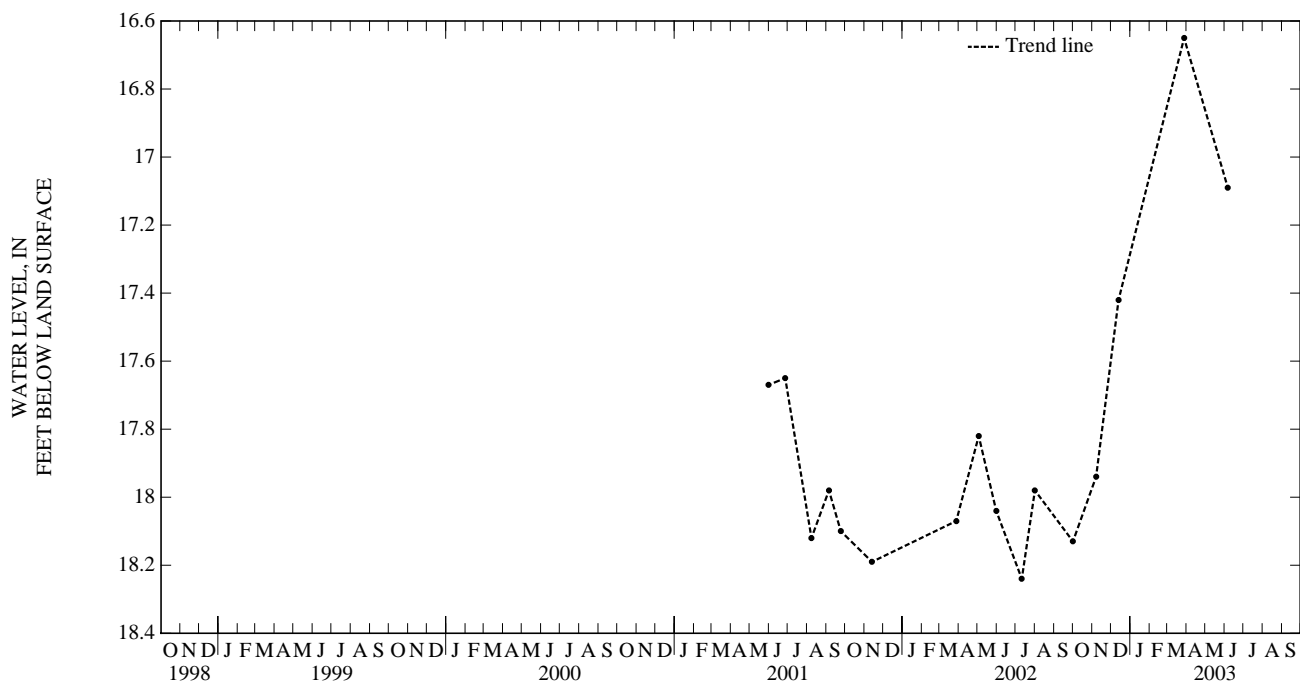
DATUM.--Elevation of land-surface datum is 820 ft above NGVD of 1929, from topographic map. Measuring point: Top of concrete slab cover, 1.0 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.65 ft below land-surface datum, Mar. 28, 2003; lowest measured, 18.24 ft below land-surface datum, July 11, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	18.13	NOV 07	17.94	DEC 13	17.42	MAR 28	16.65	JUN 06	17.09
WATER YEAR 2003    HIGHEST    16.65    MAR 28, 2003    LOWEST    18.13    OCT 01, 2002									



## FREDERICK COUNTY—Continued

391524078080701. Local number, 45Y 2.

LOCATION.--Lat 39°15'24.46", long 78°08'07.07", NAD83, Hydrologic Unit 02070004, 0.23 mi. northwest of the intersection of Hiatt Road and Welltown Road and 370 ft west of Welltown Road. Owner: D.K. Russell & Sons, Inc.

AQUIFER.--Pinesburg Station Dolomite and Rockdale Run Formation of Lower to Middle Ordovician age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 100 ft, cased to 19 ft, open hole 19 to 100 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 730 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.7 ft above land-surface datum.

REMARKS.--Water level of Aug. 8, 2001 result of well having been recently pumped.

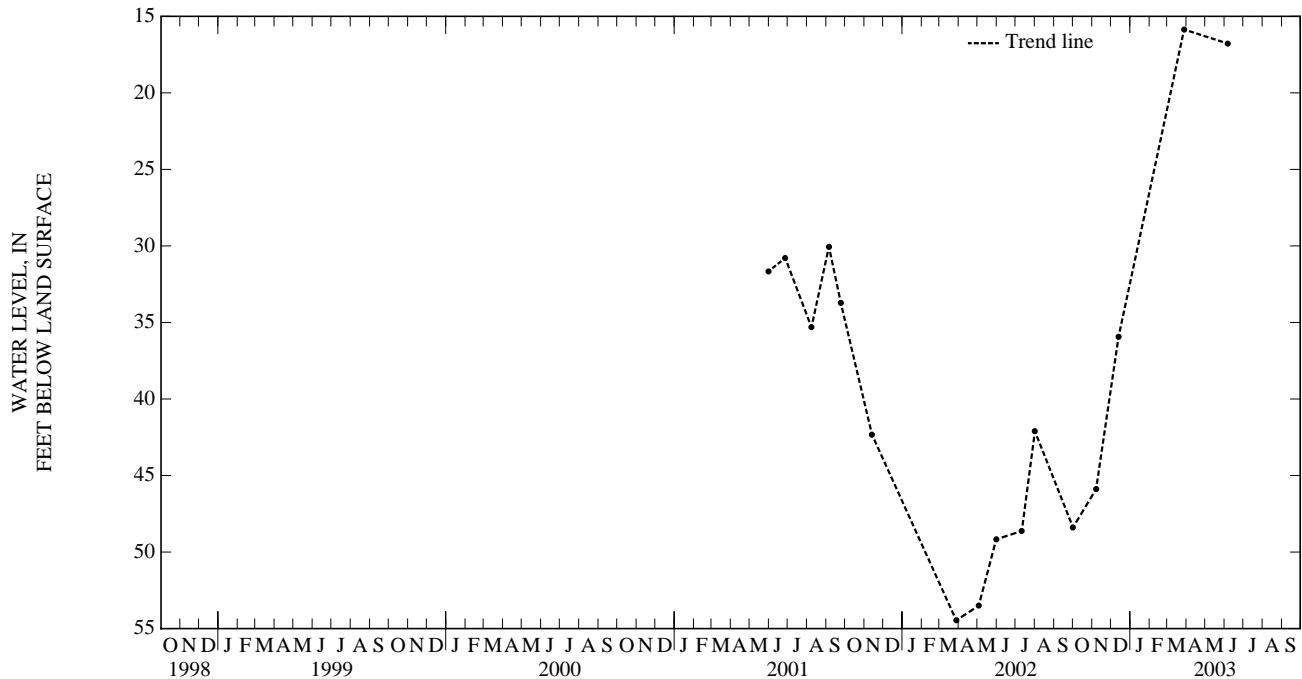
PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.86 ft below land-surface datum, Mar. 28, 2003; lowest measured, 54.46 ft below land-surface datum, Mar. 28, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	48.39	NOV 07	45.89	DEC 13	35.94	MAR 28	15.86	JUN 06	16.78

WATER YEAR 2003    HIGHEST    15.86    MAR 28, 2003    LOWEST    54.46    OCT 01, 2002



GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

391550078080301. Local number, 45Y 3.

LOCATION.--Lat 39°15'50.47", long 78°08'03.46", NAD83, Hydrologic Unit 02070004, 150 ft northwest of the intersection of Branson Spring Road and Welltown Road and 40 ft north of Branson Spring Road. Owner: Galilee Christian Church.

AQUIFER.--Pinesburg Station Dolomite and Rockdale Run Formation of Lower to Middle Ordovician age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth unknown, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

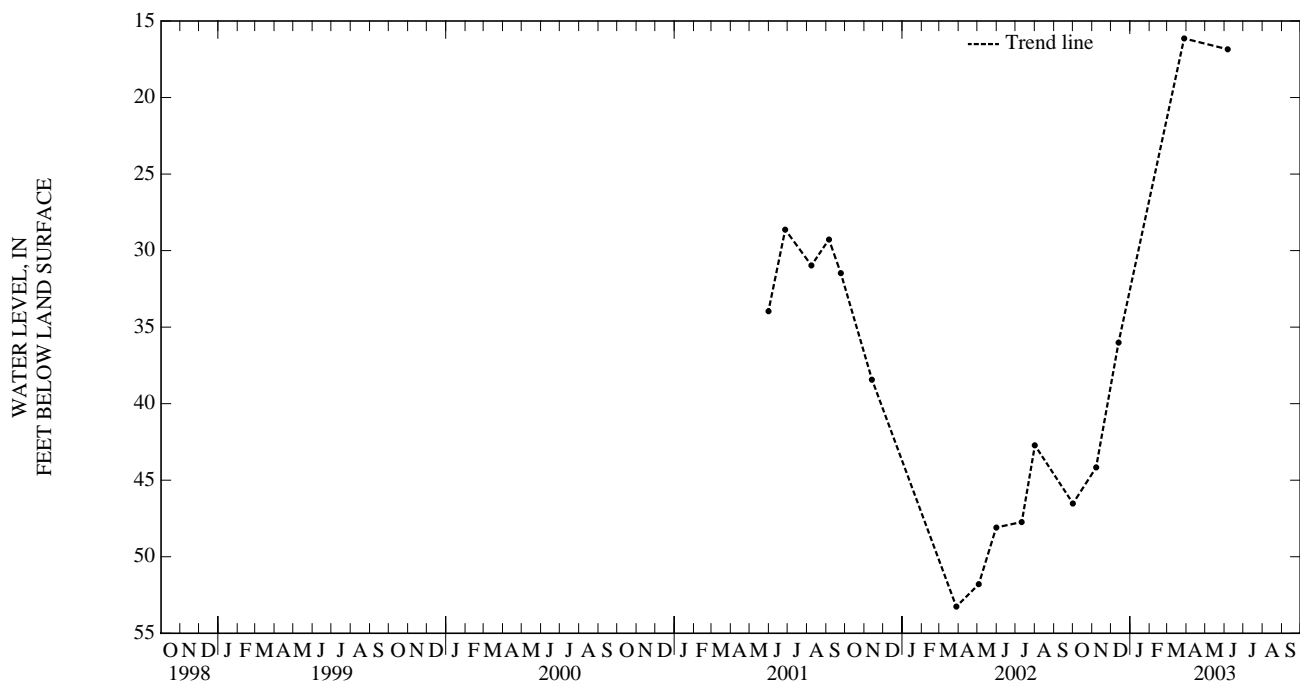
DATUM.--Elevation of land-surface datum is 750 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.1 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.14 ft below land-surface datum, Mar. 28, 2003; lowest measured, 53.26 ft below land-surface datum, Mar. 28, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	46.52	NOV 07	44.17	DEC 13	36.00	MAR 28	16.14	JUN 06	16.85
WATER YEAR 2003    HIGHEST   16.14   MAR 28, 2003    LOWEST   46.52   OCT 01, 2002									



## FREDERICK COUNTY—Continued

391757078095401. Local number, 45Y 4.

LOCATION.--Lat 39°17'57.22", long 78°09'53.97", NAD83, Hydrologic Unit 02070004, 0.39 mi. northwest of the intersection of White Hall Road and Warm Springs Road and 0.24 mi. southwest of White Hall Road, just north of driveway to Old Stone Church. Owner: Martha Wolfe and Bill Shabb.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Dug unused water well, diameter , depth 20.47 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

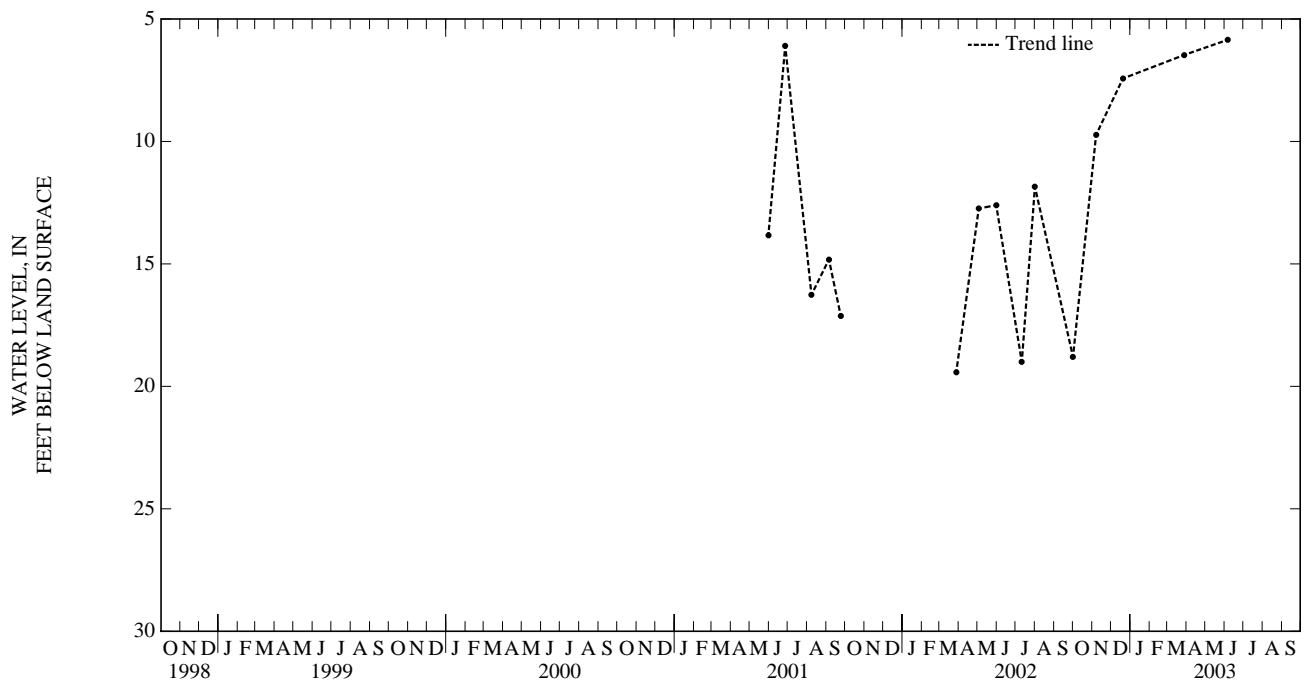
DATUM.--Elevation of land-surface datum is 770 ft above NGVD of 1929, from topographic map. Measuring point: Top of concrete slab at land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.85 ft below land-surface datum, June 26, 2003; well was observed to be dry on Nov. 13, 2001 and Feb. 27, 2002; lowest water level measured, 19.42 ft below land-surface datum, Mar. 28, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	18.80	NOV 07	9.73	DEC 20	7.43	MAR 28	6.47	JUN 06	5.85
WATER YEAR 2003    HIGHEST   5.85   JUN 06, 2003    LOWEST   18.80   OCT 01, 2002									



GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

391757078095402. Local number, 45Y 5.

LOCATION.--Lat 39°17'56.81", long 78°09'54.25", NAD83, Hydrologic Unit 02070004, 0.39 mi. northwest of the intersection of White Hall Road and Warm Springs Road and 0.24 mi. southwest of White Hall Road, just south of driveway to Old Stone Church. Owner: Martha Wolfe and Bill Shabb.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 200 ft, cased to 40 ft, open hole 40 to 200 ft.

INSTRUMENTATION.--Electronic pressure transducer data logger 60-minute record interval.

DATUM.--Elevation of land-surface datum is 770 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing 2.2 ft above land-surface datum.

REMARKS.--Missing record due to recorder malfunction.

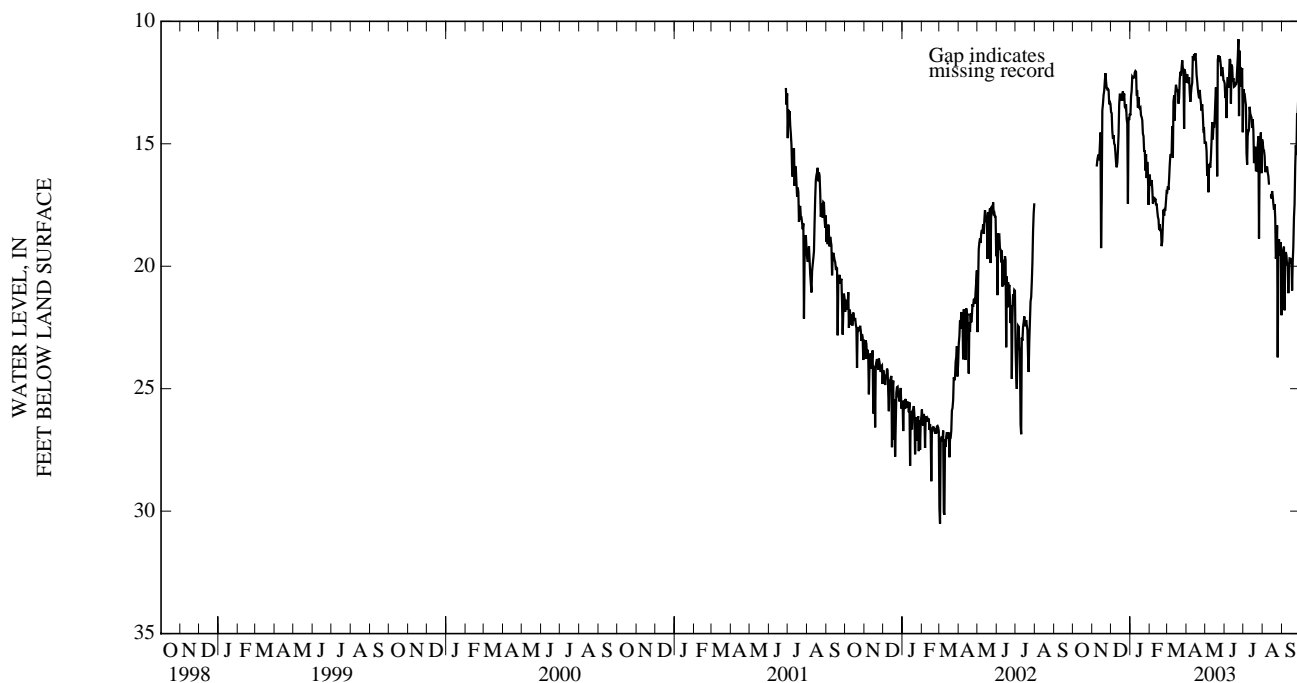
PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.34 ft below land-surface datum, June 23, 2003; lowest recorded, 30.51 ft below land-surface datum, Mar. 2, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 10.34 ft, June 23; lowest instantaneous water level, 23.72 ft, Aug. 25.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	14.65	12.30	16.83	15.86	12.29	15.82	12.59	13.42	16.16	21.80
10	---	15.52	15.96	12.06	17.24	15.58	12.51	15.50	11.59	14.39	16.31	19.88
15	---	19.26	12.99	13.53	18.09	12.59	11.30	14.35	12.32	14.34	17.23	19.90
20	---	12.84	12.86	14.04	19.18	13.14	12.98	16.33	12.48	15.12	17.47	18.01
25	---	12.78	13.39	16.09	17.67	11.59	13.65	11.60	11.20	14.70	23.72	13.76
EOM	---	13.36	13.77	16.82	16.95	12.50	15.00	12.43	14.53	14.82	22.00	14.47



## FREDERICK COUNTY—Continued

391738078085501. Local number, 45Y 6.

LOCATION.--Lat 39°17'37.96", long 78°08'55.00", NAD83, Hydrologic Unit 02070004, 905 ft north of the intersection of White Hall Road and Apple Pie Ridge Road and 450 ft west of Apple Pie Ridge Road. Owner: White Hall United Methodist Church.

AQUIFER.--Elbrook Formation of Middle to Upper Cambrian age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth unknown, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 905 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.55 ft above land-surface datum.

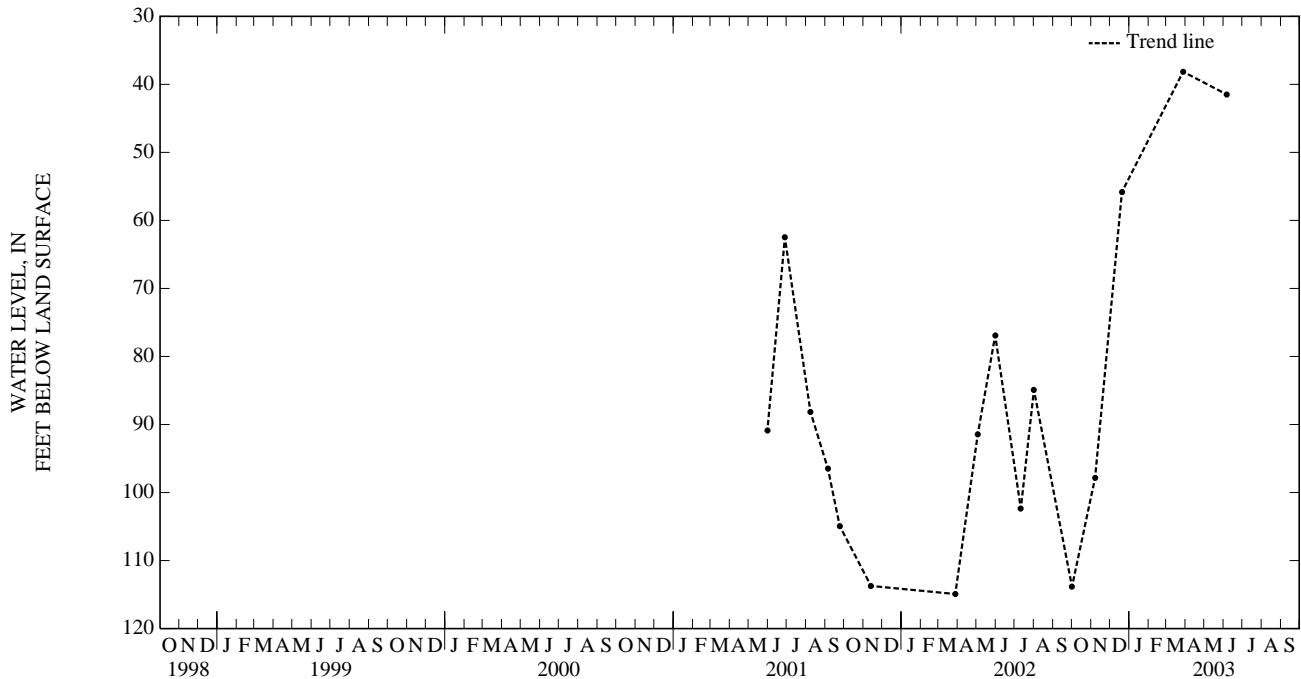
REMARKS.--Water level of Sept. 24, 2001 result of well having been recently pumped.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 38.14 ft below land-surface datum, Mar. 28, 2003; lowest measured, 114.92 ft below land-surface datum, Mar. 28, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	113.83	NOV 07	97.85	DEC 20	55.82	MAR 28	38.14	JUN 06	41.49
WATER YEAR 2003    HIGHEST    38.14    MAR 28, 2003    LOWEST    114.92    OCT 01, 2002									





GROUND-WATER LEVELS  
FREDERICK COUNTY—Continued

391858078075601. Local number, 45Y 8.

LOCATION.--Lat 39°18'58.11", long 78°07'55.50", NAD83, Hydrologic Unit 02070004, 350 ft southwest of the intersection of Winding Hill Road and Apple Pie Ridge Road and 90 ft northwest of Apple Pie Ridge Road. Owner: Todd Esparza.

AQUIFER.--Elbrook Formation of Middle to Upper Cambrian age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth 220 ft, cased to 19 ft, open hole 19 to 220 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

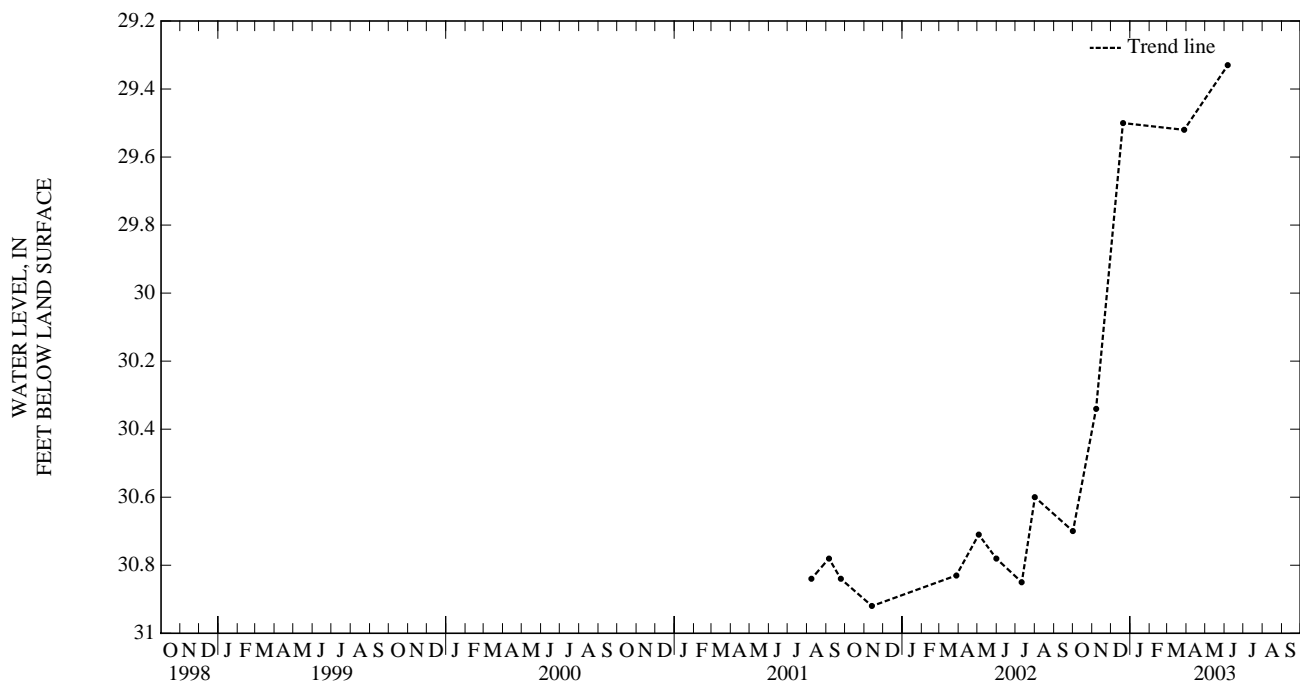
DATUM.--Elevation of land-surface datum is 845 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.

PERIOD OF RECORD.--August 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.33 ft below land-surface datum, June 6, 2003; lowest measured, 30.92 ft below land-surface datum, Nov. 13, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	30.70	NOV 07	30.34	DEC 20	29.50	MAR 28	29.52	JUN 06	29.33
WATER YEAR 2003 HIGHEST		29.33	JUN 06, 2003 LOWEST		30.70	OCT 01, 2002			



391413078063901. Local number, 46X108.

AQUIFER.--Pinesburg Station Dolomite and Rockdale Run Formation of Lower to Middle Ordovician age.

DATUM.--Elevation of land-surface datum is 625 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.29 ft below land-surface datum, Aug. 13, 2001; lowest recorded, 29.90 ft below land-surface datum, Sept. 21, 2002.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	22.88	NOV 07	18.34	DEC 13	14.39	MAR 28	13.69	JUN 06	15.21

[illegible]

LOCATION.--Lat 39°14'13.36", long 78°07'12.40", NAD83, Hydrologic Unit 02070004, 0.6 mi southwest of the intersection of Stephenson Road and Martinsburg Pike and 0.4 mi northwest of Martinsburg Pike. Owner: O. L. Payne.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth unknown, length of casing unknown.

**INSTRUMENTATION.**--Electronic pressure transducer data logger 15-minute interval.

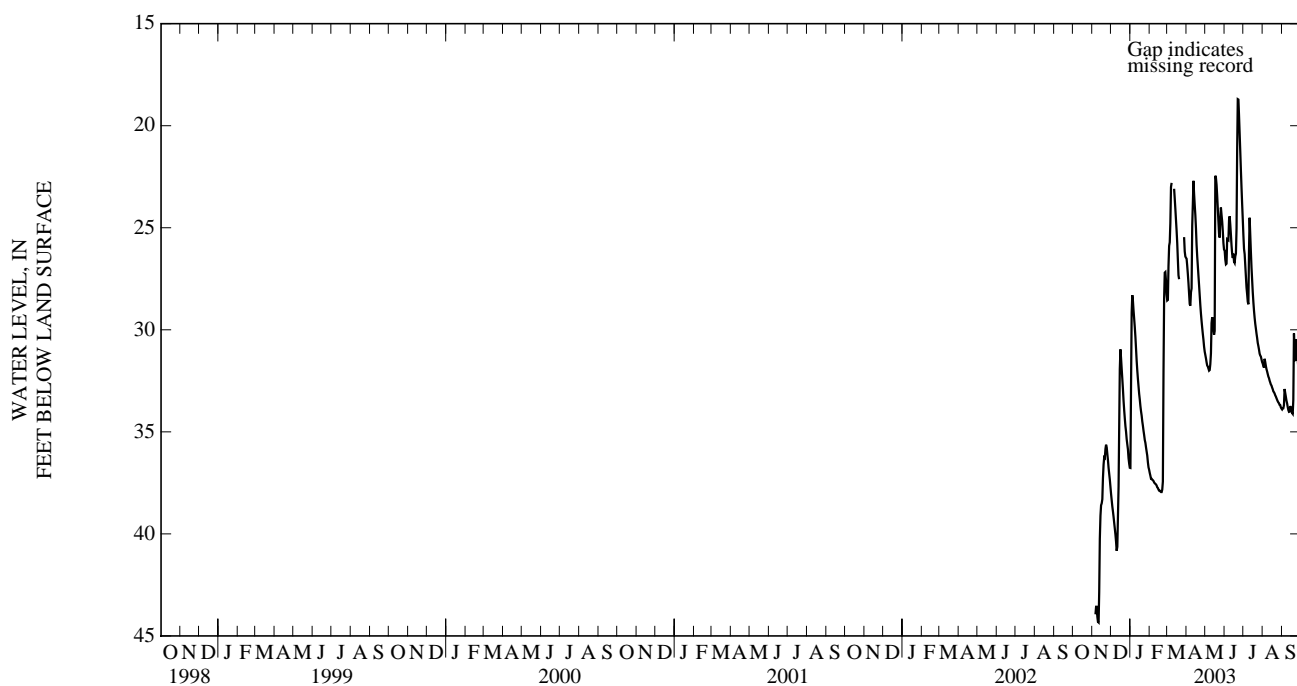
DATUM.--Elevation of land-surface datum is 665 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.75 ft above land-surface datum.

PERIOD OF RECORD.--November 2002 to September 2003.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 17.97 ft below land-surface datum, June 23, 2003; lowest recorded, 44.44 ft below land-surface datum, Nov. 5, 2002.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	39.16	28.58	37.35	25.71	28.24	31.80	25.55	27.39	31.58	32.90
10	---	44.31	40.83	30.93	37.55	---	24.89	31.15	24.84	26.03	32.29	33.78
15	---	38.60	31.93	33.14	37.83	24.62	24.38	30.24	26.27	27.57	32.73	33.81
20	---	36.25	32.92	34.49	37.95	27.52	27.36	23.44	25.03	29.71	33.12	30.18
25	---	36.08	34.99	35.54	27.20	---	29.58	24.57	20.40	30.80	33.50	30.98
EOM	---	37.69	36.76	36.86	28.27	26.47	31.07	26.07	24.60	31.58	33.86	32.79



## FREDERICK COUNTY—Continued

391716078070901. Local number, 46Y 1.

LOCATION.--Lat 39°17'16.31", long 78°07'09.34", NAD83, Hydrologic Unit 02070004, 210 ft east of the intersection of Welltown Road and Rest Church Road and 60 ft south of Rest Church Road. Owner: Woodbine Assembly of God.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth unknown, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 735 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.25 ft above land-surface datum.

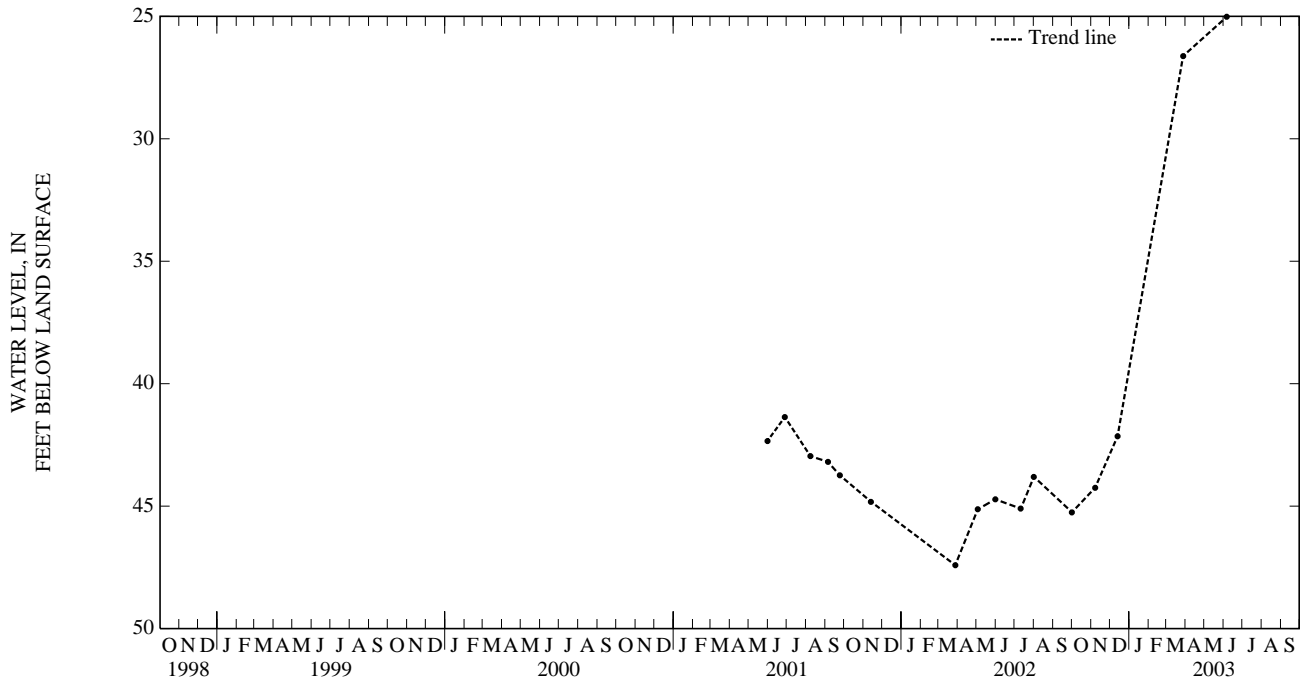
REMARKS.--Water level of Mar. 28, 2002 result of well having been recently pumped.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.02 ft below land-surface datum, June 6, 2003; lowest measured, 45.25 ft below land-surface datum, Oct. 1, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 01	45.25	NOV 07	44.25	DEC 13	42.15	MAR 28	26.62	JUN 06	25.02
WATER YEAR 2003    HIGHEST   25.02   JUN 06, 2003    LOWEST   45.25   OCT 01, 2002									



GROUND-WATER LEVELS  
GLOUCESTER COUNTY

372621076404201. Local number, 57H 20 SOW 192A.

LOCATION.--Lat 37°26'22", long 76°40'41", NAD83, Hydrologic Unit 02080107, 80 ft north of State Highway 684 (Starvation Road), 1.1 mi northeast of intersection of State Highways 617 and 684. Owner: St. Laurent Paper Products Corporation (formerly Chesapeake Corporation).

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. 200 ft, diameter 2 in. 200 to 910 ft, depth 910 ft, screened 900 to 910 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 6 ft above NGVD of 1929, from topographic map. Measuring point: Top of inner casing, 1.5 ft above land-surface datum.

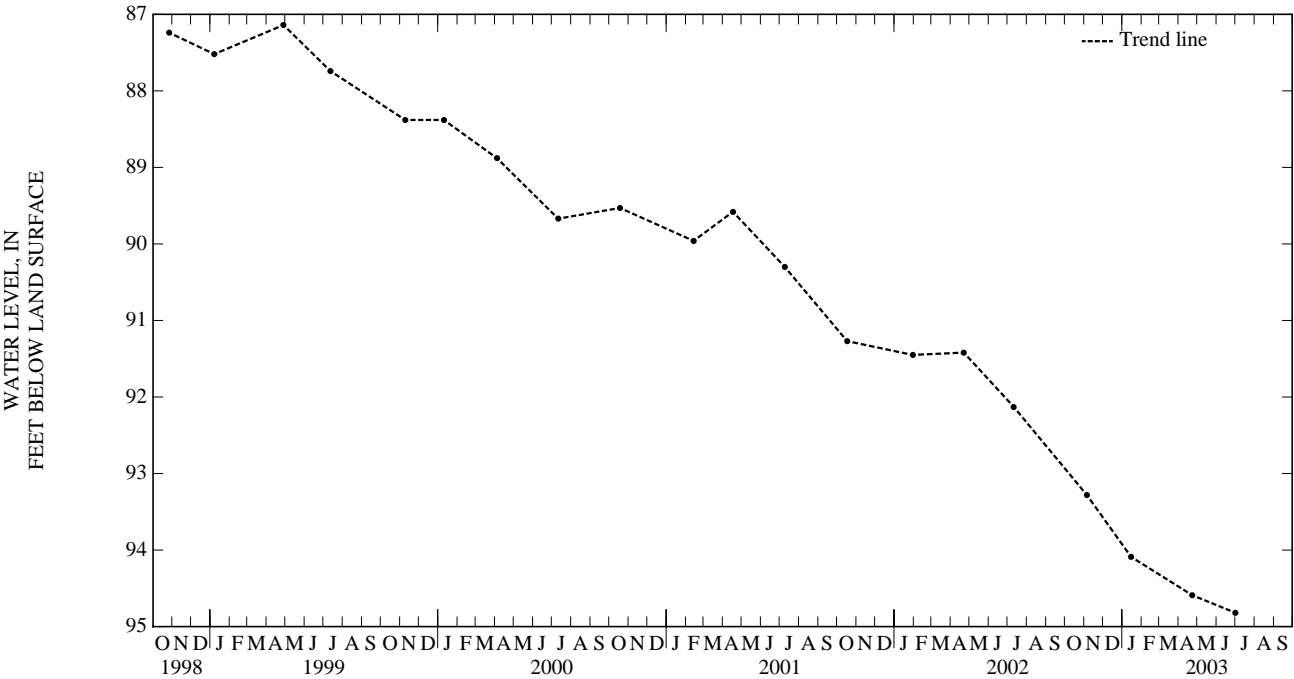
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--June 1994 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 80.59 ft below land-surface datum, June 24, 1994; lowest measured, 94.82 ft below land-surface datum, July 1, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 05	93.28	JAN 15	94.09	APR 23	94.59	JUL 01	94.82
WATER YEAR 2003 HIGHEST 93.28 NOV 05, 2002				LOWEST 94.82 JUL 01, 2003			



372621076404202. Local number, 57H 21 SOW 192B.

AQUIFER.--Upper Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. 200 ft, diameter 2 in. 200 to 480 ft, depth 480 ft, screened 470 to 480 ft.

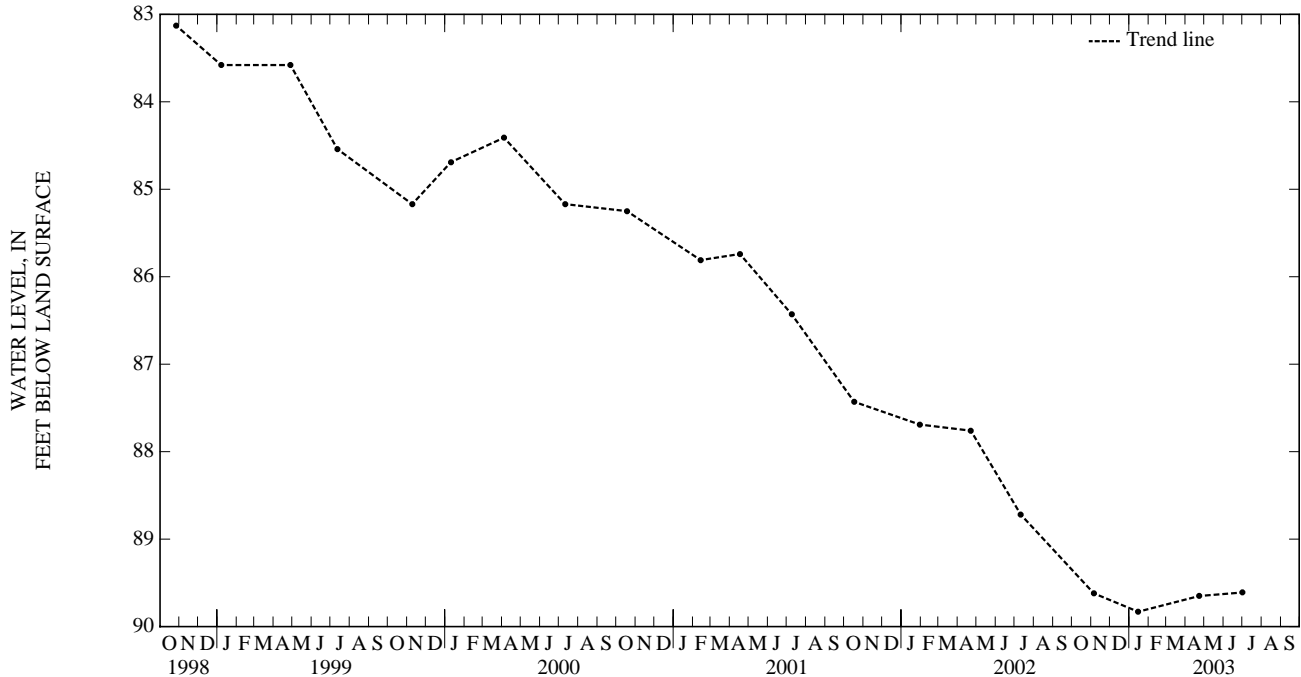
INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--June 1994 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 77.63 ft below land-surface datum, June 24, 1994; lowest measured, 89.83 ft below land-surface datum, Jan. 15, 2003.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 05	89.62	JAN 15	89.83	APR 23	89.65	JUL 01	89.61
WATER YEAR 2003		HIGHEST	89.61	JUL 01, 2003	LOWEST	89.83	JAN 15, 2003



GROUND-WATER LEVELS  
GLOUCESTER COUNTY—Continued

372621076404203. Local number, 57H 22 SOW 192C.

LOCATION.--Lat 37°26'22", long 76°40'41", NAD83, Hydrologic Unit 02080107, 80 ft north of State Highway 684 (Starvation Road), 1.1 mi northeast of intersection of State Highways 617 and 684. Owner: St. Laurent Paper Products Corporation (formerly Chesapeake Corporation).

AQUIFER.--Aquia aquifer of Pleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. 200 ft, diameter 2 in. 200 to 370 ft, depth 370 ft, screened 350 to 370 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 6 ft above NGVD of 1929, from topographic map. Measuring point: Top of inner casing, 1.7 ft above land-surface datum.

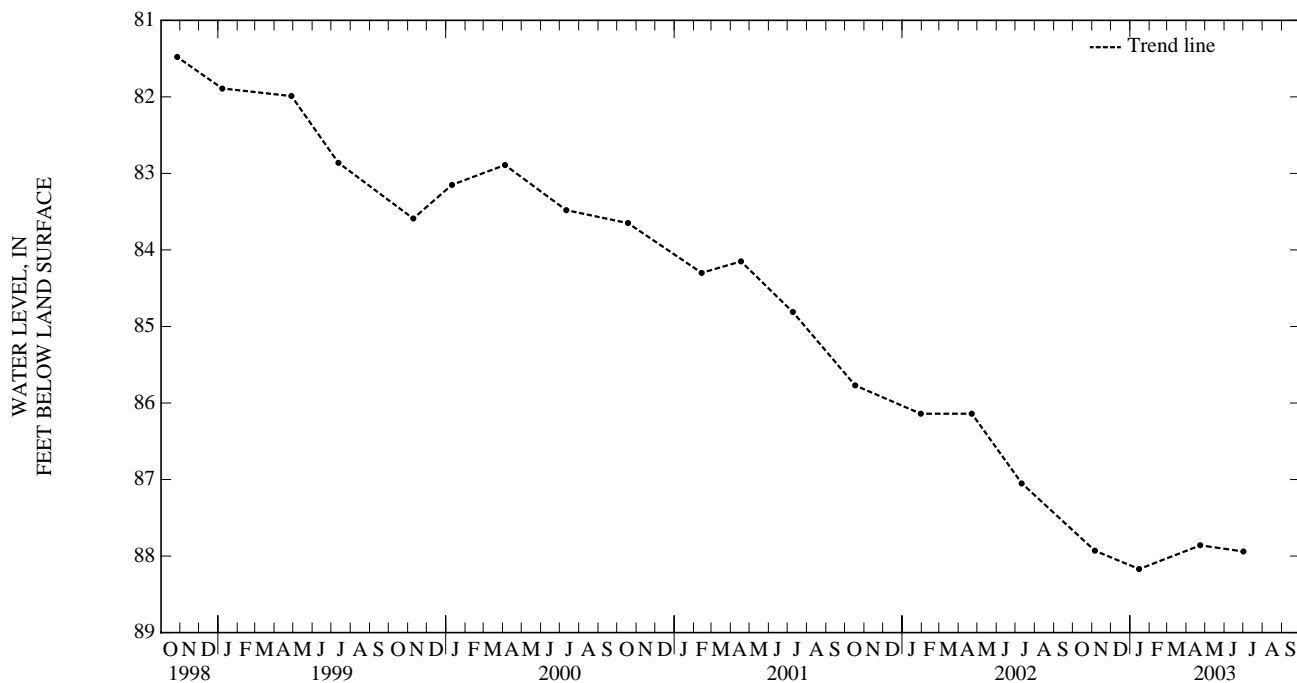
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--June 1994 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 75.78 ft below land-surface datum, June 24, 1994; lowest measured, 88.17 ft below land-surface datum, Jan. 15, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 05	87.93	JAN 15	88.17	APR 23	87.86	JUL 01	87.94
WATER YEAR 2003 HIGHEST 87.86 APR 23, 2003				LOWEST 88.17 JAN 15, 2003			



## GLOUCESTER COUNTY—Continued

372331076312602. Local number, 58H 6 SOW 168A.

LOCATION.--Lat 37°23'32", long 76°31'25", NAD83, Hydrologic Unit 02080102, at entrance to Gloucester County landfill, 0.3 mi east of U.S. Highway 17, and 1.4 mi south of Gloucester. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Lower Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 1,300 ft, screened 1,290 to 1,300 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. June 11, 1985, to July 7, 1995, bimonthly measurement with chalked tape. Prior to June 11, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 75 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

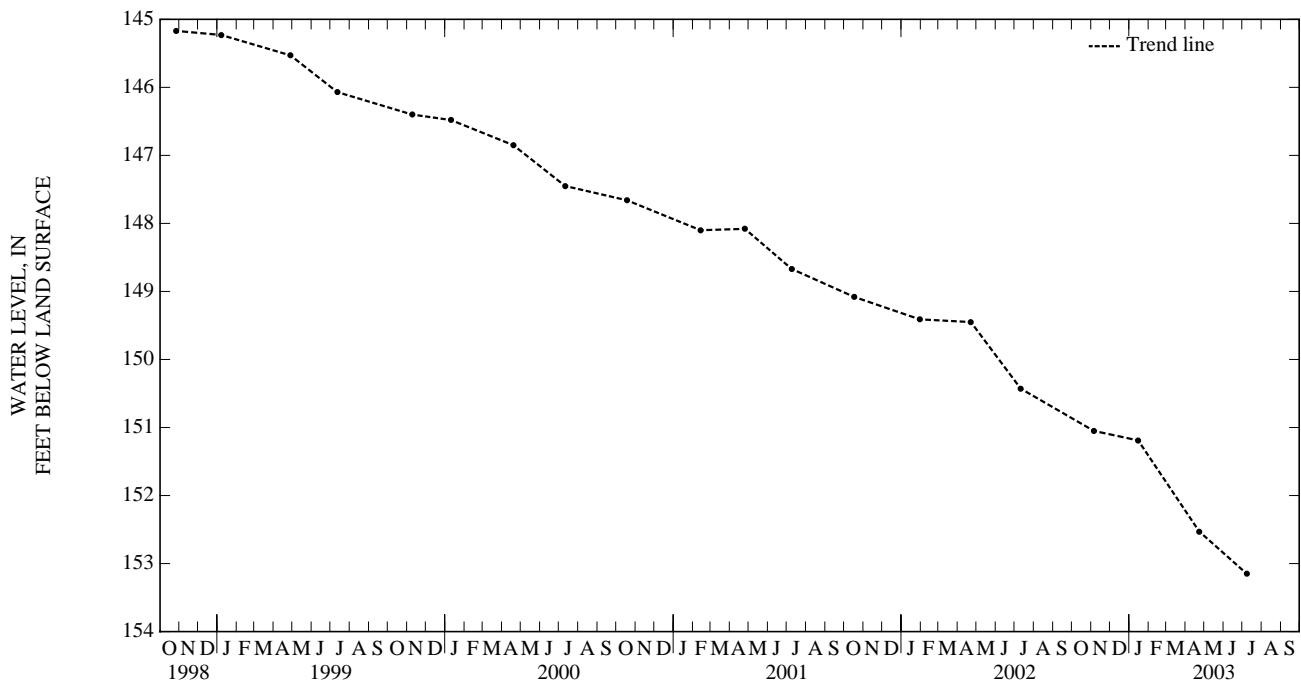
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--August 1982 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 125.26 ft below land-surface datum, Feb. 14, 1983; lowest measured, 153.15 ft below land-surface datum, July 8, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 05	151.05	JAN 15	151.19	APR 23	152.53	JUL 08	153.15
WATER YEAR 2003 HIGHEST 151.05 NOV 05, 2002				LOWEST 153.15 JUL 08, 2003			





GROUND-WATER LEVELS  
GLOUCESTER COUNTY—Continued

372331076312603. Local number, 58H 7 SOW 168B.

LOCATION.--Lat 37°23'32", long 76°31'25", NAD83, Hydrologic Unit 02080102, at entrance to Gloucester County landfill, 0.3 mi east of U.S. Highway 17, and 1.4 mi south of Gloucester. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 186 ft, diameter 2 in. from 186 to 960 ft, depth 960 ft, screened 950 to 960 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 7, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 75 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

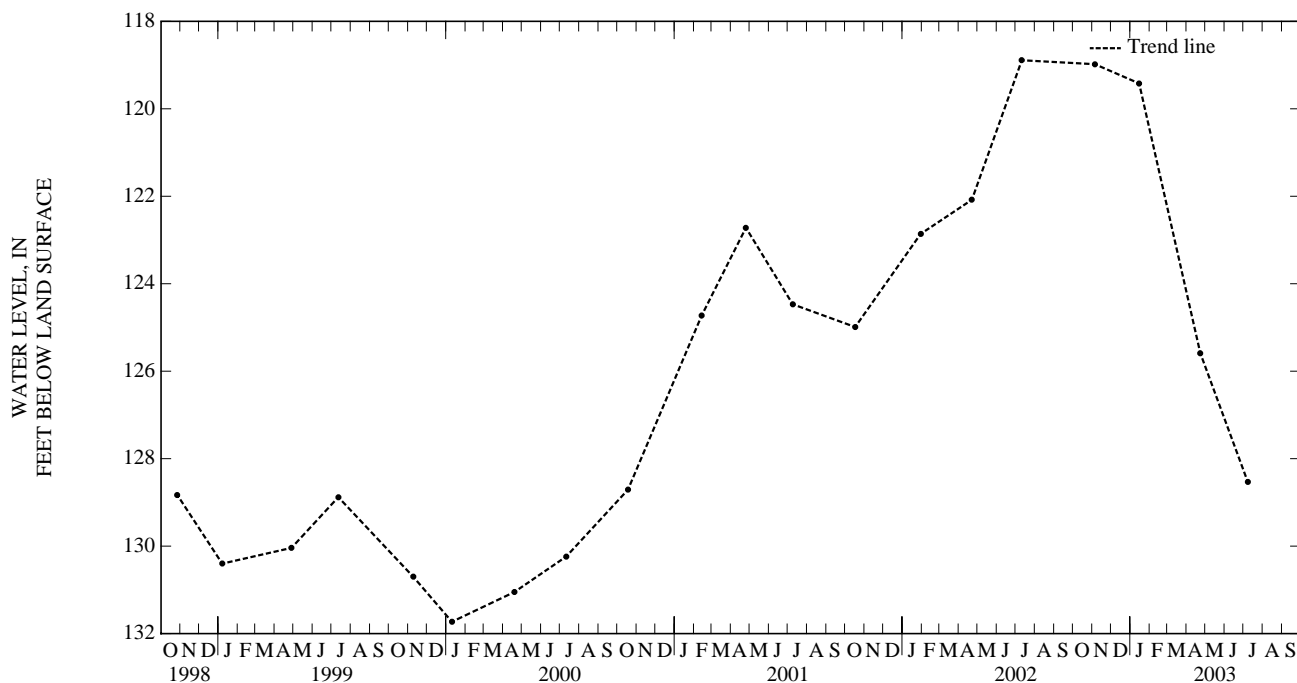
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown. Low water level in June 1996 is the result of the well being pumped for water-quality sampling.

PERIOD OF RECORD.--June 1985 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 33.55 ft below land-surface datum, Nov. 20, 1985; lowest measured, 158.32 ft below land-surface datum, July 8, 1996.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 05	118.98	JAN 15	119.42	APR 23	125.59	JUL 08	128.53
WATER YEAR 2003    HIGHEST 118.98 NOV 05, 2002    LOWEST 128.53 JUL 08, 2003							



## GLOUCESTER COUNTY—Continued

372331076312604. Local number, 58H 8 SOW 168C.

LOCATION.--Lat 37°23'32", long 76°31'25", NAD83, Hydrologic Unit 02080102, at entrance to Gloucester County landfill, 0.3 mi east of U.S. Highway 17, and 1.4 mi south of Gloucester. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 40 ft, screened 30 to 40 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 7, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 75 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

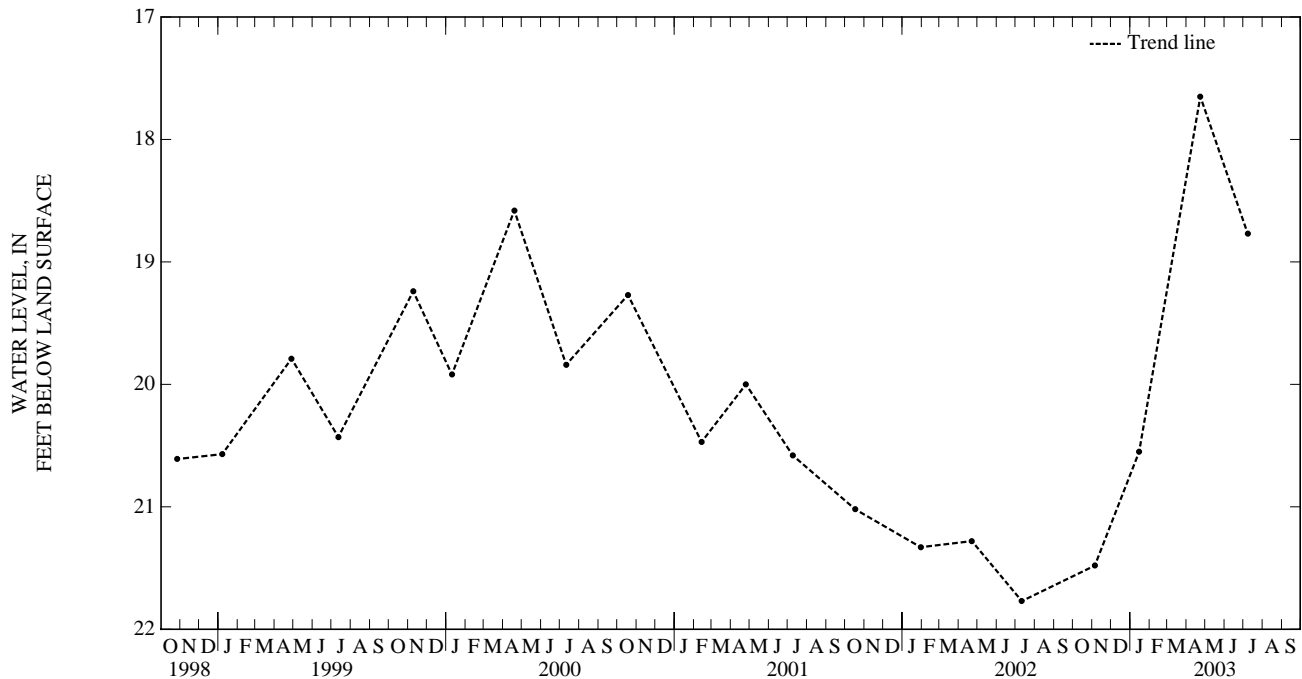
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--June 1985 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.00 ft below land-surface datum, Apr. 20, 1993; lowest measured, 21.81 ft below land-surface datum, Sept. 23, 1985.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 05	21.48	JAN 15	20.55	APR 23	17.65	JUL 08	18.77
WATER YEAR 2003		HIGHEST	17.65	APR 23, 2003	LOWEST	21.48	NOV 05, 2002



## HANOVER COUNTY

375316077274701. Local number, 51M 11.

LOCATION.--Lat 37°53'17", long 77°27'46", NAD83, Hydrologic Unit 02080106, 900 ft east of U.S. Highway 1 on a private dirt road at the North Anna River and 9.9 mi north of Ashland on U.S. Highway 1. Owner: Weyerhaeuser Inc.

**AQUIFER.**--Newark Supergroup of late Triassic age.

**WELL CHARACTERISTICS.**--Drilled water well, diameter 6 in., depth 175 ft, cased to 20 ft, open hole 20 to 175 ft.

**INSTRUMENTATION.**--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 70 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum.

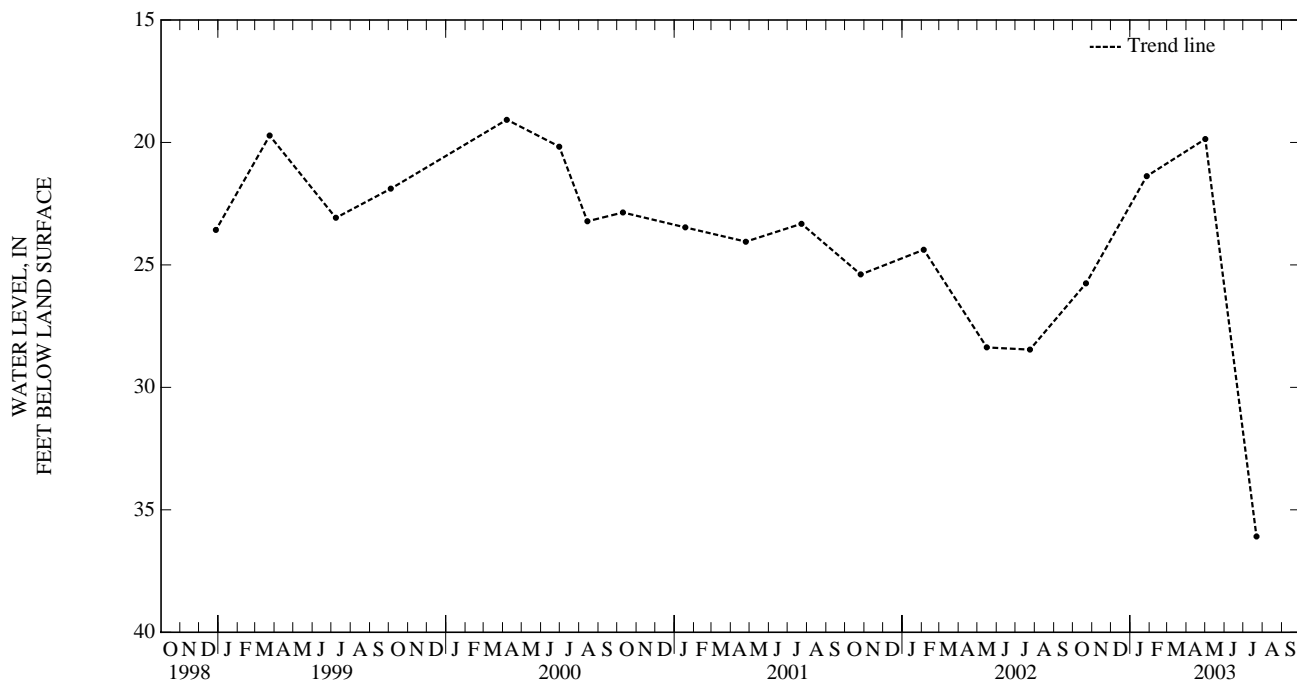
REMARKS.--Water level of July 22, 2003 result of well being pumped.

PERIOD OF RECORD.--January 1984 to current year. Unpublished records available prior to October 1987 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.17 ft below land-surface datum, Mar. 30, 1993; lowest measured, 28.46 ft below land-surface datum, July 24, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 22	25.75	JAN 27	21.38	MAY 01	19.86	JUL 22	36.09
WATER YEAR 2003		HIGHEST	19.86	MAY 01, 2003		LOWEST	25.75
						OCT 22, 2002	



373506077171401. Local number, 52J 56.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

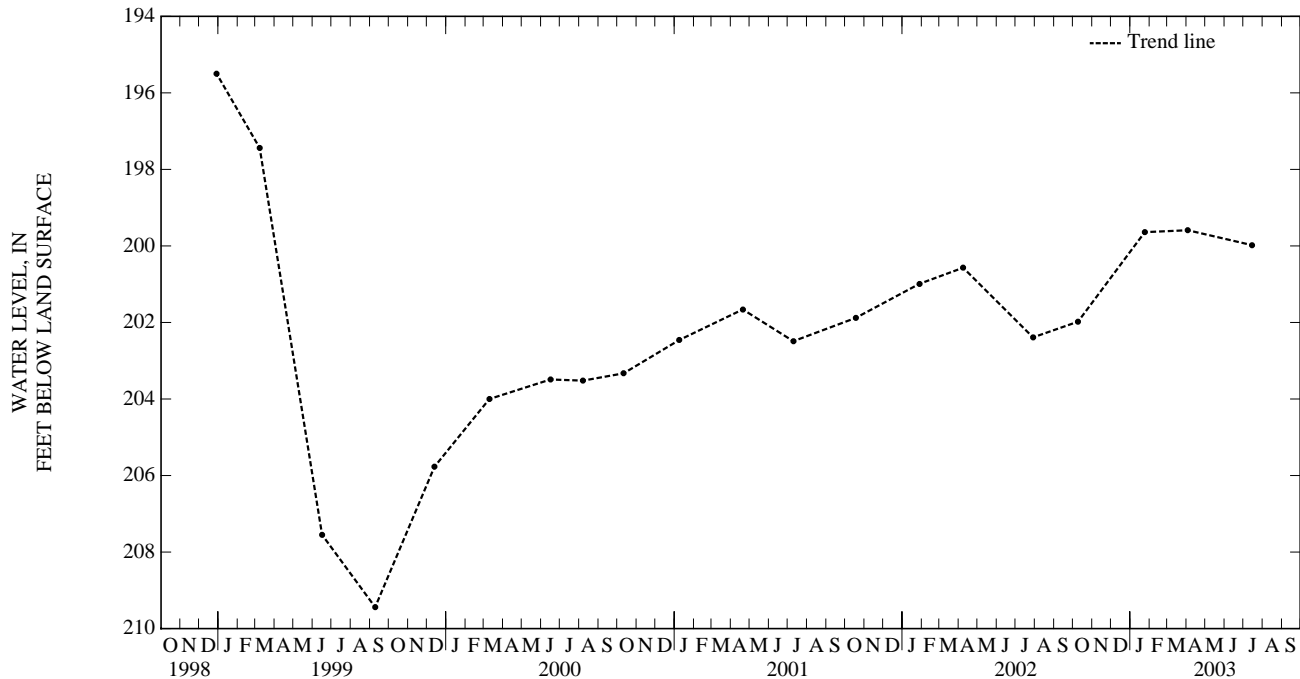
INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

REMARKS.--Well was published as 373507077171201, local number 52J 10, from 1988 to 1999. Water level affected by regional drawdown.

PERIOD OF RECORD.--December 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 177.20 ft below land-surface datum, Dec. 13, 1995; lowest measured, 209.44 ft below land-surface datum, Sept. 9, 1999.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	201.98	JAN 24	199.64	APR 03	199.59	JUL 15	199.98
WATER YEAR 2003		HIGHEST	199.59	APR 03, 2003	LOWEST	201.98	OCT 09, 2002



## HANOVER COUNTY—Continued

373737077083201. Local number, 53K 19 SOW 080.

LOCATION.--Lat 37°37'38", long 77°08'31", NAD83, Hydrologic Unit 02080106, 500 ft northeast of State Highway 606, 0.15 mi west of intersection of State Highways 606 and 629, and 4.6 mi east of Old Church. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Dug unused water well, diameter 30 in., depth 35 ft, cased to 35 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 3, 1985 to July 11, 1995, bimonthly measurement with chalked tape. May 20, 1978, to Oct. 2, 1985, occasional measurement with chalked tape. Prior to May 20, 1978, continuous strip- chart recorder.

DATUM.--Elevation of land-surface datum is 130 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.85 ft above land-surface datum.

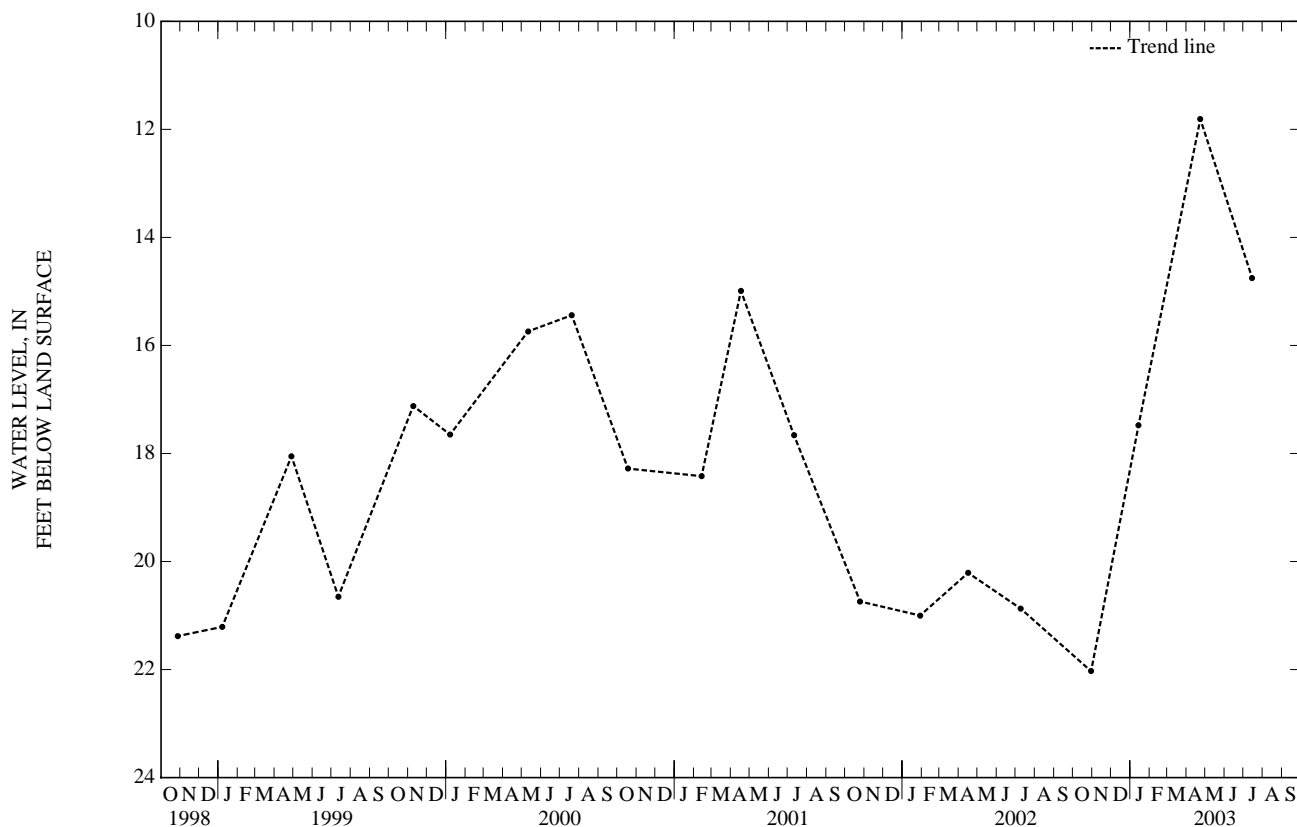
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--January 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.05 ft below land-surface datum, Jan. 25, 1978; lowest measured, 22.85 ft below land-surface datum, Aug. 3, 1984.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	22.03	JAN 14	17.48	APR 23	11.81	JUL 15	14.75
WATER YEAR 2003		HIGHEST	11.81	APR 23, 2003	LOWEST	22.03	OCT 30, 2002



373607077331401. Local number, 50J 1 SOW 023.

AQUIFER.--Petersburg Granite of Mississippian age.

**WELL CHARACTERISTICS.**--Drilled observation water well, diameter 10 in., depth 300 ft, cased to 68 ft, open hole 68 to 300 ft.

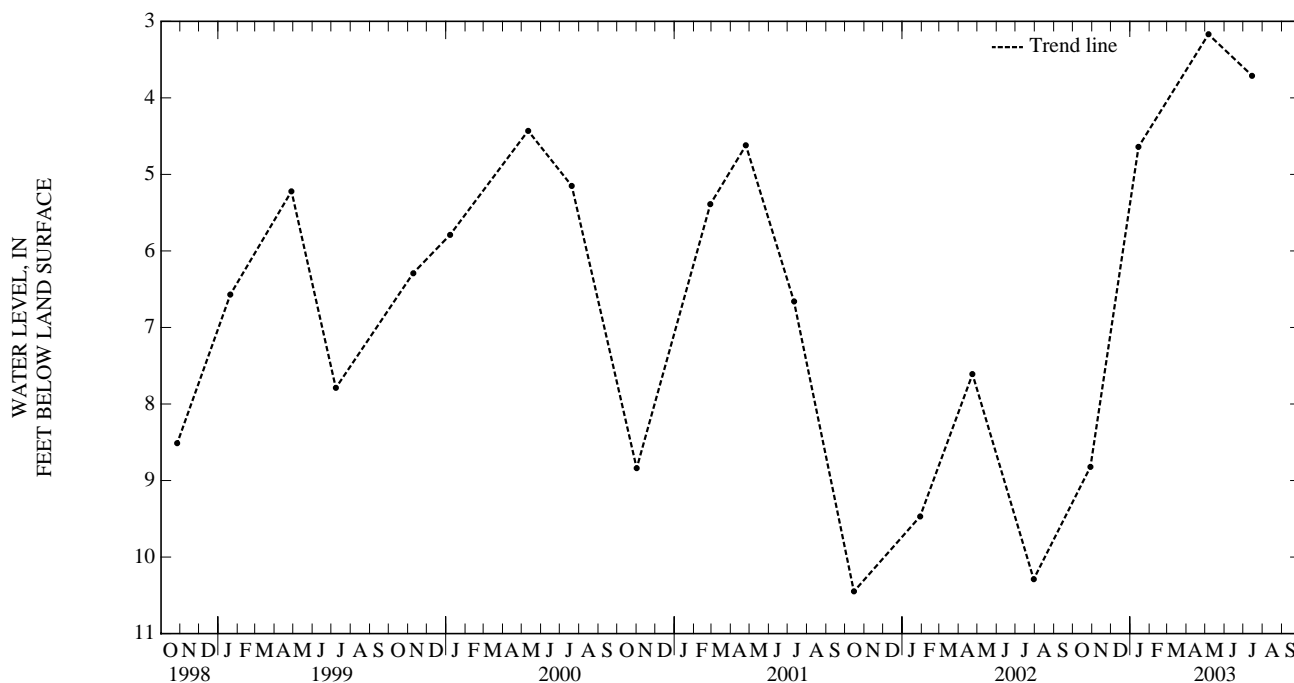
DATUM.--Elevation of land-surface datum is 275 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.88 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--May 1969 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.48 ft below land-surface datum, June 5, 1970; lowest recorded, 10.45 ft below land-surface datum. Oct. 15, 2001.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	8.82	JAN 14	4.64	MAY 06	3.17	JUL 15	3.71
WATER YEAR 2003		HIGHEST	3.17	MAY 06, 2003		LOWEST	8.82
						OCT 29, 2002	



GROUND-WATER LEVELS  
HENRICO COUNTY—Continued

373428077233001. Local number, 51J 13.

LOCATION.--Lat 37°34'29", long 77°23'29", NAD83, Hydrologic Unit 02080206, 1,600 ft east of the intersection of U.S. Highway 360 (Mechanicsville Turnpike) and Laburnum Avenue and 500 ft south of Laburnum Avenue at water tower. Owner: Henrico County.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in. to 167 ft, diameter 6 in. from 167 to 275 ft, depth 275 ft, screened 167 to 186 ft, 213 to 226 ft, 248 to 258 ft.

INSTRUMENTATION.--Weekly measurements by Henrico County personnel. Prior to Apr. 2, 1992, USGS digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 168 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.7 ft above land-surface datum prior to Apr. 8, 1992; 0.2 ft thereafter.

REMARKS.--Water level affected by local pumpage and regional drawdown.

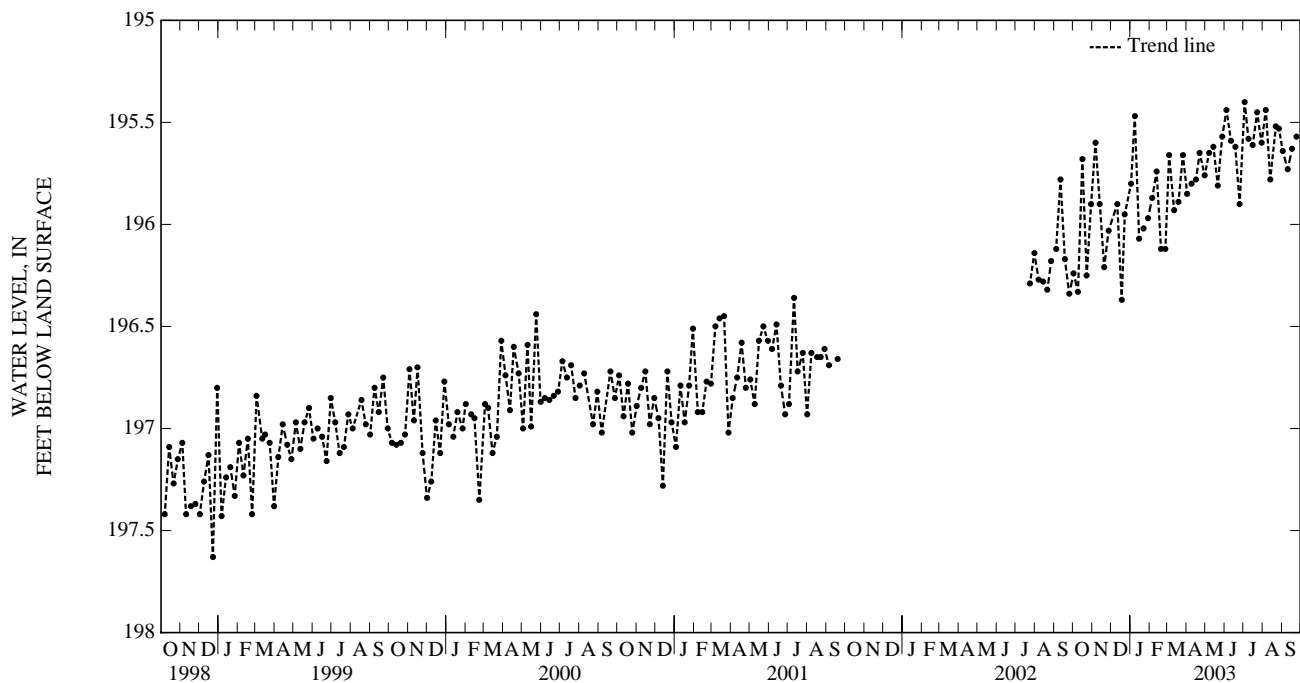
PERIOD OF RECORD.--January 1988 to September 2001, October 2002 to September 2003.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 190.85 ft below land-surface datum, Apr. 7, 1988; lowest measured, 197.63 ft below land-surface datum, Dec. 23, 1998.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, 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 02	196.24	DEC 11	195.90	FEB 12	195.74	APR 16	195.78	JUN 18	195.62	AUG 22	195.52
09	196.33	18	196.37	19	196.12	22	195.65	25	195.90	27	195.53
16	195.68	23	195.95	26	196.12	30	195.76	JUL 03	195.40	SEP 02	195.64
23	196.25	JAN 02	195.80	MAR 04	195.66	MAY 07	195.65	09	195.58	10	195.73
30	195.90	08	195.47	12	195.93	14	195.62	16	195.61	17	195.63
NOV 06	195.60	15	196.07	19	195.89	21	195.81	23	195.45	24	195.57
13	195.90	22	196.02	26	195.66	28	195.57	30	195.60		
20	196.21	29	195.97	APR 02	195.85	JUN 04	195.44	AUG 06	195.44		
27	196.03	FEB 05	195.87	09	195.80	11	195.59	13	195.78		

WATER YEAR 2003    HIGHEST 195.40 JUL 03, 2003    LOWEST 196.37 DEC 18, 2002



## HENRICO COUNTY—Continued

373817077282501. Local number, 51K 14 SOW 137.

LOCATION.--Lat 37°38'18", long 77°28'24", NAD83, Hydrologic Unit 02080206, 50 ft east of entrance to J. Sargeant Reynolds Community College, 0.9 mi west of intersection of Parham Road and U.S. Highway 1, and 0.9 mi west of Yellow Tavern. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Petersburg Granite of Mississippian age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 280 ft, cased to 35 ft, open hole 35 to 280 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 17, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 180 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum prior to Sept. 9, 1980; 1.5 ft thereafter.

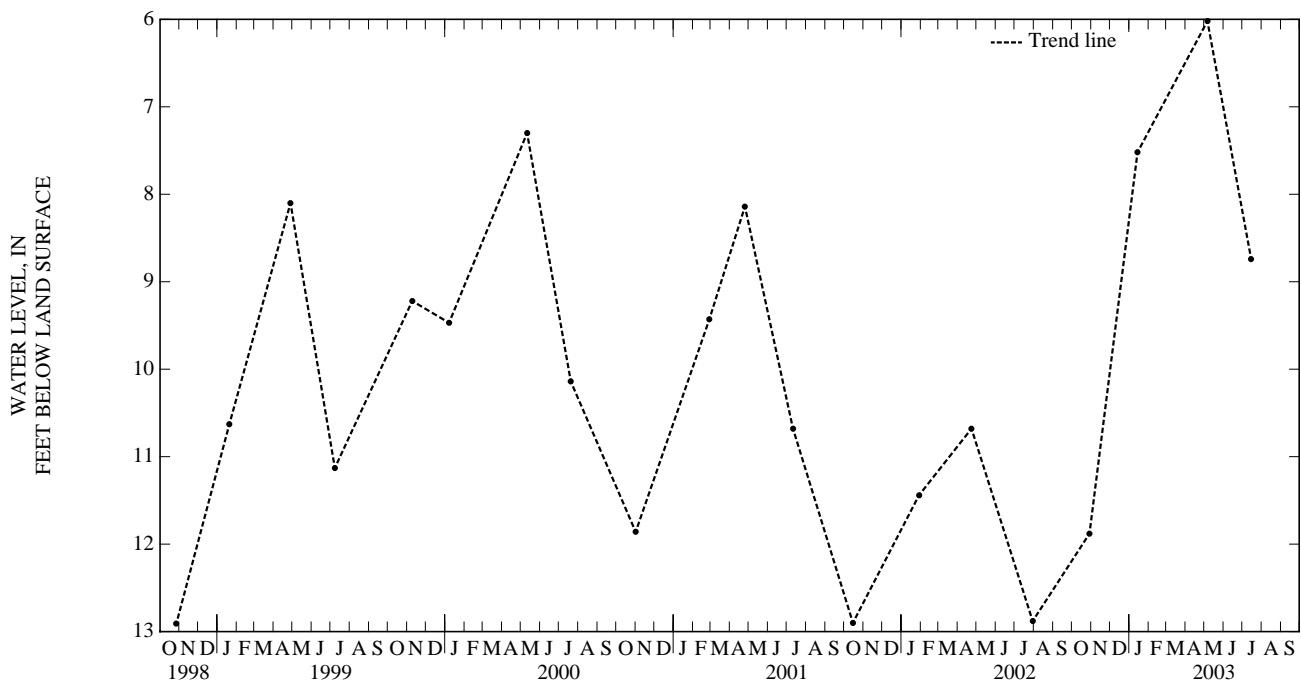
REMARKS.--Well was published as 373817077282501, local number 51K 4, from 1980 to 2000. Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.37 ft below land-surface datum, Apr. 30, 1987; lowest measured, 12.91 ft below land-surface datum, Oct. 27, 1998.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	11.88	JAN 14	7.52	MAY 06	6.02	JUL 15	8.74
WATER YEAR 2003 HIGHEST		6.02 MAY 06, 2003		LOWEST		11.88 OCT 29, 2002	





GROUND-WATER LEVELS  
HENRICO COUNTY—Continued

372936077211101. Local number, 52H 3 SOW 136.

LOCATION.--Lat 37°29'37", long 77°21'10", NAD83, Hydrologic Unit 02080206, 100 ft west of Laburnum Avenue, 0.9 mi north of intersection of Laburnum Avenue and Darbytown Road, and 2.4 mi southwest of Sandston. Owner: Nabisco Incorporated.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 209 ft, screened 149 to 159 ft, 199 to 209 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Mar. 25, 1985, to July 17, 1995, bimonthly measurement with chalked tape. Prior to Mar. 25, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 150 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

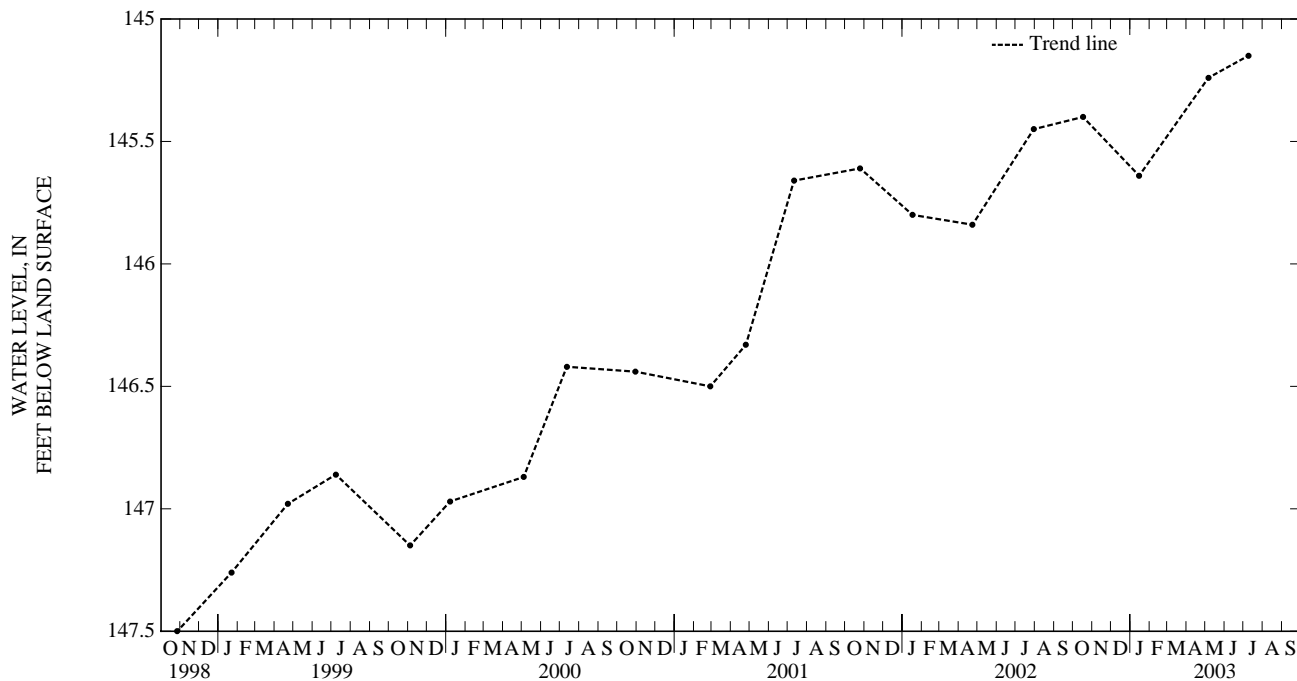
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--December 1974 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 131.42 ft below land-surface datum, Dec. 2, 1974; lowest measured, 147.53 ft below land-surface datum, Apr. 29, 1998.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	145.40	JAN 15	145.64	MAY 06	145.24	JUL 09	145.15
WATER YEAR 2003 HIGHEST		145.15	JUL 09, 2003 LOWEST		145.64	JAN 15, 2003	



372538077221501. Local number, 52H 16.

LOCATION.--Lat 37°25'39", long 77°22'14", NAD83, Hydrologic Unit 02080206, at Richmond National Battlefields Park - Fort Harrison Unit, 800 ft east of visitors center. Owner: U.S. Geological Survey.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 34.25 ft, screened 24.25 ft to 34.25 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Unpublished digital recorder data Nov. 13, 1995, to May 8, 1996.

DATUM.--Elevation of land-surface datum is 135 ft above NGVD of 1929. Measuring point: Top of casing, 1.43 ft above land-surface datum.

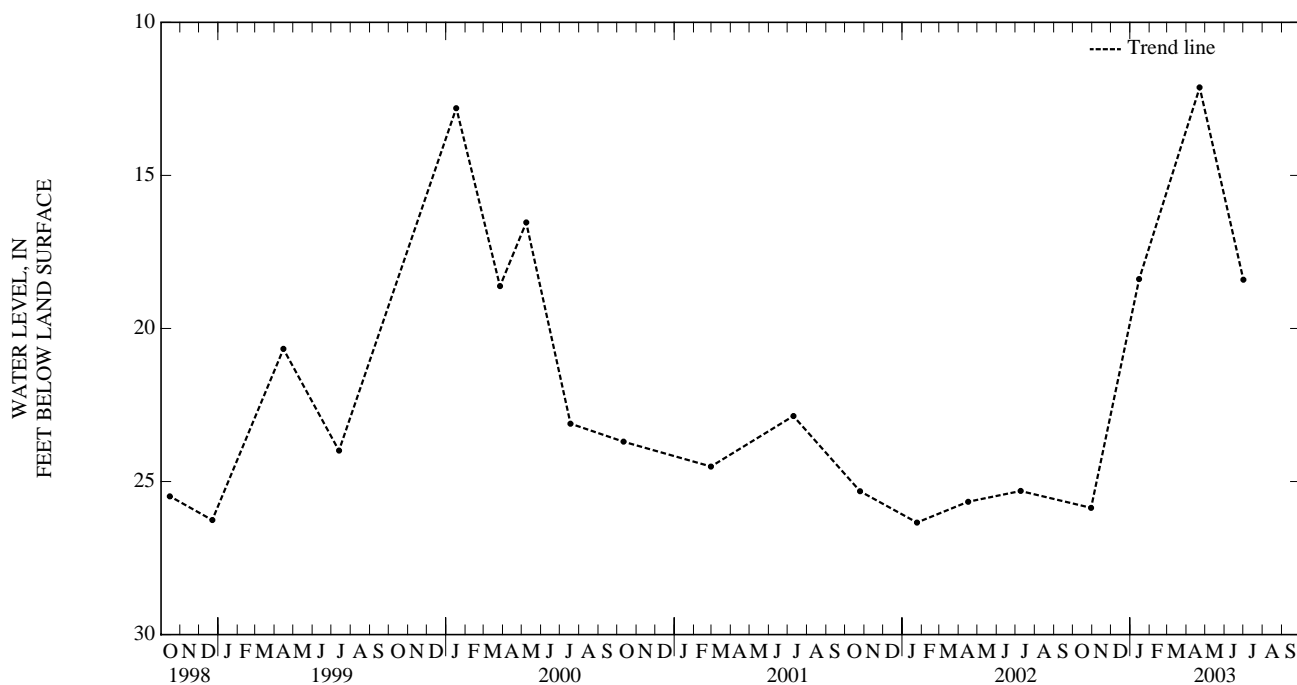
REMARKS.--Records provided by Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--November 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.13 ft below land-surface datum, Apr. 22, 2003; lowest measured, 26.34 ft below land-surface datum, Jan. 24, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	25.86	JAN 15	18.39	APR 22	12.13	JUL 01	18.41
WATER YEAR 2003 HIGHEST 12.13 APR 22, 2003				LOWEST 25.86 OCT 30, 2002			



GROUND-WATER LEVELS  
HENRICO COUNTY—Continued

372538077221502. Local number, 52H 17.

LOCATION.--Lat 37°25'39", long 77°22'14", NAD83, Hydrologic Unit 02080206, at Richmond National Battlefields Park - Fort Harrison Unit, 800 ft east of visitors center. Owner: U.S. Geological Survey.

AQUIFER.--Aquia aquifer of Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 78.90 ft, screened 73.90 ft to 78.90 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Unpublished digital recorder data Apr. 3, 1996, to May 8, 1996.

DATUM.--Elevation of land-surface datum is 135 ft above NGVD of 1929. Measuring point: Top of casing, 1.50 ft above land-surface datum.

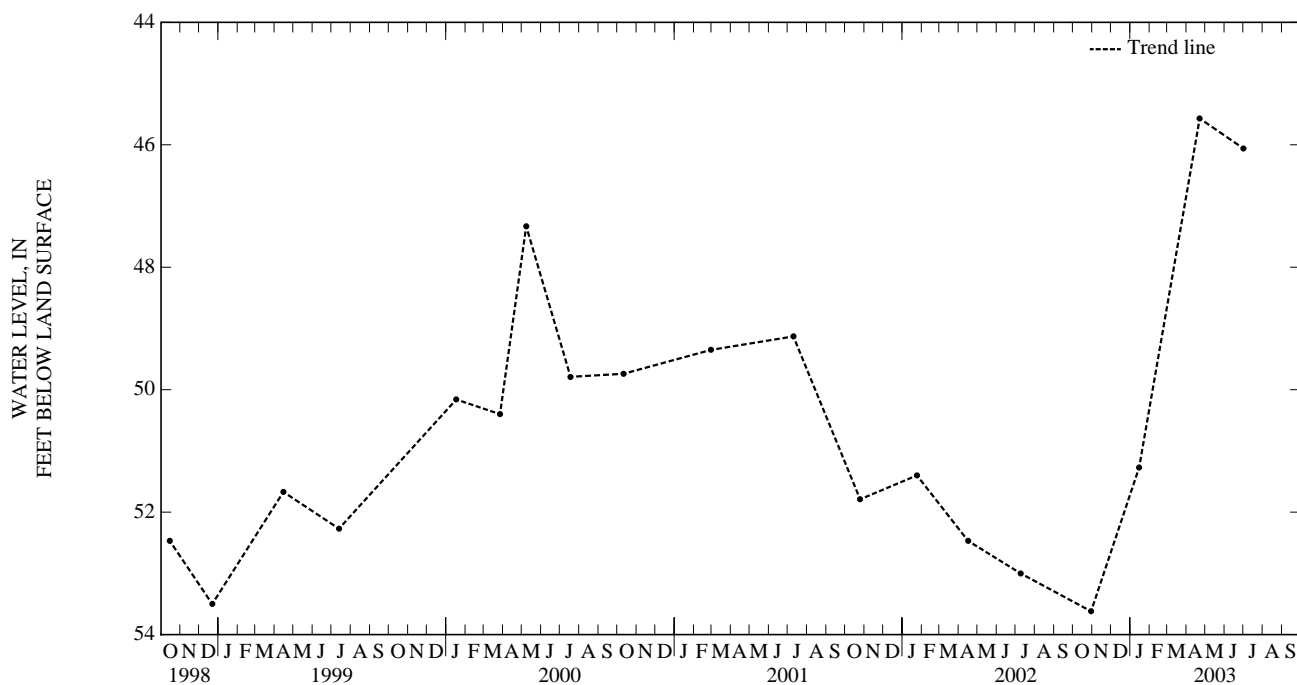
REMARKS.--Records provided by Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--November 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 45.57 ft below land-surface datum, Apr. 22, 2003; lowest measured, 54.44 ft below land-surface datum, Oct. 21 1997.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	53.62	JAN 15	51.27	APR 22	45.57	JUL 01	46.06
WATER YEAR 2003 HIGHEST 45.57 APR 22, 2003				LOWEST 53.62 OCT 30, 2002			



## ISLE OF WIGHT COUNTY

364059076544901. Local number, 55B 16.

LOCATION.--Lat 36°41'00", long 76°54'48", NAD83, Hydrologic Unit 03010202, off U.S. Highways 258 and 58, 200 ft west of the intersection of U.S. Highways 258 and 58 and Lynn Road, and 0.3 mi east of Franklin. Owner: International Paper Company, formerly Union Camp Corporation.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 305 ft, screened 285 to 305 ft.

INSTRUMENTATION.--Electronic data logger, 60-minute record interval. May 27, 1988 to Nov. 3, 1999, digital recorder 60-minute punch. Prior to May 27, 1988, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 25 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.45 ft above land-surface datum.

REMARKS.--Missing record due to recorder malfunction. Water level affected by local pumpage and regional drawdown.

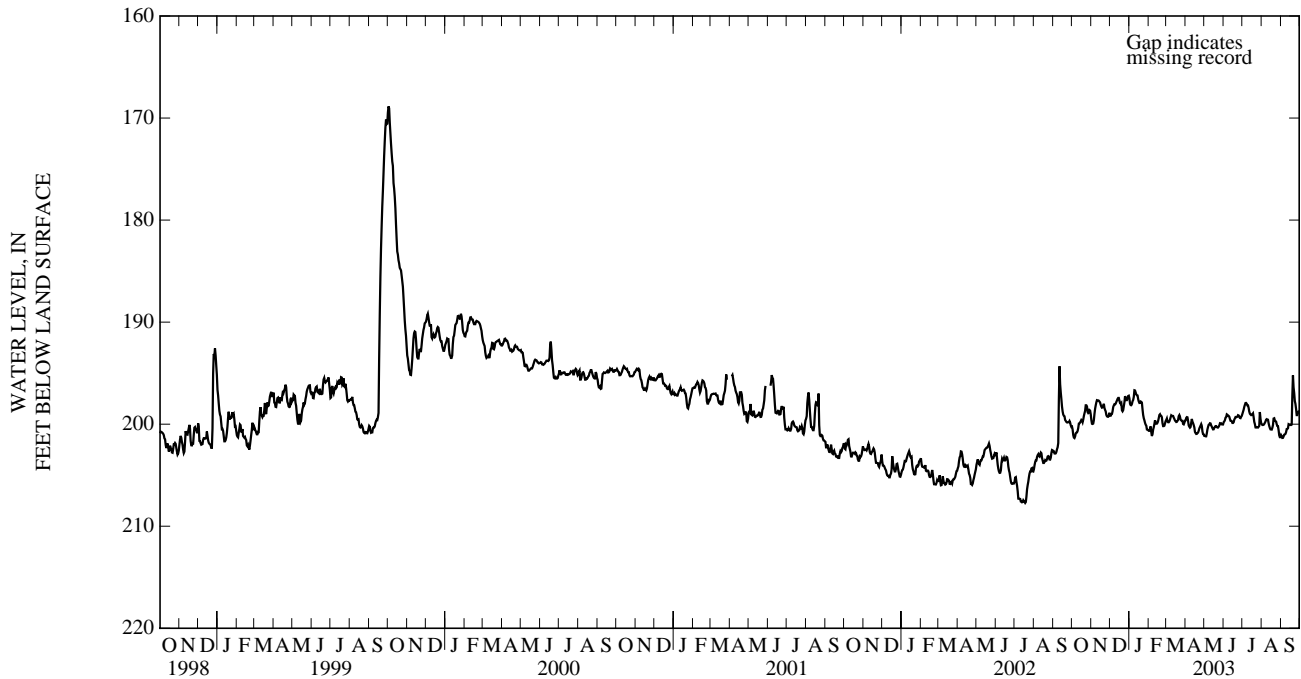
PERIOD OF RECORD.--June 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 99.00 ft below land-surface datum, Dec. 27, 1960; lowest recorded, 216.72 ft below land-surface datum, May 23, 1992.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 192.61 ft below land-surface datum, Sept. 20; lowest instantaneous water level, 201.36 ft below land-surface datum, Oct. 5.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	201.36	199.62	198.74	198.02	200.79	199.81	199.70	200.89	199.31	198.10	199.98	201.20
10	200.66	197.65	197.99	196.70	199.98	199.18	199.85	199.91	199.27	198.17	199.56	200.48
15	199.71	197.87	197.43	197.54	199.86	199.64	200.32	200.51	199.88	199.11	200.51	200.05
20	199.20	198.24	198.64	197.81	199.18	199.58	200.88	200.19	199.30	199.77	199.45	195.22
25	198.26	199.09	197.26	199.62	200.19	199.63	200.14	200.13	199.15	200.32	200.01	198.51
EOM	199.02	198.88	197.21	200.59	199.70	199.66	201.00	200.03	199.18	199.87	201.27	198.71



GROUND-WATER LEVELS  
ISLE OF WIGHT COUNTY—Continued

364125076544801. Local number, 55B 36.

LOCATION.--Lat 36°41'26", long 76°54'47", NAD83, Hydrologic Unit 03010202, on Lynn Road, 0.45 mi north of intersection with U.S. Highways 258 and 58, and 0.7 mi northeast of Franklin. Owner: International Paper Company, formerly Union Camp Corporation.

AQUIFER.--Lower Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 860 ft, screened 720 to 725 ft, 800 to 805 ft, 855 to 860 ft.

INSTRUMENTATION.--Occasional measurements with chalked tape by USGS personnel. October 1986 to August 1993, continuous strip-chart recorder. September 1983 to October 1986, occasional measurement with chalked tape. October 1982 to September 1983, continuous strip-chart recorder. November 1972 to October 1982, occasional measurement with chalked tape. July 1969 to November 1972, continuous strip-chart recorder. Prior to July 1969, continuous strip-chart recorder and occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 37 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 4.56 ft above land-surface datum.

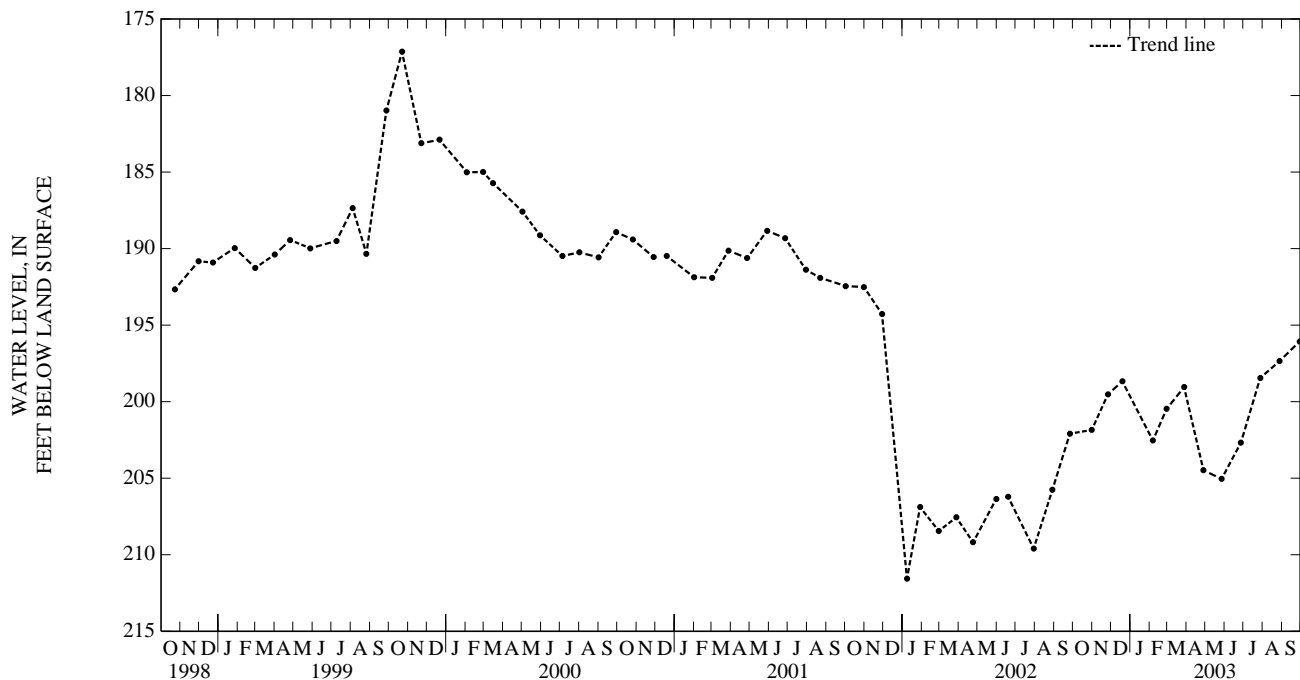
REMARKS.--Water level affected by local pumpage and regional drawdown. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--March 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 156.65 ft below land-surface datum, Dec. 27, 1969; lowest measured, 219.29 ft below land-surface datum, May 18, 1978.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, 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 31	201.85	DEC 19	198.67	FEB 28	200.47	APR 28	204.48	JUN 27	202.68	AUG 28	197.35
NOV 26	199.52	FEB 06	202.54	MAR 28	199.05	MAY 27	205.05	JUL 28	198.45	SEP 29	196.07
WATER YEAR 2003		HIGHEST	196.07	SEP 29, 2003	LOWEST	205.05	MAY 27, 2003				



## ISLE OF WIGHT COUNTY—Continued

364101076544803. Local number, 55B 62 SOW 096B.

LOCATION.--Lat 36°41'02", long 76°54'47", NAD83, Hydrologic Unit 03010202, 200 ft northwest of intersection of U.S. Highways 58 and 258 and Lynn Road, 0.3 mi east of Franklin. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 30.77 ft, screened 25 to 30 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Oct. 1, 1987 to Oct. 8, 1995, digital recorder 60-minute punch. Prior to Oct. 1, 1987, occasional measurement with chalked tape.

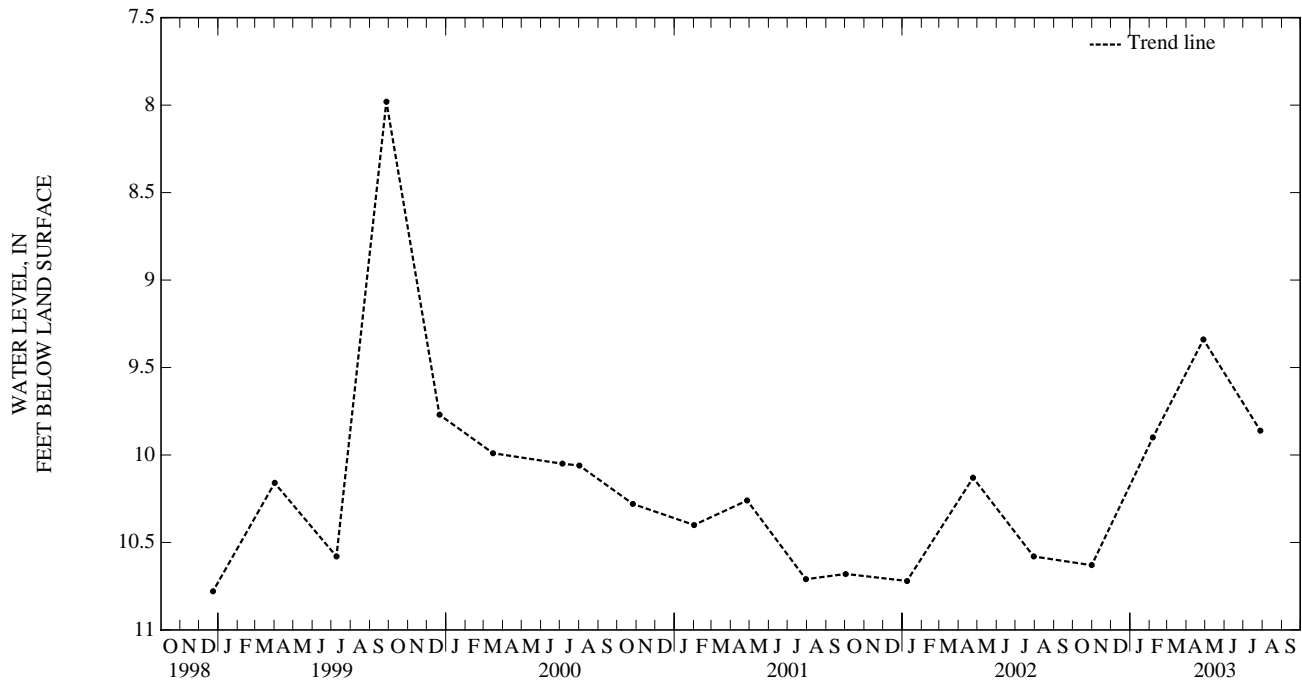
DATUM.--Elevation of land-surface datum is 27 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.15 ft above land-surface datum.

PERIOD OF RECORD.--May 1979, October 1980 to September 1981, October 1982 to September 1983, October 1984 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.98 ft below land-surface datum, Sept. 27, 1999; lowest measured, 15.38 ft below land-surface datum, Oct. 17, 1980.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	10.63	FEB 06	9.90	APR 28	9.34	JUL 28	9.86
WATER YEAR 2003 HIGHEST		9.34	APR 28, 2003	LOWEST		10.63	OCT 31, 2002



GROUND-WATER LEVELS  
ISLE OF WIGHT COUNTY—Continued

364814076440701. Local number, 57C 25 SOW 149A.

LOCATION.--Lat 36°48'15", long 76°44'06", NAD83, Hydrologic Unit 02080208, at Windsor Community Center in Windsor. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 26 ft, screened 16 to 26 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 19, 1985, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 70 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.

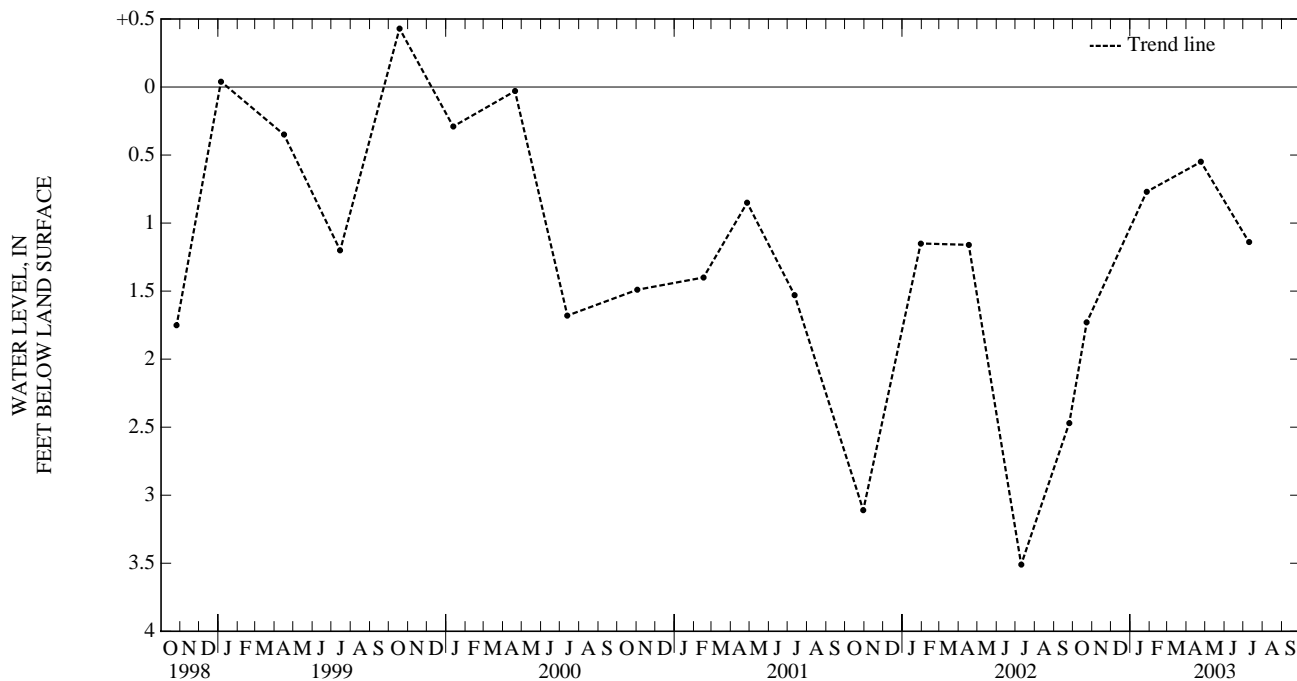
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--March 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.43 ft above land-surface datum, Oct. 18, 1999; lowest measured, 3.51 ft below land-surface datum, July 10, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	1.73	JAN 27	.77	APR 24	.55	JUL 10	1.14
WATER YEAR 2003 HIGHEST		.55	APR 24, 2003	LOWEST		1.73	OCT 23, 2002



## ISLE OF WIGHT COUNTY—Continued

364814076440702. Local number, 57C 26 SOW 149B.

LOCATION.--Lat 36°48'15", long 76°44'06", NAD83, Hydrologic Unit 02080208, at Windsor Community Center in Windsor. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 380 ft, screened 370 to 380 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 19, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 70 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.

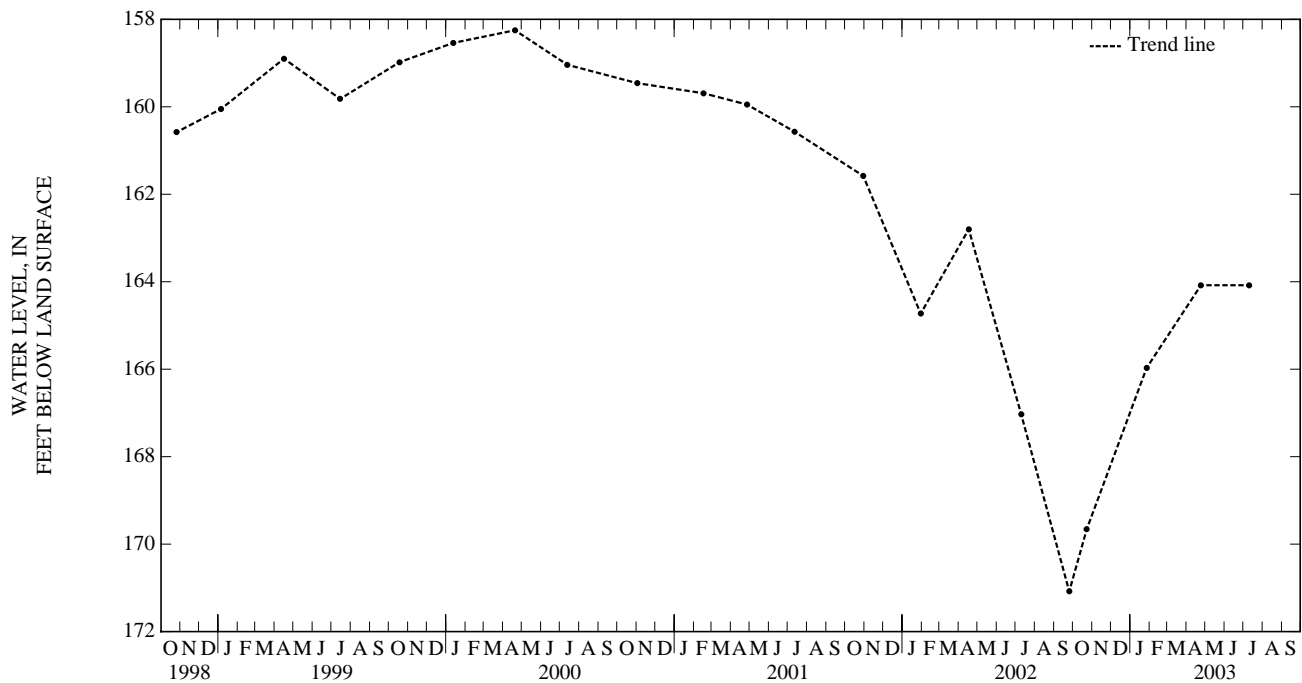
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--March 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 144.42 ft below land-surface datum, Feb. 25, 1986; lowest measured, 171.08 ft below land-surface datum, Sept. 25, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	169.66	JAN 27	165.97	APR 24	164.08	JUL 10	164.08
WATER YEAR 2003 HIGHEST		164.08	APR 24, 2003	JUL 10, 2003	LOWEST	169.66	OCT 23, 2002





## ISLE OF WIGHT COUNTY—Continued

364814076440704. Local number, 57C 28 SOW 149D.

LOCATION.--Lat 36°48'15", long 76°44'06", NAD83, Hydrologic Unit 02080208, at Windsor Community Center in Windsor. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 807 ft, screened 797 to 807 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 19, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 70 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.

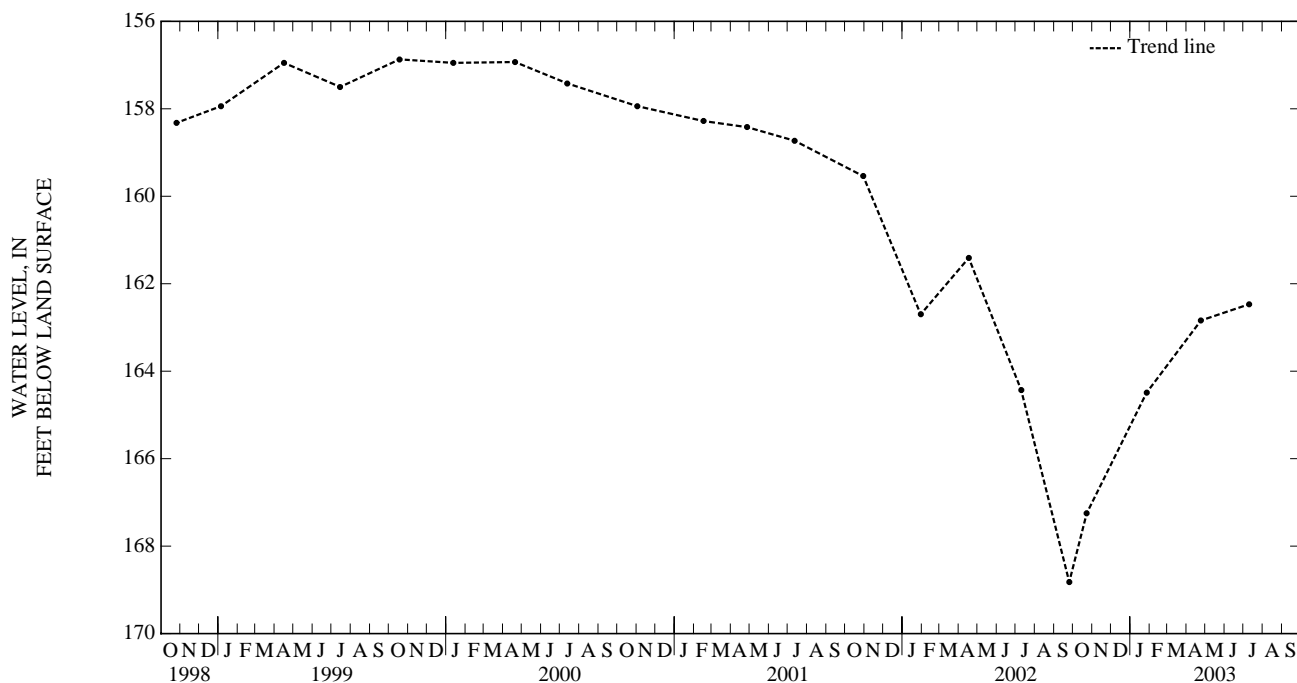
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--March 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 142.80 ft below land-surface datum, Feb. 25, 1986; lowest measured, 168.82 ft below land-surface datum, Sept. 25, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	167.25	JAN 27	164.49	APR 24	162.84	JUL 10	162.47
WATER YEAR 2003 HIGHEST 162.47 JUL 10, 2003				LOWEST 167.25 OCT 23, 2002			



## ISLE OF WIGHT COUNTY—Continued

365751076433501. Local number, 57D 21 SOW 143A.

LOCATION.--Lat 36°57'52", long 76°43'34", NAD83, Hydrologic Unit 03010202, 50 ft west of State Highway 652, 0.5 mi south of State Highway 682, and 1.8 mi southwest of Magnet. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 650 ft, screened 640 to 650 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 7, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Oct. 7, 1985, monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 73 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

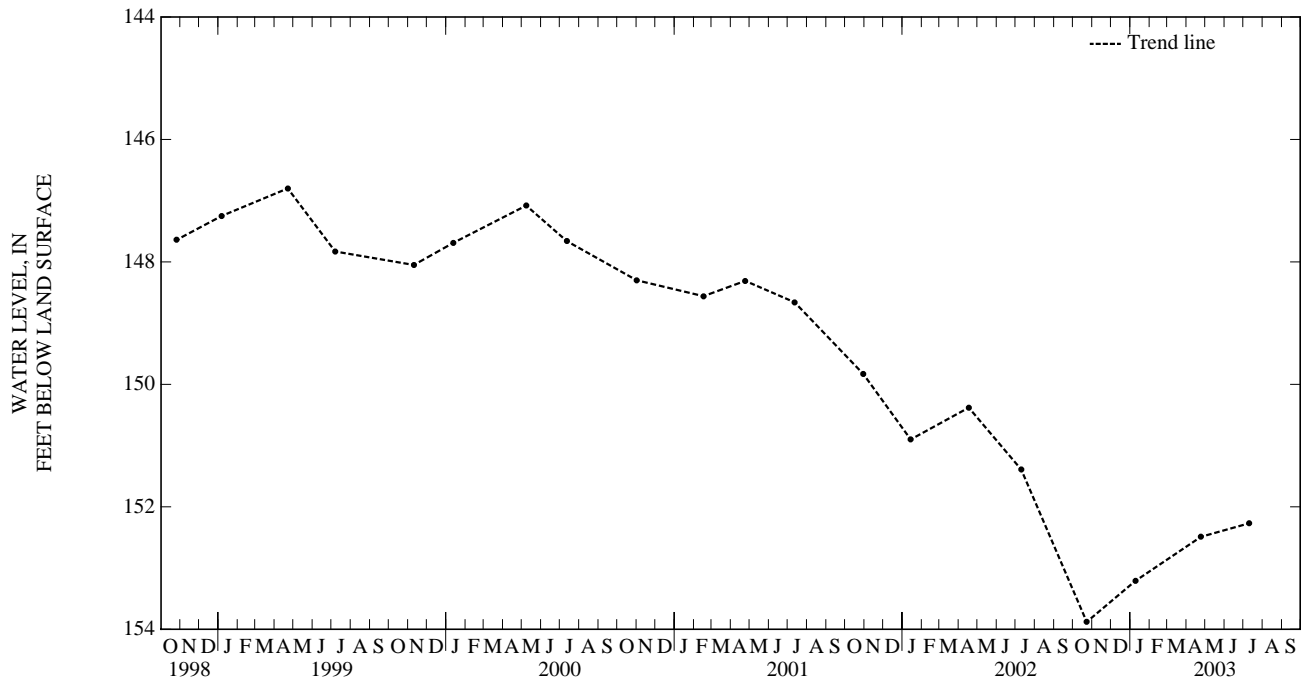
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 122.60 ft below land-surface datum, Aug. 27, 1980; lowest measured, 153.88 ft below land-surface datum, Oct. 23, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	153.88	JAN 09	153.21	APR 24	152.49	JUL 10	152.27
WATER YEAR 2003		HIGHEST	152.27	JUL 10, 2003	LOWEST	153.88	OCT 23, 2002



## ISLE OF WIGHT COUNTY—Continued

365751076433502. Local number, 57D 22 SOW 143B.

LOCATION.--Lat 36°57'52", long 76°43'34", NAD83, Hydrologic Unit 03010202, 50 ft west of State Highway 652, 0.5 mi south of State Highway 682, and 1.8 mi southwest of Magnet. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 350 ft, screened 340 to 350 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 7, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Oct. 7, 1985, monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 73 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

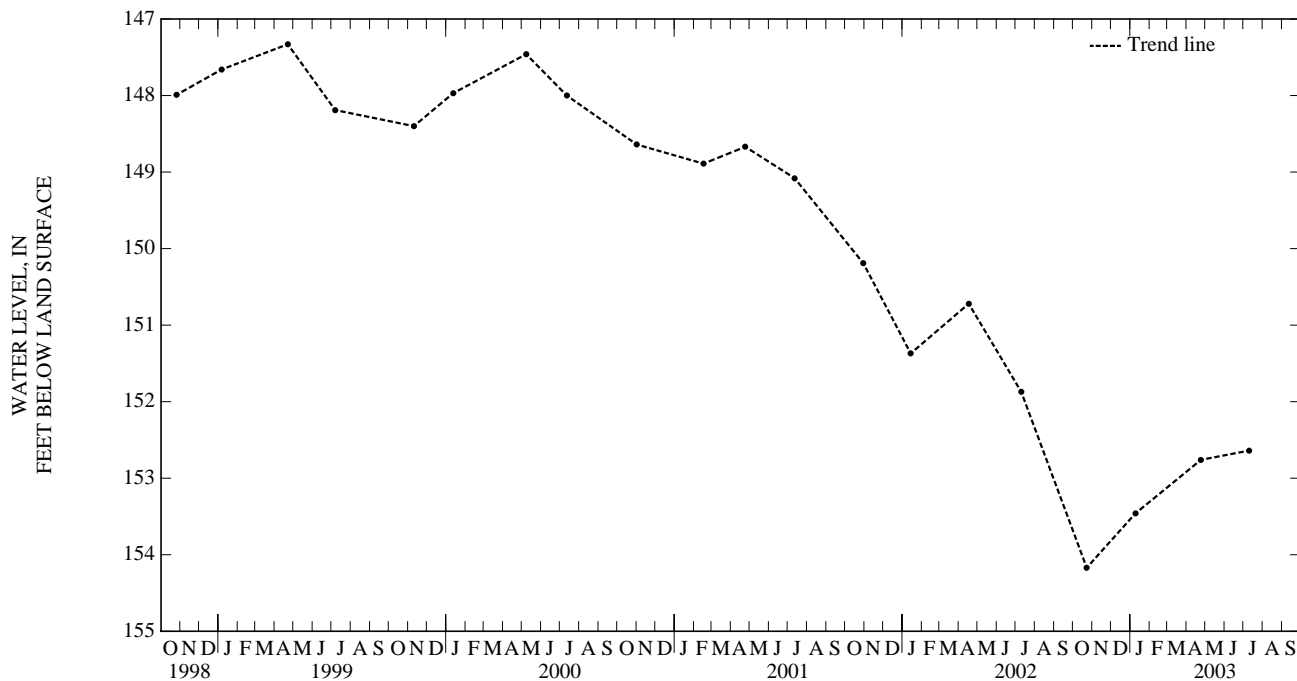
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 125.10 ft below land-surface datum, Apr. 24 and May 29, 1980; lowest measured, 154.17 ft below land-surface datum, Oct. 23, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	154.17	JAN 09	153.46	APR 24	152.76	JUL 10	152.64
WATER YEAR 2003		HIGHEST	152.64	JUL 10, 2003	LOWEST	154.17	OCT 23, 2002



## ISLE OF WIGHT COUNTY—Continued

365751076433503. Local number, 57D 23 SOW 143C.

LOCATION.--Lat 36°57'52", long 76°43'34", NAD83, Hydrologic Unit 03010202, 50 ft west of State Highway 652, 0.5 mi south of State Highway 682, and 1.8 mi southwest of Magnet. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 18 ft, screened 8 to 18 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 7, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Oct. 7, 1985, monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 73 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

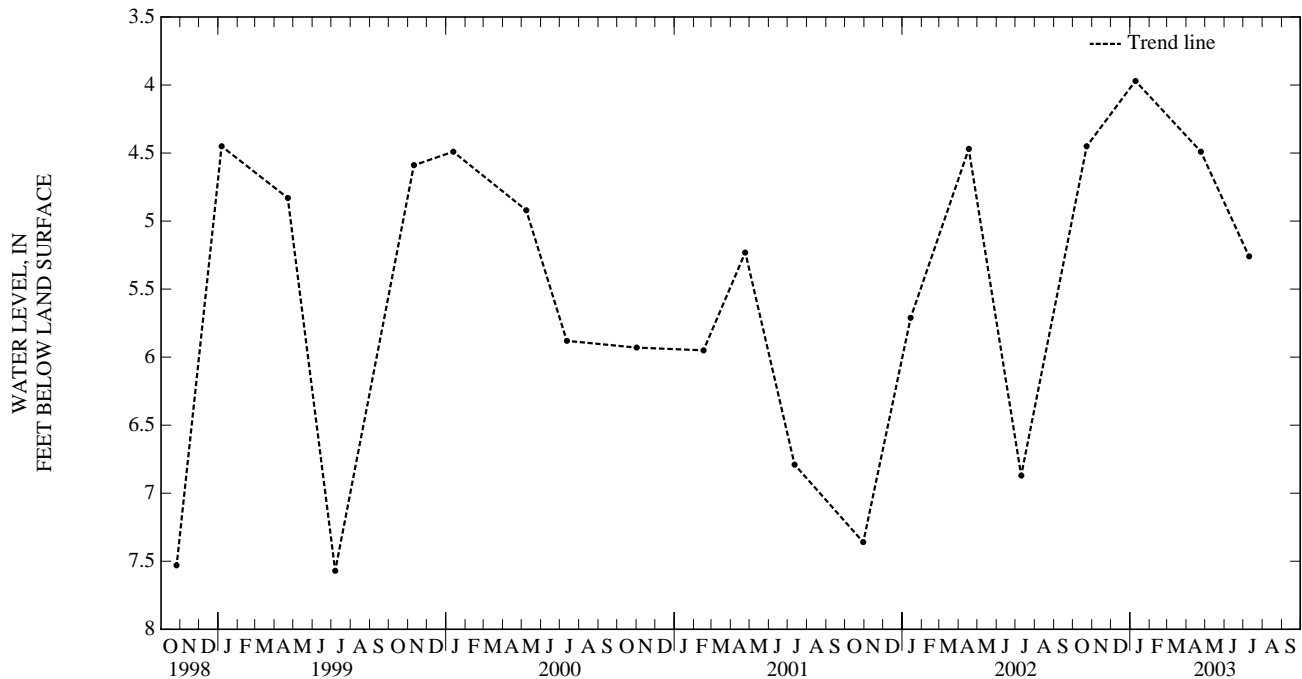
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.29 ft below land-surface datum, Feb. 23, 1987; lowest measured, 8.70 ft below land-surface datum, Aug. 11, 1986.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	4.45	JAN 09	3.97	APR 24	4.49	JUL 10	5.26
WATER YEAR 2003		HIGHEST	3.97	JAN 09, 2003	LOWEST	5.26	JUL 10, 2003



## ISLE OF WIGHT COUNTY—Continued

370236076425901. Local number, 57E 10 SOW 144B.

LOCATION.--Lat 37°02'54", long 76°43'11", NAD83, Hydrologic Unit 02080206, 0.5 mi east of State Highway 627, 1.0 mi north of State Highway 621, and 2.5 mi southwest of Rushmere. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 440 ft, screened 430 to 440 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 7, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Oct. 7, 1985, monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 85 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

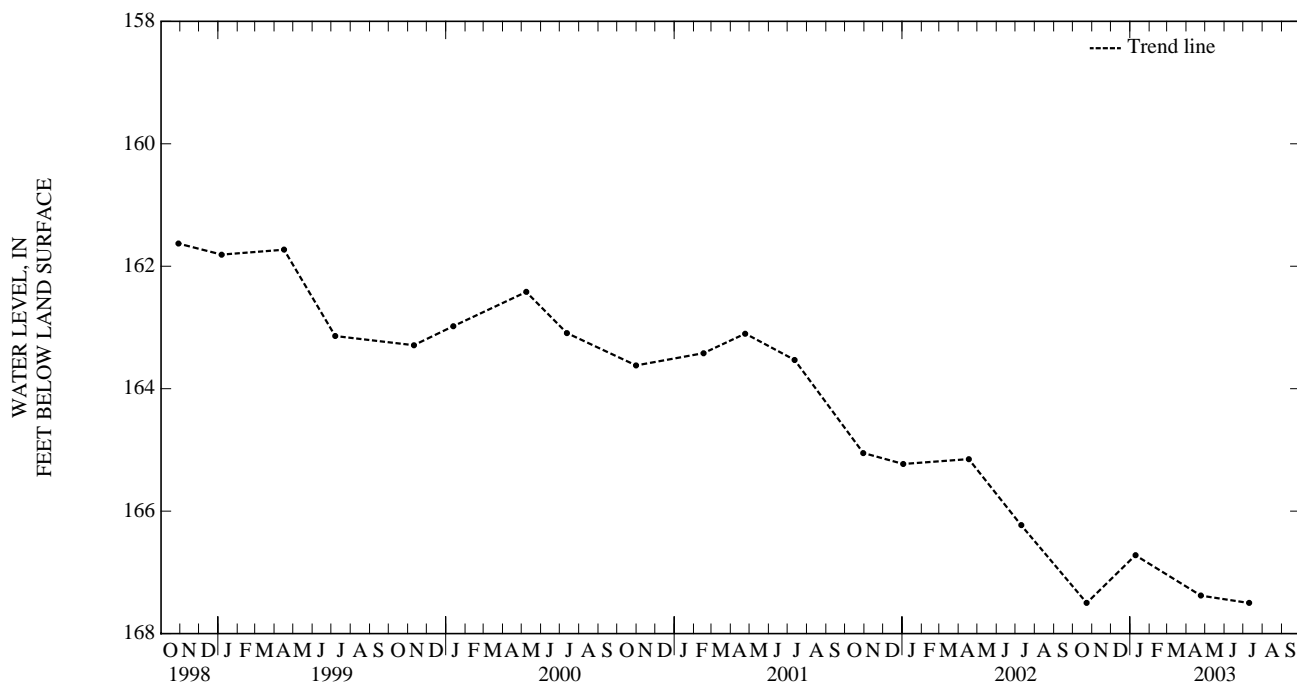
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 139.90 ft below land-surface datum, Apr. 24, July 24, 1980; lowest measured, 167.50 ft below land-surface datum, Oct. 23, 2002 and July 10, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	167.50	JAN 09	166.72	APR 24	167.38	JUL 10	167.50
WATER YEAR 2003 HIGHEST 166.72 JAN 09, 2003				LOWEST 167.50 OCT 23, 2002 JUL 10, 2003			



## ISLE OF WIGHT COUNTY—Continued

370253076431201. Local number, 57E 14 SOW 144A.

LOCATION.--Lat 37°02'54", long 76°43'11", NAD83, Hydrologic Unit 02080208, 0.5 mi east of State Highway 627, 1.0 mi north of State Highway 621, and 2.5 mi southwest of Rushmere. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 590 ft, diameter 3 in. from 590 to 600 ft, depth 600 ft, screened 590 to 600 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 7, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Oct. 7, 1985, monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 86 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

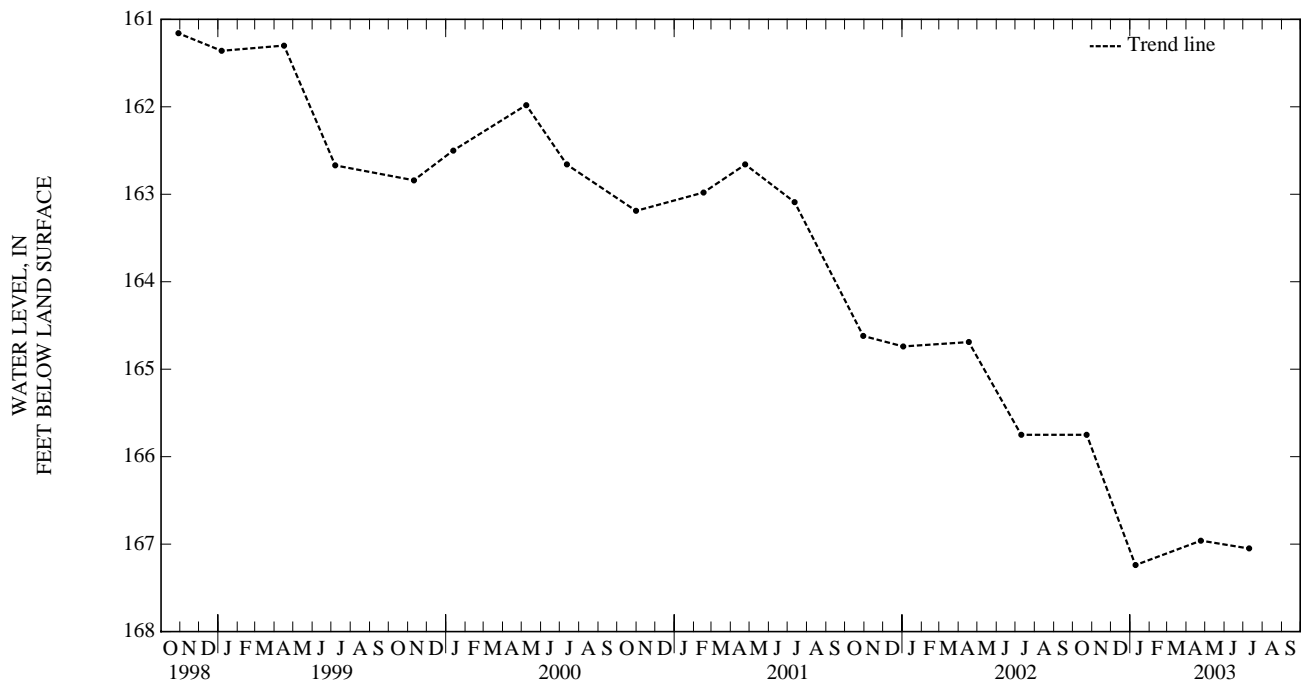
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 139.49 ft below land-surface datum, Apr. 24, 1980; lowest measured, 167.24 ft below land-surface datum, Jan. 9, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	165.75	JAN 09	167.24	APR 24	166.96	JUL 10	167.05
WATER YEAR 2003 HIGHEST 165.75 OCT 23, 2002				LOWEST 167.24 JAN 09, 2003			



## ISLE OF WIGHT COUNTY—Continued

370253076431202. Local number, 57E 15 SOW 144C.

LOCATION.--Lat 37°02'54", long 76°43'11", NAD83, Hydrologic Unit 02080208, 0.5 mi east of State Highway 627, 1.0 mi north of State Highway 621, and 2.5 mi southwest of Rushmere. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 20 ft, screened 10 to 20 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 7, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Oct. 7, 1985, monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 86 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

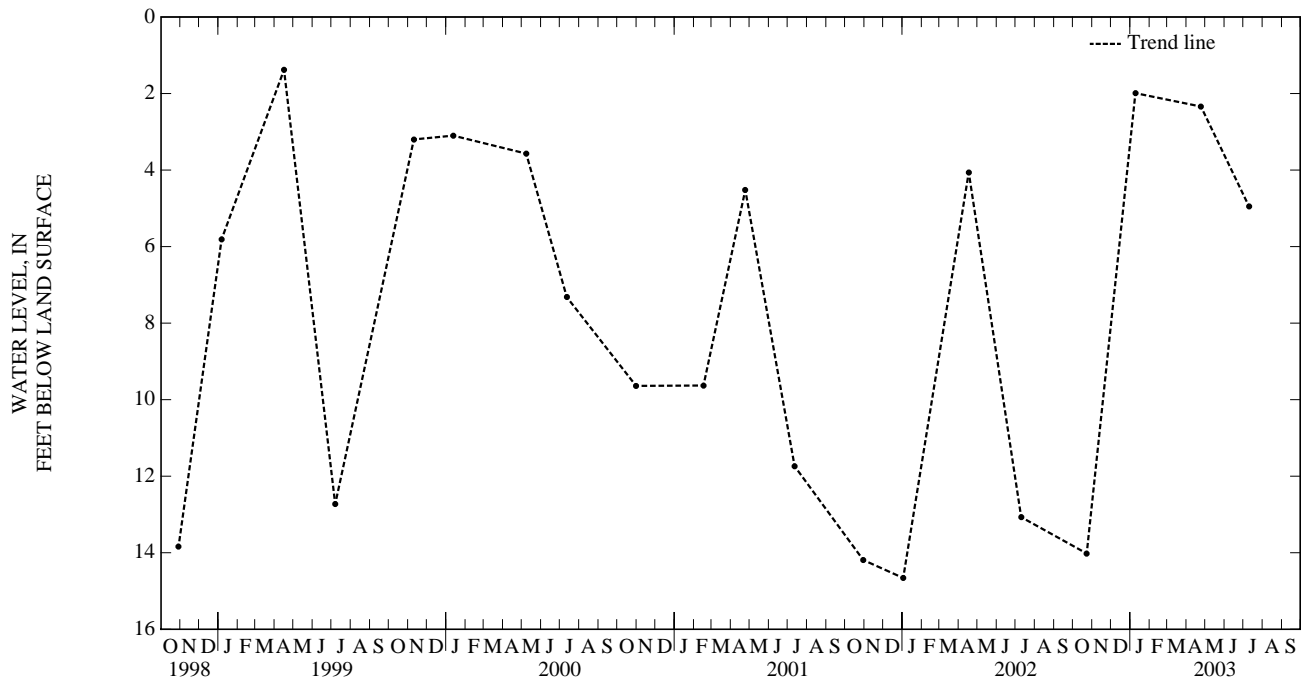
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.88 ft below land-surface datum, Feb. 17, 1994; lowest measured, 14.66 ft below land-surface datum, Jan. 2, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	14.02	JAN 09	1.99	APR 24	2.34	JUL 10	4.95
WATER YEAR 2003 HIGHEST		1.99	JAN 09, 2003	LOWEST		14.02	OCT 23, 2002



## JAMES CITY COUNTY

372546076532901. Local number, 55H 20.

LOCATION.--Lat 37°25'47", long 76°53'28", NAD83, Hydrologic Unit 02080206, 100 ft north of State Highway 603, 700 ft east of the pumping station at Diascund Creek Reservoir, and 0.6 mi northwest of the intersection of U.S. Highway 60 and State Highway 603 in James City County. Owner: City of Newport News.

AQUIFER.--Lower and middle Potomac aquifers of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 12 in. to 300 ft, diameter 6 in. from 300 to 735 ft, depth 735 ft, screened 515 to 540 ft, 600 to 620 ft, 630 to 655 ft, 665 to 685 ft, 720 to 730 ft.

INSTRUMENTATION.--Electronic data logger 60-minute record interval. Prior to Nov. 4, 1999, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 28 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 3.6 ft above land-surface datum.

REMARKS.--Missing record due to recorder malfunction. Water level affected by regional drawdown.

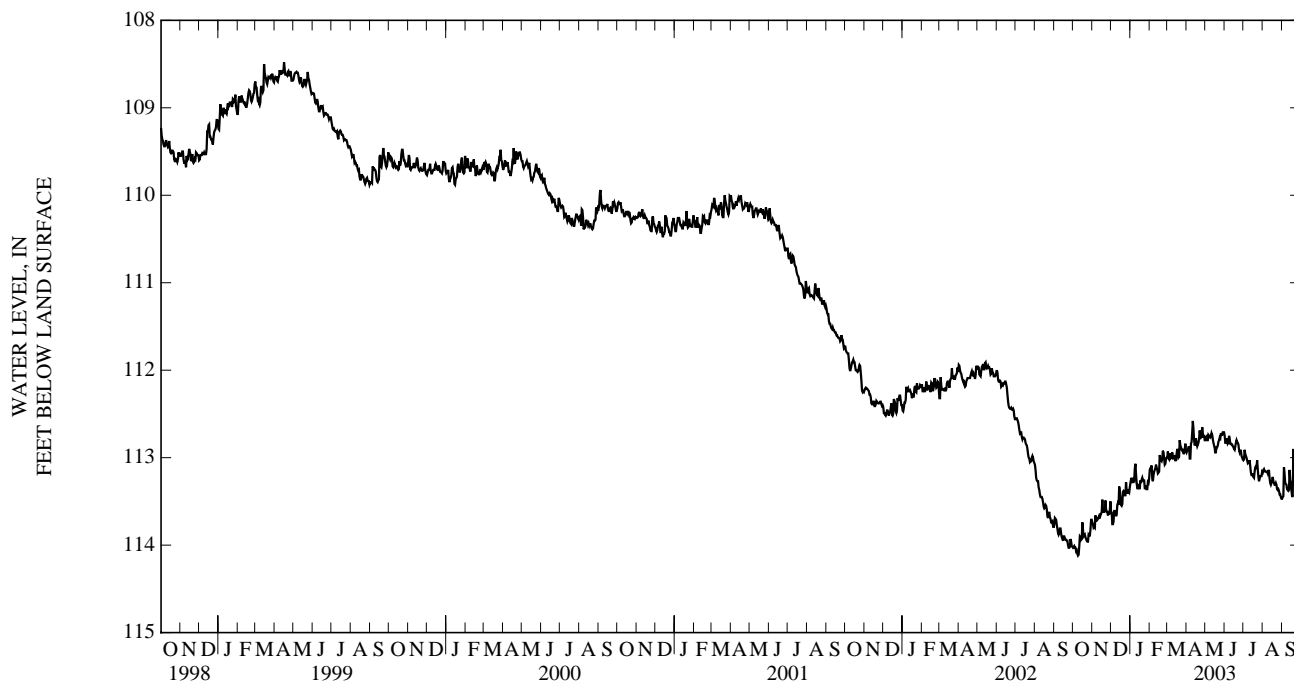
PERIOD OF RECORD.--May 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 90.99 ft below land-surface datum, June 4, 1988; lowest recorded, 114.12 ft below land-surface datum, Oct. 9, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 112.17 ft below land-surface datum, Sept. 19; lowest instantaneous water level, 114.12 ft below land-surface datum, Oct. 9.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	114.03	113.80	113.73	113.28	113.24	112.96	112.88	112.80	112.78	112.98	113.16	113.19
10	114.11	113.69	113.65	113.19	113.12	113.01	112.71	112.76	112.84	113.06	113.15	113.37
15	113.93	113.64	113.38	113.34	113.17	113.02	112.84	112.86	112.88	113.20	113.29	113.28
20	113.88	113.62	113.39	113.23	113.04	112.99	112.83	112.88	112.80	113.11	113.31	113.14
25	113.96	113.62	113.28	113.35	113.08	112.92	112.76	112.78	112.94	113.22	113.37	113.22
EOM	113.71	113.50	113.34	113.24	113.00	112.92	112.80	112.71	113.02	113.16	113.47	113.34





GROUND-WATER LEVELS  
JAMES CITY COUNTY—Continued

371311076463601. Local number, 56F 1 SOW 018.

LOCATION.--Lat 37°13'12", long 76°46'35", NAD83, Hydrologic Unit 02080206, 1,100 ft southwest of Colonial Parkway, 0.5 mi west of State Highway 682, and 0.6 mi north of Jamestown. Owner: U.S. Department of Interior, Colonial National Historical Park.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 346 ft, screened 336 to 346 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 7, 1995, bimonthly measurement with chalked tape. Sept. 30, 1980, to Sept. 30, 1985, occasional measurement with chalked tape. Prior to Sept. 30, 1980, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 10 ft above NGVD of 1929, from topographic map. Measuring point: Top edge of recorder shelf, 3.15 ft above land-surface datum.

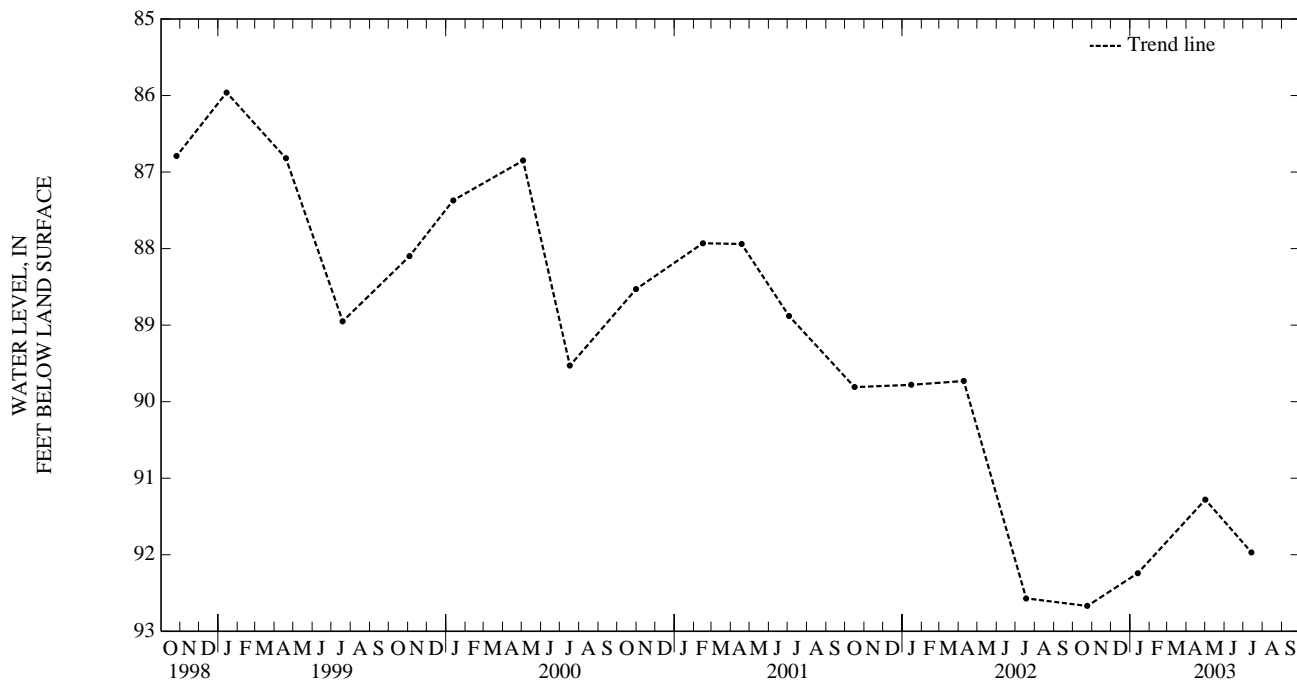
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--May 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 43.29 ft below land-surface datum, May 8, 1969; lowest measured, 92.67 ft below land-surface datum, Oct. 24, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	92.67	JAN 13	92.24	MAY 01	91.28	JUL 14	91.97
WATER YEAR 2003    HIGHEST 91.28 MAY 01, 2003    LOWEST 92.67 OCT 24, 2002							



## JAMES CITY COUNTY—Continued

372145076493201. Local number, 56G 57.

LOCATION.--Lat 37°21'46", long 76°49'31", NAD83, Hydrologic Unit 02080206, 1.75 mi south of the intersection of U.S. Highway 60 and State Highway 631 (Church Lane), off a dirt road at the end of State Highway 631, and 0.10 mi north of the pump station at Little Creek Reservoir. Owner: City of Newport News.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 12 in. to 300 ft, diameter 6 in. from 300 to 695 ft, depth 695 ft, screened 530 to 540 ft, 558 to 598 ft, 604 to 624 ft, 660 to 690 ft.

INSTRUMENTATION.--Electronic data logger 60-minute record interval. Prior to Nov.4, 1999, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 84 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 4.3 ft above land-surface datum.

REMARKS.--Missing record due to recorder malfunction. Water level affected by regional drawdown.

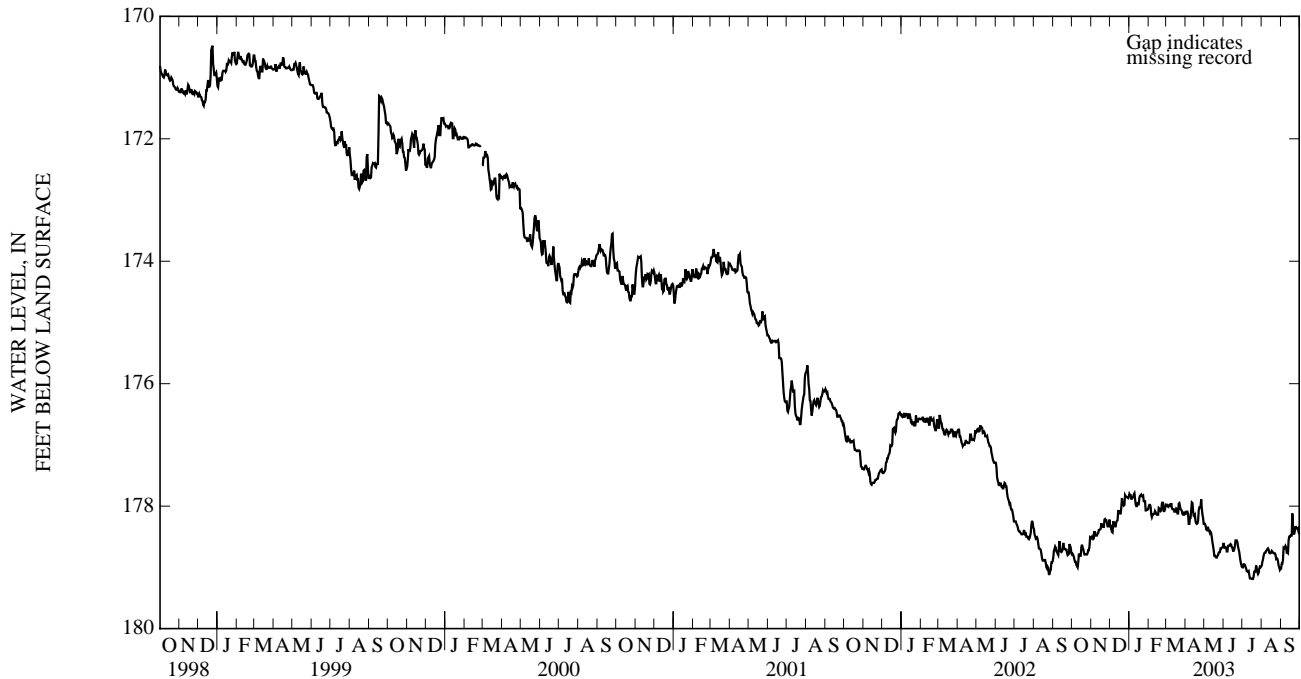
PERIOD OF RECORD.--May 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 155.79 ft below land-surface datum, May 25, 1988; lowest recorded, 179.19 ft below land-surface datum, July 16-18, 2003.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 177.63 ft below land-surface datum, Dec. 25; lowest instantaneous water level, 179.19 ft below land-surface datum, July 16-18.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	178.88	178.52	178.43	177.88	178.14	177.99	178.13	178.39	178.68	178.96	178.77	178.68
10	179.00	178.48	178.33	177.88	178.12	178.03	178.06	178.44	178.64	179.07	178.70	178.76
15	178.81	178.38	178.08	177.97	178.14	178.09	178.17	178.65	178.68	179.18	178.77	178.50
20	178.75	178.34	177.87	177.81	178.08	178.12	178.28	178.84	178.56	179.07	178.77	178.32
25	178.79	178.23	177.82	177.92	178.08	178.06	178.00	178.75	178.71	179.08	178.85	178.34
EOM	178.52	178.22	177.85	178.05	177.98	178.13	178.29	178.66	178.99	178.99	179.02	178.46



## JAMES CITY COUNTY—Continued

372314076480401. Local number, 56H 22 SOW 135A.

LOCATION.--Lat 37°23'14", long 76°48'05", NAD83, Hydrologic Unit 02080107, 100 ft south of State Highway 754, 0.2 mi east of intersection of U.S. Highway 60 and State Highway 754, and 0.5 mi north of Toano. Owner: James City Service Authority.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 2 in., depth 645 ft, screened 625 to 645 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 105 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.50 ft above land-surface datum prior to Mar. 3, 1988; at land-surface datum Mar. 3, 1988, to Mar. 1, 1989; 0.50 ft below land-surface datum prior to May 5, 1997; 0.85 ft below land surface datum thereafter.

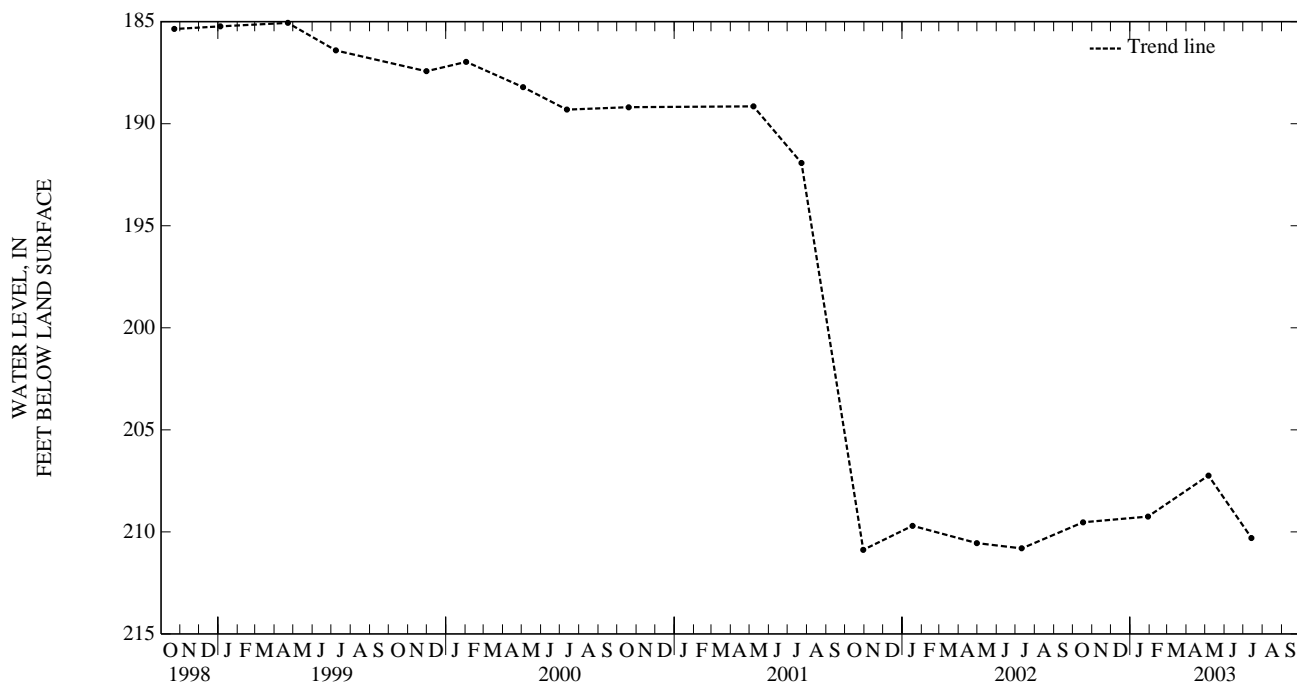
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown and occasional local pumpage.

PERIOD OF RECORD.--March 1979 to October 1995, May 1997 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 154.85 ft below land-surface datum, Apr. 5, 1979; lowest measured, 210.88 ft below land-surface datum, Oct. 30, 2001.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	209.53	JAN 29	209.25	MAY 06	207.24	JUL 14	210.30
WATER YEAR 2003		HIGHEST	207.24	MAY 06, 2003	LOWEST	210.30	JUL 14, 2003



## JAMES CITY COUNTY—Continued

372506076511701. Local number, 56H 25 SOW 177A.

LOCATION.--Lat 37°24'52", long 76°51'32", NAD83, Hydrologic Unit 02080206, on the northwest side of State Highway 601 in James City County, 0.7 mi north of the intersection of State Highways 168 and 601, and 3.15 mi west of the intersection of U.S. Highway 60 and State Highway 168. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Lower Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 929 ft, screened 888 to 908 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 28, 1995 to Sept. 30, 1999, occasional measurement with chalked tape by USGS personnel. Sept. 25, 1991 to Sept. 28, 1995, monthly measurement with chalked tape. Apr. 20, 1988 to Sept. 25, 1991, occasional measurement with chalked tape. Prior to Apr. 20, 1988, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 103 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.15 ft above land-surface datum prior to Mar. 31, 1994; 1.00 ft thereafter.

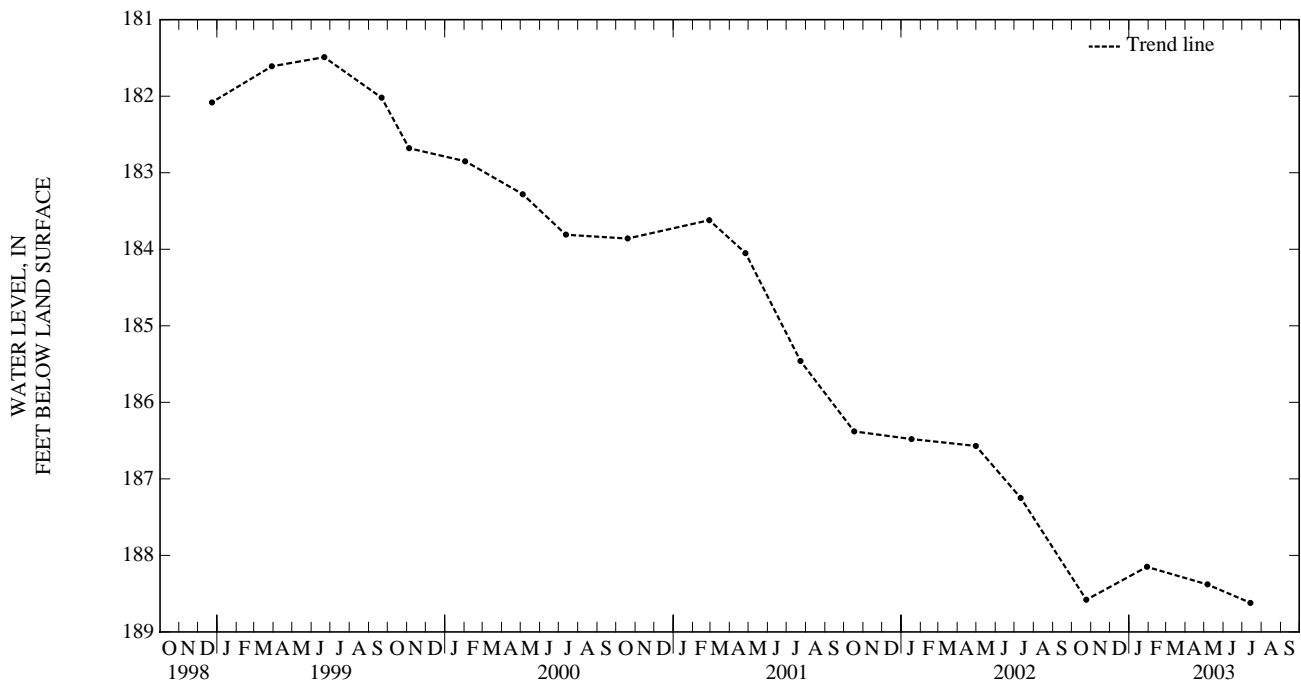
REMARKS.--Records provided by Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--April 1985 to current year. Unpublished records available prior to October 1986 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 158.21 ft below land-surface datum, Mar. 19, 20, 1986; lowest measured, 188.62 ft below land-surface datum, July 14, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	188.58	JAN 29	188.15	MAY 06	188.38	JUL 14	188.62
WATER YEAR 2003		HIGHEST	188.15	JAN 29, 2003	LOWEST	188.62	JUL 14, 2003



## JAMES CITY COUNTY—Continued

372506076511702. Local number, 56H 26 SOW 177B.

LOCATION.--Lat 37°24'52", long 76°51'32", NAD83, Hydrologic Unit 02080206, on the northwest side of State Highway 601 in James City County, 0.7 mi north of the intersection of State Highways 168 and 601, and 3.15 mi west of the intersection of U.S. Highway 60 and State Highway 168. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 581 ft, screened 550 to 560 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 28, 1995 to Sept. 30, 1999, occasional measurement with chalked tape by USGS personnel. Sept. 25, 1991 to Sept. 28, 1995, monthly measurement with chalked tape. Prior to Sept. 25, 1991, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 103 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.15 ft above land-surface datum prior to Mar. 31, 1994; 0.65 ft thereafter.

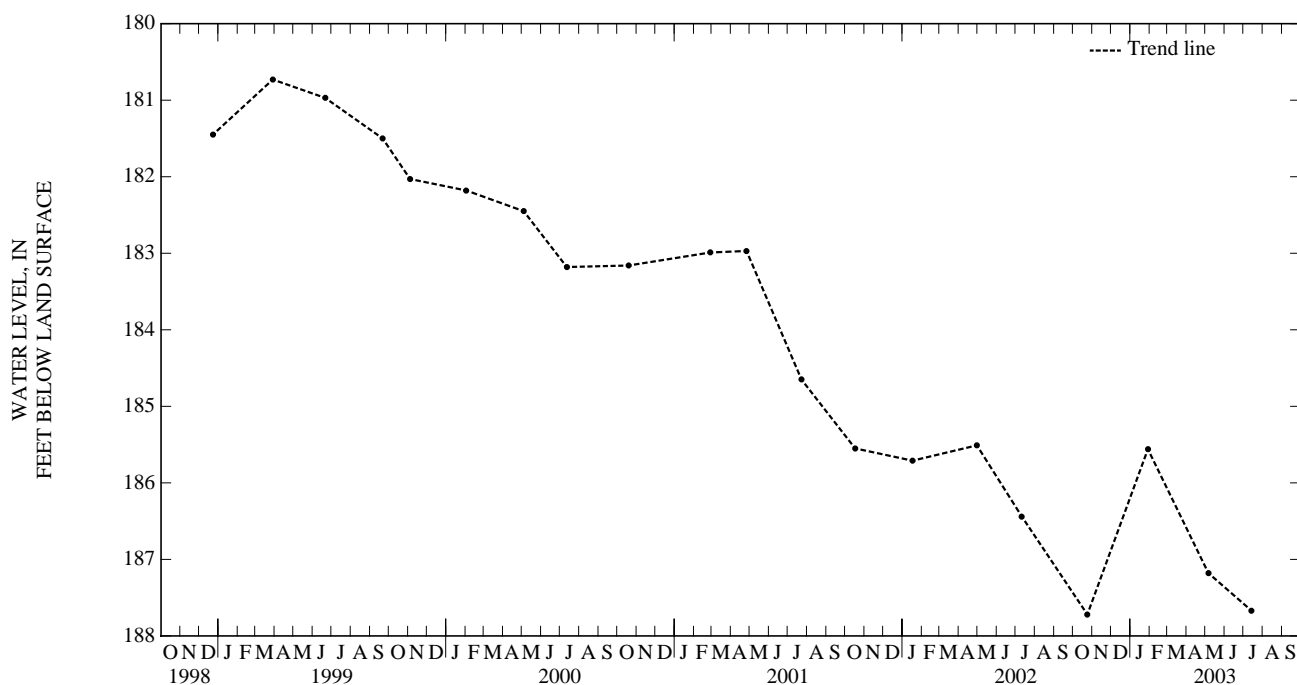
REMARKS.--Records provided by Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--April 1985 to current year. Unpublished records prior to October 1986 and fragmentary periods of continuous record for water years 1985-89 available in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 157.61 ft below land-surface datum, June 1, 2, 1985; lowest measured, 187.72 ft below land-surface datum, Oct. 24, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	187.72	JAN 29	185.56	MAY 06	187.18	JUL 14	187.67
WATER YEAR 2003 HIGHEST		185.56	JAN 29, 2003 LOWEST		187.72	OCT 24, 2002	



## JAMES CITY COUNTY—Continued

372506076511703. Local number, 56H 27 SOW 177C.

LOCATION.--Lat 37°24'52", long 76°51'32", NAD83, Hydrologic Unit 02080206, on the northwest side of State Highway 601 in James City County, 0.7 mi north of the intersection of State Highways 168 and 601, and 3.15 mi west of the intersection of U.S. Highway 60 and State Highway 168. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 401 ft, screened 370 to 380 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Aug. 26, 1993 to Sept. 30, 1999, monthly measurement with chalked tape by USGS personnel. Prior to Aug. 26, 1993, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 103 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.95 ft above land-surface datum prior to Mar. 31, 1994; 1.35 ft thereafter.

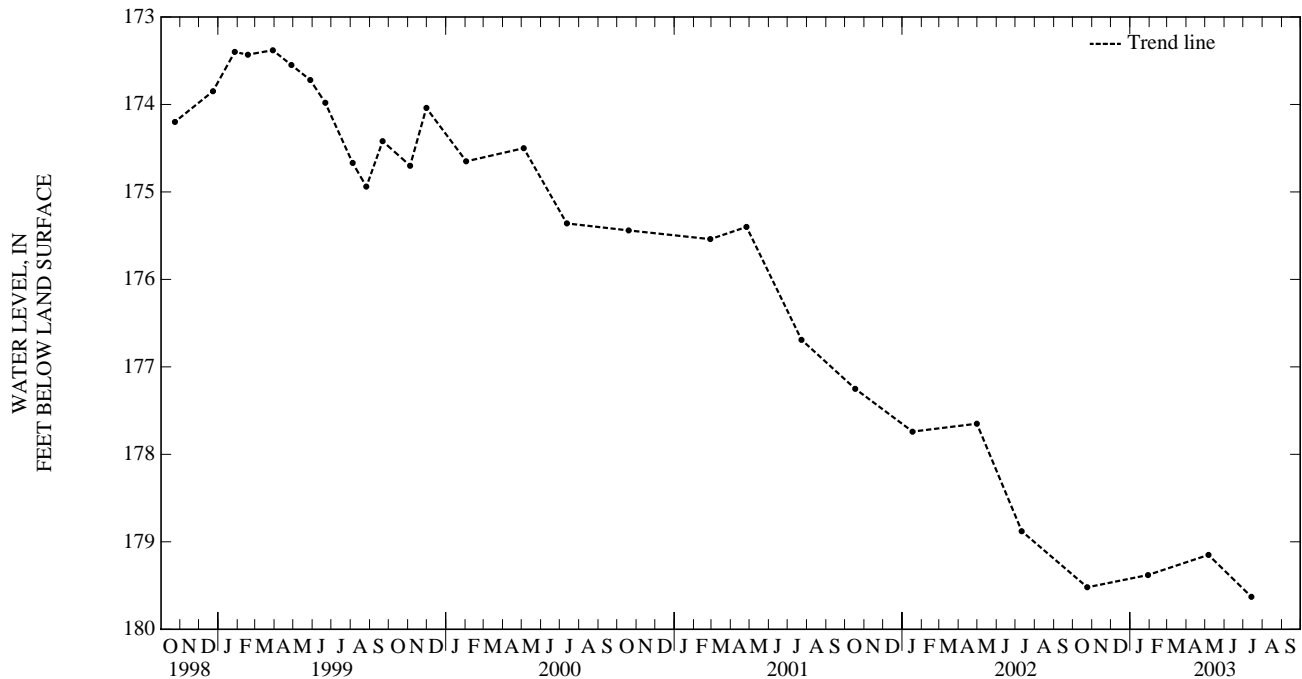
REMARKS.--Records provided by Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--April 1985 to current year. Unpublished records available prior to October 1986 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 153.47 ft below land-surface datum, June 1, 2, 1985; lowest measured, 179.63 ft below land-surface datum, July 14, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	179.52	JAN 29	179.38	MAY 06	179.15	JUL 14	179.63
WATER YEAR 2003 HIGHEST 179.15 MAY 06, 2003				LOWEST 179.63 JUL 14, 2003			



## JAMES CITY COUNTY—Continued

372506076511704. Local number, 56H 28 SOW 177D.

LOCATION.--Lat 37°24'52", long 76°51'32", NAD83, Hydrologic Unit 02080206, 3.15 mi west of the intersection of U.S. Highway 60 and State Highway 168, 0.7 mi north of the intersection of State Highways 168 and 601, and on the northwest side of State Highway 601 in James City County. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Aquia aquifer of Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 321 ft, screened 290 to 300 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 28, 1995 to Sept. 30, 1999, occasional measurement with chalked tape by USGS personnel. Sept. 25, 1991 to Sept. 28, 1995, monthly measurement with chalked tape. Sept. 16, 1989 to Sept. 25, 1991, occasional measurement with chalked tape. Prior to Sept. 16, 1989, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 103 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.9 ft above land-surface datum prior to Dec. 4, 1989; 0.9 ft thereafter.

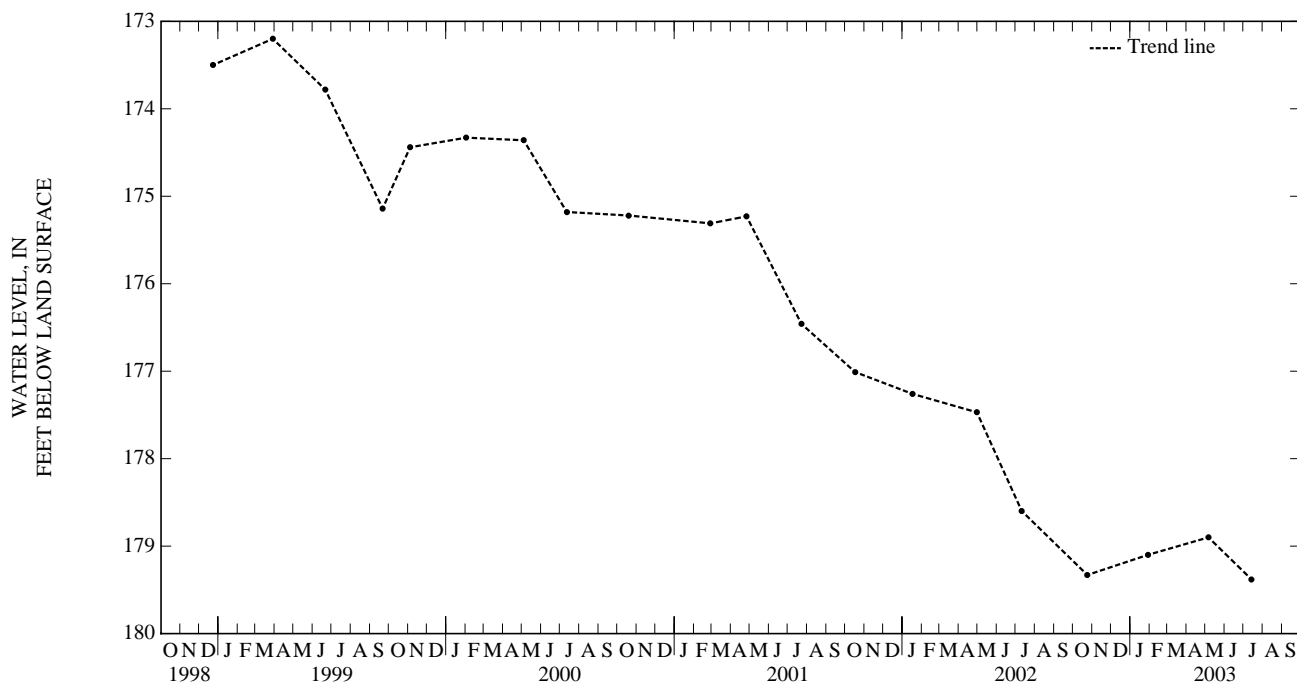
REMARKS.--Records provided by Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--April 1985 to current year. Unpublished records available prior to October 1986 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 153.20 ft below land-surface datum, May 31, 1985; lowest measured, 179.38 ft below land-surface datum, July 14, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	179.33	JAN 29	179.10	MAY 06	178.90	JUL 14	179.38
WATER YEAR 2003 HIGHEST 178.90 MAY 06, 2003				LOWEST 179.38 JUL 14, 2003			



## JAMES CITY COUNTY—Continued

372506076511705. Local number, 56H 29 SOW 177E.

LOCATION.--Lat 37°24'52", long 76°51'32", NAD83, Hydrologic Unit 02080206, on the northwest side of State Highway 601 in James City County, 0.7 mi north of the intersection of State Highways 168 and 601, and 3.15 mi west of the intersection of U.S. Highway 60 and State Highway 168. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Chickahominy-Piney Point aquifer of Eocene-Oligocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 235 ft, screened 204 to 214 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 28, 1995 to Sept. 30, 1999, occasional measurement with chalked tape by USGS personnel. Sept. 25, 1991 to Sept. 28, 1995, monthly measurement with chalked tape. Sept. 21, 1989 to Sept. 25, 1991, occasional measurement with chalked tape. Prior to Sept. 21, 1989, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 103 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.8 ft above land-surface datum prior to Dec. 4, 1989; 0.75 ft thereafter.

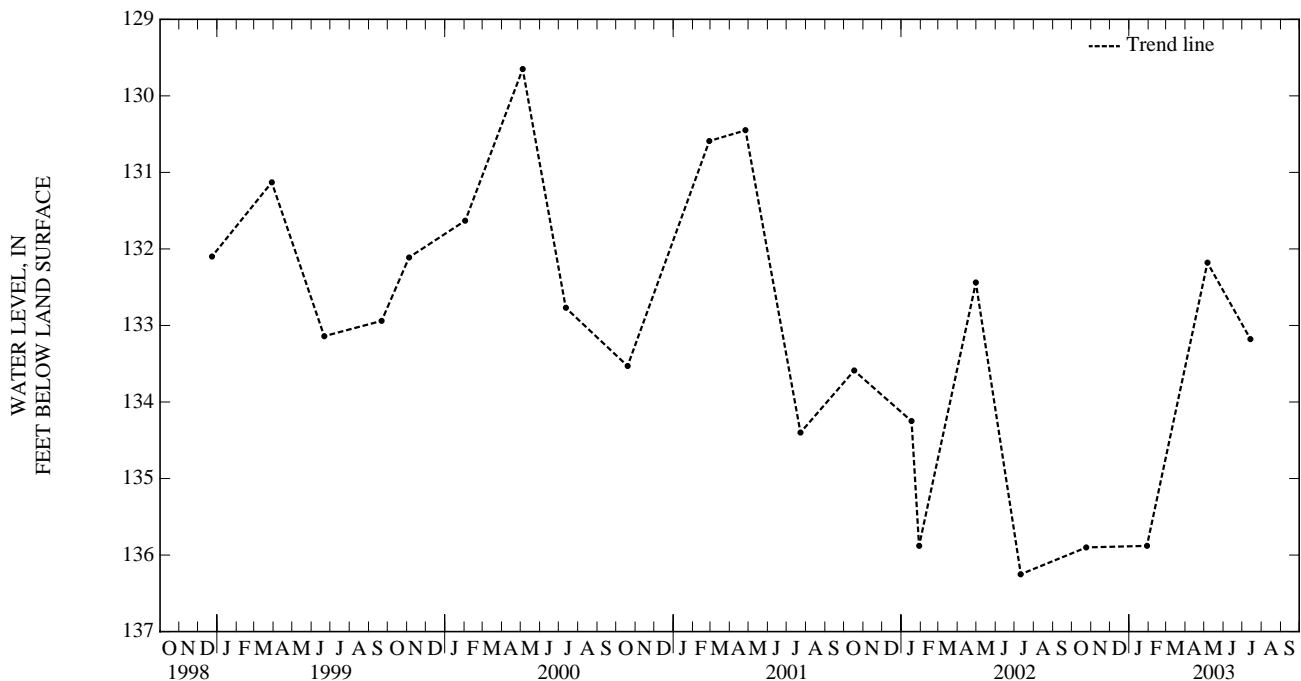
REMARKS.--Records provided by Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--April 1985 to current year. Unpublished records available prior to October 1986 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 111.96 ft below land-surface datum, Feb. 27, 1986; lowest measured, 136.25 ft below land-surface datum, July 11, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	135.90	JAN 29	135.88	MAY 06	132.18	JUL 14	133.18
WATER YEAR 2003 HIGHEST 132.18 MAY 06, 2003				LOWEST 135.90 OCT 24, 2002			





## JAMES CITY COUNTY—Continued

372506076511706. Local number, 56H 30 SOW 177F.

LOCATION.--Lat 37°24'52", long 76°51'32", NAD83, Hydrologic Unit 02080206, on the northwest side of State Highway 601 in James City County, 0.7 mi north of the intersection of State Highways 168 and 601, and 3.15 mi west of the intersection of U.S. Highway 60 and State Highway 168. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 60 ft, screened 50 to 60 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 28, 1995 to Sept. 30, 1999, occasional measurement with chalked tape by USGS personnel. Sept. 25, 1991 to Sept. 28, 1995, monthly measurement with chalked tape. Sept. 20, 1989 to Sept. 25, 1991, occasional measurement with chalked tape. Prior to Sept. 20, 1989, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 103 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.9 ft above land-surface datum prior to Dec. 4, 1989; 1.1 ft thereafter.

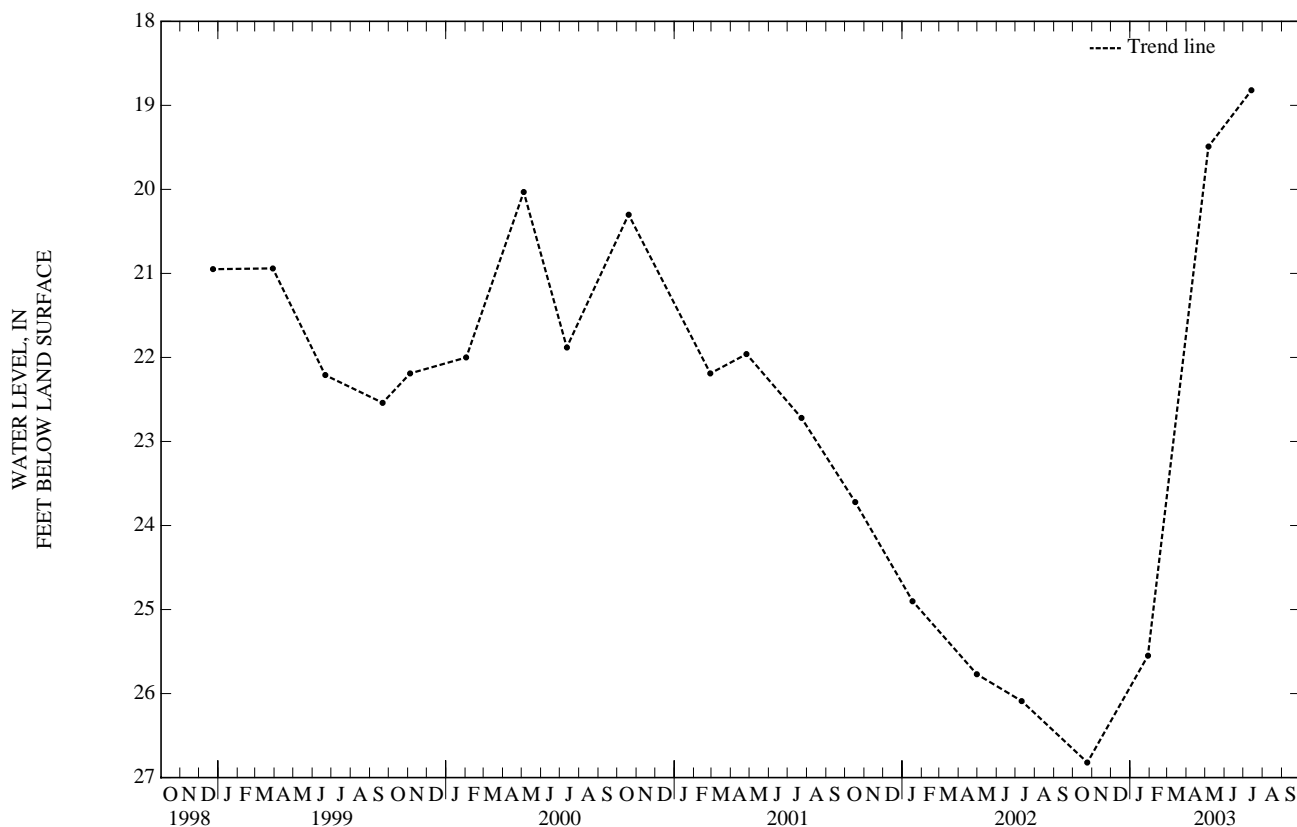
REMARKS.--Records provided by Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--April 1985 to current year. Unpublished records available prior to October 1986 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.73 ft below land-surface datum, June 29, 1998; lowest measured, 26.82 ft below land-surface datum, Oct. 24, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	26.82	JAN 29	25.55	MAY 06	19.49	JUL 14	18.82
WATER YEAR 2003 HIGHEST		18.82	JUL 14, 2003	LOWEST		26.82	OCT 24, 2002



## JAMES CITY COUNTY—Continued

372314076480402. Local number, 56H 31 SOW 135B.

LOCATION.--Lat 37°23'14", long 76°48'05", NAD83, Hydrologic Unit 02080107, 100 ft south of State Highway 754, 0.2 mi east of intersection of State Highway 754 and U.S. Highway 60, and 0.5 mi north of Toano. Owner: James City Service Authority.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 30 ft, screened 20 to 30 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 95 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.3 ft above land-surface datum prior to Mar. 3, 1988; at land-surface datum Mar. 3, 1988, to Mar. 1, 1989; 0.2 ft below land-surface datum prior to May 5, 1997; 0.95 ft below land surface datum thereafter.

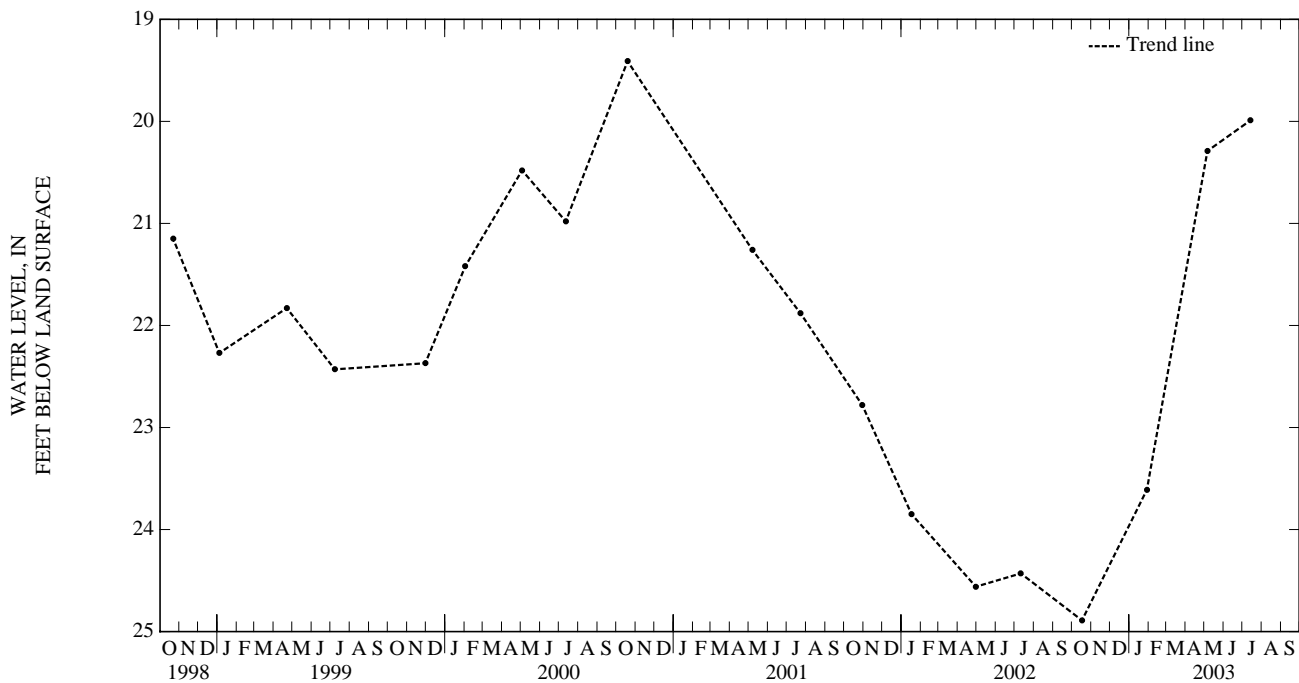
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--August 1979 to October 1995, May 1997 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.28 ft below land-surface datum, June 8, 1984; lowest measured, 24.89 ft below land-surface datum, Oct. 17, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	24.89	JAN 29	23.61	MAY 06	20.29	JUL 14	19.99
WATER YEAR 2003 HIGHEST				19.99	JUL 14, 2003 LOWEST		
				24.89	OCT 17, 2002		



## JAMES CITY COUNTY—Continued

372315076415001. Local number 57H 14 SOW 095.

LOCATION.--Lat 37°23'16", long 76°41'49", NAD83, Hydrologic Unit 02080107, 500 ft north of State Highway 606, 0.8 mi east of intersection of State Highway 606 and 646, and 3.3 mi east of Croaker. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 123 ft, screened 118 to 123 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 95 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum prior to Mar. 3, 1988; 1.4 ft thereafter.

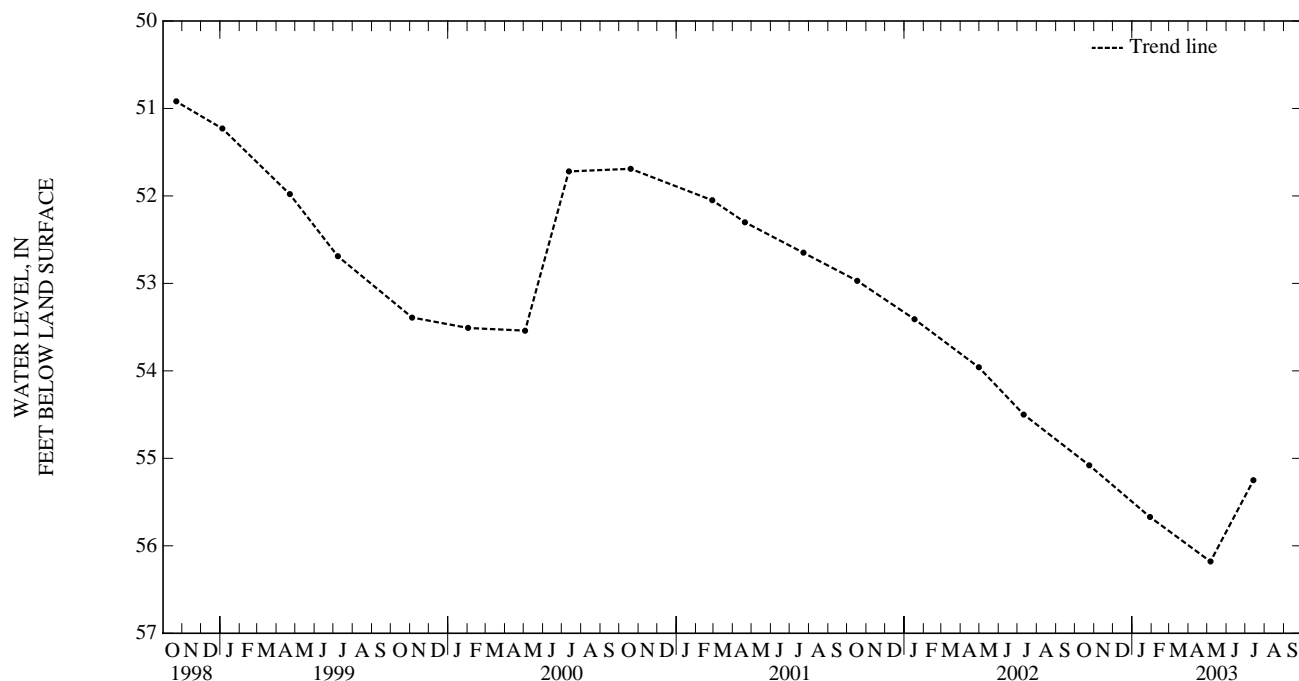
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--September 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 45.00 ft below land-surface datum, Sept. 21, 1978; lowest measured, 56.18 ft below land-surface datum, May 6, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	55.08	JAN 29	55.67	MAY 06	56.18	JUL 14	55.25
WATER YEAR 2003 HIGHEST 55.08		OCT 24, 2002		LOWEST 56.18		MAY 06, 2003	



## KING AND QUEEN COUNTY

374328077012801. Local number, 54K 6 SOW 064.

LOCATION.--Lat 37°43'29", long 77°01'27", NAD83, Hydrologic Unit 02080105, 100 ft west of State Highway 629, 0.2 mi southeast of Walkerton, and 0.25 mi south of intersection of State Highways 629 and 634. Owner: C. L. Walker.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in. to 66 ft, diameter 4 in. from 66 to 390 ft, depth 390 ft, screened 341 to 372 ft, 376 to 387 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 3, 1985, to July 11, 1995, bimonthly measurement with chalked tape. Apr. 30, 1979, to Oct. 2, 1985, occasional measurement with chalked tape. Jan. 5, 1974, to Apr. 30, 1979, continuous strip-chart recorder. Prior to Jan. 5, 1974, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 5 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.17 ft above land-surface datum prior to Nov. 18, 1985; 1.3 ft thereafter.

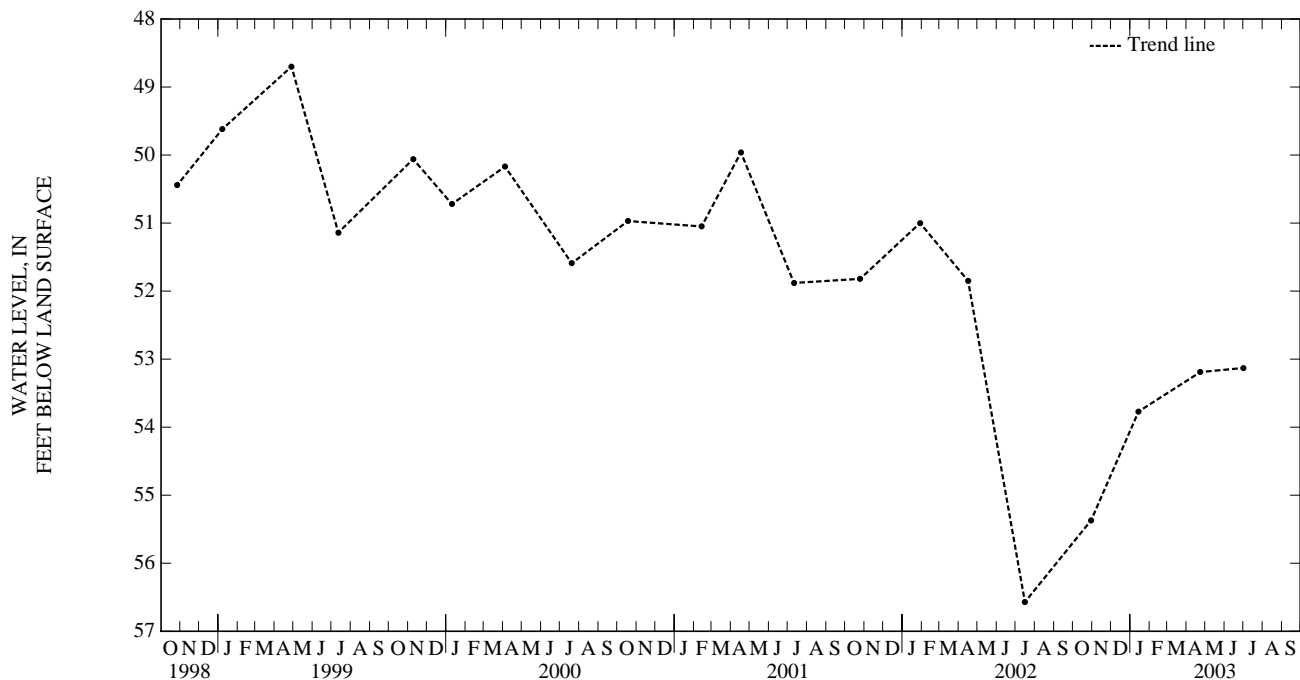
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--August 1972 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.82 ft below land-surface datum, Aug. 1, 1972; lowest measured, 56.57 ft below land-surface datum, July 16 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	55.37	JAN 14	53.77	APR 23	53.19	JUL 01	53.13
WATER YEAR 2003 HIGHEST		53.13	JUL 01, 2003	LOWEST		55.37	OCT 30, 2002



GROUND-WATER LEVELS  
KING AND QUEEN COUNTY—Continued

374739077052701. Local number, 54L 10.

LOCATION.--Lat 37°47'40", long 77°05'26", NAD83, Hydrologic Unit 02080105, at Virginia Department of Transportation wayside picnic table, 50 ft north of U.S. Highway 360 and 1 mi. east of Mattaponi River. Owner: U.S. Geological Survey.

AQUIFER.--Chickhominy-Piney Point aquifer of Eocene-Oligocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 96.21 ft, screened 86.21 ft to 96.21 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to October 1998, monthly measurement with chalked tape.

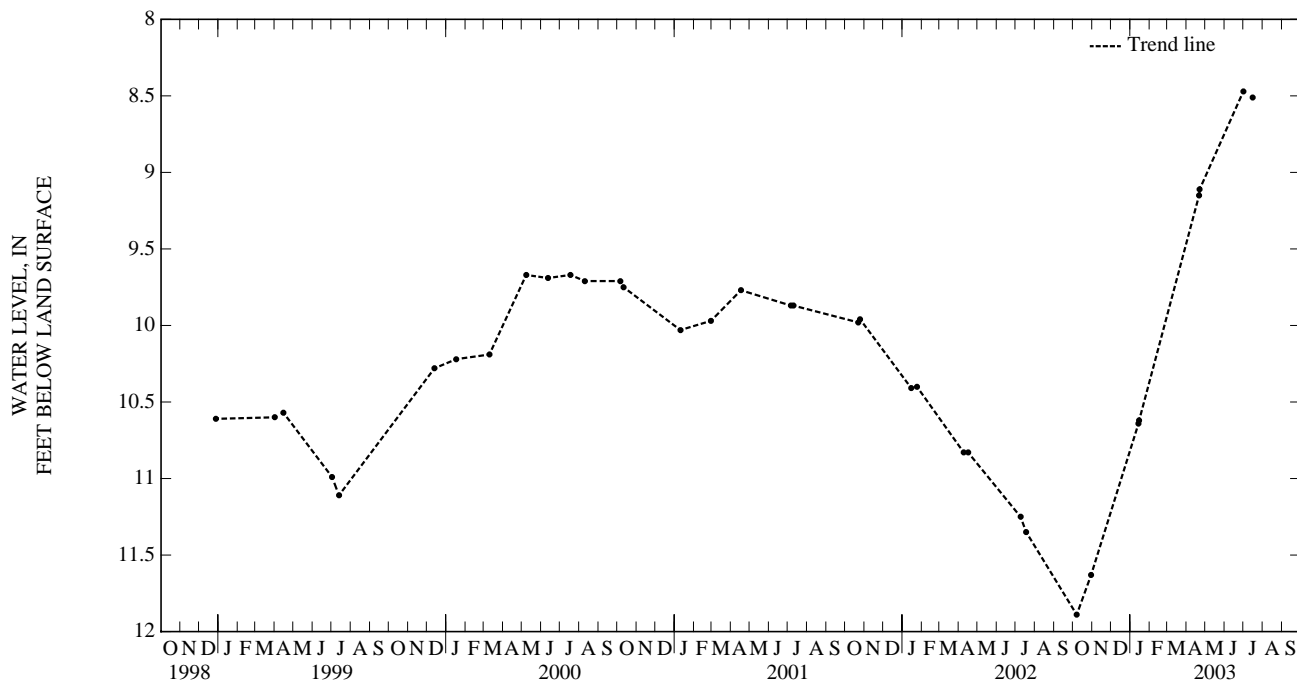
DATUM.--Elevation of land-surface datum is 52 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 3.06 ft above land-surface datum.

PERIOD OF RECORD.--May 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.89 ft below land-surface datum, Apr. 23, 1998; lowest measured, 11.89 ft below land-surface datum, Oct. 7, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	11.89	JAN 14	10.64	APR 21	9.15	JUL 01	8.47
30	11.63	15	10.62	22	9.11	16	8.51
WATER YEAR 2003		HIGHEST	8.47	JUL 01, 2003	LOWEST	11.89	OCT 07, 2002



## KING AND QUEEN COUNTY—Continued

373126076454101. Local number, 56J 11 SOW 073.

LOCATION.--Lat 37°31'27", long 76°45'40", NAD83, Hydrologic Unit 02080105, at West Point Airport, 1.7 mi southeast of West Point. Owner: Smurfit-Stone Container Corporation.

AQUIFER.--Lower Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 1,254 ft, screened 1,233 to 1,248 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.5 ft above land-surface datum; prior to Mar. 15, 1993, top of casing, 0.6 ft above land-surface datum.

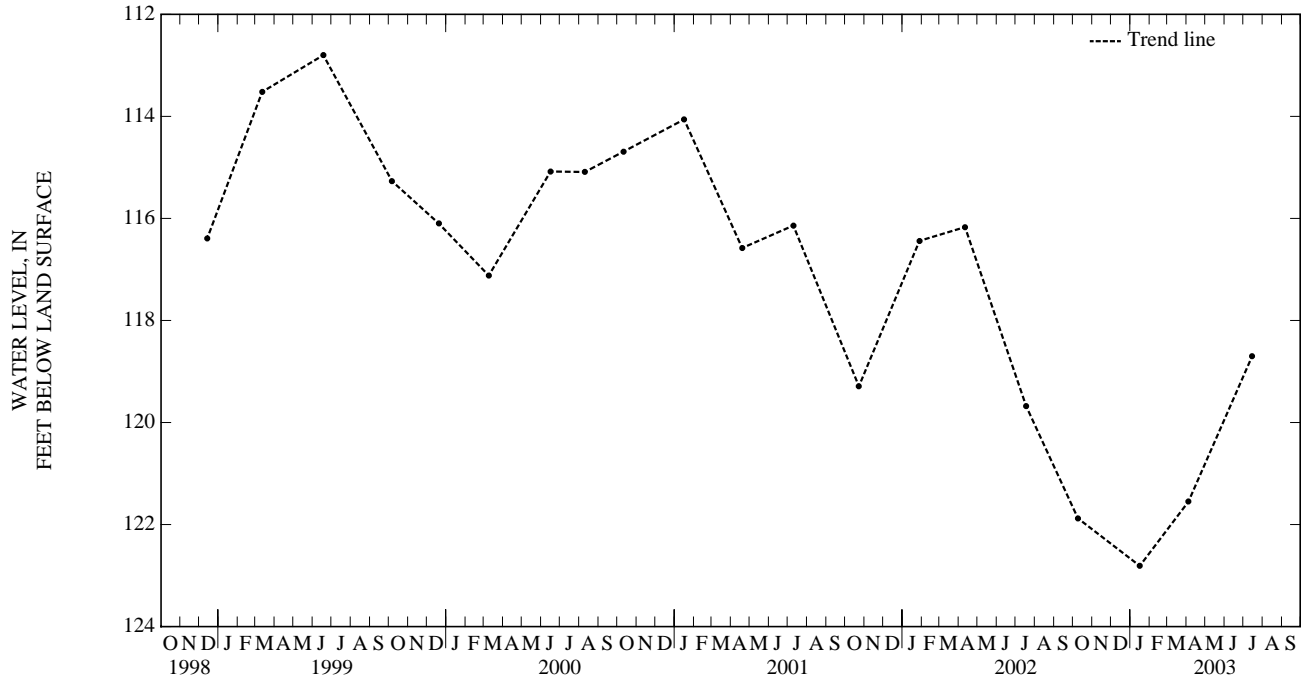
REMARKS.--Water level affected by regional drawdown. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--November 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 73.08 ft below land-surface datum, Apr. 25, 1975; lowest measured, 122.81 ft below land-surface datum, Jan. 16, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	121.88	JAN 16	122.81	APR 04	121.55	JUL 15	118.70
WATER YEAR 2003 HIGHEST 118.70 JUL 15, 2003				LOWEST 122.81 JAN 16, 2003			



## KING AND QUEEN COUNTY—Continued

373008076425601. Local number, 57J 3 SOW 074.

LOCATION.--Lat 37°30'09", long 76°42'55", NAD83, Hydrologic Unit 02080107, off State Highway 606, 0.4 mi northeast of intersection of State Highways 606 and 605, and 2.8 mi south of Shacklefords. Owner: Smurfit-Stone Container Corporation.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in. to 200 ft, diameter 4 in. from 200 to 760 ft, depth 760 ft, screened 741 to 756 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 51 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.60 ft above land-surface datum; prior to Mar. 15, 1993, top of casing, 0.20 ft above land-surface datum.

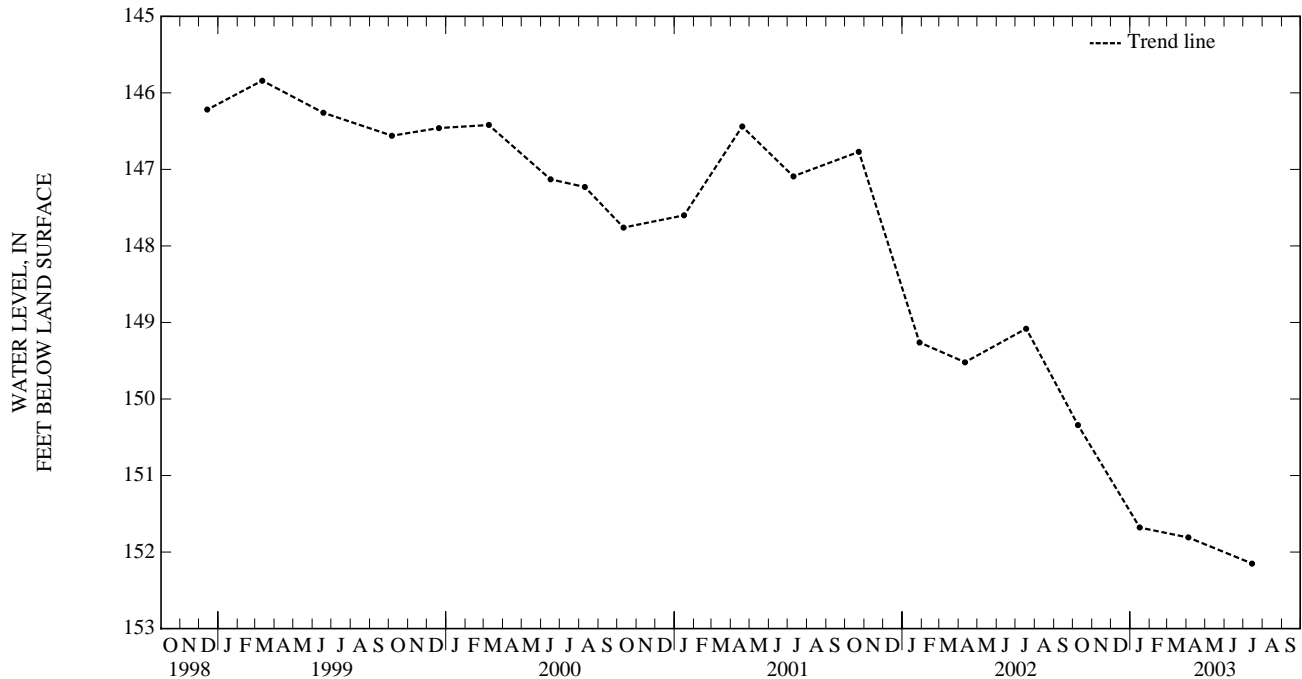
REMARKS.--Water level affected by regional drawdown.

PERIOD OF RECORD.--November 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 109.90 ft below land-surface datum, Jan. 26, 1975; lowest measured, 152.15 ft below land-surface datum, July 15, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	150.34	JAN 16	151.68	APR 04	151.81	JUL 15	152.15
WATER YEAR 2003 HIGHEST 150.34 OCT 09, 2002				LOWEST 152.15 JUL 15, 2003			



## KING GEORGE COUNTY

382129077005801. Local number, 54Q 21.

LOCATION.--Lat 38°21'29", long 77°00'57", NAD83, Hydrologic Unit 02070011, 200 ft west of the Potomac River, 400 ft south of U.S. Highway 301, 750 ft east of Blandy Boulevard, and at the Naval Surface Warfare Center, Dahlgren Laboratory, in Dahlgren. Owner: U.S. Department of the Navy.

AQUIFER.--Aquia aquifer of Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 10 in. from 0 to 25 ft, diameter 4 in. from 0 to 197 ft, 217 to 219.25 ft, depth 219.25 ft, screened 197 to 217 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Oct. 26, 1994, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 20.46 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 2.65 ft above land-surface datum prior to Nov. 4, 1994; top of casing, 2.10 ft thereafter.

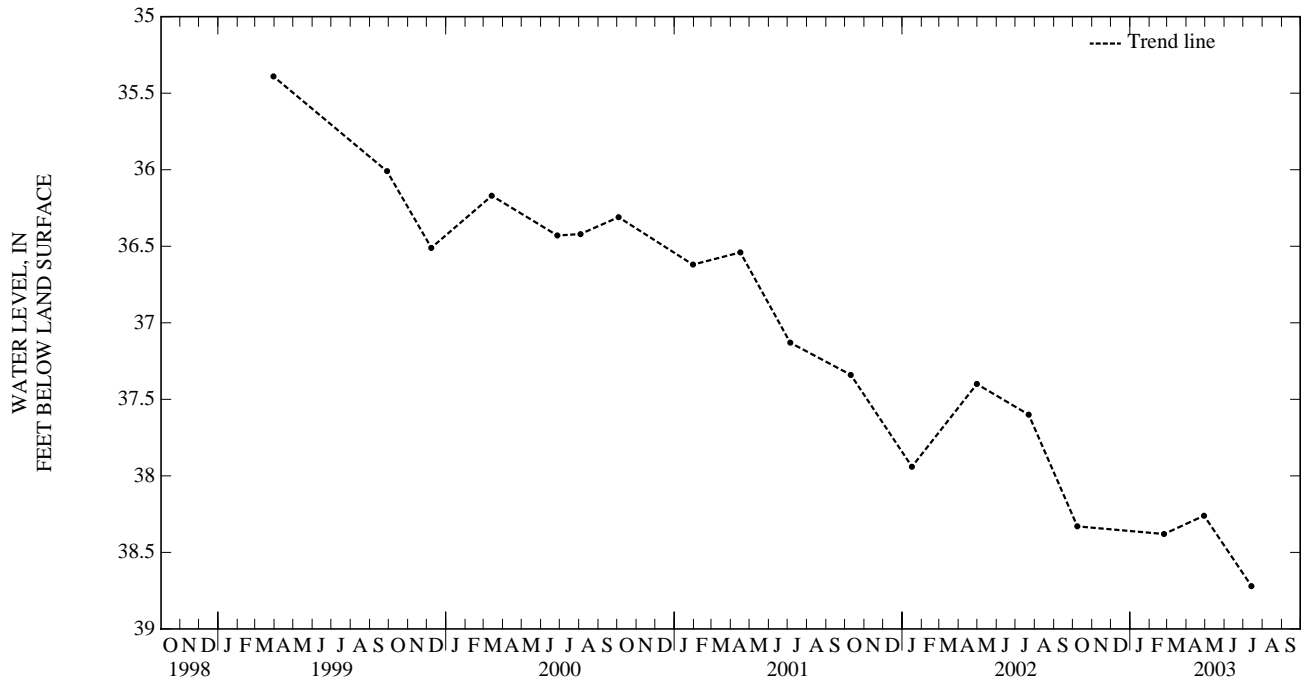
REMARKS.--Water level affected by regional drawdown.

PERIOD OF RECORD.--September 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 29.00 ft below land-surface datum, Mar. 4, 1993; lowest measured, 38.72 ft below land-surface datum, July 14, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	38.33	FEB 24	38.38	APR 29	38.26	JUL 14	38.72
WATER YEAR 2003		HIGHEST	38.26	APR 29, 2003	LOWEST	38.72	JUL 14, 2003





GROUND-WATER LEVELS  
KING GEORGE COUNTY—Continued

381737077024601. Local number, 54Q 55.

LOCATION.--Lat 38°17'37", long 77°02'45", NAD83, Hydrologic Unit 02070011, 300 ft northeast of the main gate at Tetotum Flats at the Naval Surface Warfare Center, Dahlgren Laboratory, in Dahlgren. Owner: U.S. Department of the Navy.

AQUIFER.--Confined aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 49.9 ft, 59.9 to 70.4 ft, depth 70.4 ft, screened 49.9 to 59.9 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. March 1994 to September 1998, digital recorder--60-minute punch.

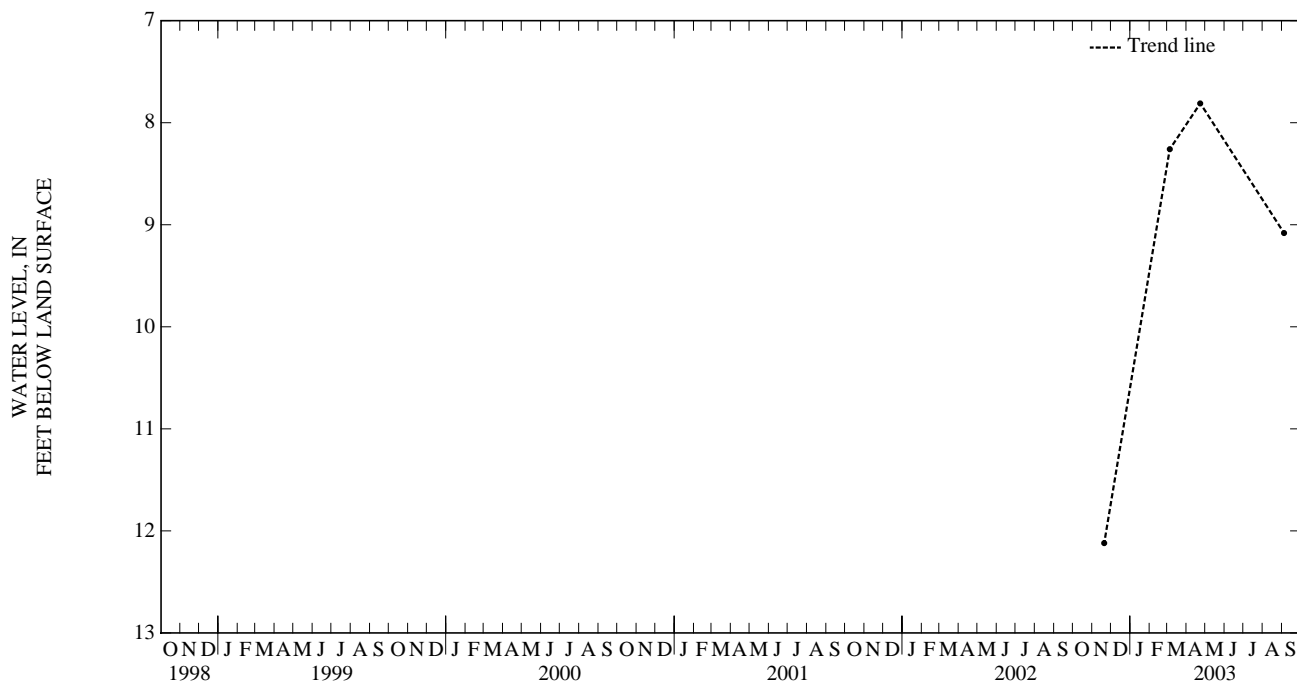
DATUM.--Elevation of land-surface datum is 24.44 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 2.25 ft above land-surface datum.

PERIOD OF RECORD.--March 1994 to September 1998, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.24 ft below land-surface datum, Mar. 30, 1998, may have gone higher during period of missing record, Mar. 11 to Apr. 25, 1998; lowest recorded, 12.16 ft below land-surface datum, Oct. 4, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 20	12.12	MAR 05	8.26	APR 23	7.81	SEP 04	9.08
WATER YEAR 2003 HIGHEST		7.81	APR 23, 2003	LOWEST		12.12	NOV 20, 2002



381737077024602. Local number, 54Q 56.

**AQUIFER.**--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 22.2 ft, 22.2 to 24.7 ft, depth 24.7 ft, screened 12.2 to 22.2 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. March 1994 to September 1998, digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 24.46 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 2.3 ft above land-surface datum.

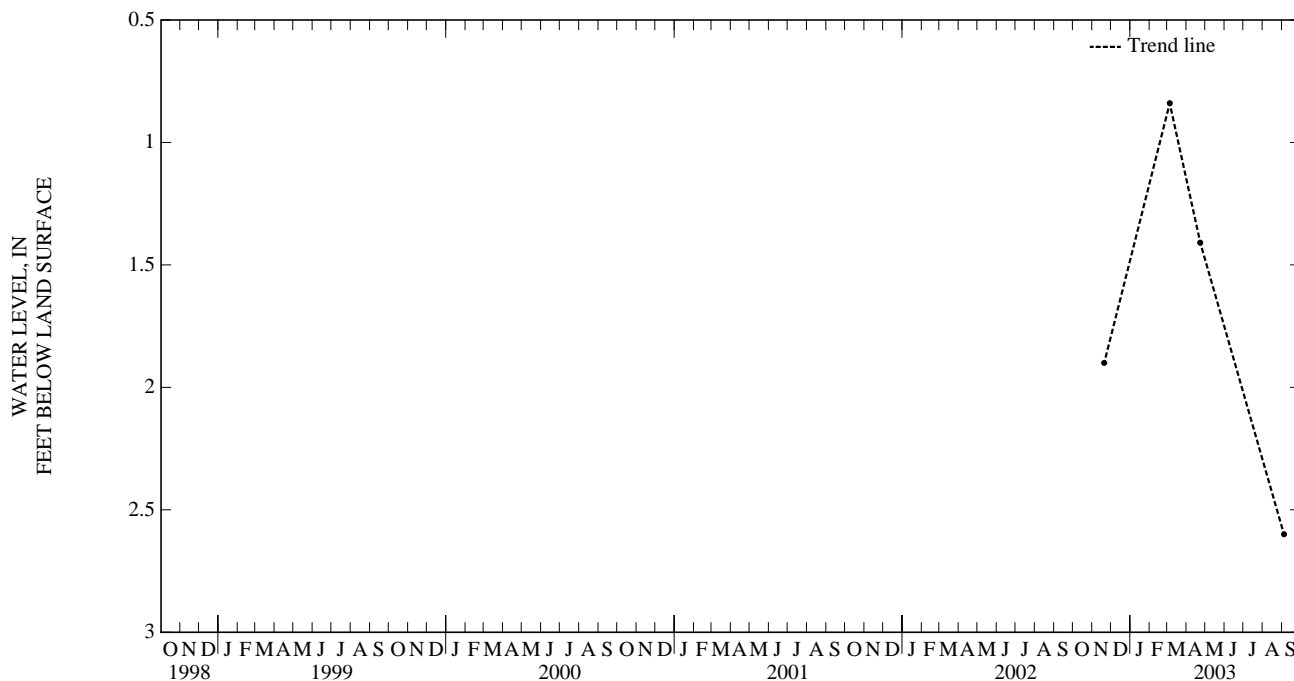
REMARKS.--Missing record due to recorder malfunction.

PERIOD OF RECORD.--March 1994 to September 1998, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.37 ft below land-surface datum, Mar. 9, 1998; lowest recorded, 8.09 ft below land-surface datum. Sept. 15-17, 1995, Oct. 3-5, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 20	1.90	MAR 05	.84	APR 23	1.41	SEP 04	2.60
WATER YEAR 2003		HIGHEST	.84	MAR 05, 2003	LOWEST	2.60	SEP 04, 2003



GROUND-WATER LEVELS  
KING GEORGE COUNTY—Continued

381746077020001. Local number, 54Q 57.

LOCATION.--Lat 38°17'46", long 77°01'59", NAD83, Hydrologic Unit 02070011, 0.7 mi northeast of the main gate at Tetotum Flats at the Naval Surface Warfare Center, Dahlgren Laboratory, in Dahlgren. Owner: U.S. Department of the Navy.

AQUIFER.--Nanjemoy-Marlboro confining unit of Eocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 48.4 ft, 58.4 to 63.9 ft, depth 63.9 ft, screened 48.4 to 58.4 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. December 1995 to September 1998, digital recorder--60-minute punch. Prior to December 1995, monthly measurement with chalked tape by USGS personnel.

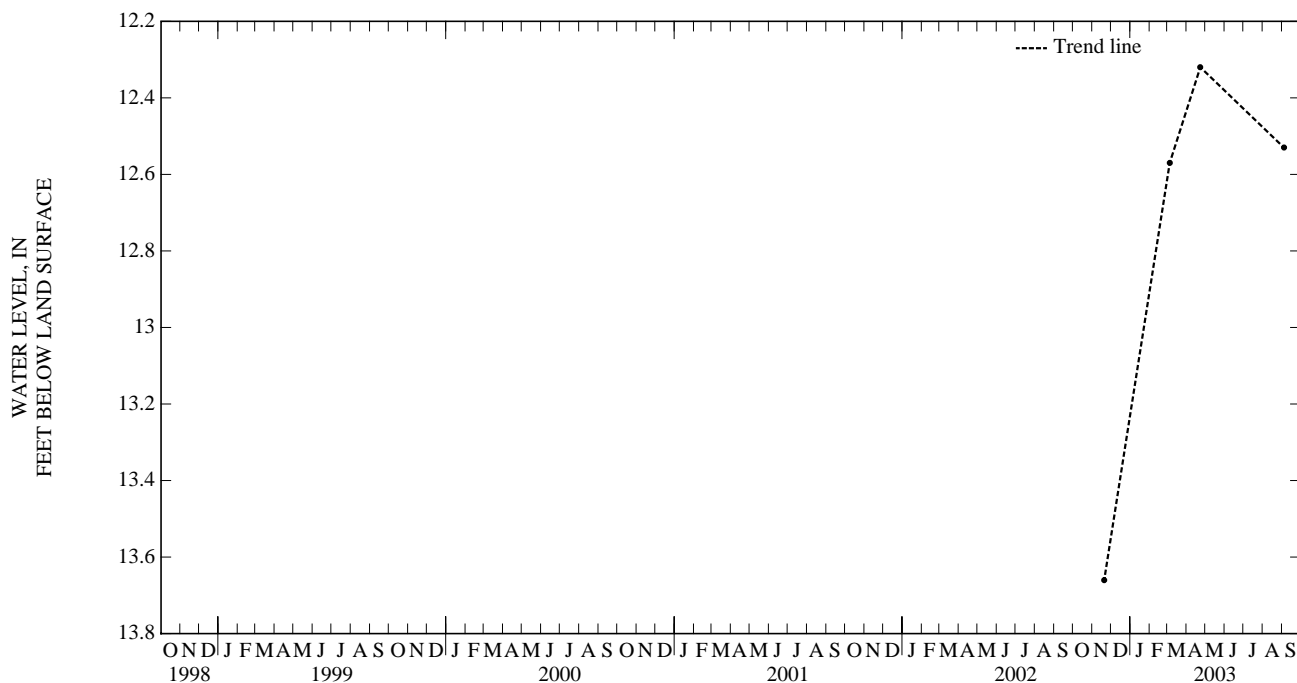
DATUM.--Elevation of land-surface datum is 17.77 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 2.69 ft above land-surface datum. Prior to Dec. 6, 1995, top of casing, 2.29 ft above land-surface datum.

PERIOD OF RECORD.--March 1994 to September 1998, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.37 ft below land-surface datum, Mar. 21-22, 1998; lowest measured, 13.73 ft below land-surface datum, Sept. 25, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 20	13.66	MAR 05	12.57	APR 23	12.32	SEP 04	12.53
WATER YEAR 2003		HIGHEST	12.32	APR 23, 2003	LOWEST	13.66	NOV 20, 2002



## KING GEORGE COUNTY—Continued

381746077020002. Local number, 54Q 58.

LOCATION.--Lat 38°17'46", long 77°01'59", NAD83, Hydrologic Unit 02070011, 0.7 mi northeast of the main gate at Tetotum Flats at the Naval Surface Warfare Center, Dahlgren Laboratory, in Dahlgren. Owner: U.S. Department of the Navy.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 9.3 ft, 14.3 to 16.8 ft, depth 16.8 ft, screened 9.3 to 14.3 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. December 1995 to September 1998, digital recorder--60-minute punch. Prior to December 1995, monthly measurement with chalked tape by USGS personnel.

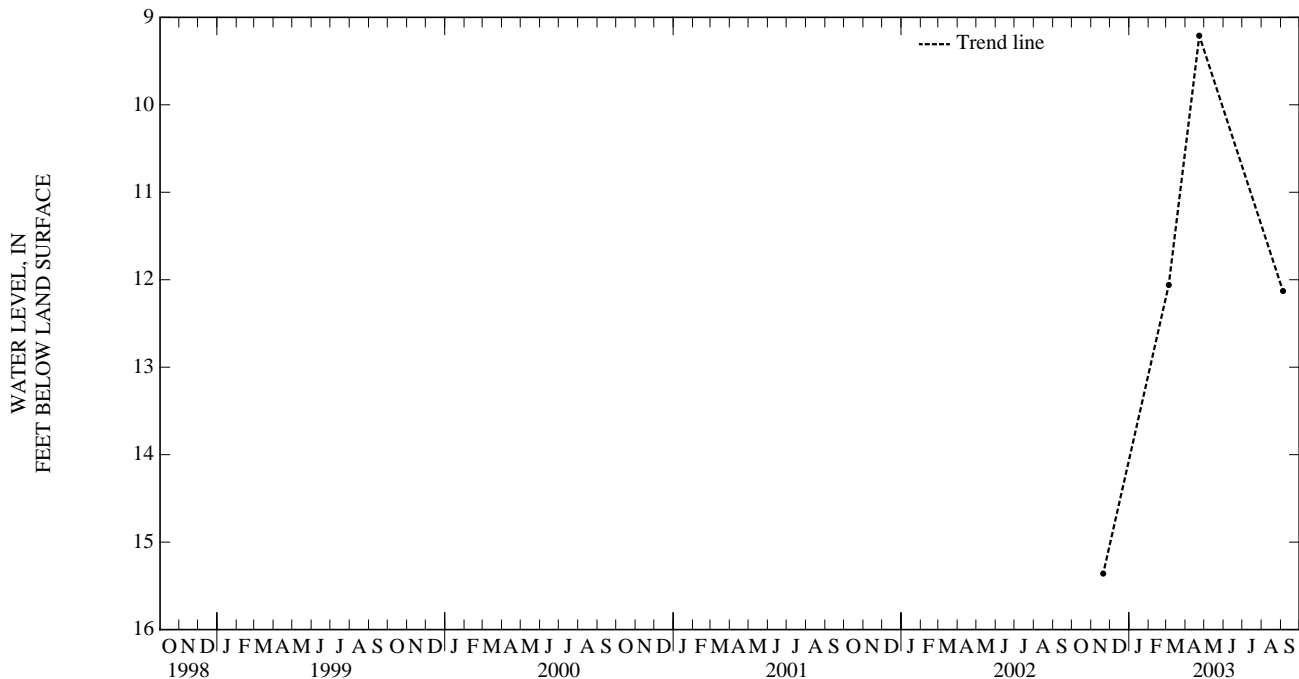
DATUM.--Elevation of land-surface datum is 17.89 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 2.67 ft above land-surface datum. Prior to Dec. 6, 1995, top of casing, 2.29 ft above land-surface datum.

PERIOD OF RECORD.--March 1994 to September 1998, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.74 ft below land-surface datum, Mar. 22, 1998; lowest measured, 15.36 ft (below bottom of screen; may not reflect true water-level elevation in aquifer) below land-surface datum, Nov. 20, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 20	15.36	MAR 05	12.06	APR 23	9.21	SEP 04	12.13
WATER YEAR 2003 HIGHEST		9.21	APR 23, 2003 LOWEST		15.36	NOV 20, 2002	



GROUND-WATER LEVELS  
KING GEORGE COUNTY—Continued

381814077030301. Local number, 54Q 61.

LOCATION.--Lat 38°18'14", long 77°03'02", NAD83, Hydrologic Unit 02070011, 0.8 mi northwest of the main gate at Tetotum Flats at the Naval Surface Warfare Center, Dahlgren Laboratory, in Dahlgren. Owner: U.S. Department of the Navy.

AQUIFER.--Nanjemoy-Marlboro confining unit of Eocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 52.5 ft, 62.5 to 68.0 ft, depth 68.0 ft, screened 52.5 to 62.5 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. March 1994 to September 1998, digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 23.94 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 3.1 ft above land-surface datum.

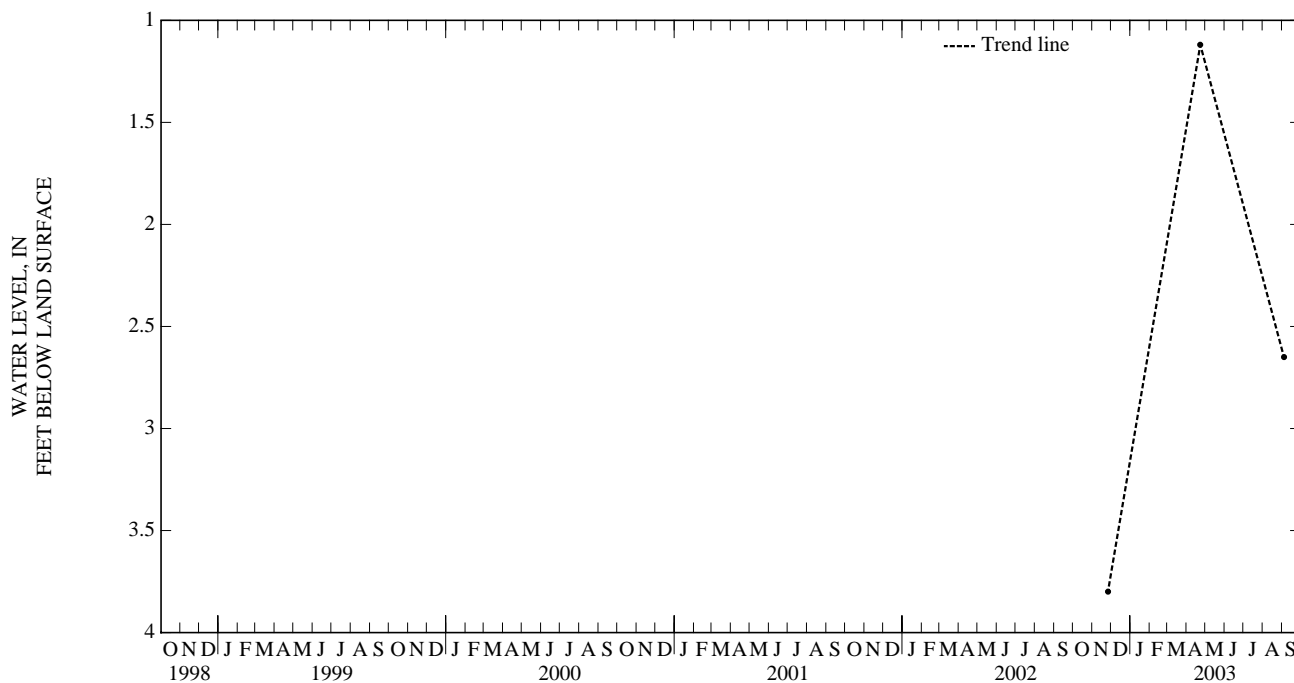
REMARKS.--Well occasionally sampled for water quality.

PERIOD OF RECORD.--March 1994 to September 1998, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.05 ft below land-surface datum, Feb. 5, 1998; lowest recorded from natural causes, 9.32 ft below land-surface datum, Oct. 4, 5, 1995; lowest recorded, 12.85 ft (caused by pumpage for water-quality sampling) below land-surface datum, July 5, 1994.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 26	3.80	APR 23	1.12	SEP 04	2.65
WATER YEAR 2003    HIGHEST    1.12 APR 23, 2003    LOWEST    3.80 NOV 26, 2002					



381814077030302. Local number, 54Q 62.

**AQUIFER.**--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 5.0 ft, 10.0 to 12.5 ft, depth 12.5 ft, screened 5.0 to 10.0 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. March 1994 to September 1998, digital recorder--60-minute punch.

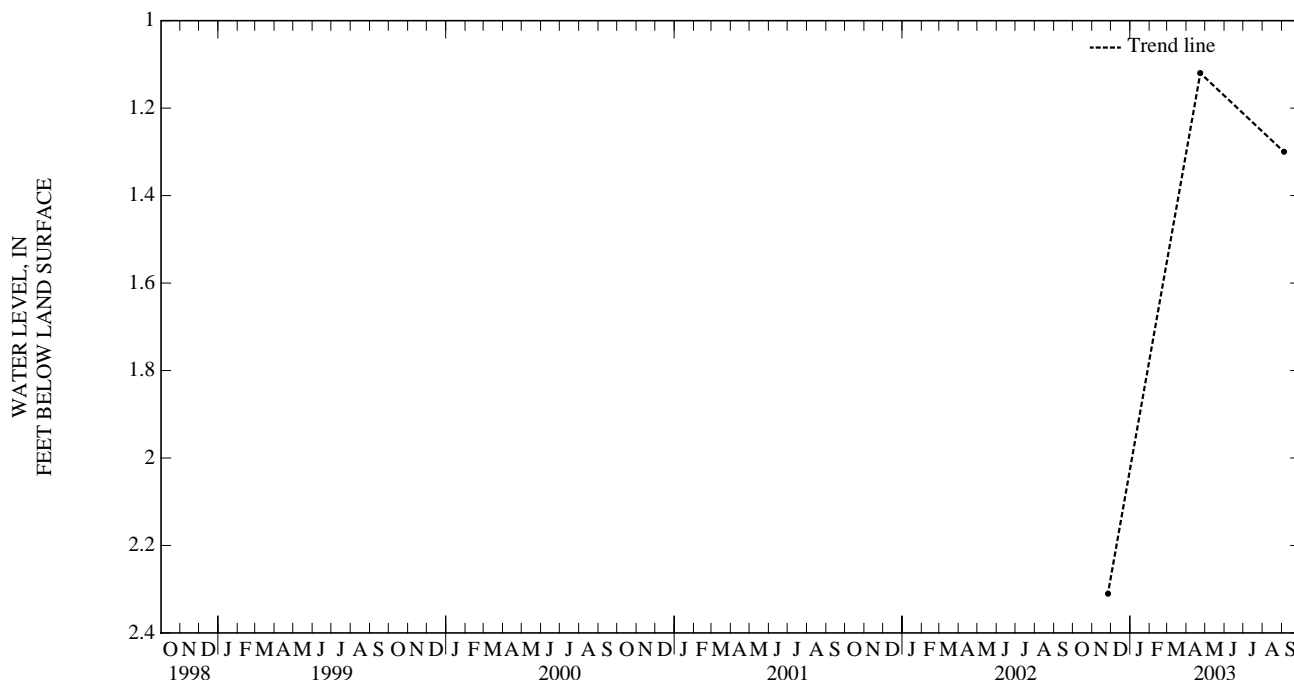
DATUM.--Elevation of land-surface datum is 23.83 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 2.9 ft above land-surface datum.

PERIOD OF RECORD.--March 1994 to September 1998, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.07 ft below land-surface datum, Feb. 4-5, 1998; lowest recorded, 7.23 ft below land-surface datum, Oct. 4, 5, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 26	2.31	APR 23	1.12	SEP 04	1.30
WATER YEAR 2003		HIGHEST	1.12 APR 23, 2003	LOWEST	2.31 NOV 26, 2002



GROUND-WATER LEVELS  
KING GEORGE COUNTY—Continued

381835077015601. Local number, 54Q 65.

LOCATION.--Lat 38°18'35", long 77°01'55", NAD83, Hydrologic Unit 02070011, 0.2 mi southwest of Baber Point, 1.4 mi northeast of the main gage at Tetotum Flats at the Naval Surface Warfare Center, Dahlgren Laboratory, in Dahlgren. Owner: U.S. Department of the Navy.

AQUIFER.--Confined aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 86.0 ft, 96.0 to 106.5 ft, depth 106.5 ft, screened 86.0 to 96.0 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. December 1996 to September 1998, digital recorder--60-minute punch. December 1995 to December 1996 occasional measurement with chalked tape by USGS personnel. Prior to December 1995, digital recorder--60-minute punch.

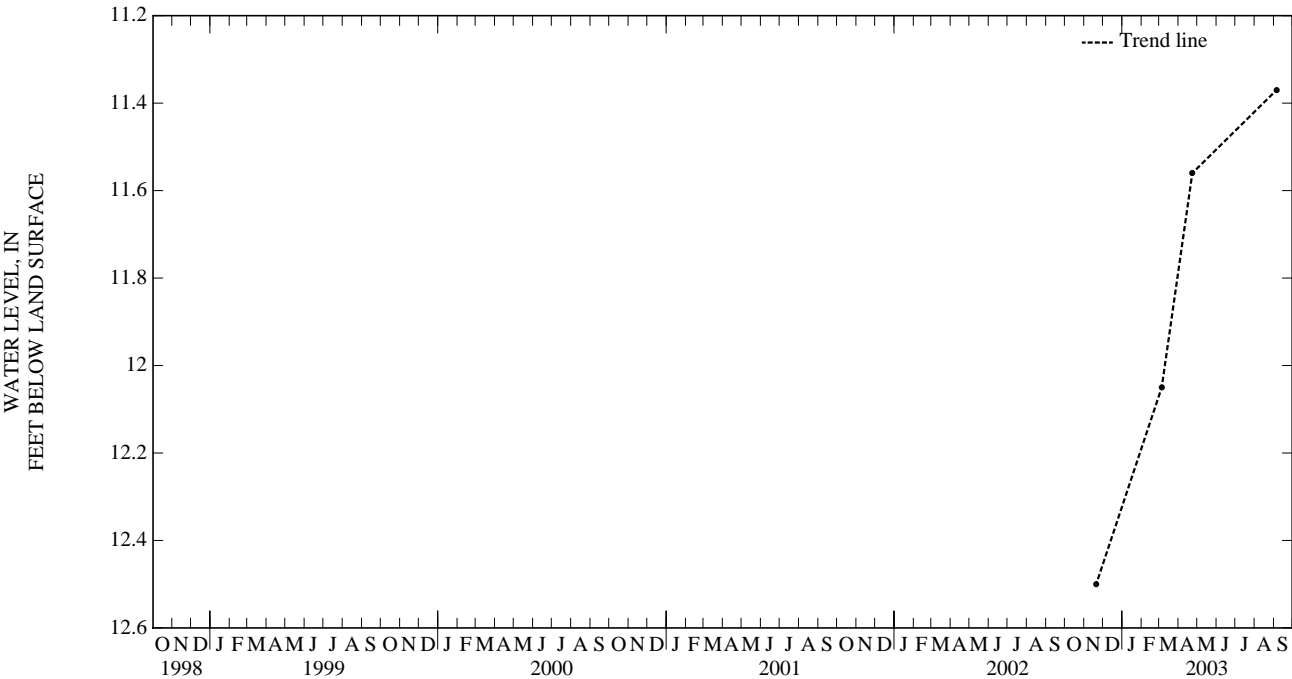
DATUM.--Elevation of land-surface datum is 14.15 ft above NGVD of 1929. Measuring point: Top of casing, 2.02 ft above land-surface datum. Prior to Dec. 6, 1995, and since Dec. 18, 1996, top of recorder shelf, 2.4 ft above land-surface datum.

PERIOD OF RECORD.--March 1994 September 1998, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.21 ft below land-surface datum, May 14, 1998; lowest recorded, 12.67 ft below land-surface datum, Feb. 6, 7, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 20	12.50	MAR 05	12.05	APR 23	11.56	SEP 05	11.37
WATER YEAR 2003 HIGHEST		11.37	SEP 05, 2003	LOWEST		12.50	NOV 20, 2002



## KING GEORGE COUNTY—Continued

381835077015602. Local number, 54Q 66.

LOCATION.--Lat 38°18'35", long 77°01'55", NAD83, Hydrologic Unit 02070011, 0.2 mi southwest of Baber Point, 1.4 mi northeast of the main gage at Tetotum Flats at the Naval Surface Warfare Center, Dahlgren Laboratory, in Dahlgren. Owner: U.S. Department of the Navy.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 12.2 ft, 17.2 to 19.7 ft, depth 19.7 ft, screened 12.2 to 17.2 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. December 1996 to September 1998, digital recorder--60-minute punch. December 1995 to December 1996, occasional measurement with chalked tape by USGS personnel. Prior to December 1995, digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 14.05 ft above NGVD of 1929. Measuring point: Top of casing, 2.03 ft above land-surface datum. Prior to Dec. 6, 1995, and since Dec. 18, 1996, top of recorder shelf, 2.5 ft above land-surface datum.

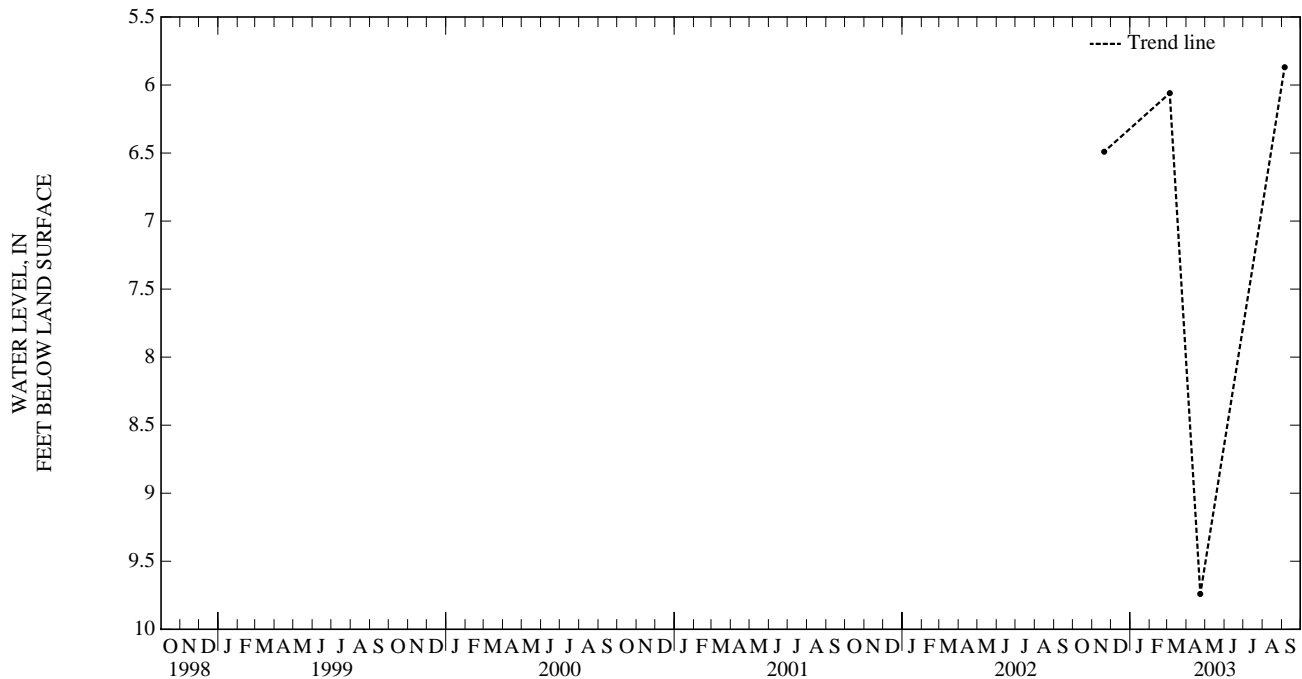
REMARKS.--Missing record due to recorder malfunction.

PERIOD OF RECORD.--March 1994 to September 1998, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.25 ft below land-surface datum, Feb. 5, 1998; lowest recorded, 12.20 ft below land-surface datum, Sept. 21, 22, Oct. 4, 5, 1995.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 20	6.49	MAR 05	6.06	APR 23	9.74	SEP 05	5.87
WATER YEAR 2003 HIGHEST		5.87	SEP 05, 2003	LOWEST		9.74	APR 23, 2003





GROUND-WATER LEVELS  
KING GEORGE COUNTY—Continued

381857077032701. Local number, 54Q 69.

LOCATION.--Lat 38°18'57", long 77°03'26", NAD83, Hydrologic Unit 02070011, 400 ft southwest of Howland Point, 1.7 mi northwest of the main gage at Tetotum Flats at the Naval Surface Warfare Center, Dahlgren Laboratory, in Dahlgren. Owner: U.S. Department of the Navy.

AQUIFER.--Confined aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 68.6 ft, 78.6 to 84.1 ft, depth 84.1 ft, screened 68.6 to 78.2 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to September 1996, digital recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 16.21 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 2.7 ft above land-surface datum. Top of casing, 2.35 ft above land-surface datum, since Oct. 1, 1996.

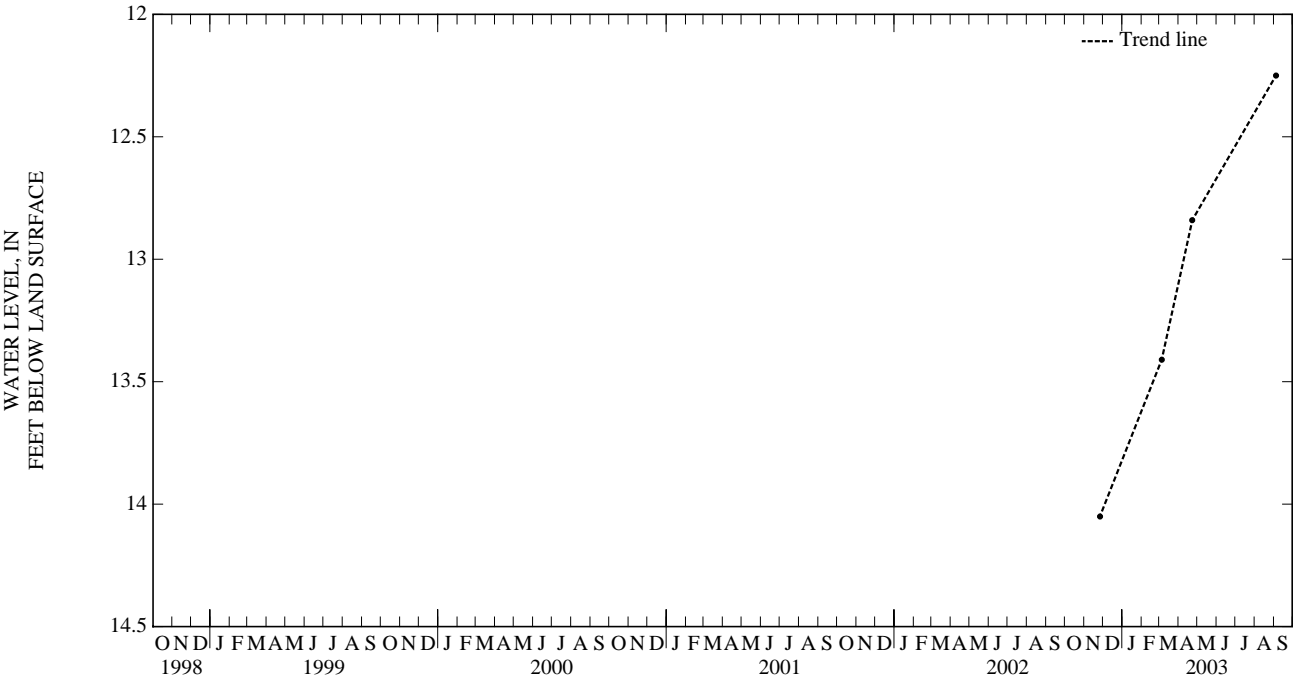
REMARKS.--Missing record due to recorder malfunction.

PERIOD OF RECORD.--March 1994 to March 1998, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.73 ft below land-surface datum, Sept. 6, 1996; lowest recorded, 14.40 ft below land-surface datum, Feb. 6, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 26	14.05	MAR 05	13.41	APR 23	12.84	SEP 04	12.25
WATER YEAR 2003		HIGHEST	12.25	SEP 04, 2003	LOWEST	14.05	NOV 26, 2002



381857077032702. Local number, 54Q 70.

**AQUIFER.**--Columbia aquifer of Quaternary age.

**WELL CHARACTERISTICS.**--Drilled observation water well, diameter 4 in. to 10.2 ft, 15.2 to 17.7 ft, depth 17.7 ft, screened 10.2 to 15.2 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to September 1998, digital recorder--60-minute punch.

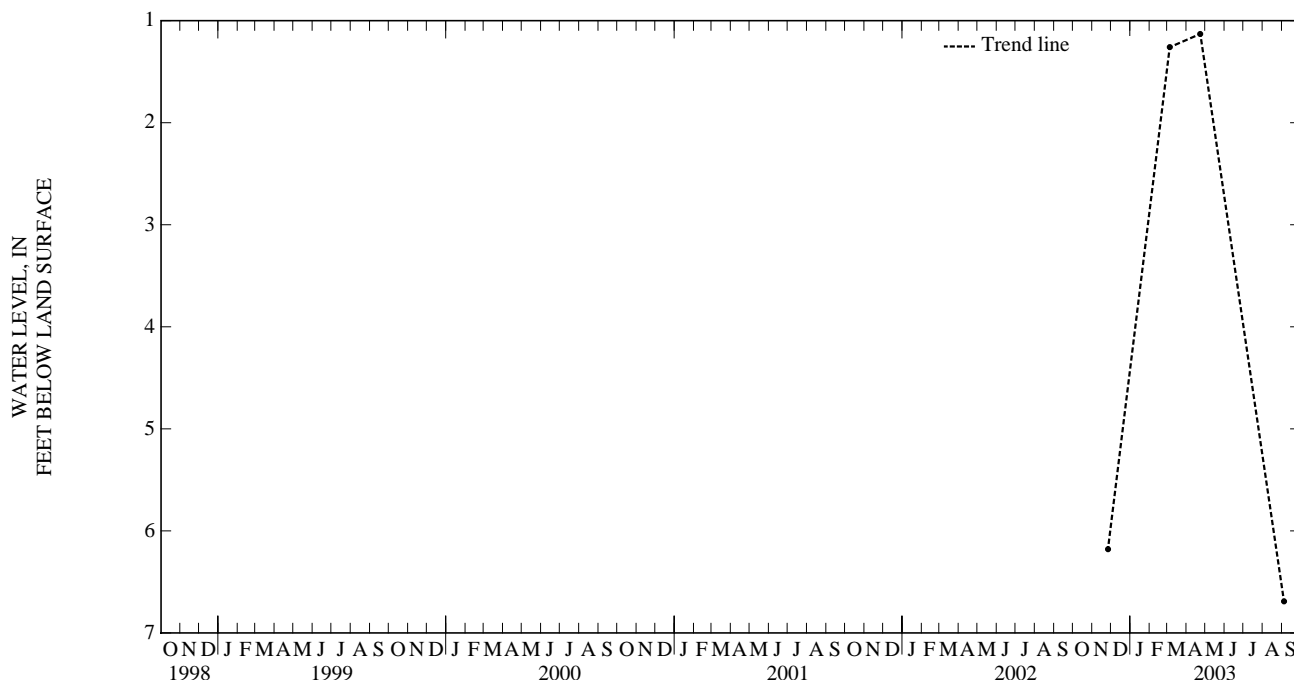
DATUM.--Elevation of land-surface datum is 16.17 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 2.9 ft above land-surface datum.

PERIOD OF RECORD.--March 1994 to September 1998, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.79 ft below land-surface datum, Mar. 9, 1998; lowest recorded, 9.32 ft below land-surface datum, Sept. 19, 20, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 26	6.18	MAR 05	1.26	APR 23	1.13	SEP 04	6.69
WATER YEAR 2003		HIGHEST	1.13	APR 23, 2003		LOWEST	6.69
						SEP 04, 2003	



GROUND-WATER LEVELS  
KING GEORGE COUNTY—Continued

381830077031801. Local number, 54Q 71.

LOCATION.--Lat 38°18'30", long 77°03'17", NAD83, Hydrologic Unit 02070011, 0.6 mi south of Howland Point, 1.2 mi northwest of the main gate at Tetotum Flats at the Naval Surface Warfare Center, Dahlgren Laboratory, in Dahlgren. Owner: U.S. Department of the Navy.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 9.7 ft, 19.7 to 20.2 ft, depth 20.2 ft, screened 9.7 to 19.7 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

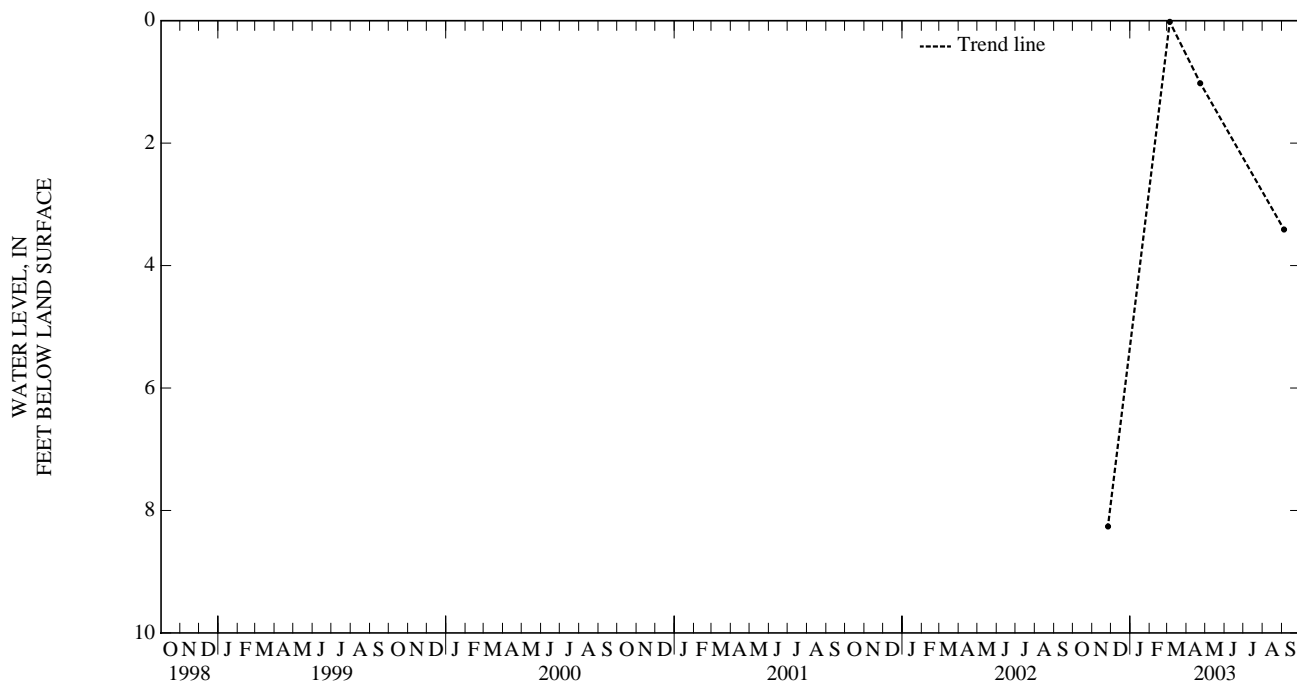
DATUM.--Elevation of land-surface datum is 21.24 ft above NGVD of 1929. Measuring point: Top of casing, 2.06 ft above land-surface datum.

PERIOD OF RECORD.--March 1994 to March 1998, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, at land-surface datum, Mar. 29, 1994; lowest measured, 10.93 ft below land-surface datum, Sept. 25, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 26	8.26	MAR 05	.02	APR 23	1.02	SEP 04	3.41
WATER YEAR 2003 HIGHEST		.02	MAR 05, 2003 LOWEST		8.26	NOV 26, 2002	





GROUND-WATER LEVELS  
KING GEORGE COUNTY—Continued

381725077024501. Local number, 54Q 73.

LOCATION.--Lat 38°17'25", long 77°02'44", NAD83, Hydrologic Unit 02070011, 0.2 mi south of the main gate at Tetotum Flats at the Naval Surface Warfare Center, Dahlgren Laboratory, in Dahlgren. Owner: U.S. Department of the Navy.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 18.8 ft, 28.8 to 31.3 ft, depth 31.3 ft, screened 18.8 to 28.8 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

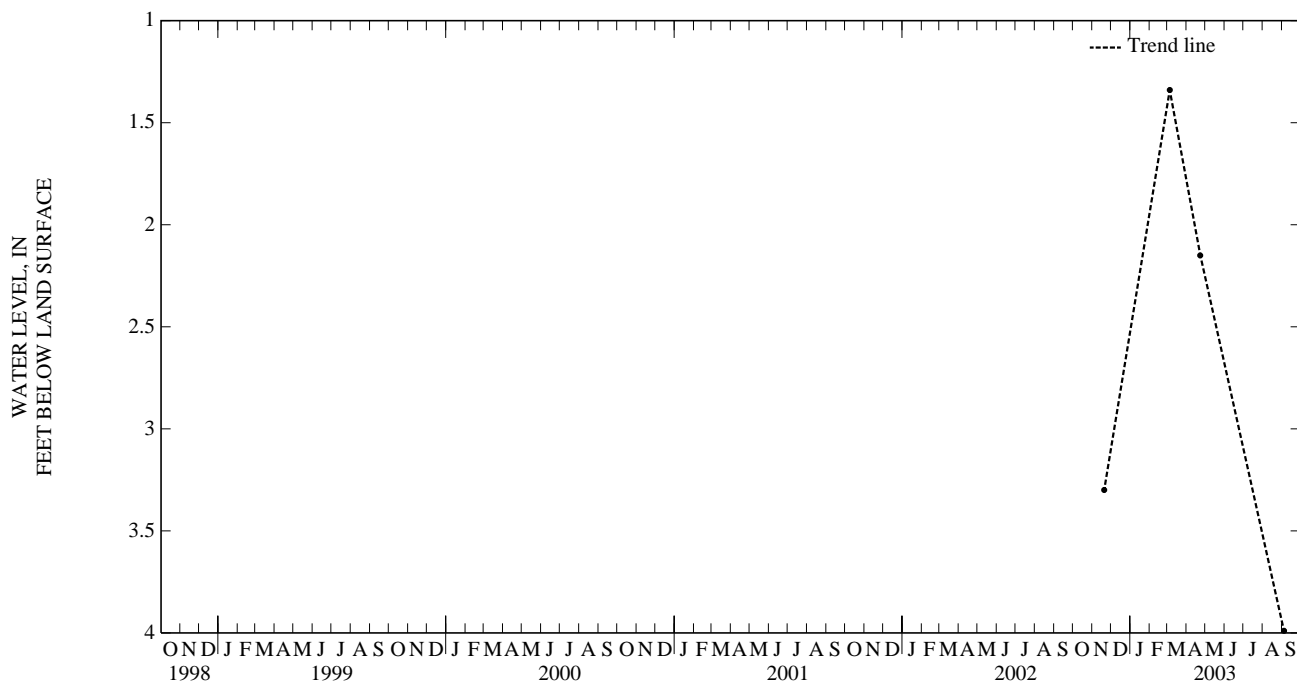
DATUM.--Elevation of land-surface datum is 25.14 ft above NGVD of 1929. Measuring point: Top of casing, 2.25 ft above land-surface datum.

PERIOD OF RECORD.--March 1994 to March 1998, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.34 ft below land-surface datum, Mar. 29, 1994 and Mar. 5, 2003; lowest measured, 9.18 ft below land-surface datum, Sept. 25, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 20	3.30	MAR 05	1.34	APR 23	2.15	SEP 04	3.99
WATER YEAR 2003		HIGHEST	1.34	MAR 05, 2003	LOWEST	3.99	SEP 04, 2003



## KING GEORGE COUNTY—Continued

381732077021201. Local number, 54Q 74.

LOCATION.--Lat 38°17'32", long 77°02'11", NAD83, Hydrologic Unit 02070011, 0.5 mi east of the main gate at Tetotum Flats at the Naval Surface Warfare Center, Dahlgren Laboratory, in Dahlgren. Owner: U.S. Department of the Navy.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 9.0 ft, 19.0 to 19.5 ft, depth 19.5 ft, screened 9.0 to 19.0 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

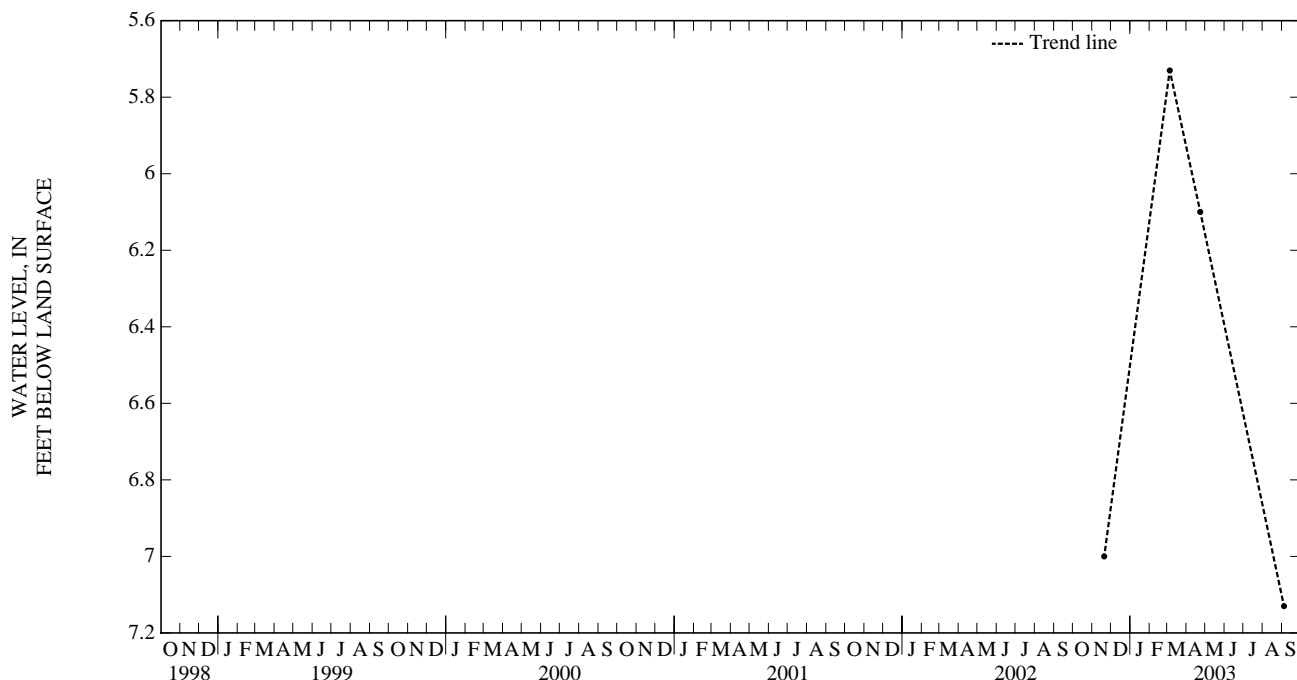
DATUM.--Elevation of land-surface datum is 12.70 ft above NGVD of 1929. Measuring point: Top of casing, 2.35 ft above land-surface datum.

PERIOD OF RECORD.--March 1994 to March 1998, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.82 ft below land-surface datum, Mar. 30, 1998; lowest measured, 9.54 ft below land-surface datum, Sept. 25, 1995.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 20	7.00	MAR 05	5.73	APR 23	6.10	SEP 04	7.13
WATER YEAR 2003		HIGHEST	5.73	MAR 05, 2003	LOWEST	7.13	SEP 04, 2003



LOCATION.--Lat 38°18'25", long 77°02'10", NAD83, Hydrologic Unit 02070011, 1.1 mi northeast of the main gate at Tetotum Flats at the Naval Surface Warfare Center, Dahlgren Laboratory, in Dahlgren. Owner: U.S. Department of the Navy.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 9.1 ft, 14.1 to 16.6 ft, depth 16.6 ft, screened 9.1 to 14.1 ft.

INSTRUMENTATION.--Measurement with chalked tape by USGS personnel, September 2003. November 2002 to July 2003 and February to September 1999, electronic pressure transducer data logger 60-minute record interval. Prior to February 1999, occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 11.43 ft above NGVD of 1929. Measuring point: Top of casing, 0.10 ft above land-surface datum.

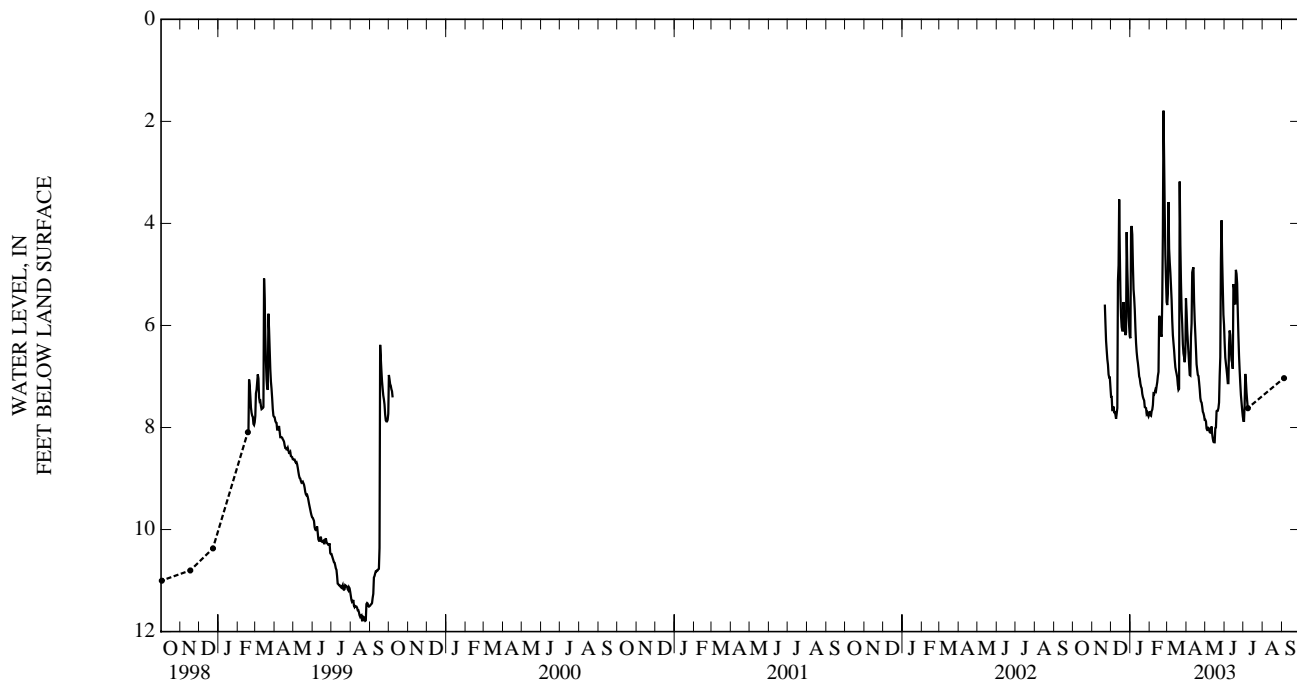
PERIOD OF RECORD.--March 1994 to September 1999, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.99 ft below land-surface datum, Feb. 22, 2003; lowest measured, 10.66 ft below land-surface datum, Sept. 25, 1995.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 0.99 ft below land-surface datum, Feb. 22; lowest instantaneous water level, 8.29 ft below land-surface datum, May 15, 16.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	7.59	4.83	7.65	4.76	6.76	8.05	6.98	7.09	---	---
10	---	---	7.73	6.34	7.26	6.19	4.96	8.09	6.19	---	---	---
15	---	---	4.55	7.00	6.91	6.89	6.18	8.29	5.19	---	---	---
20	---	---	6.10	7.34	6.22	7.24	6.99	7.67	4.99	---	---	---
25	---	6.66	6.14	7.61	3.83	5.98	7.51	6.62	6.89	---	---	---
EOM	---	7.21	6.22	7.74	5.54	5.47	7.85	5.99	7.78	---	---	---

DATE	WATER LEVEL
SEP 04	7.03







GROUND-WATER LEVELS  
KING GEORGE COUNTY—Continued

381804077022001. Local number, 54Q 86.

LOCATION.--Lat 38°18'04", long 77°02'19", NAD83, Hydrologic Unit 02070011, 0.7 mi northeast of the main gate at Tetotum Flats at the Naval Surface Warfare Center, Dahlgren Laboratory, in Dahlgren. Owner: U.S. Department of the Navy.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 4.5 ft, 14.5 to 17.0 ft, depth 17.0 ft, screened 4.5 to 14.5 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

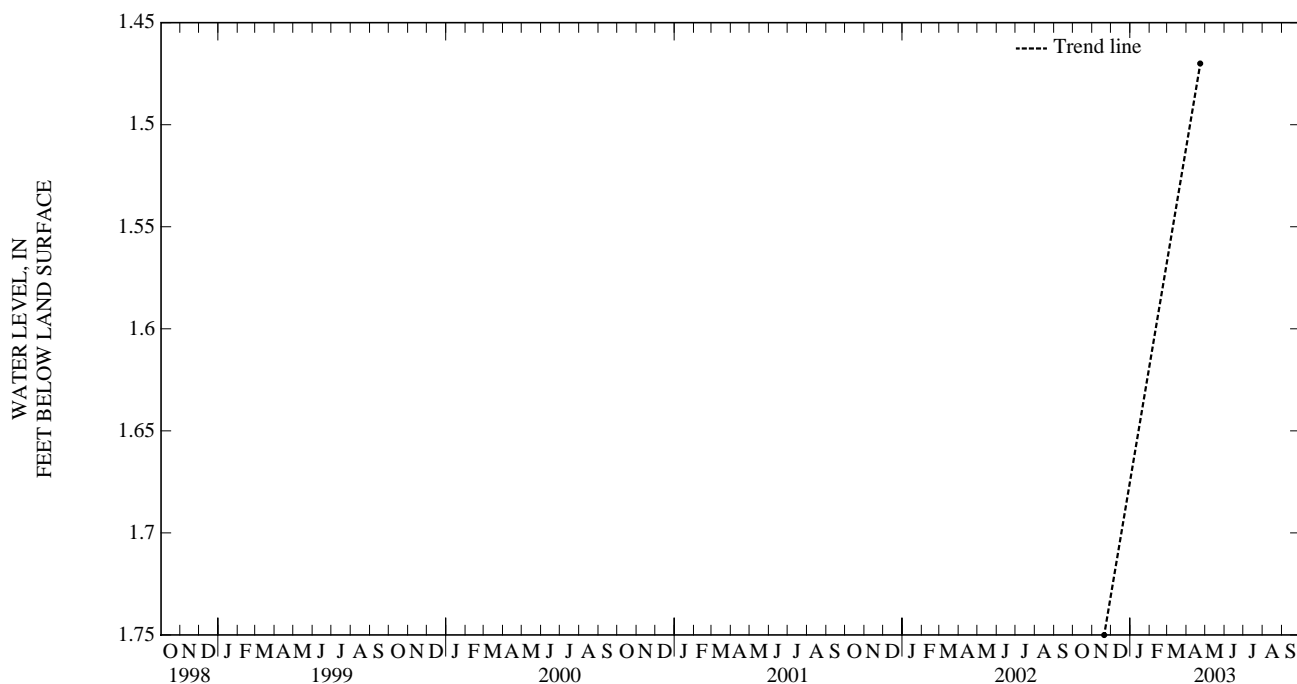
DATUM.--Elevation of land-surface datum is 17.30 ft above NGVD of 1929. Measuring point: Top of casing, 0.4 ft below land-surface datum.

PERIOD OF RECORD.--March 1994 to March 1998, November 2002 to September 2003 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.06 ft below land-surface datum, Mar. 30, 1994; lowest measured, 5.62 ft below land-surface datum, Aug. 29, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 20	1.75	APR 23	1.47
WATER YEAR 2003	HIGHEST 1.47	APR 23, 2003	LOWEST 1.75
		NOV 20, 2002	



## KING GEORGE COUNTY—Continued

382341077032401. Local number, 54R 2.

LOCATION.--Lat 38°23'41", long 77°03'23", NAD83, Hydrologic Unit 02070011, 50 ft southeast of steep bank of the Potomac River, 150 ft west of State Highway 687, 1.5 mi west of the intersection of U.S. Highway 301 and State Highway 614, 1.9 mi north of the intersection of State Highways 629 and 687, and near Dahlgren. Owner: E. V. Bruchez.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in. to 210 ft, diameter 2 in. from 210 to 806 ft, depth 806 ft, screened 781 to 801 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 70 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

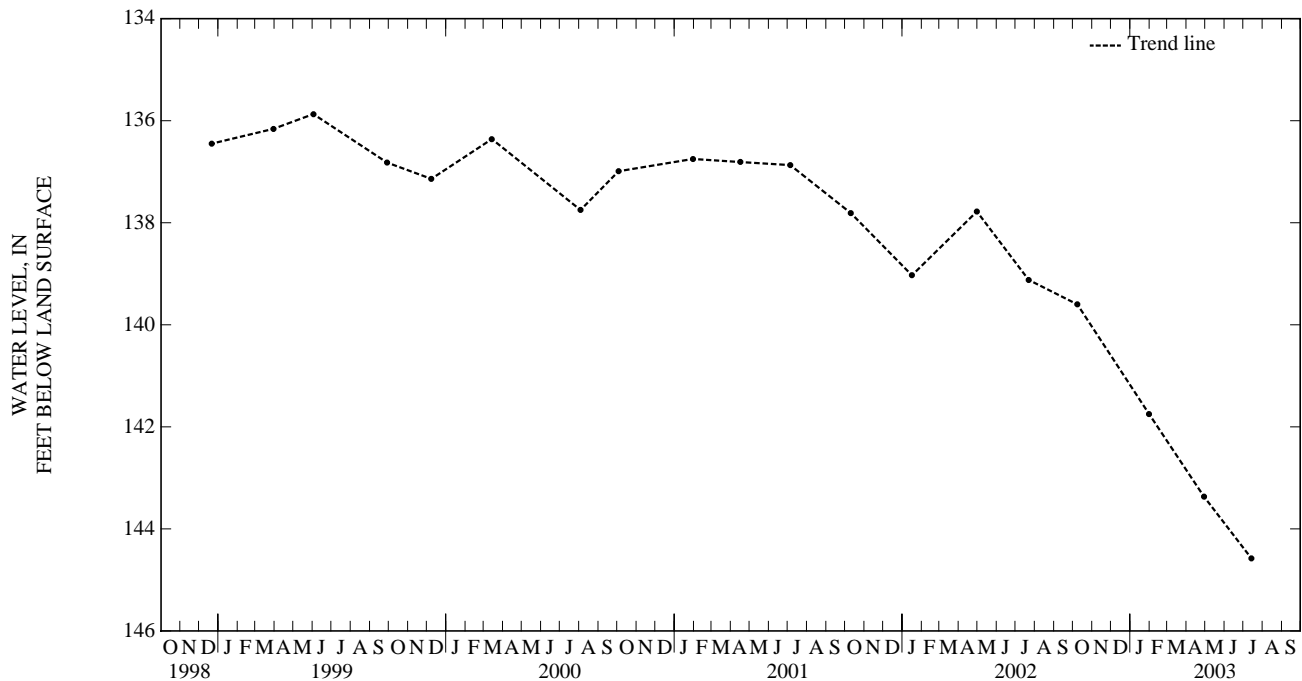
REMARKS.--Water level affected by regional drawdown.

PERIOD OF RECORD.--October 1969 to current year. Unpublished records available prior to October 1988 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 70.00 ft below land-surface datum, Oct. 15, 1969; lowest measured, 144.58 ft below land-surface datum, July 14, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	139.60	JAN 31	141.75	APR 29	143.37	JUL 14	144.58
WATER YEAR 2003 HIGHEST 139.60 OCT 08, 2002		LOWEST 144.58 JUL 14, 2003					



GROUND-WATER LEVELS  
KING WILLIAM COUNTY

373226076481201. Local number, 56J 2.

LOCATION.--Lat 37°32'27", long 76°48'11", NAD83, Hydrologic Unit 02080106, 0.1 mi west of State Highway 30, 0.3 mi north of State Highway 33, and in West Point. Owner: St. Laurent Paper Products Corporation (formerly Chesapeake Corporation).

AQUIFER.--Brightseat-upper and middle Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled unused withdrawal water well, diameter 18 in. to 300 ft, diameter 8 in. from 300 to 600 ft, depth 600 ft, screened 390 to 400 ft, 550 to 570 ft, 580 to 600 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 25 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

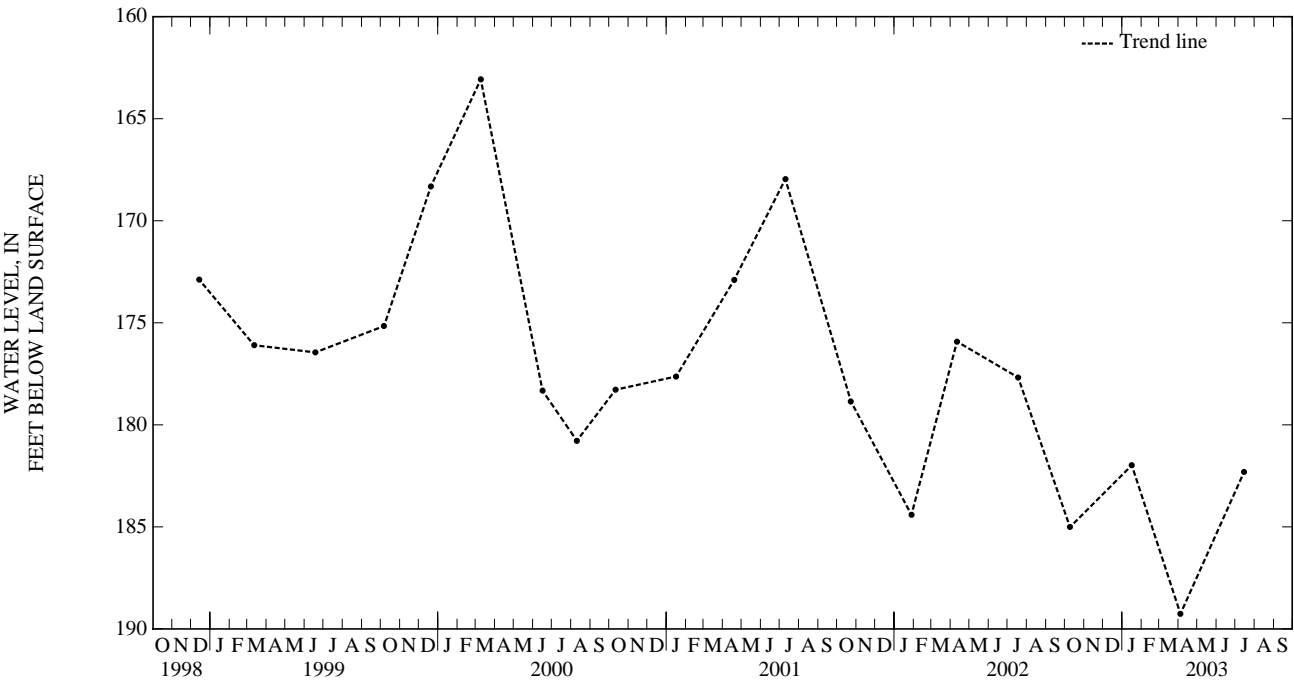
REMARKS.--Water level affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--November 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 141.48 ft below land-surface datum, Feb. 15, 1983; lowest measured, 189.26 ft below land-surface datum, Apr. 4, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	185.01	JAN 16	181.98	APR 04	189.26	JUL 15	182.30
WATER YEAR 2003		HIGHEST	181.98 JAN 16, 2003	LOWEST	189.26 APR 04, 2003		





## LANCASTER COUNTY

374249076230101. Local number, 59K 1 SOW 015.

LOCATION.--Lat 37°42'49", long 76°23'00", NAD83, Hydrologic Unit 02080104, at Lancaster County High School in Kilmarnock. Owner: Lancaster County Public Schools.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in. to 163 ft, diameter 2 in. from 163 to 716 ft, depth 716 ft, screened 706 to 716 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 2, 1985, to July 11, 1995, bimonthly measurement with chalked tape. Sept. 30, 1976, to Oct. 1, 1985, occasional measurement with chalked tape. Prior to Sept. 30, 1976, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 85 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum prior to July 29, 1991; 0.75 ft above land-surface datum thereafter.

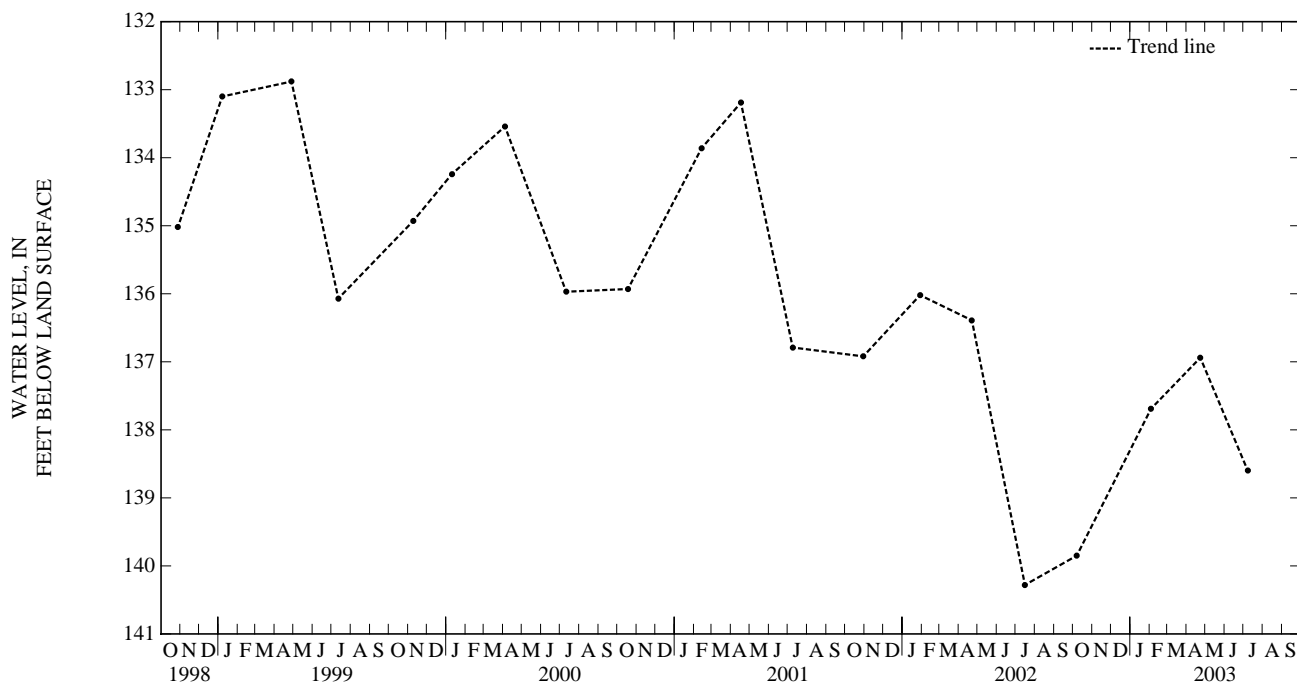
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--October 1967 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 95.89 ft below land-surface datum, Feb. 20, 1968; lowest measured, 140.28 ft below land-surface datum, July 16, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	139.85	FEB 03	137.69	APR 23	136.94	JUL 08	138.60
WATER YEAR 2003 HIGHEST		136.94	APR 23, 2003 LOWEST		139.85	OCT 07, 2002	



## LANCASTER COUNTY—Continued

374142076272701. Local number, 59K 9.

LOCATION.--Lat 37°41'42", long 76°27'26", NAD83, Hydrologic Unit 02080104, on the south bank of Moran Creek, 1,000 ft northwest of the intersection of State Highway 630 and a private dirt drive, 0.8 mi west of Wesley Church, 3.0 mi north of Weems, 4.0 mi west of Kilmarnock and the intersection of State Highways 629 and 630, and near Weems. Owner: Fred Hansen.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in. to 147 ft, diameter 2 in. from 147 to 585 ft, depth 585 ft, screened 565 to 580 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 10 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.

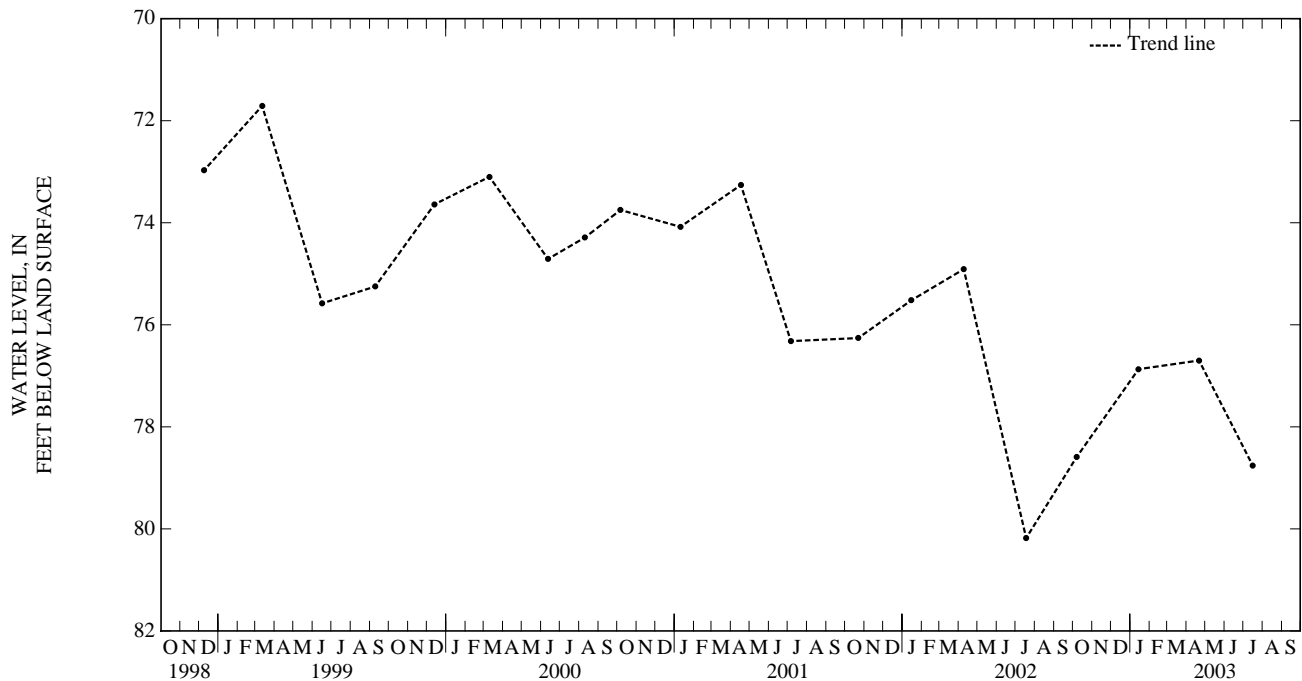
REMARKS.--Water level affected by regional drawdown.

PERIOD OF RECORD.--September 1969 to current year. Unpublished records available prior to October 1988 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.00 ft below land-surface datum, Sept. 16, 1969; lowest measured, 80.18 ft below land-surface datum, July 18, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	78.59	JAN 14	76.87	APR 21	76.70	JUL 16	78.76
WATER YEAR 2003 HIGHEST		76.70	APR 21, 2003	LOWEST		78.76	JUL 16, 2003



## GROUND-WATER LEVELS

## LOUDOUN COUNTY

391542077423801. Local number, 49Y 1 SOW 022.

LOCATION.--Lat 39°15'42", long 77°42'37", NAD83, Hydrologic Unit 02070008, 4.2 mi southeast of Harpers Ferry. Owner: American Telephone and Telegraph Company.

AQUIFER.--Bedrock of Precambrian or Cambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6.5 in., depth 516 ft, cased to 45 ft, open hole 45 to 516 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to Oct. 1, 1996, bimonthly measurement with chalked tape. Sept. 30, 1974, to Sept. 30, 1985, occasional measurement with chalked tape. Prior to Sept. 30, 1974, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 1,100 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

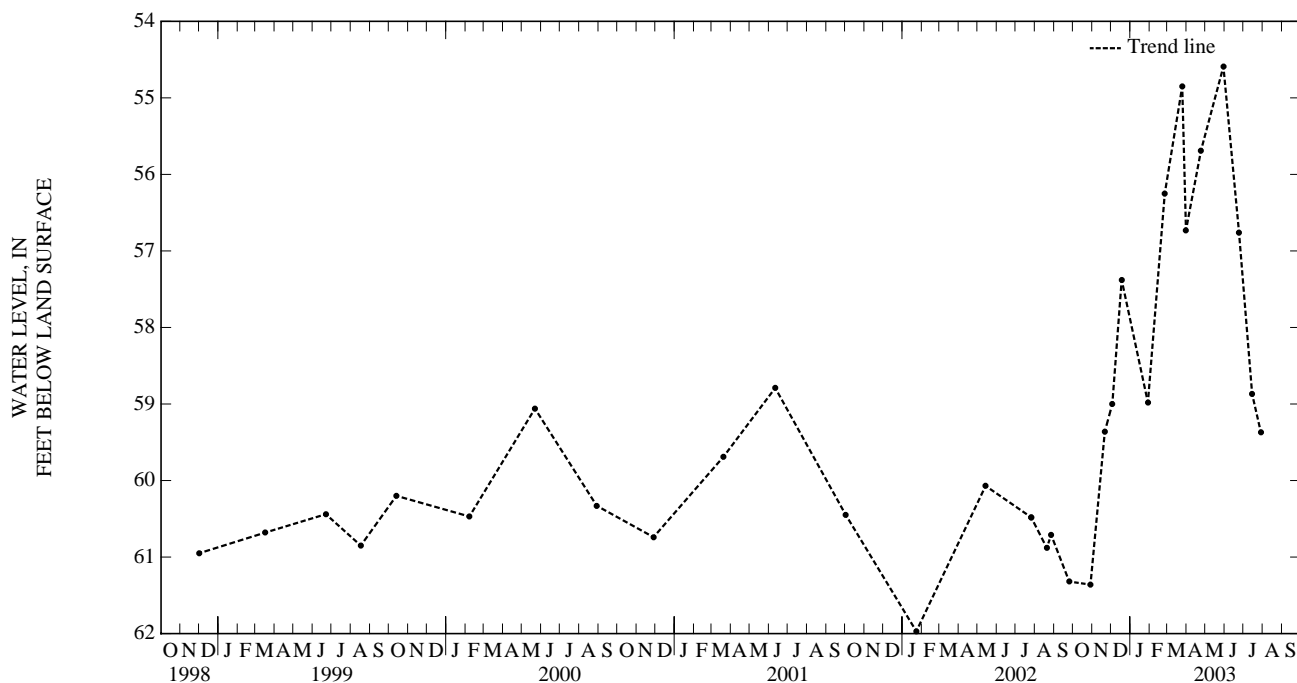
PERIOD OF RECORD.--August 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 48.00 ft below land-surface datum, June 22, 1972; lowest measured, 61.97 ft below land-surface datum, Jan. 23, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	61.36	DEC 18	57.38	MAR 25	54.85	MAY 30	54.59	JUL 29	59.37
NOV 21	59.36	JAN 29	58.98	31	56.73	JUN 24	56.76		
DEC 03	59.00	FEB 25	56.25	APR 24	55.69	JUL 15	58.87		

WATER YEAR 2003 HIGHEST 54.59 MAY 30, 2003 LOWEST 61.36 OCT 29, 2002



## LOUDOUN COUNTY—Continued

390623077314201. Local number, 50W 4C.

LOCATION.--Lat 39°06'23", long 77°31'41", NAD83, Hydrologic Unit 02070008, under water tower 500 ft east of State Highway 7, 0.75 mi east of Leesburg.  
Owner: Town of Leesburg.

AQUIFER.--Slightly metamorphosed Balls Bluff Formation of Late Triassic age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 535 ft, cased to 6 ft, open hole 6 to 535 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 400 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

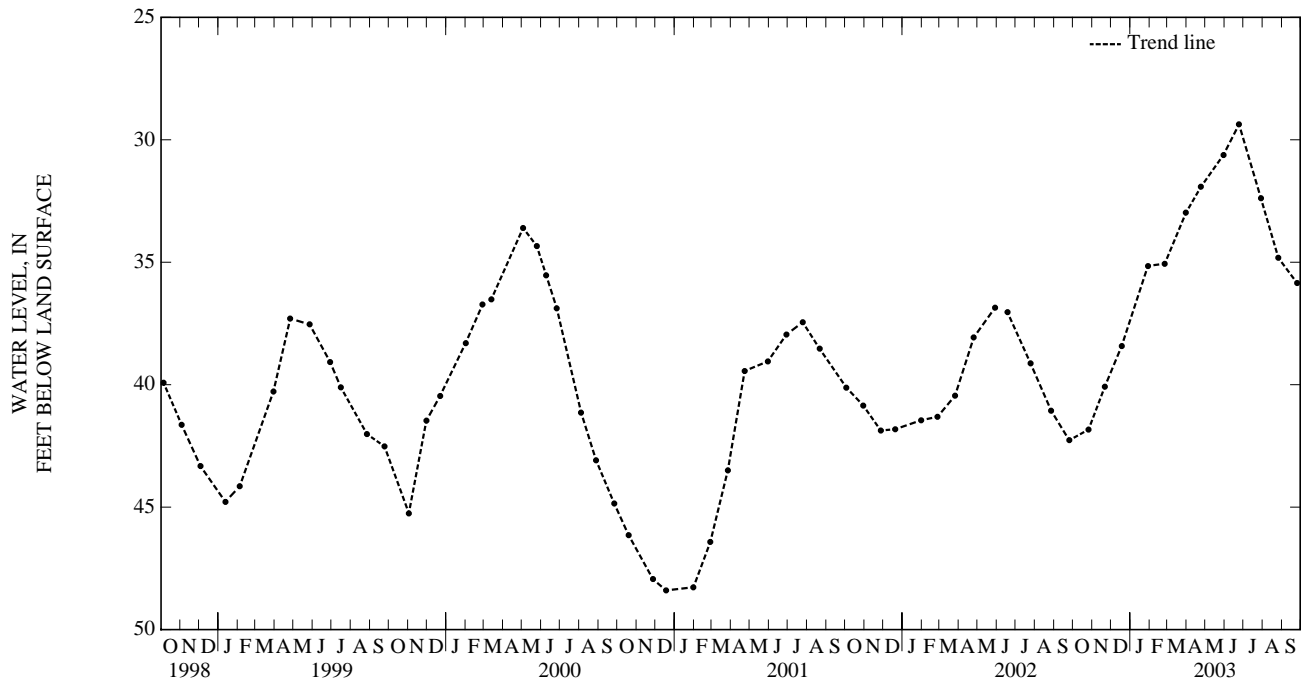
PERIOD OF RECORD.--October 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.13 ft below land-surface datum, Apr. 3, 1997; lowest measured, 49.06 ft below land-surface datum, Nov. 27, 1985.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, 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 26	41.83	DEC 18	38.42	FEB 25	35.06	APR 24	31.92	JUN 24	29.37	AUG 26	34.82
NOV 21	40.08	JAN 29	35.15	MAR 31	32.98	MAY 30	30.62	JUL 29	32.38	SEP 25	35.85

WATER YEAR 2003 HIGHEST 29.37 JUN 24, 2003 LOWEST 41.83 OCT 26, 2002





## LOUISA COUNTY

380217078133701. Local number, 45N 1.

LOCATION.--Lat 38°02'17", long 78°13'42", NAD83, Hydrologic Unit 02080106, off State Highway 640 on Tyler property, 0.9 mi southeast of Thelma, and 3 mi southwest of Boswells Tavern. Owner: Tyler.

AQUIFER.--Metagraywacke, quartzose schist, and melange of Cambrian age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., original depth 56 ft, length of casing 23 ft. Well was observed with borehole camera on Dec. 4, 2001 and found to be caved in up to a depth of about 40 ft below land-surface datum.

**INSTRUMENTATION.**--Continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 500 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.95 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Missing record due to recorder malfunction.

PERIOD OF RECORD.--July 1952 to current year.

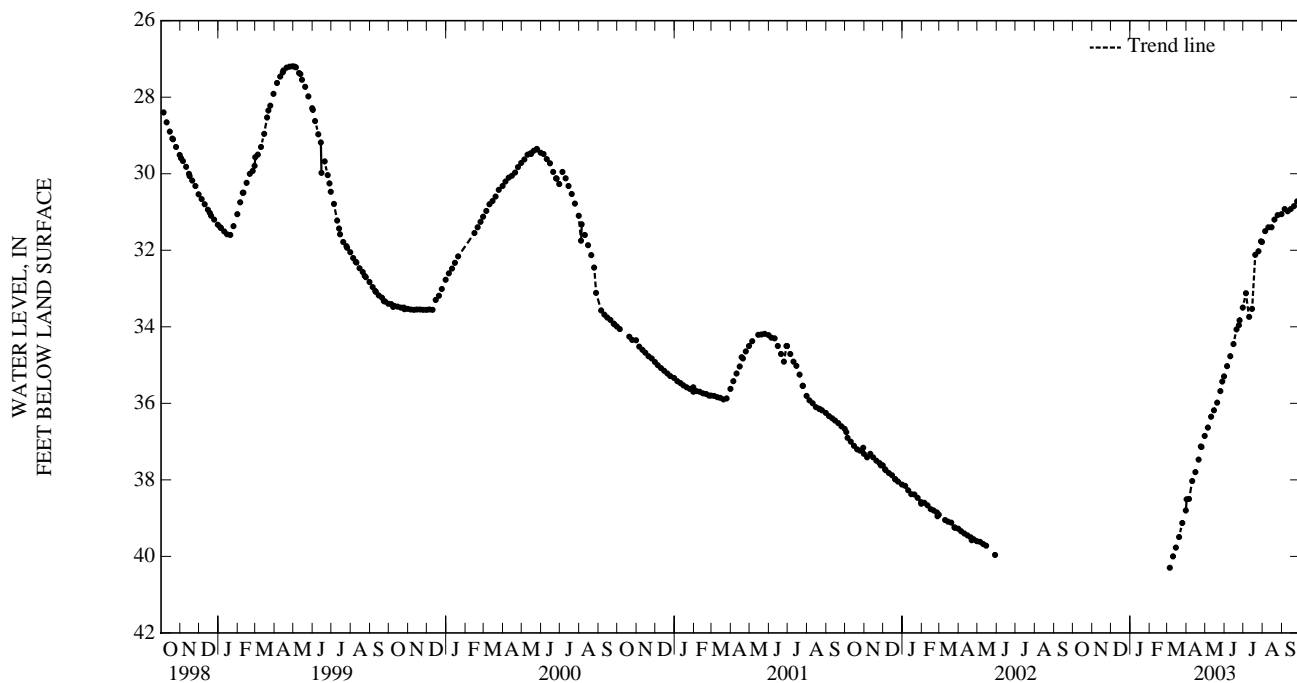
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.63 ft below land-surface datum, Apr. 18, 19, 1993; well dry June 2002 to March 2003; lowest measured water level, 40.30 ft below land-surface datum, Mar. 5, 2003.

EXTREMES FOR CURRENT YEAR.—Highest instantaneous water level, 30.72 ft below land-surface datum, Sept. 19; well dry October to March; lowest measured water level, 40.30 ft below land-surface datum, Mar. 5.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	40.30	38.50	36.63	35.03	33.12	31.50	30.92
10	---	---	---	---	---	40.00	38.03	36.35	34.77	33.74	31.40	30.98
15	---	---	---	---	---	39.77	37.80	36.18	34.45	33.53	31.40	30.92
20	---	---	---	---	---	39.49	37.47	35.98	34.07	32.12	31.20	30.85
25	---	---	---	---	---	39.13	37.14	35.68	33.83	32.03	31.08	30.72
EOM	---	---	---	---	---	38.80	36.85	35.30	33.50	31.78	31.06	30.70

WATER YEAR 2003    HIGHEST 30.70 SEP 30, 2003    LOWEST 40.30 MAR 05, 2003



## LOUISA COUNTY—Continued

380043078111301. Local number, 45N 4.

LOCATION.--Lat 38°00'46", long 78°11'13", NAD83, Hydrologic Unit 02080106, 0.25 mi east of U.S. Highway 15, 4.1 mi south of Boswells Tavern. Owner: Virginia Department of Corrections.

AQUIFER.--Metamorphosed sedimentary and volcanic rocks of unknown age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 200 ft, cased to 42 ft, open hole 42 to 200 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

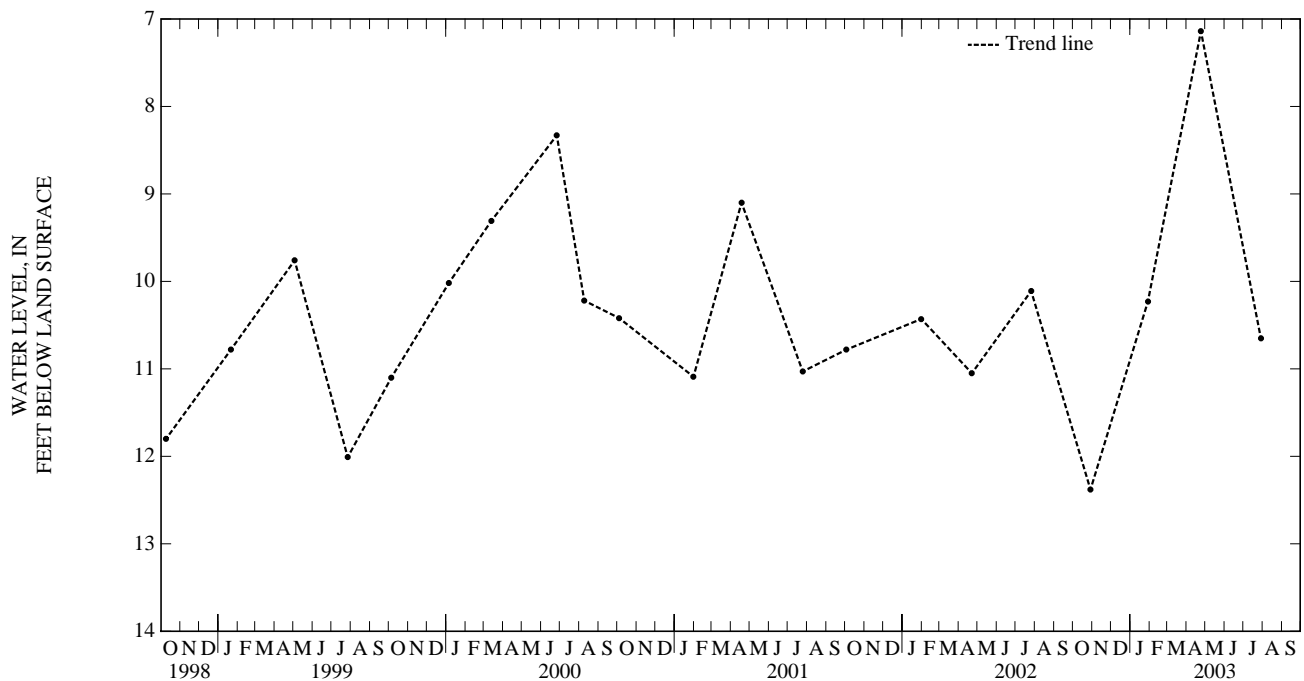
DATUM.--Elevation of land-surface datum is 415 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.3 ft above land-surface datum.

PERIOD OF RECORD.--February 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.14 ft below land-surface datum, Apr. 24, 2003; lowest measured, 14.43 ft below land-surface datum, Aug. 26, 1981.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	12.38	JAN 29	10.23	APR 24	7.14	JUL 29	10.65
WATER YEAR 2003 HIGHEST		7.14	APR 24, 2003 LOWEST		12.38	OCT 29, 2002	



GROUND-WATER LEVELS  
LOUISA COUNTY—Continued

380131078001001. Local number, 46N 1 SOW 056.

LOCATION.--Lat 38°01'32", long 78°00'09", NAD83, Hydrologic Unit 02080106, 200 ft northeast of intersection of U.S. Highway 33 and State Highway 208 in Louisa. Owner: Town of Louisa.

AQUIFER.--Metamorphosed sedimentary and volcanic rocks of unknown age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 132 ft, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 4, 1985, to Sept. 30, 1993, bimonthly measurement with chalked tape. Mar. 31, 1979, to Oct. 4, 1985, occasional measurement with chalked tape. Prior to Mar. 31, 1979, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 455 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.6 ft above land-surface datum.

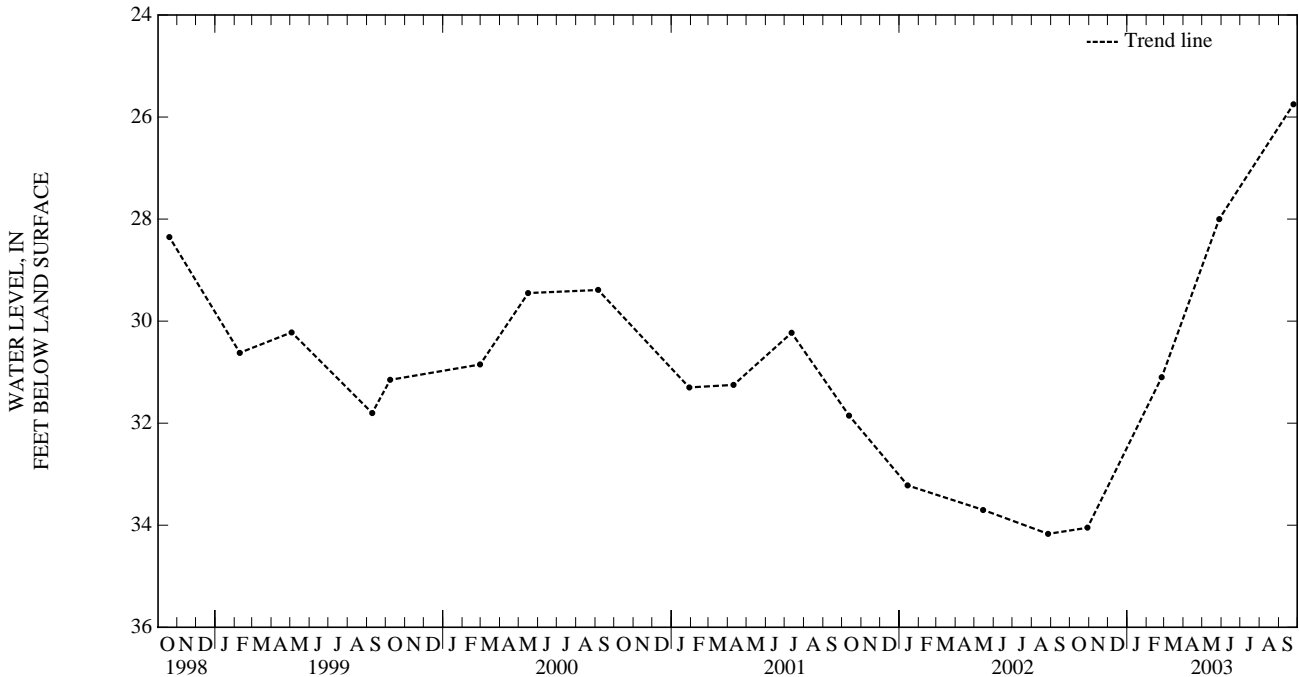
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--March 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 24.65 ft below land-surface datum, May 21, 1998; lowest measured, 34.78 ft below land-surface datum, Dec. 8, 1981.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	34.05	FEB 25	31.10	MAY 28	28.00	SEP 24	25.75
WATER YEAR 2003		HIGHEST	25.75	SEP 24, 2003	LOWEST	34.05	OCT 29, 2002



372545076240101. Local number, 59H 1.

AQUIFER.--Aquia aquifer of Paleocene age.

WELL CHARACTERISTICS.--Drilled flowing water well, diameter 4 in., depth 568 ft, depth of screen unknown.

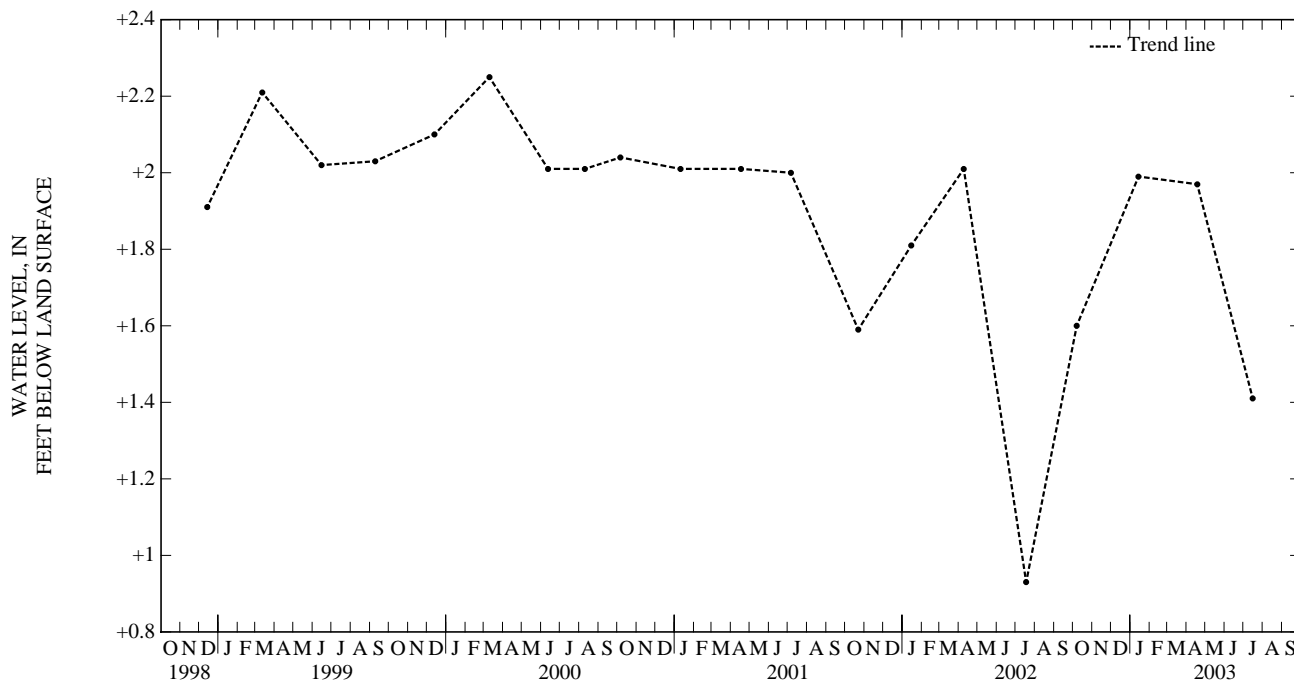
**INSTRUMENTATION.**--Occasional measurement with manometer or chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 5 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

PERIOD OF RECORD.--January 1950 to December 1995, September 1997 to current year. Unpublished records available prior to October 1988 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.70 ft above land-surface datum, Feb. 12, 1980; lowest measured, 0.93 ft above land-surface datum, July 18, 2002.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	+1.60	JAN 14	+1.99	APR 18	+1.97	JUL 16	+1.41
WATER YEAR 2003		HIGHEST	+1.99 JAN 14, 2003	LOWEST		+1.41 JUL 16, 2003	



## MIDDLESEX COUNTY

373630076312601. Local number, 58J 5.

LOCATION.--Lat 37°36'31", long 76°31'25", NAD83, Hydrologic unit 02080104, 1100 ft west of State Highway 619, 3 mi north of State Highway 33. Owner: Robert Bunch.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 14 in., 0 to 400 ft, 8 in., 400 to 730 ft, depth 730 ft, screened 507 to 522 ft, 527 to 542 ft, 550 to 560 ft, 578 to 588 ft, 650 to 660 ft, 669 to 679 ft, 688 to 703 ft, 710 to 730 ft.

INSTRUMENTATION.--Occasional measurement with chalk tape by USGS personnel.

DATUM.--Elevation of land surface datum is 40 ft above NGVD of 1929, from topographic map. Measuring point: Bottom of pump motor mount flange, 1.17 ft above land surface datum.

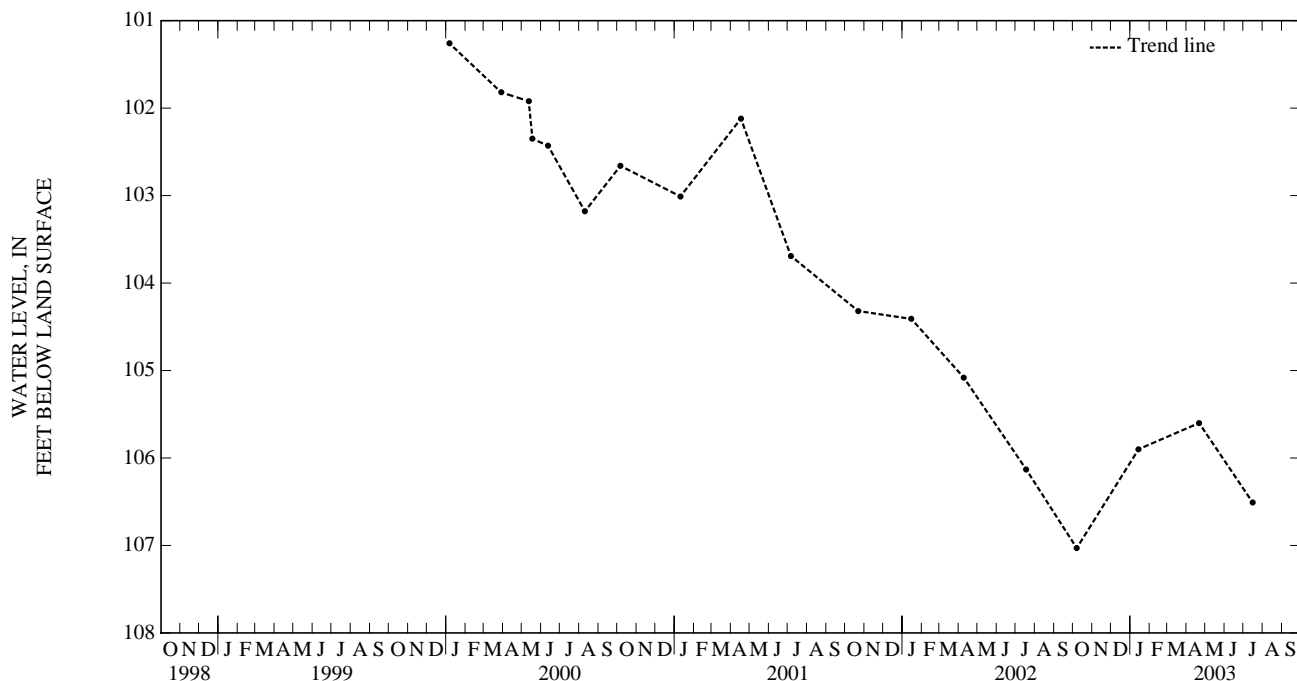
REMARKS.--Water level affected by regional drawdown.

PERIOD OF RECORD.--June 1974, January 2000 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 85.54 ft below land-surface datum, June 3, 1974; lowest measured, 107.03 ft below land-surface datum, Oct. 7, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	107.03	JAN 14	105.90	APR 21	105.60	JUL 16	106.51
WATER YEAR 2003		HIGHEST	105.60	APR 21, 2003	LOWEST	107.03	OCT 07, 2002



## MIDDLESEX COUNTY—Continued

373149076251501. Local number, 59J 16.

LOCATION.--Lat 37°31'45", long 76°25'15", NAD83, Hydrologic unit 02080102, 20 ft southwest of 59J 25, 165 ft east of State Highway 3, 350 ft north of Coves of Wilton Creek entrance road, 1.25 mi north of Piankatank Creek. Owner: CWW Development Co. LLC.

AQUIFER.--Yorktown-Eastover aquifer of Miocene to Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 100 ft, casing 0 to 80 ft, 90 to 100 ft, screened 80 to 90 ft.

INSTRUMENTATION.--Occasional measurement with chalk tape by USGS personnel.

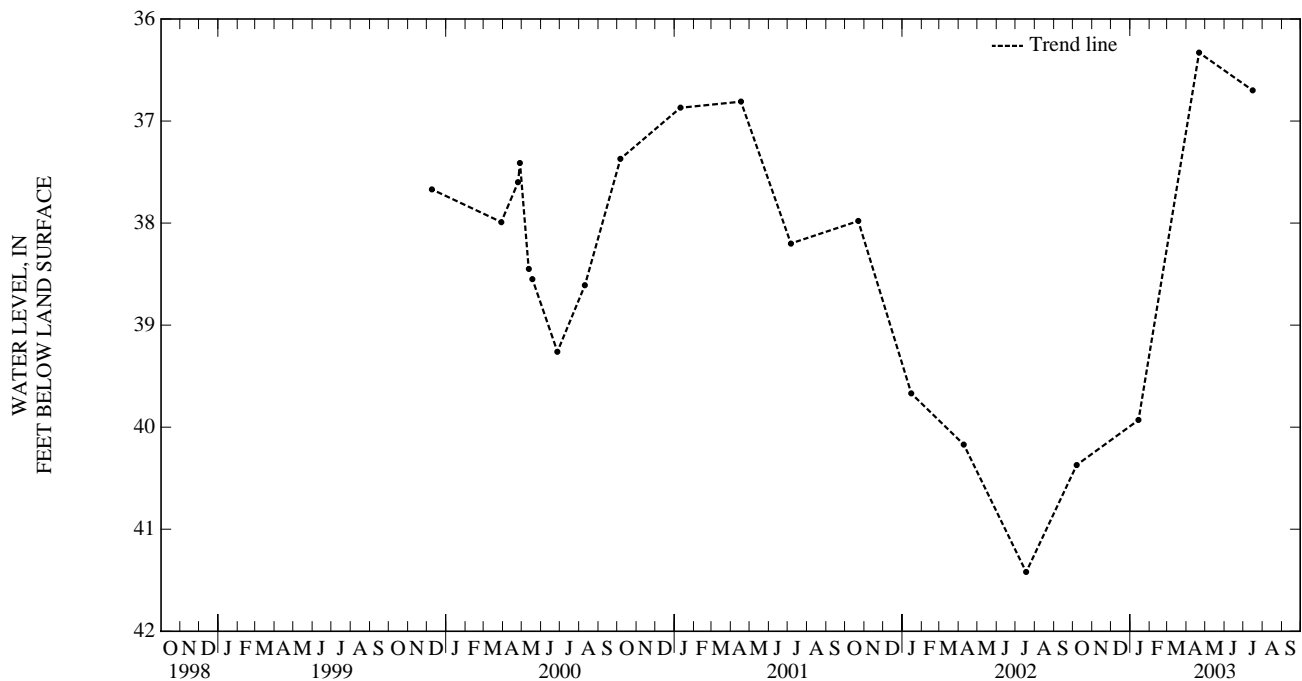
DATUM.--Elevation of land surface datum is 40 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.05 ft above land surface datum prior to July 18, 2002; 0.75 ft thereafter.

PERIOD OF RECORD.--December 1999 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 36.33 ft below land-surface datum, Apr. 21, 2003; lowest measured, 41.42 ft below land-surface datum, July 18, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	40.37	JAN 14	39.93	APR 21	36.33	JUL 16	36.70
WATER YEAR 2003 HIGHEST		36.33	APR 21, 2003 LOWEST		40.37	OCT 07, 2002	



GROUND-WATER LEVELS  
MIDDLESEX COUNTY—Continued

373145076251601. Local number, 59J 25.

LOCATION.--Lat 37°31'45", long 76°25'15", NAD83, Hydrologic unit 02080102, 20 ft northeast of 59J 16, 165 ft east of State Highway 3, 350 ft north of Coves of Wilton Creek entrance road, 1.25 mi north of Piankatank Creek. Owner: CWW Development Co. LLC.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 43 ft, casing depth unknown, screened depth unknown.

INSTRUMENTATION.--Occasional measurement with chalk tape by USGS personnel.

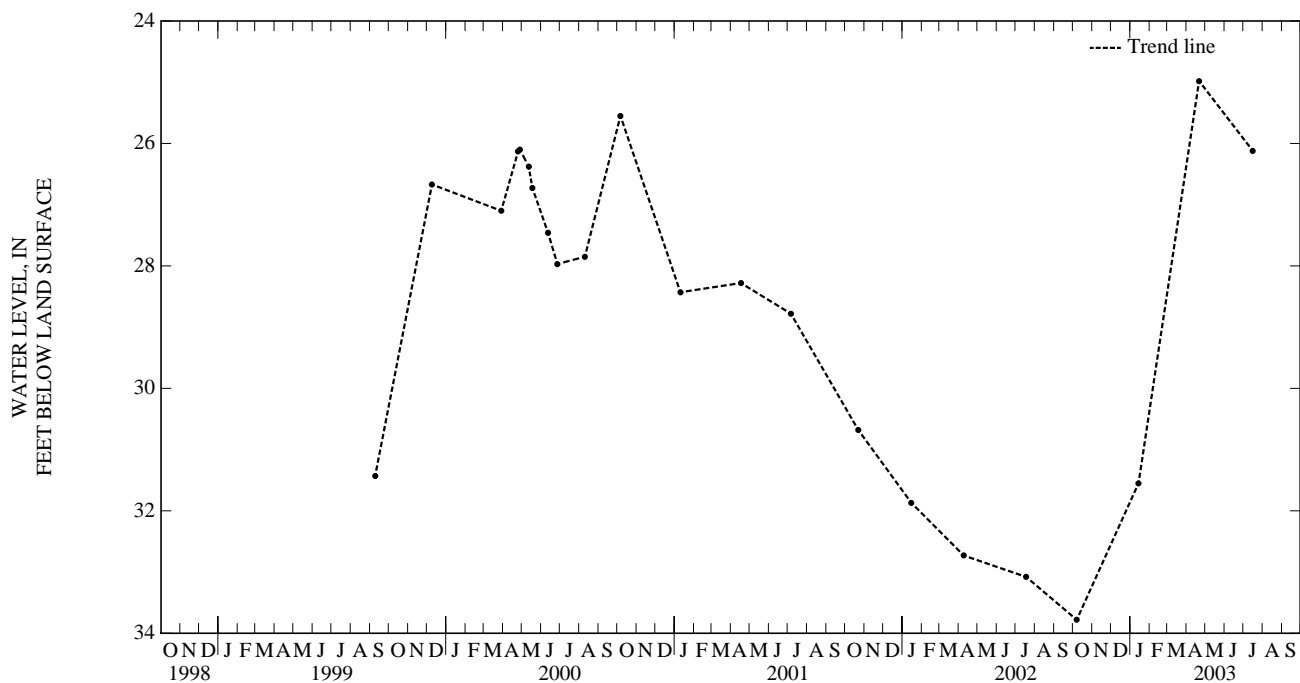
DATUM.--Elevation of land surface datum is 40 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.87 ft above-land surface datum.

PERIOD OF RECORD.--September 1999 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.98 ft below land-surface datum, Apr. 21, 2003; lowest measured, 33.78 ft below land-surface datum Oct. 7, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	33.78	JAN 14	31.55	APR 21	24.98	JUL 16	26.12
WATER YEAR 2003		HIGHEST 24.98 APR 21, 2003		LOWEST 33.78 OCT 07, 2002			



## MIDDLESEX COUNTY—Continued

373125076251501. Local number, 59J 27.

LOCATION.--Lat 37°31'25", long 76°25'14", NAD83, Hydrologic unit 02080102, 1000 ft east of State Highway 3, 0.9 mi north of Piankatank Creek. Owner: Carolyn Wuyts.

AQUIFER.--Upper Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 1001 ft, casing 0 to 981 ft, screened 981 to 1001 ft.

INSTRUMENTATION.--Occasional measurement with chalk tape by USGS personnel.

DATUM.--Elevation of land surface datum is 30 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.28 ft above land surface datum.

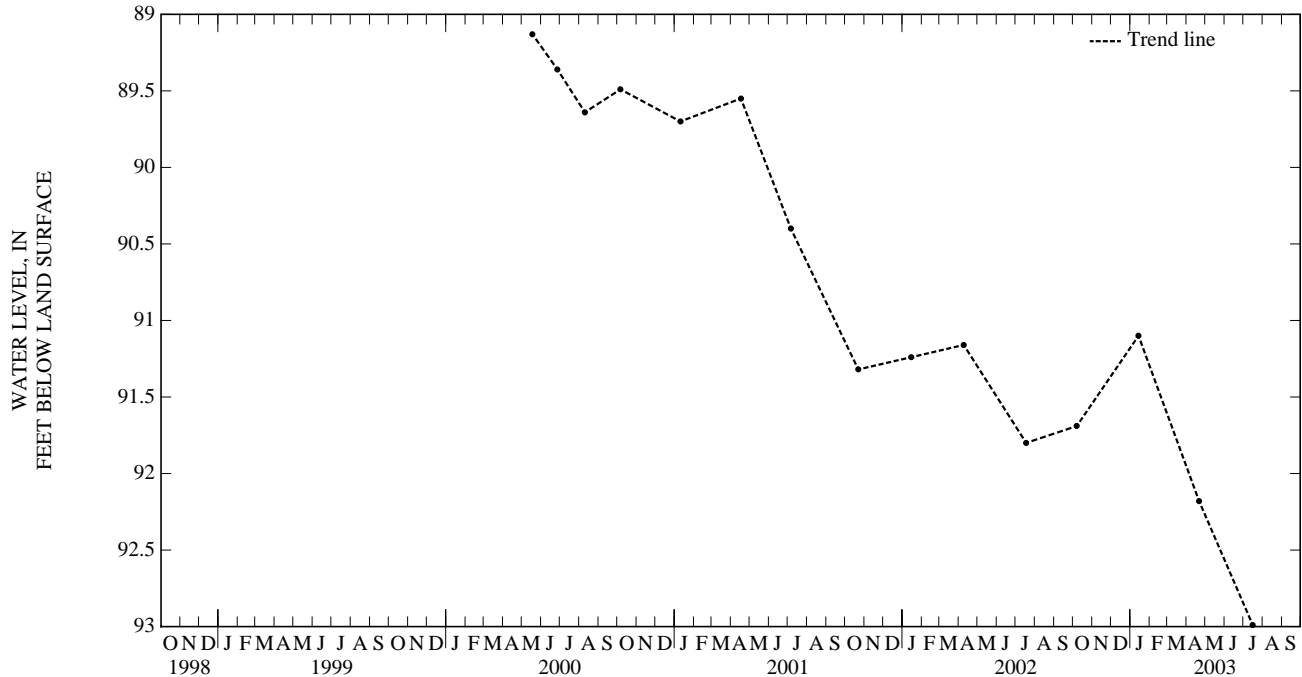
REMARKS.--Water level affected by regional drawdown.

PERIOD OF RECORD.--May 2000 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 89.13 ft below land-surface datum, May 18, 2000; lowest measured, 92.99 ft below land-surface datum July 16, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	91.69	JAN 14	91.10	APR 21	92.18	JUL 16	92.99
WATER YEAR 2003 HIGHEST 91.10 JAN 14, 2003				LOWEST 92.99 JUL 16, 2003			





## MONTGOMERY COUNTY

370812080261901. Local number, 27F 2 SOW 019.

LOCATION.--Lat 37°08'12", long 80°26'18", NAD83, Hydrologic Unit 05050001, off entrance road to Round Meadow Country Club, 400 ft north of State Highway 661, and 0.5 mi west of Christiansburg. Owner: Town of Christiansburg.

AQUIFER.--Beekmantown Formation of Early Ordovician age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in., depth 450 ft, length of casing unknown.

INSTRUMENTATION.--Continuous strip-chart recorder. Prior to Apr. 5, 1969, one measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 1,970 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft below land-surface datum prior to May 1, 1990; 0.43 ft above land-surface datum thereafter.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Lowest recorded water level, 7.39 ft, is a result of the Mexico earthquake of Sept. 19, 1985, but is not shown as the minimum of record since it is an earthquake affected measurement. Prior to May 1, 1990, brief periods when water flowed over top of casing. Missing record due to recorder malfunction.

PERIOD OF RECORD.--July 1953, April 1969 to current year. Unpublished record available July 1953 in files of the Virginia Department of Environmental Quality - Water Division.

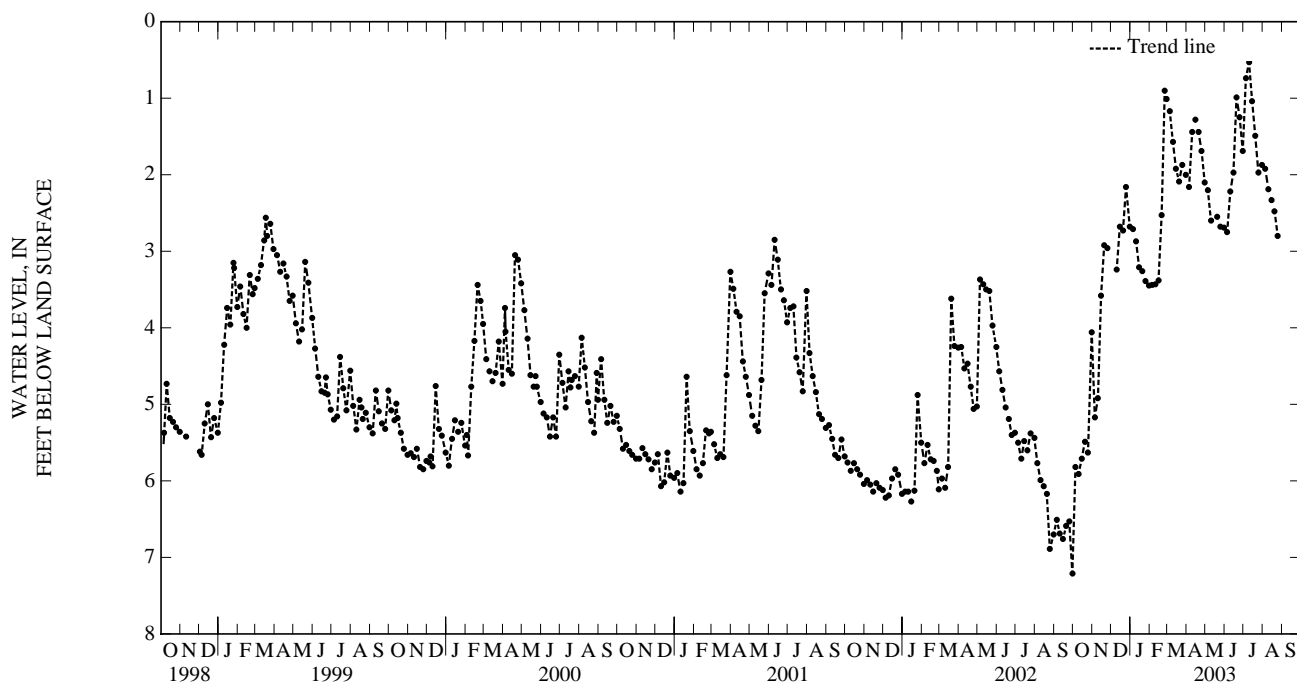
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.02 ft above land-surface datum, Mar. 28, 1993; lowest recorded, 7.30 ft below land-surface datum, Dec. 5, 1969.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 0.27 ft below land-surface datum, July 7; lowest instantaneous water level, 5.92 ft below land-surface datum, Oct. 9.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	5.82	5.17	---	2.71	3.44	1.17	2.16	2.20	2.75	0.74	1.92	---
10	5.91	4.92	3.24	2.87	3.43	1.57	1.44	2.60	2.22	0.53	2.19	---
15	5.71	3.58	2.68	3.21	3.38	1.92	1.28	---	1.97	1.04	2.33	---
20	5.49	2.92	2.73	3.26	2.53	2.09	1.44	2.55	0.99	1.49	2.48	---
25	5.63	2.96	2.16	3.39	0.90	1.87	1.69	2.68	1.25	1.97	2.80	---
EOM	4.06	---	2.68	3.45	1.01	2.00	2.10	2.69	1.69	1.87	---	---

WATER YEAR 2003    HIGHEST    .53 JUL 10, 2003    LOWEST    5.91 OCT 10, 2002



## NEW KENT COUNTY

373111077104601. Local number, 53J 6.

LOCATION.--Lat 37°31'12", long 77°10'45", NAD83, Hydrologic Unit 02080206, 0.18 mi south of State Highway 249 in Brookwood Manor Subdivision, 0.7 mi northeast of the intersection of Interstate Highway 64 and State Highway 249, and 2.95 mi southwest of Quinton. Owner: Thomas M. Brooks.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 6 in., depth 305 ft, screened 285 to 305 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 115 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.

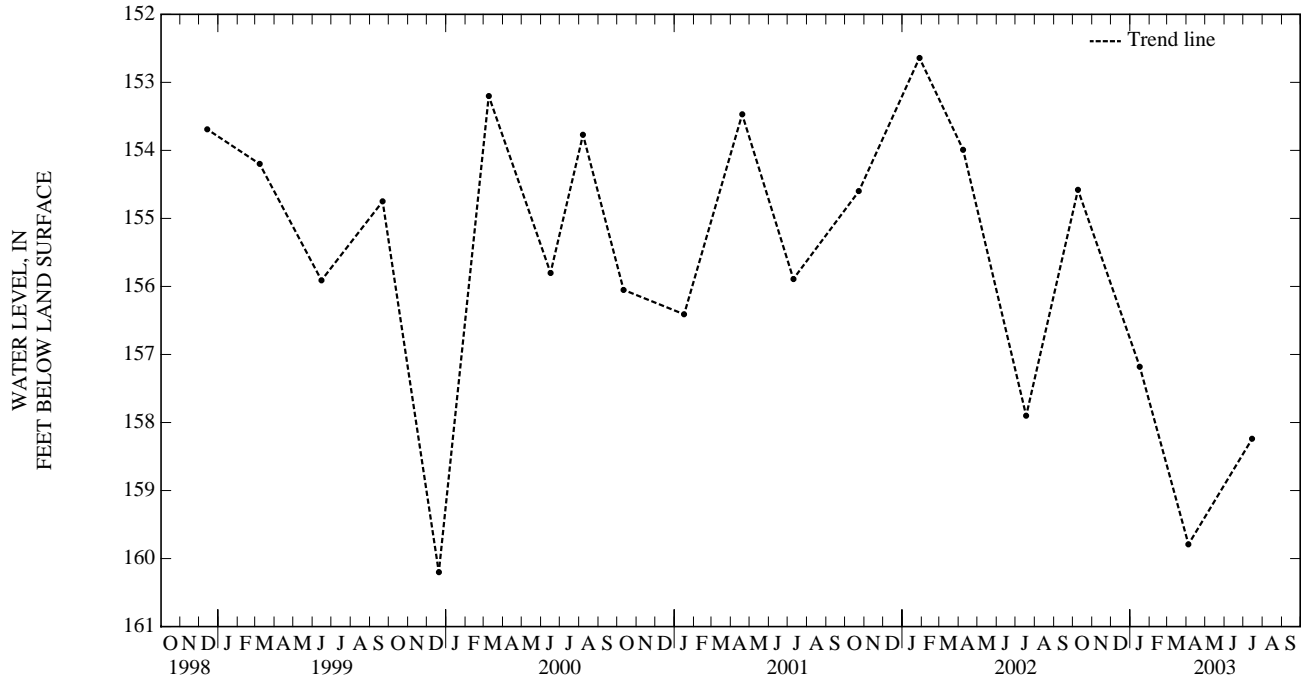
REMARKS.--Water level affected by regional drawdown.

PERIOD OF RECORD.--November 1983 to current year. Unpublished records available prior to October 1987 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 129.91 ft below land-surface datum, Feb. 3, 1984; lowest measured, 160.20 ft below land-surface datum, Dec. 20, 1999.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	154.58	JAN 16	157.18	APR 04	159.79	JUL 15	158.24
WATER YEAR 2003    HIGHEST 154.58 OCT 09, 2002    LOWEST 159.79 APR 04, 2003							



GROUND-WATER LEVELS  
NEW KENT COUNTY—Continued

373024076542201. Local number, 55J 6.

LOCATION.--Lat 37°30'24", long 76°54'21", NAD83, Hydrologic Unit 02080106, 0.25 mi north of State Highway 249, 4.3 mi east of New Kent Courthouse.  
Owner: Chad Brunskole.

AQUIFER.--Aquia aquifer of Paleocene age.

WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 275 ft, screened 265 to 275 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 110 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.38 ft above land-surface datum.

REMARKS.--Water level affected by regional drawdown.

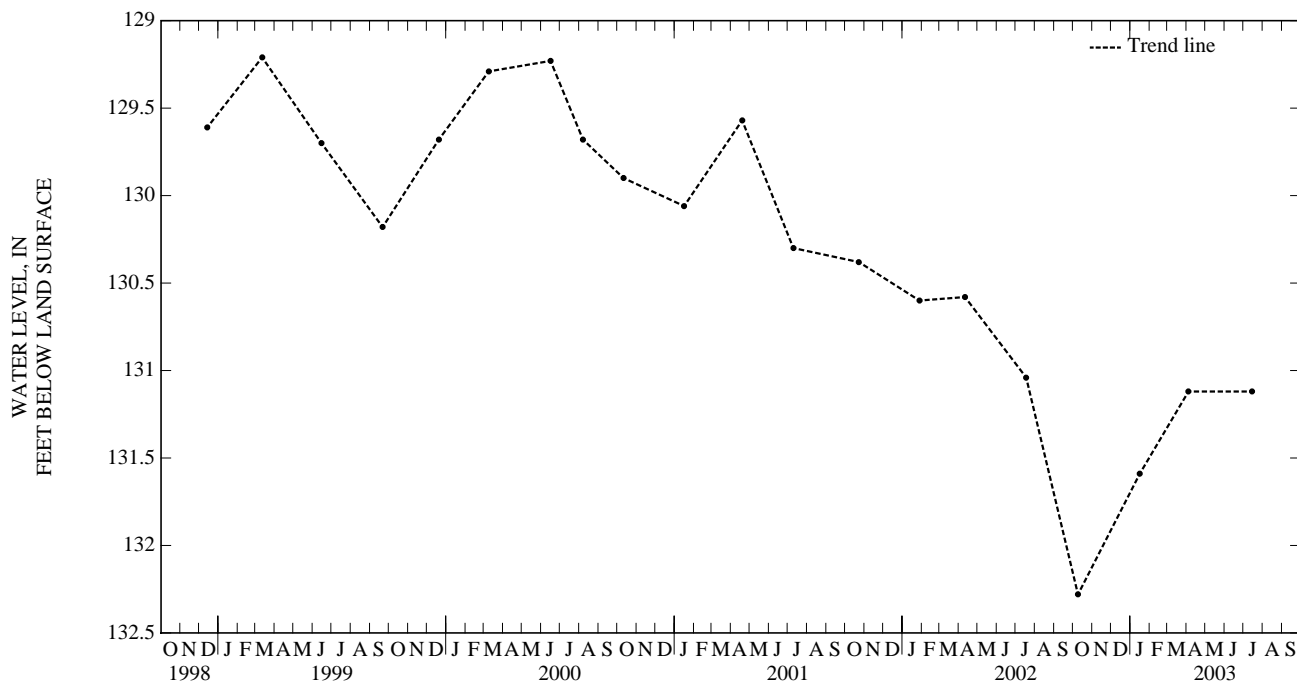
PERIOD OF RECORD.--December 1972, April 1984 to March 1986, March 1988 to current year. Unpublished records available prior to October 1987 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 114.10 ft below land-surface datum, Dec. 7, 1972; lowest measured, 132.28 ft below land-surface datum, Oct. 9, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	132.28	JAN 16	131.59	APR 04	131.12	JUL 15	131.12

WATER YEAR 2003    HIGHEST 131.12 APR 04, 2003    JUL 15, 2003    LOWEST 132.28 OCT 09, 2002



## CITY OF NEWPORT NEWS

371027076335601. Local number, 58F 1 SOW 002.

LOCATION.--Lat 37°10'28", long 76°33'55", NAD83, Hydrologic Unit 02080206, on shore of Lee Hall Reservoir, 0.15 mi north of intersection of State Highway 105 and U.S. Highway 60, and 0.65 mi northeast of Fort Eustis in Newport News. Owner: City of Newport News.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in. to 431.3 ft, diameter 8 in. from 431.3 to 443 ft, diameter 6 in. from 443 to 497 ft, depth 497 ft, screened 476 to 493 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 20 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder shelf, 2.3 ft above land-surface datum.

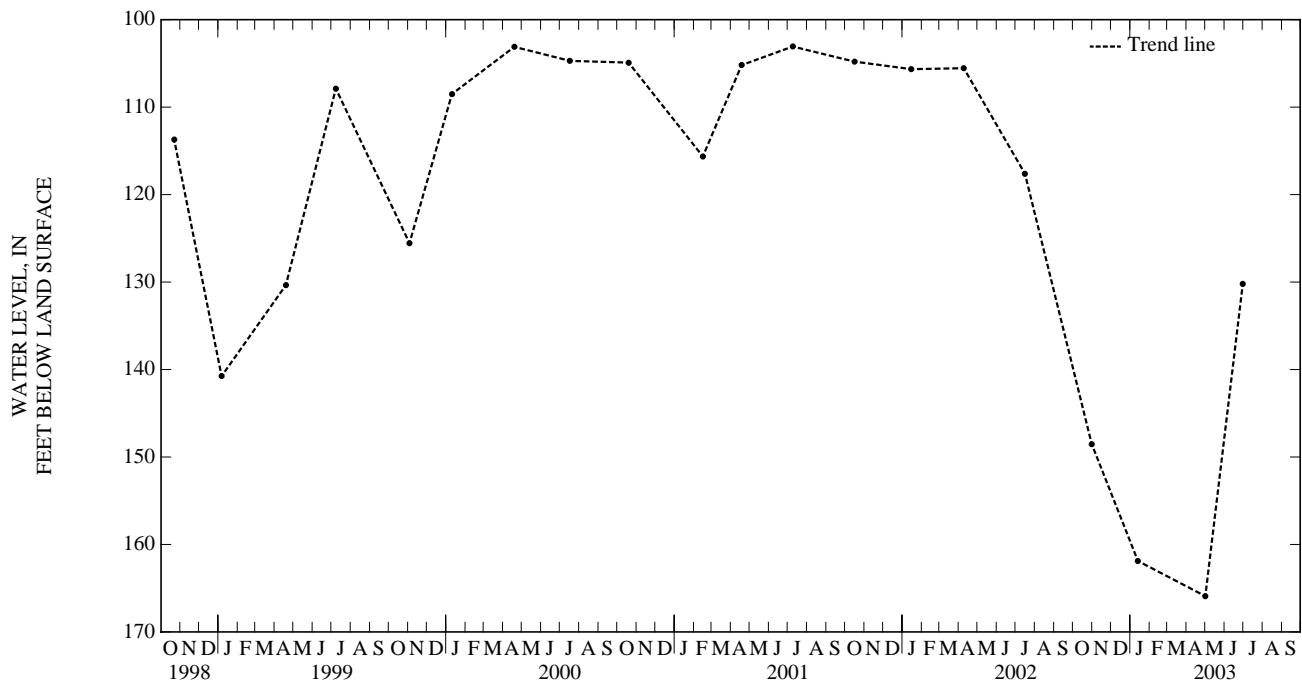
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage and regional drawdown. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--January 1968 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.76 ft below land-surface datum, May 10, 1969; lowest measured, 165.91 ft below land-surface datum, May 1, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	148.52	JAN 13	161.89	MAY 01	165.91	JUN 30	130.22
WATER YEAR 2003 HIGHEST 130.22 JUN 30, 2003		LOWEST 165.91 MAY 01, 2003					



## CITY OF NEWPORT NEWS—Continued

371208076341101. Local number, 58F 50 SOW 171A.

LOCATION.--Lat 37°12'09", long 76°34'10", NAD83, Hydrologic Unit 02080206, 0.4 mi southeast of the intersection of State Highways 143 and 238 and 150 ft north of State Highway 143 in the city of Newport News. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Lower Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 1,236 ft, screened 1,205 to 1,215 ft.

INSTRUMENTATION.--Electronic pressure transducer data logger 60-minute record interval. Prior to May 8, 1997, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 55 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum prior to Apr. 14, 1993; 1.85 ft thereafter.

REMARKS.--Missing record due to recorder malfunction. Water level affected by regional drawdown, nearby pumpage, and occasional pumpage for water-quality sampling. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

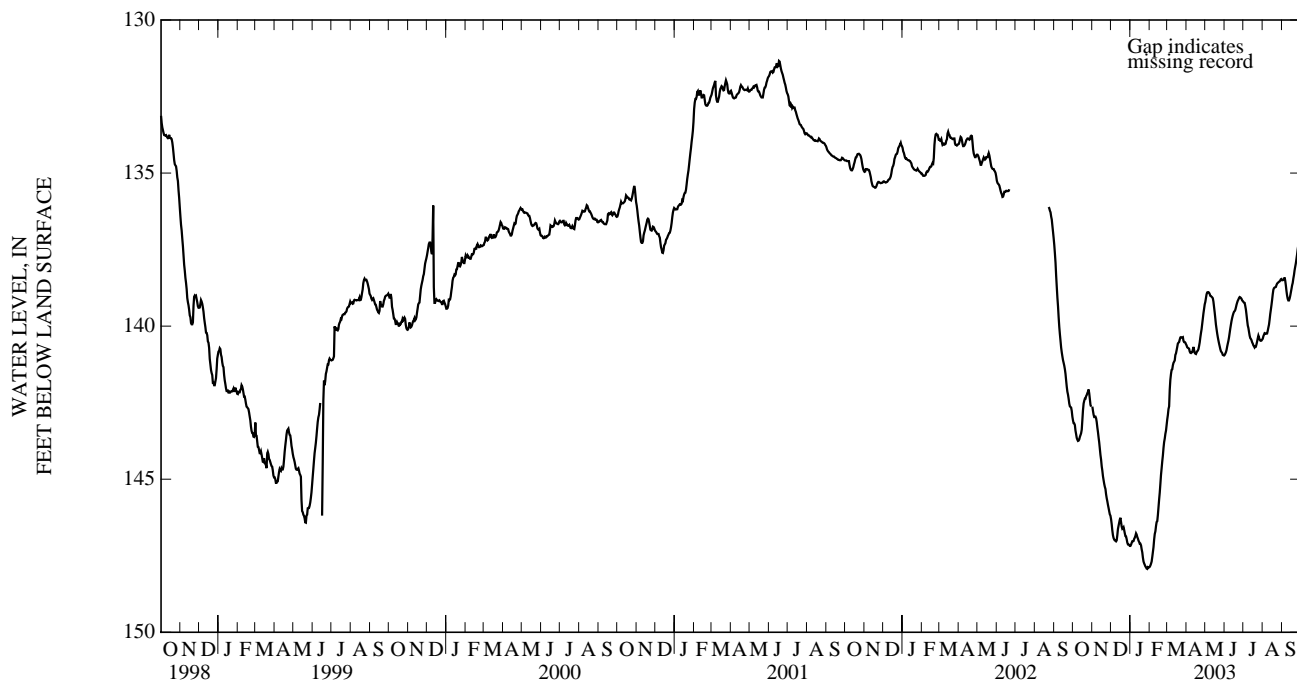
PERIOD OF RECORD.--July 1984 to current year. Unpublished records available prior to October 1986 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 106.32 ft below land-surface datum, May 23-27, 1996; lowest recorded, 147.93 ft below land-surface datum, Jan. 28, 2003.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 137.05 ft below land-surface datum, Sept. 30; lowest instantaneous water level, 147.93 ft below land-surface datum, Jan. 28.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	143.41	142.97	146.92	147.03	147.54	142.07	140.74	138.89	140.67	139.46	140.24	138.41
10	143.74	143.46	147.00	146.77	146.70	141.28	140.85	139.02	140.08	140.19	140.05	139.11
15	143.38	144.36	146.32	147.05	145.91	140.89	140.90	139.38	139.58	140.53	139.31	138.90
20	142.37	145.15	146.60	147.39	144.64	140.52	140.75	140.24	139.30	140.67	138.74	138.33
25	142.14	145.72	146.87	147.85	143.67	140.37	140.10	140.75	139.05	140.31	138.59	137.66
EOM	---	146.19	147.18	147.88	143.23	140.59	139.29	140.96	139.18	140.44	138.46	137.08



371208076341102. Local number, 58F 51 SOW 171B.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

INSTRUMENTATION.--Electronic pressure transducer data logger 60-minute record interval. Prior to Apr. 24, 1996, digital recorder 60-minute punch.

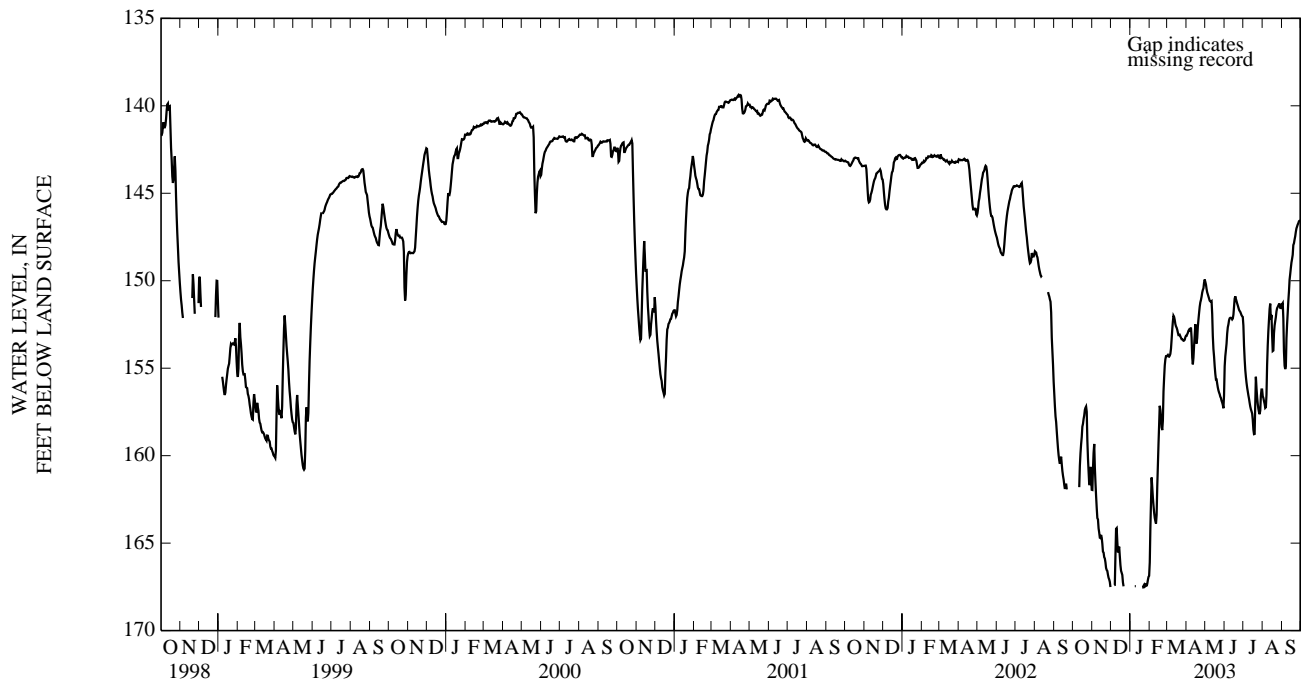
REMARKS.--Missing record due to recorder malfunction, except for periods in November and December 1998, January 1999, September, October, December 2002, and January 2003, due to water level below transducer, result of nearby pumpage. Water level affected by regional drawdown, nearby pumpage, and occasional pumpage for water-quality sampling. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--July 1984 to current year. Unpublished records available prior to October 1986 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 126.35 ft below land-surface datum, Mar. 23-25, 1985; lowest recorded, not determined, greater than 167.53 ft, probably occurred during December 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 146.51 ft below land-surface datum, Sept. 28; lowest instantaneous water level, not determined, greater than 167.53 ft, probably occurred during December.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	160.66	---	---	161.83	154.28	152.80	150.78	153.03	155.50	157.27	154.86
10	---	163.64	164.14	---	163.75	152.33	154.40	151.20	152.12	156.75	152.87	151.83
15	158.93	164.53	165.74	---	159.30	152.61	152.49	154.34	151.94	157.59	151.95	149.27
20	157.38	165.80	167.25	167.52	158.38	153.11	152.21	155.88	151.17	157.04	152.56	147.86
25	160.17	166.59	---	167.46	154.84	153.34	150.91	156.63	151.73	157.33	151.50	146.90
EOM	161.95	167.51	---	166.87	154.30	153.15	149.93	156.55	152.07	156.22	151.44	146.57



## CITY OF NEWPORT NEWS—Continued

371208076341103. Local number, 58F 52 SOW 171C.

LOCATION.--Lat 37°12'09", long 76°34'10", NAD83, Hydrologic Unit 02080206, 0.4 mi southeast of the intersection of State Highways 143 and 238 and 150 ft north of State Highway 143 in the city of Newport News. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 537 ft, screened 527 to 537 ft.

INSTRUMENTATION.--Electronic pressure transducer data logger 60-minute record interval. Prior to April 24, 1996, digital recorder 60-minute punch. October 1993 to June 1994, occasional measurement with chalked tape by USGS personnel. Prior to October 1993, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 55 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum prior to Apr. 14, 1993; 3.1 ft thereafter.

REMARKS.--Missing record due to recorder malfunction except for periods in October to December 1998, January 1999, and September, October, December 2002, due to water level below transducer, result of nearby pumpage. Water level affected by regional drawdown, nearby pumpage, and occasional pumpage for water-quality sampling. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

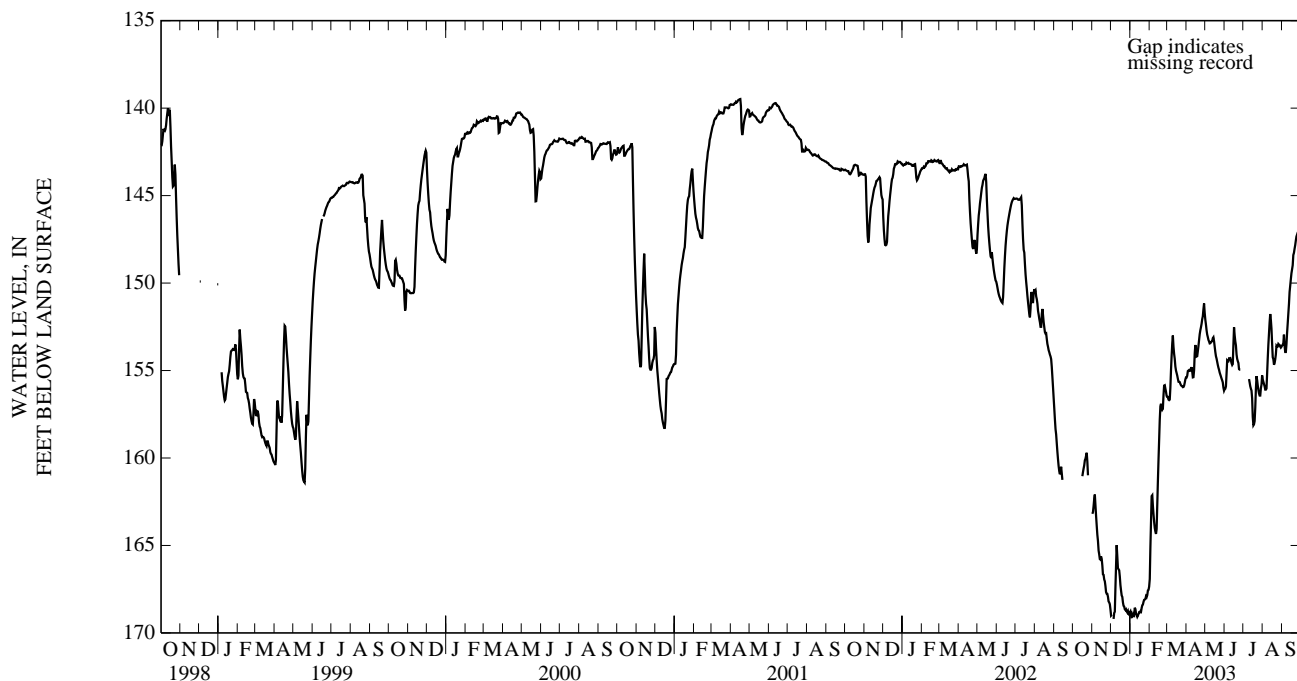
PERIOD OF RECORD.--June 1984 to current year. Unpublished records available prior to October 1986 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 128.12 ft below land-surface datum, Mar. 23, 1985; lowest recorded, not determined, greater than 169.22 ft, occurred Dec. 3-4, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 146.83 ft below land-surface datum, Sept. 30; lowest instantaneous water level, not determined, greater than 169.22 ft, occurred Dec. 3-4.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	162.09	169.20	169.05	162.13	156.66	154.97	153.09	154.44	---	156.09	153.60
10	---	164.74	164.98	168.90	164.21	153.00	155.06	153.39	154.29	155.49	153.53	152.30
15	---	165.63	166.77	168.82	160.09	155.00	153.54	153.33	153.49	156.59	152.61	149.78
20	160.13	166.94	168.26	168.42	157.12	155.65	153.59	154.50	154.08	157.12	154.58	148.27
25	160.99	167.77	168.65	168.06	155.84	155.90	152.33	155.23	154.95	156.11	153.63	147.23
EOM	---	168.65	168.83	167.36	156.45	155.40	151.71	156.15	---	155.28	153.64	146.88



## CITY OF NEWPORT NEWS—Continued

371208076341104. Local number, 58F 53 SOW 171D.

LOCATION.--Lat 37°12'09", long 76°34'10", NAD83, Hydrologic Unit 02080206, 0.4 mi southeast of the intersection of State Highways 143 and 238 and 150 ft north of State Highway 143 in the city of Newport News. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Chickahominy-Piney Point aquifer of Eocene-Oligocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 343 ft, screened 333 to 343 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Oct. 1, 1999, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 55 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum prior to Apr. 14, 1993; 2.9 ft thereafter.

REMARKS.--Missing record due to recorder malfunction. Water level affected by regional drawdown and occasional pumpage for water-quality sampling. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

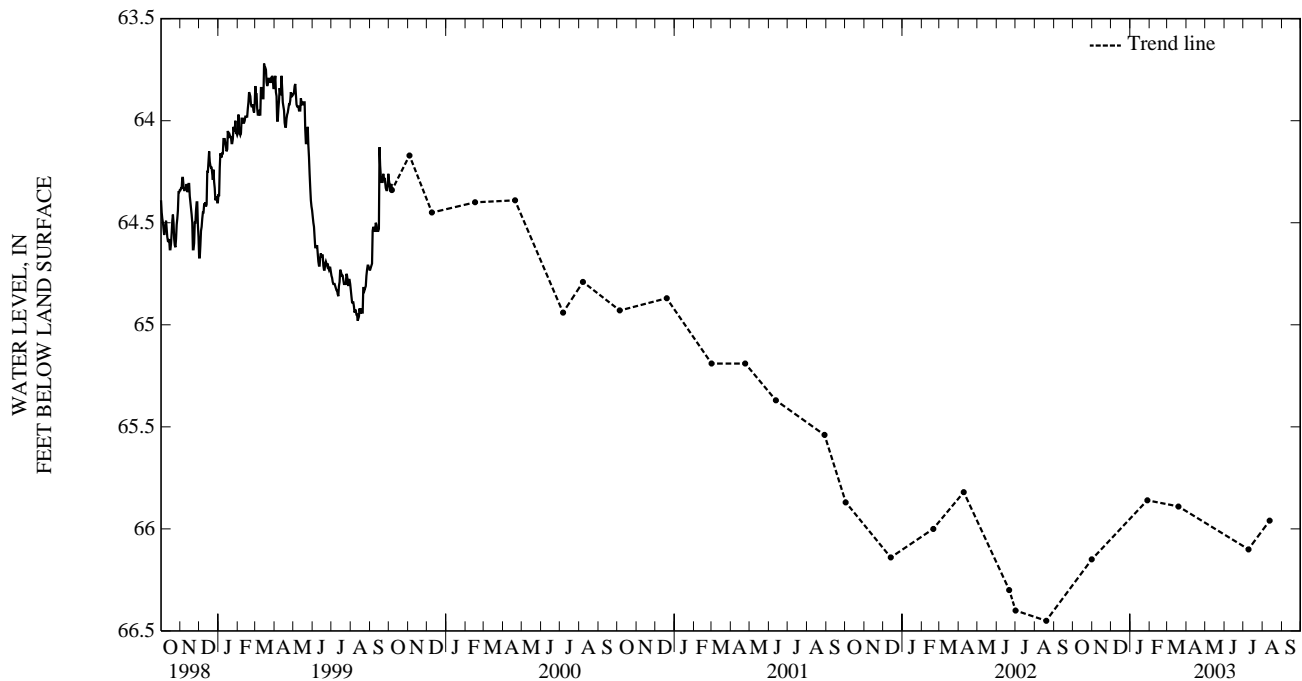
PERIOD OF RECORD.--July 1984 to current year. Unpublished records available prior to October 1986 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 55.18 ft below land-surface datum, Feb. 2, 1985; lowest recorded, 66.45 ft below land-surface datum, Aug. 19, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	66.15	JAN 28	65.86	MAR 19	65.89	JUL 09	66.10	AUG 12	65.96

WATER YEAR 2003    HIGHEST    65.86    JAN 28, 2003    LOWEST    66.15    OCT 31, 2002





## CITY OF NEWPORT NEWS—Continued

371208076341105. Local number, 58F 54 SOW 171E.

LOCATION.--Lat 37°12'09", long 76°34'10", NAD83, Hydrologic Unit 02080206, 0.4 mi southeast of the intersection of State Highways 143 and 238 and 150 ft north of State Highway 143 in the city of Newport News. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown confining unit of Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 88 ft, screened 78 to 88 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Oct. 1, 1999, digital recorder 60-minute punch. Digital recorder was removed from Oct. 18, 1991 to July 8, 1992. During this period, occasional measurements with chalked tape.

DATUM.--Elevation of land-surface datum is 55 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum prior to July 8, 1992; 1.6 ft thereafter.

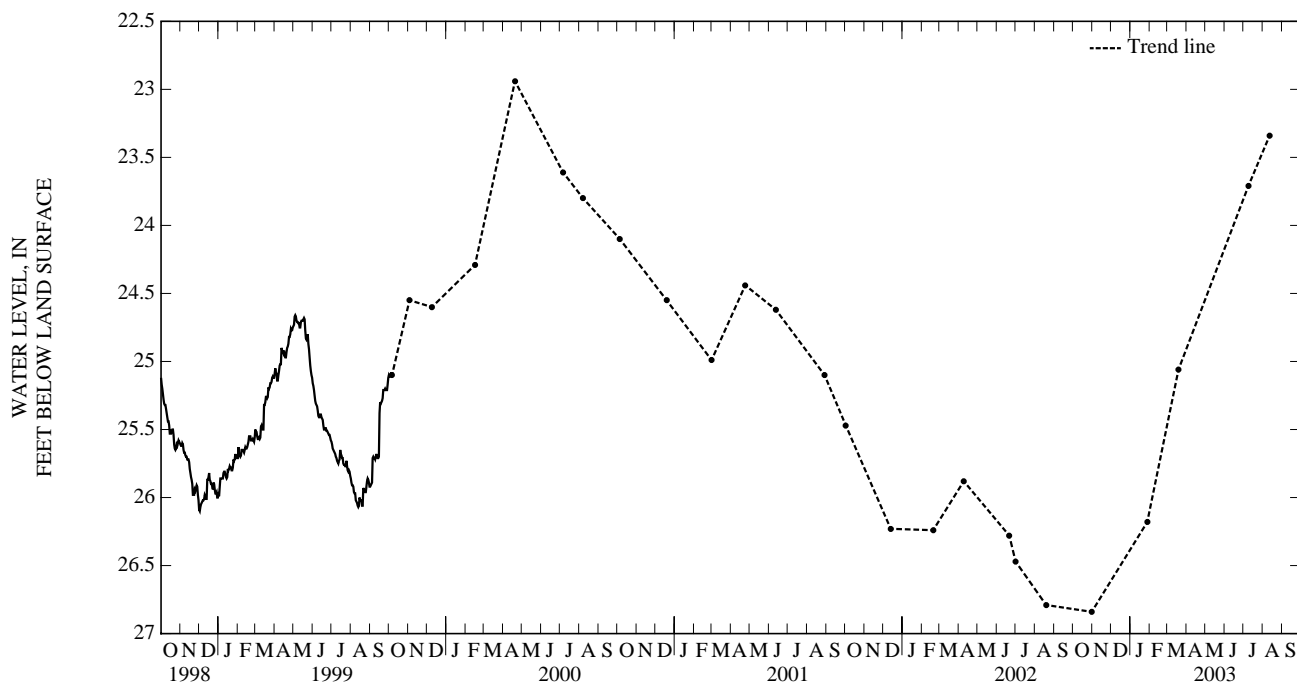
REMARKS.--Missing record due to recorder malfunction. Water level affected by occasional pumpage for water-quality sampling. Occasional stepping in hydrograph due to well not being plum and float rubbing the side of the casing.

PERIOD OF RECORD.--June 1984 to October 1991, July 1992 to current year. Unpublished records available prior to October 1986 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 22.05 ft below land-surface datum, May 20, 21, 1993; lowest recorded, 27.34 ft below land-surface datum, Nov. 1, 1990.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	26.84	JAN 28	26.18	MAR 19	25.06	JUL 09	23.71	AUG 12	23.34
WATER YEAR 2003    HIGHEST    23.34    AUG 12, 2003    LOWEST    26.84    OCT 31, 2002									



371208076341106. Local number, 58F 55 SOW 171F.

**AQUIFER.**--Cornwallis Cave aquifer of Pliocene-Pleistocene age.

**WELL CHARACTERISTICS.**--Drilled observation water well, diameter 4 in., depth 60 ft, screened 50 to 60 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Oct. 1, 1999, digital recorder 60-minute punch.

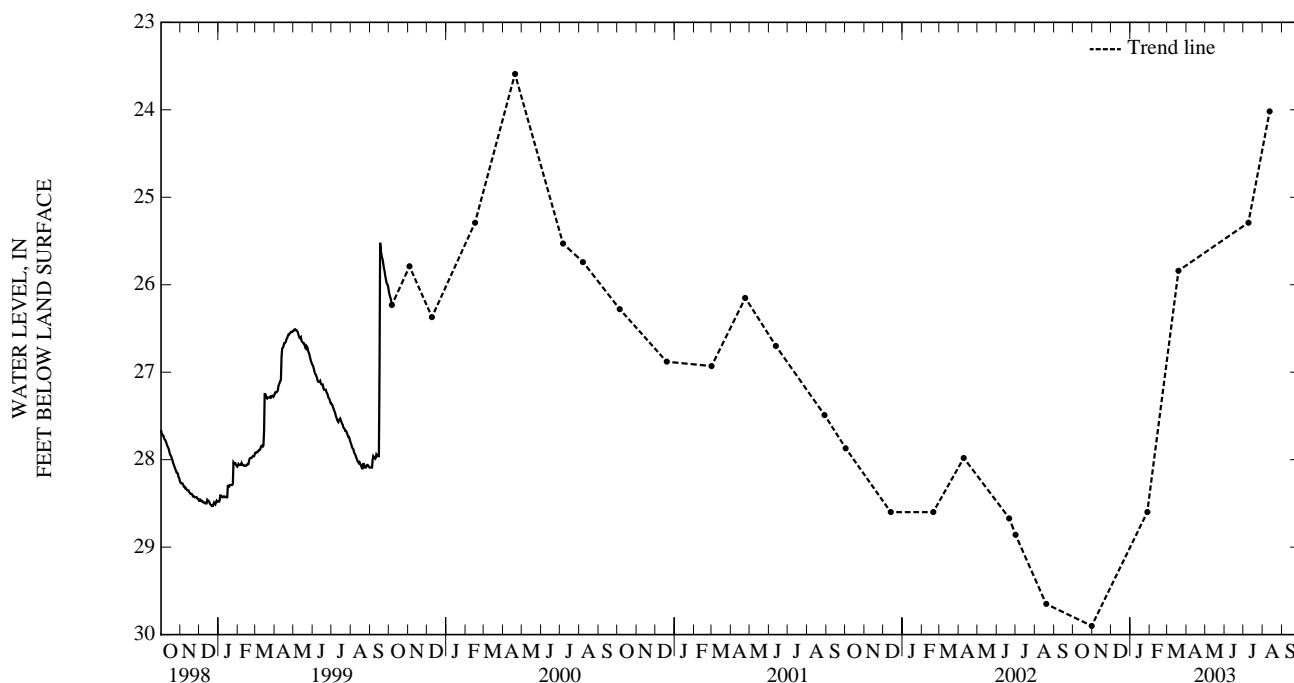
DATUM.--Elevation of land-surface datum is 55 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.9 ft above land-surface datum.

REMARKS.--Water level affected by occasional pumpage for water-quality sampling.

PERIOD OF RECORD.--June 1984 to current year. Unpublished records available prior to October 1986 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 23.04 ft below land-surface datum, May 21-24, 1993; lowest measured, 29.90 ft below land-surface datum, Oct. 31, 2002.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	29.90	JAN 28	28.60	MAR 19	25.84	JUL 09	25.29	AUG 12	24.02
WATER YEAR 2003		HIGHEST	24.02	AUG 12, 2003	LOWEST	29.90	OCT 31, 2002		



CITY OF NORFOLK

365223076122101. Local number, 61C 1.

LOCATION.--Lat 36°52'24", long 76°12'20", NAD83, Hydrologic Unit 02080108, at Moores Bridge Filter Plant, 0.3 mi east of intersection of State Highway 165 and U.S. Highway 13 in Norfolk. Owner: City of Norfolk.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 970 ft, screened 900 to 960 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 10.80 ft above NGVD of 1929. Measuring point: Inner edge of manhole at land-surface datum. Prior to Oct. 29, 1987, measuring point at top of casing, 3.15 ft above land-surface datum.

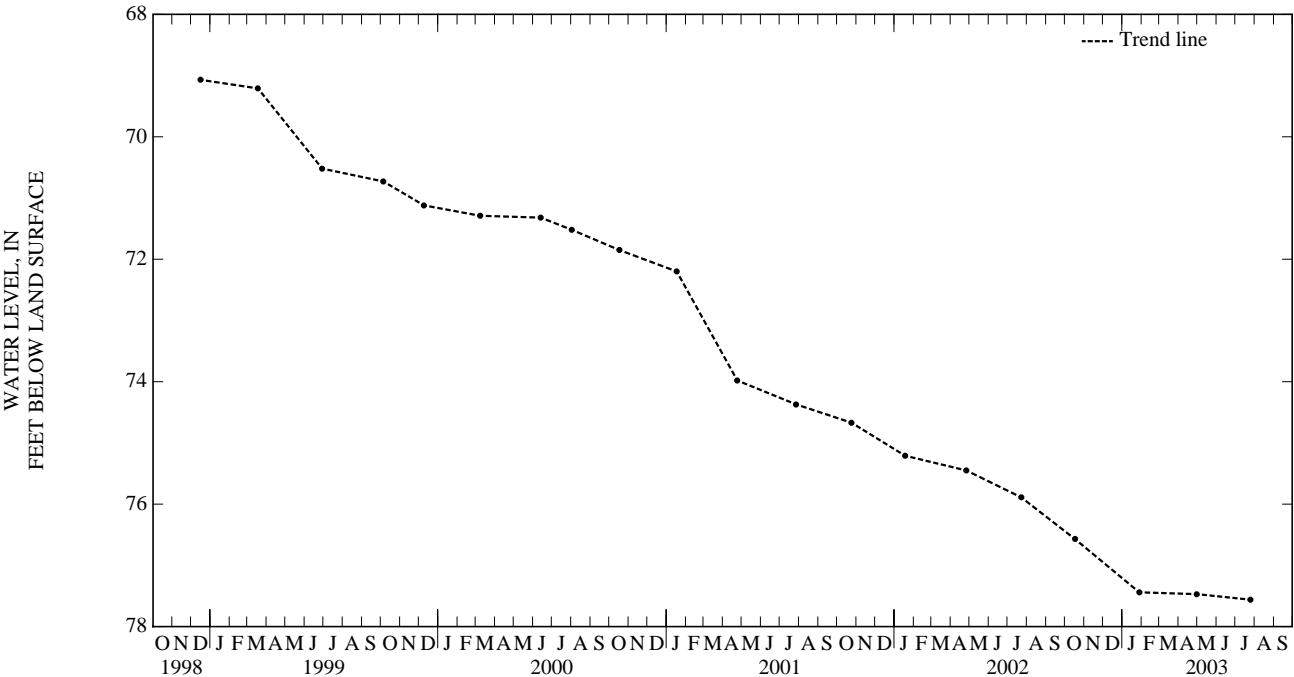
REMARKS.--Water level affected by local pumpage, regional drawdown, and recharge operations in nearby wells May 18, 1971, to Nov. 5, 1973.

PERIOD OF RECORD.--January 1968 to June 1990, September 1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.70 ft below land-surface datum, Feb. 17, 1968; lowest measured, 77.56 ft below land-surface datum, July 25, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	76.57	JAN 28	77.44	APR 30	77.47	JUL 25	77.56
WATER YEAR 2003    HIGHEST 76.57 OCT 17, 2002    LOWEST 77.56 JUL 25, 2003							



## NORTHAMPTON COUNTY

371543076003401. Local number, 62G 15 SOW 121.

LOCATION.--Lat 37°15'43", long 76°00'33", NAD83, Hydrologic Unit 02080110, 100 ft southwest of State Highway 642, 0.5 mi south of intersection of State Highways 184 and 642, and 0.7 mi southeast of Cape Charles. Owner: Brown and Root Corporation.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 190 ft, screened 180 to 190 ft.

INSTRUMENTATION.--Continuous strip-chart recorder. Prior to July 15, 1985, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 12 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder shelf, 1.5 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Missing record due to recorder malfunction. Water level affected by local pumpage.

PERIOD OF RECORD.--November 1980 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

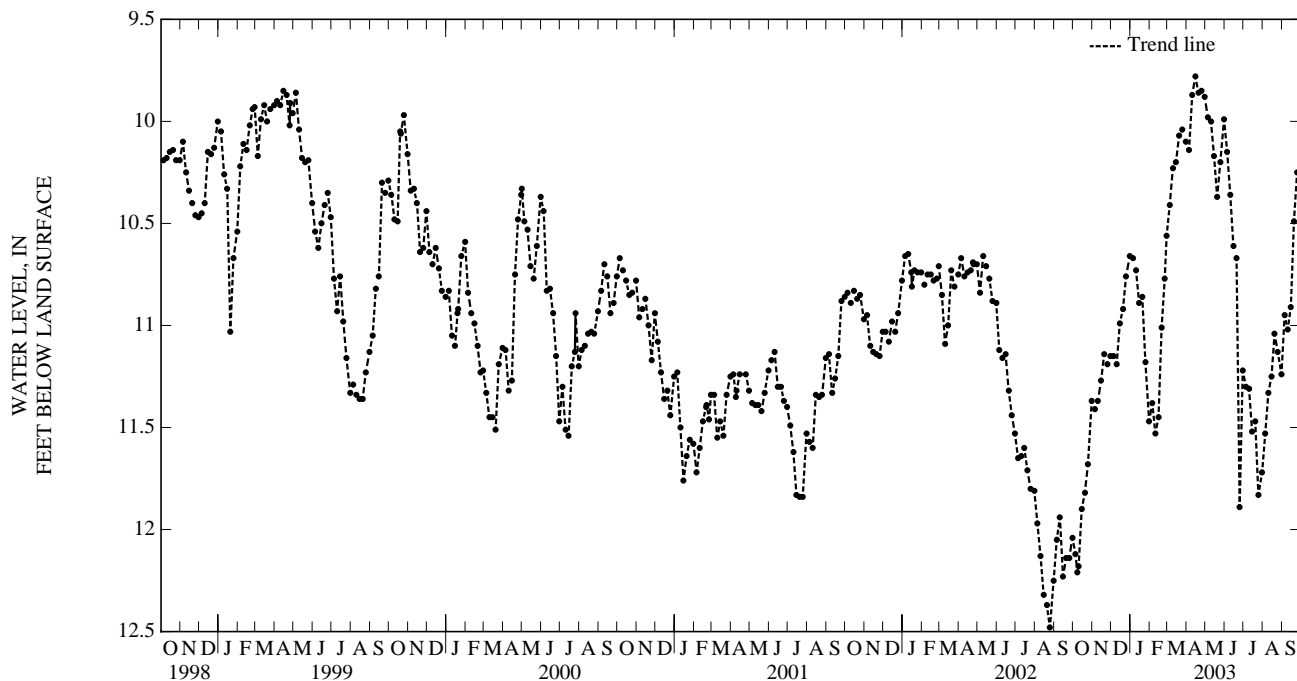
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.37 ft below land-surface datum, May 11, 12, 13, 1998; lowest recorded, 14.31 ft below land-surface datum, Jan. 16, 17, 1986.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 9.68 ft below land-surface datum, Apr. 12; lowest instantaneous water level, 12.24 ft below land-surface datum, Oct. 6.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	12.12	11.41	11.15	10.67	11.38	10.41	10.14	9.98	10.15	11.30	11.53	10.95
10	12.18	11.37	11.19	10.73	11.53	10.23	9.87	10.00	10.36	11.31	11.33	11.02
15	11.90	11.27	10.99	10.89	11.45	10.20	9.78	10.17	10.61	11.52	11.25	10.91
20	11.82	11.14	10.92	10.86	11.01	10.07	9.86	10.37	10.67	11.47	11.04	10.49
25	11.68	11.19	10.76	11.18	10.77	10.04	9.85	10.20	11.89	11.83	11.13	10.25
EOM	11.37	11.15	10.66	11.47	10.56	10.10	9.88	9.99	11.22	11.72	11.24	10.26

WATER YEAR 2003    HIGHEST    9.78 APR 15, 2003    LOWEST    12.18 OCT 10, 2002



GROUND-WATER LEVELS  
NORTHAMPTON COUNTY—Continued

371307075583501. Local number, 63F 15 SOW 105A.

LOCATION.--Lat 37°13'08", long 75°58'34", NAD83, Hydrologic Unit 02080109, 50 ft south of State Highway 644, 0.3 mi west of intersection of State Highway 644 and U.S. Highway 13, and 1.3 mi north of Cheapside. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 130 ft, screened 120 to 130 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 5, 1985 to Oct. 24, 1995, continuous strip-chart recorder. Prior to Oct. 5, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 31.97 ft above NGVD of 1929. Measuring point: Top of recorder shelf, 1.1 ft above land-surface datum prior to July 21, 1987; 1.4 ft thereafter.

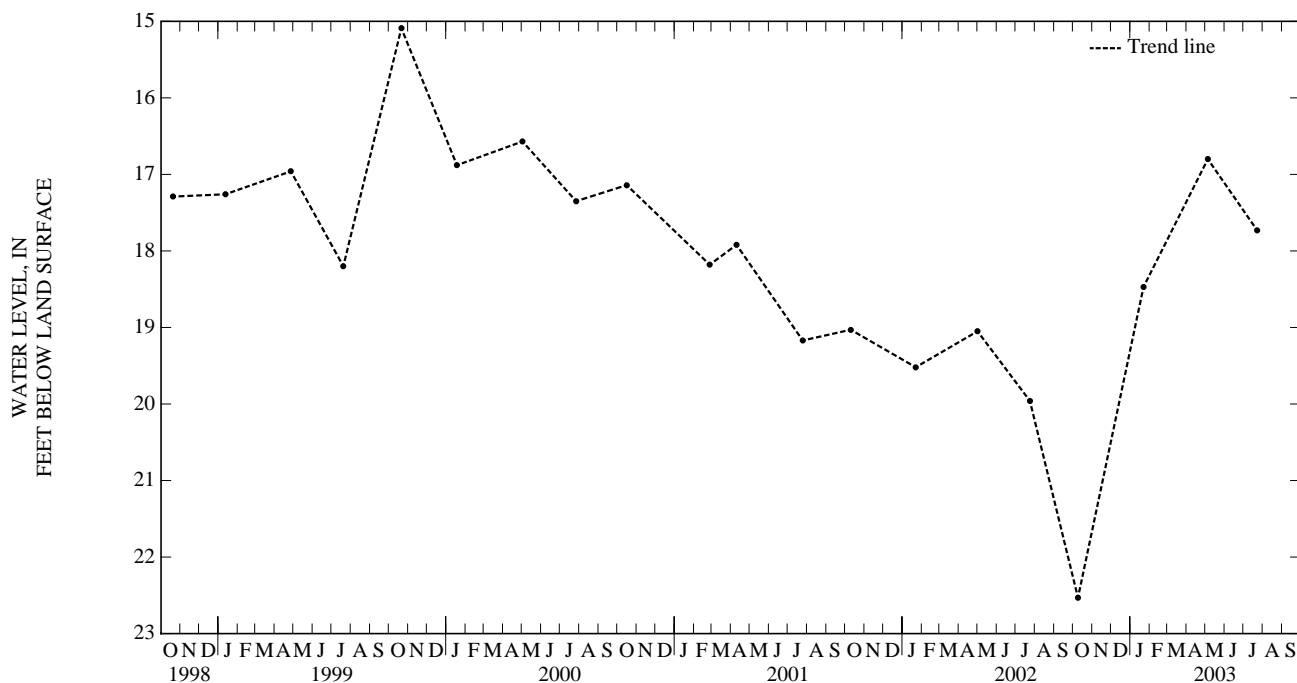
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Missing record due to recorder malfunction. Water level affected by local pumpage.

PERIOD OF RECORD.--June 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.44 ft below land-surface datum, Apr. 12, 1982; lowest recorded, 24.62 ft below land-surface datum, June 15, 1988.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	22.53	JAN 22	18.47	MAY 05	16.80	JUL 23	17.73
WATER YEAR 2003 HIGHEST 16.80 MAY 05, 2003				LOWEST 22.53 OCT 09, 2002			



## NORTHAMPTON COUNTY—Continued

371307075583502. Local number, 63F 16 SOW 105C.

LOCATION.--Lat 37°13'08", long 75°58'34", NAD83, Hydrologic Unit 02080109, 50 ft south of State Highway 644, 0.3 mi west of intersection of State Highway 644 and U.S. Highway 13, and 1.3 mi north of Cheapside. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 285 ft, screened 275 to 285 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 24, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 31.16 ft above NGVD of 1929. Measuring point: Top of casing, 0.1 ft above land-surface datum prior to Mar. 1, 1994; 0.6 ft thereafter.

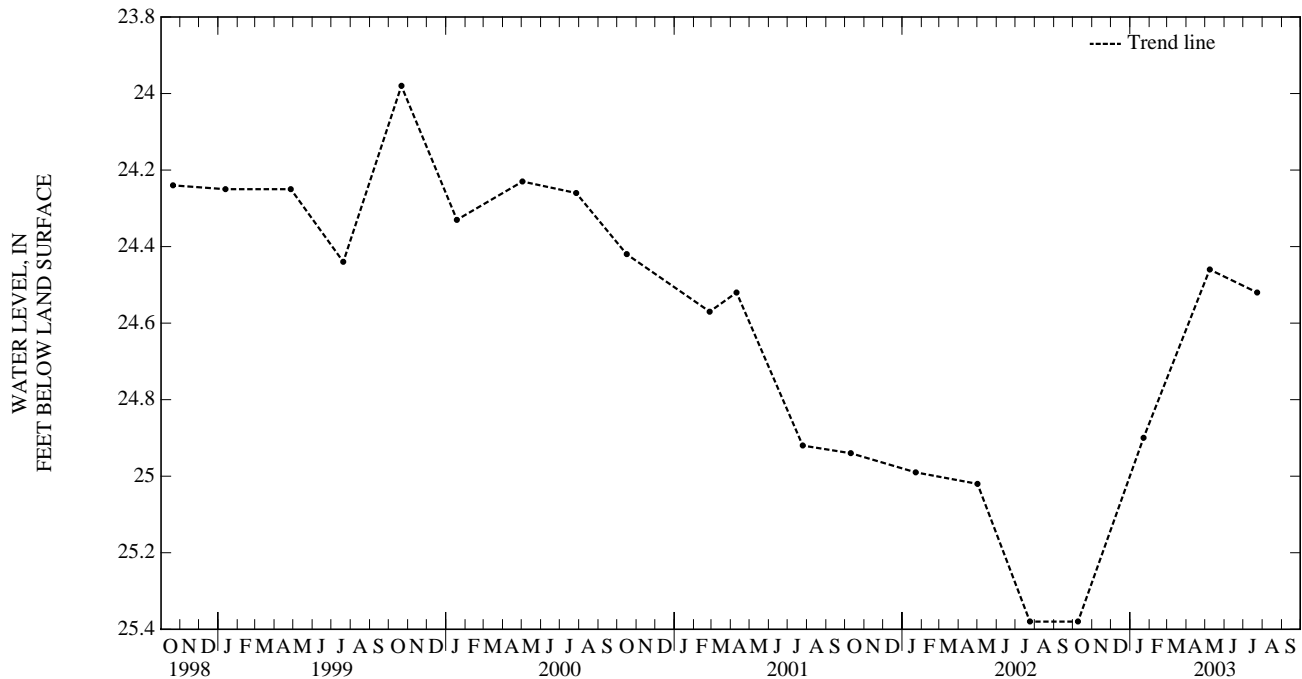
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--June 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.90 ft below land-surface datum, July 7, 1998; lowest measured, 29.58 ft below land-surface datum, May 23, 1986.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	25.38	JAN 22	24.90	MAY 08	24.46	JUL 23	24.52
WATER YEAR 2003		HIGHEST	24.46	MAY 08, 2003	LOWEST	25.38	OCT 09, 2002



## NORTHAMPTON COUNTY—Continued

371307075583503. Local number, 63F 17 SOW 105B.

LOCATION.--Lat 37°13'08", long 75°58'34", NAD83, Hydrologic Unit 02080109, 50 ft south of State Highway 644, 0.3 mi west of intersection of State Highway 644 and U.S. Highway 13, and 1.3 mi north of Cheapside. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 196 ft, screened 186 to 196 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 24, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 31.50 ft above NGVD of 1929. Measuring point: Top of casing, 0.5 ft above land-surface datum, prior to July 22, 1996. 1.0 ft thereafter.

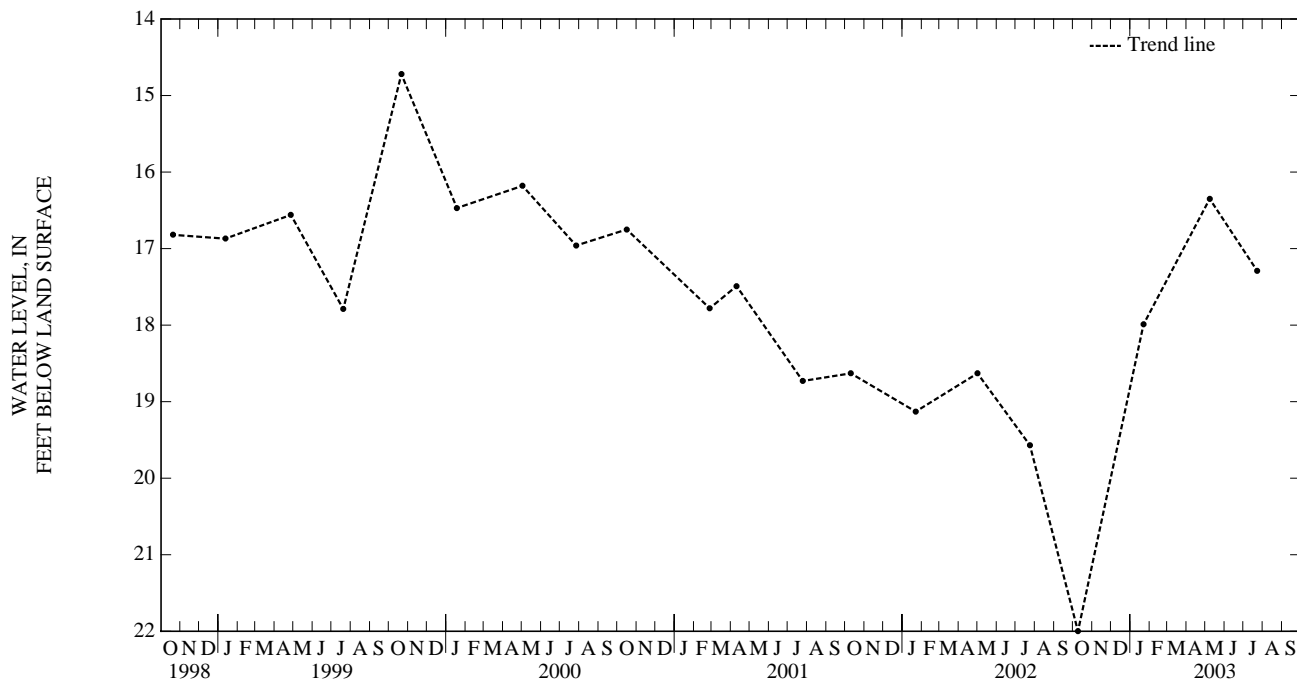
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--June 1978 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.72 ft below land-surface datum, Oct. 21, 1999; lowest measured, 22.00 ft below land-surface datum, Oct. 9, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	22.00	JAN 22	17.99	MAY 08	16.35	JUL 23	17.29
WATER YEAR 2003		HIGHEST	16.35	MAY 08, 2003	LOWEST	22.00	OCT 09, 2002



## NORTHAMPTON COUNTY—Continued

371307075583601. Local number, 63F 34.

LOCATION.--Lat 37°13'08", long 75°58'35", NAD83, Hydrologic Unit 02080109, 50 ft south of State Highway 644, 0.35 mi west of intersection of U.S. Highway 13 and State Highway 644, and 1.55 mi northwest of Capeville. Owner: U.S. Geological Survey.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Driven observation water well, diameter 2 in., depth 13 ft, screened 10 to 13 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Aug. 16 to Sept. 30, 1989, bimonthly measurement with chalked tape by USGS personnel. Jan. 22, 1988, to Aug. 16, 1989, digital recorder 60-minute punch. Prior to Jan. 22, 1988, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 31.15 ft above NGVD of 1929. Measuring point: Top of casing, 1.85 ft above land-surface datum.

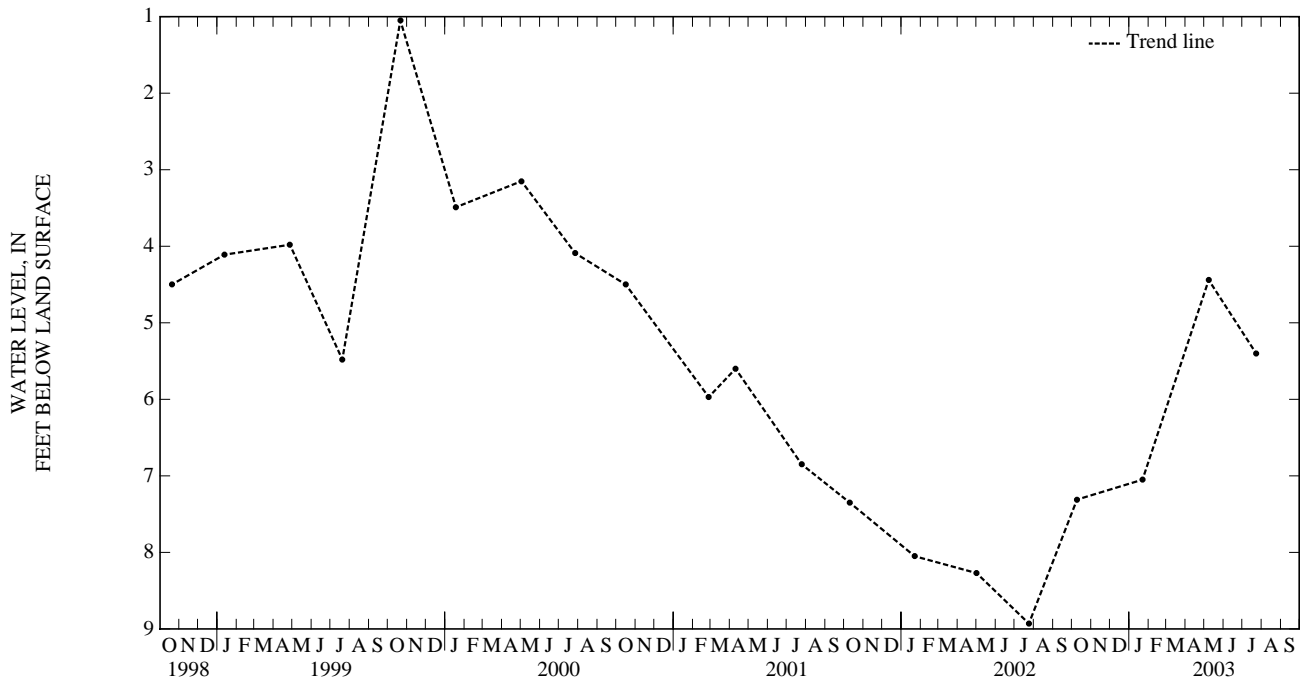
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--September 1987 to current year. Unpublished records available prior to October 1987 in files of the U.S. Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.05 ft below land-surface datum, Oct. 21, 1999; lowest measured, 9.08 ft below land-surface datum, Feb. 4, 5, 1989.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	7.31	JAN 22	7.05	MAY 08	4.44	JUL 23	5.40
WATER YEAR 2003 HIGHEST		4.44	MAY 08, 2003 LOWEST		7.31	OCT 09, 2002	





## NORTHAMPTON COUNTY—Continued

370807075570802. Local number, 63F 51 SOW 182A

LOCATION.--Lat 37°08'08", long 75°57'07", NAD83, Hydrologic Unit 02080110, at Kiptopeke Wildlife Refuge, 0.6 mi southeast of State Highway 600, 0.8 mi southeast of Kiptopeke, and 0.9 mi southeast of intersection of State Highway 600 and U.S. Highway 13. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 1,730 ft, screened 1,720 to 1,730 ft.

INSTRUMENTATION.--Occasional measurement with manometer and/or chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 24, 1995, bimonthly measurement with manometer and/or chalked tape.

DATUM.--Elevation of land-surface datum is 10 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.

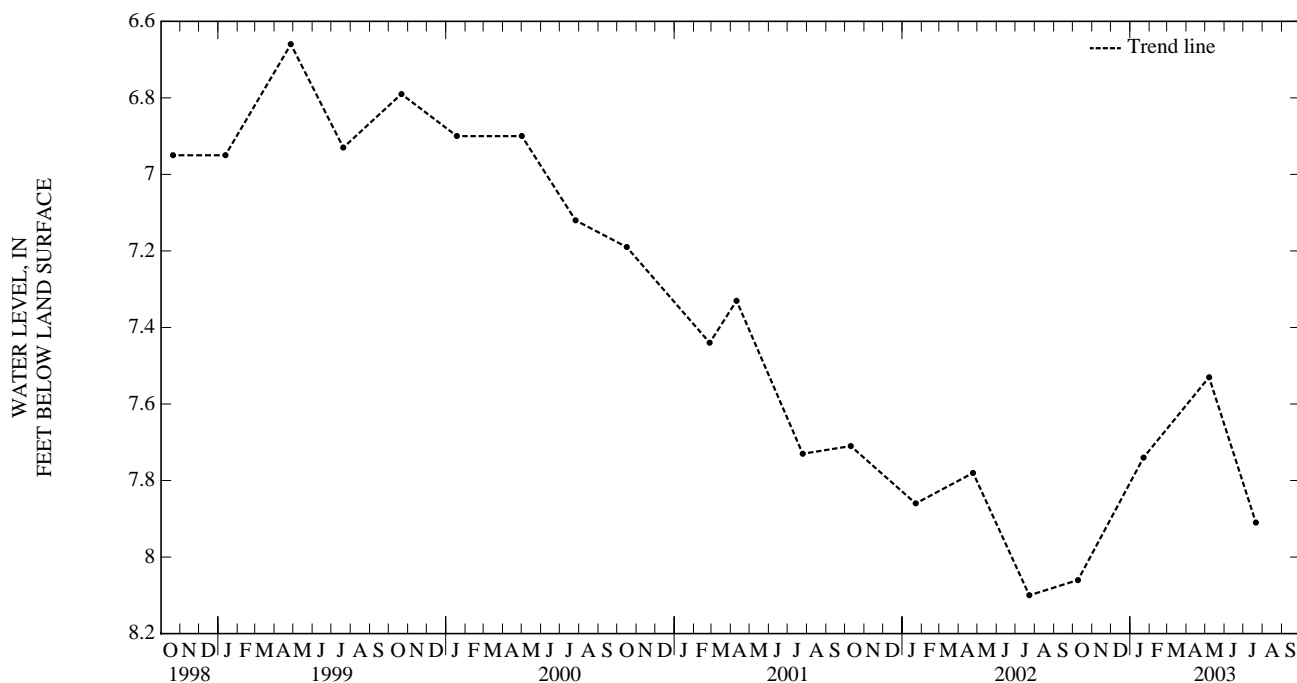
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by occasional pumpage for water-quality sampling. Cause of nonrecovery to pre-pumpage level after November 1997 unknown.

PERIOD OF RECORD.--May 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.35 ft above land-surface datum, May 7, 1990; lowest measured, 8.76 ft below land-surface datum, Nov. 12, 1997.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	8.06	JAN 22	7.74	MAY 07	7.53	JUL 21	7.91
WATER YEAR 2003 HIGHEST		7.53	MAY 07, 2003 LOWEST		8.06	OCT 09, 2002	



## NORTHAMPTON COUNTY—Continued

370807075570803. Local number, 63F 52 SOW 182B.

LOCATION.--Lat 37°08'08", long 75°57'07", NAD83, Hydrologic Unit 02080110, at Kiptopeke Wildlife Refuge, 0.6 mi southeast of State Highway 600, 0.8 mi southeast of Kiptopeke, and 0.9 mi southeast of intersection of State Highway 600 and U.S. Highway 13. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 1,040 ft, diameter 2 in. from 1,040 to 1,320 ft, depth 1,320 ft, screened 1,300 to 1,320 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 24, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 10 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.

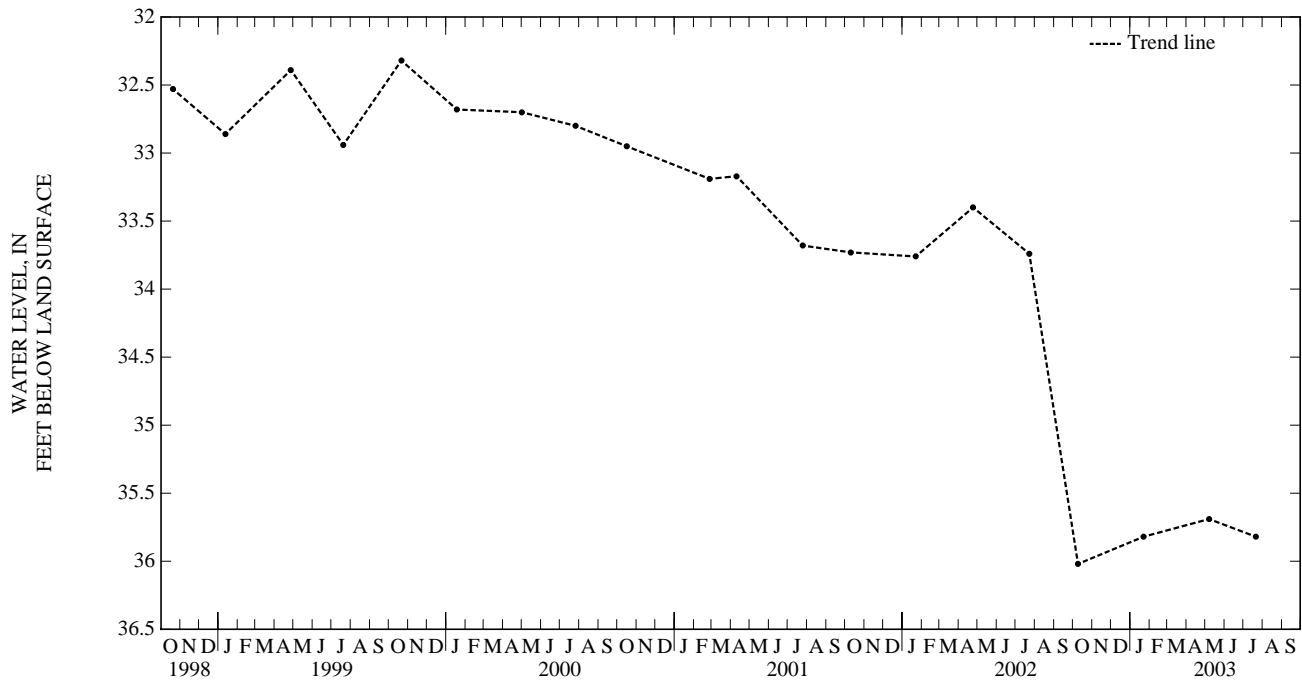
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by occasional pumpage for water-quality sampling. Cause of nonrecovery to pre-pumpage level after November 1997 unknown. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--May 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.12 ft below land-surface datum, Dec. 3, 1990; lowest measured, 36.02 ft below land-surface datum, Oct. 9, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	36.02	JAN 22	35.82	MAY 07	35.69	JUL 21	35.82
WATER YEAR 2003 HIGHEST		35.69	MAY 07, 2003 LOWEST		36.02	OCT 09, 2002	



GROUND-WATER LEVELS  
NORTHAMPTON COUNTY—Continued

370807075570804. Local number, 63F 53 SOW 182C.

LOCATION.--Lat 37°08'08", long 75°57'07", NAD83, Hydrologic Unit 02080110, at Kiptopeke Wildlife Refuge, 0.6 mi southeast of State Highway 600, 0.8 mi southeast of Kiptopeke, and 0.9 mi southeast of intersection of State Highway 600 and U.S. Highway 13. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 188 ft, diameter 2 in. from 188 to 220 ft, depth 220 ft, screened 210 to 220 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 10 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.

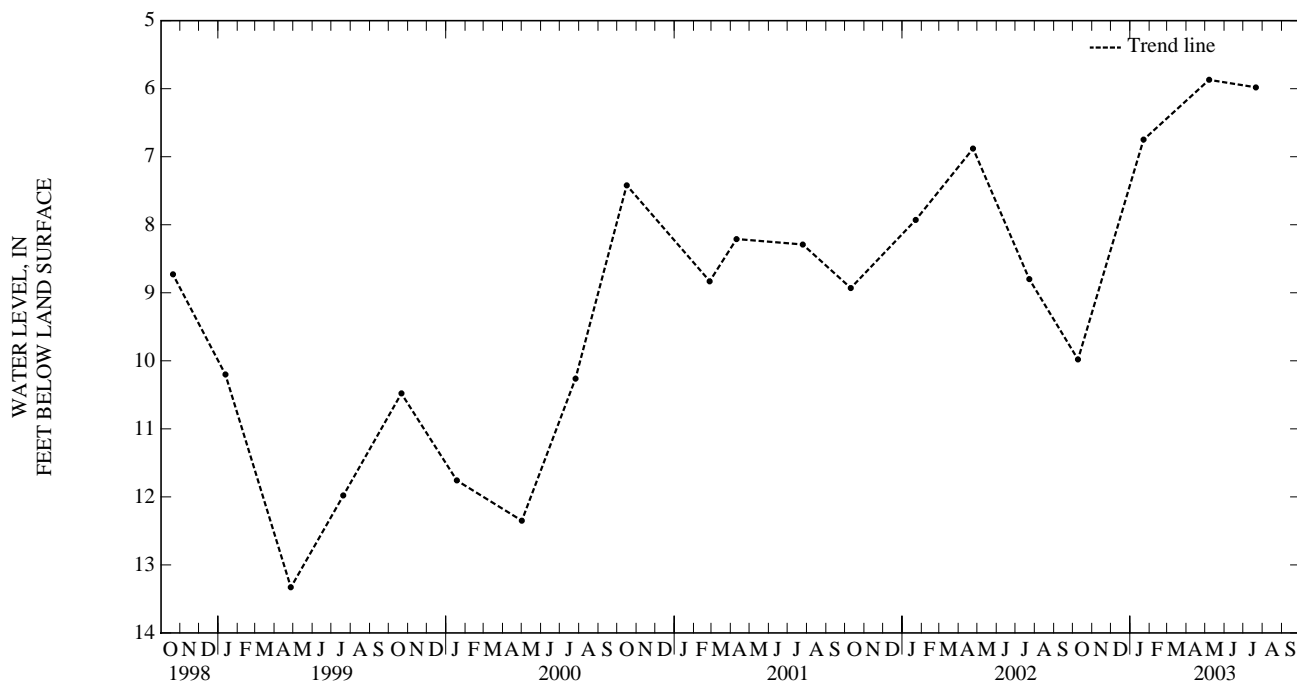
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--May 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.90 ft below land-surface datum, Jan. 22, 1991; lowest measured, 13.80 ft below land-surface datum, Apr. 11, 1996.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	9.98	JAN 22	6.75	MAY 07	5.87	JUL 21	5.98
WATER YEAR 2003 HIGHEST		5.87	MAY 07, 2003	LOWEST		9.98	OCT 09, 2002



## NORTHAMPTON COUNTY—Continued

370807075570805. Local number, 63F 54 SOW 182D.

LOCATION.--Lat 37°08'08", long 75°57'07", NAD83, Hydrologic Unit 02080110, at Kiptopeke Wildlife Refuge, 0.6 mi southeast of State Highway 600, 0.8 mi southeast of Kiptopeke, and 0.9 mi southeast of intersection of State Highway 600 and U.S. Highway 13. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 55 ft, screened 45 to 55 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 24, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 10 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.

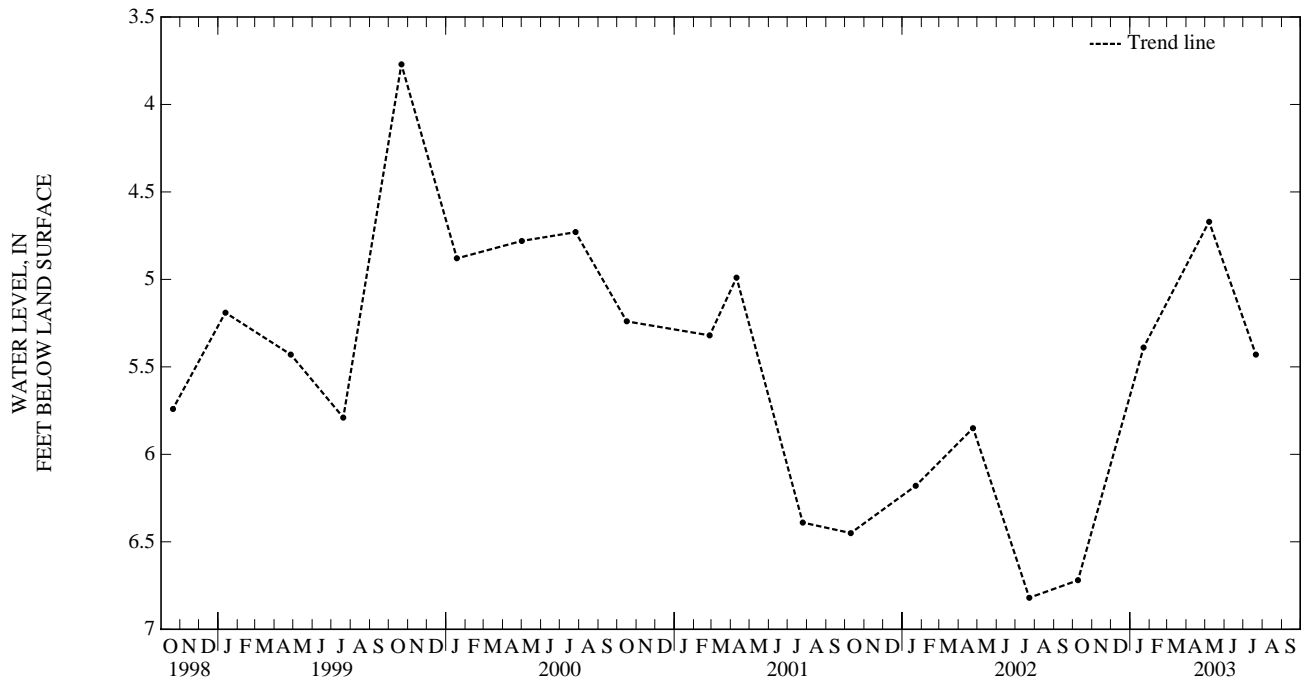
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--May 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.77 ft below land-surface datum, Oct. 21, 1999; lowest measured, 7.90 ft below land-surface datum, July 8, 1993.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	6.72	JAN 22	5.39	MAY 07	4.67	JUL 21	5.43
WATER YEAR 2003 HIGHEST		4.67	MAY 07, 2003	LOWEST		6.72	OCT 09, 2002



GROUND-WATER LEVELS  
NORTHAMPTON COUNTY—Continued

370807075570806. Local number, 63F 55 SOW 182E.

LOCATION.--Lat 37°08'08", long 75°57'07", NAD83, Hydrologic Unit 02080110, at Kiptopeke Wildlife Refuge, 0.6 mi southeast of State Highway 600, 0.8 mi southeast of Kiptopeke, and 0.9 mi southeast of intersection of State Highway 600 and U.S. Highway 13. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 20 ft, screened 10 to 20 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 24, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 10 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.

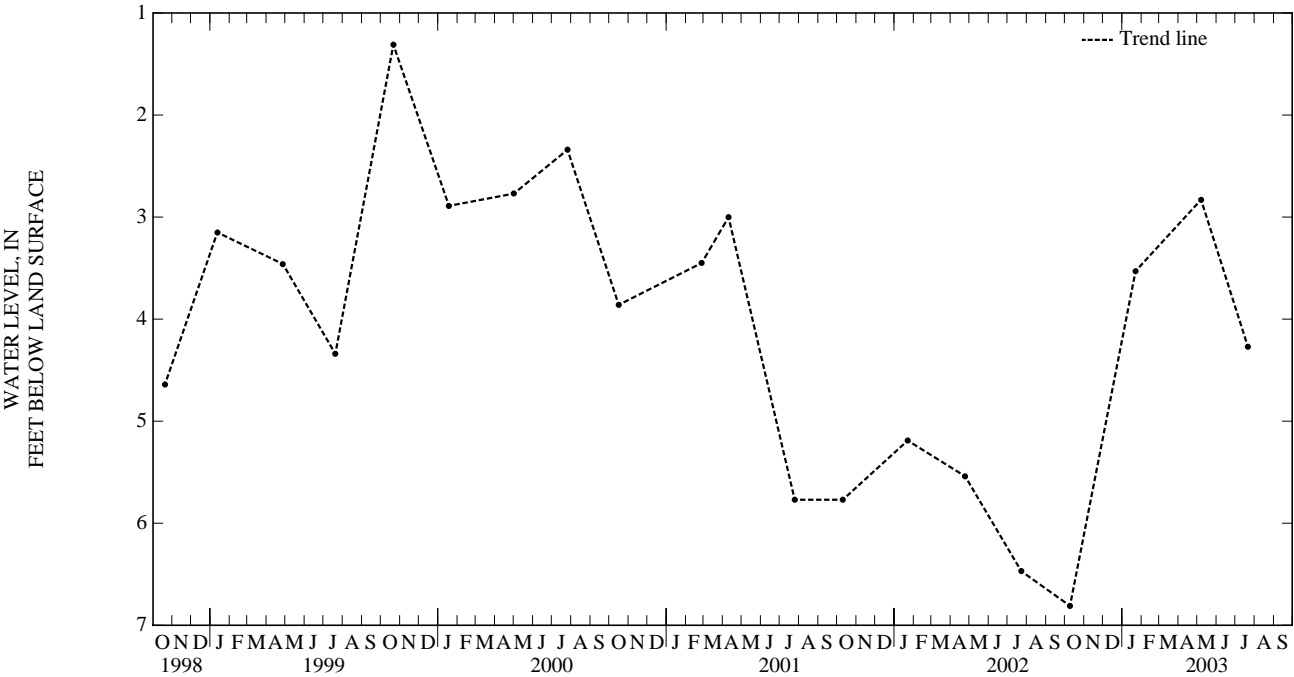
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--May 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.31 ft below land-surface datum, Oct. 21, 1999; lowest measured, 6.81 ft below land-surface datum, Oct. 9, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	6.81	JAN 22	3.53	MAY 07	2.83	JUL 21	4.27
WATER YEAR 2003 HIGHEST		2.83	MAY 07, 2003	LOWEST		6.81	OCT 09, 2002



## NORTHAMPTON COUNTY—Continued

371709075560801. Local number, 63G 15 SOW 104C.

LOCATION.--Lat 37°17'09", long 75°56'06", NAD83, Hydrologic Unit 02080110, 50 ft north of State Highway 639, 0.1 mi east of intersection of State Highways 600 and 639, and 0.7 mi west of Oyster. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 310 ft, screened 300 to 310 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. July 15, 1985 to Oct. 23, 1995, continuous strip-chart recorder. Prior to July 15, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 28 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder shelf, 1.24 ft above land-surface datum prior to Nov. 10, 1986; 1.75 ft prior to June 4, 1996. Top of casing, 1.50 ft thereafter.

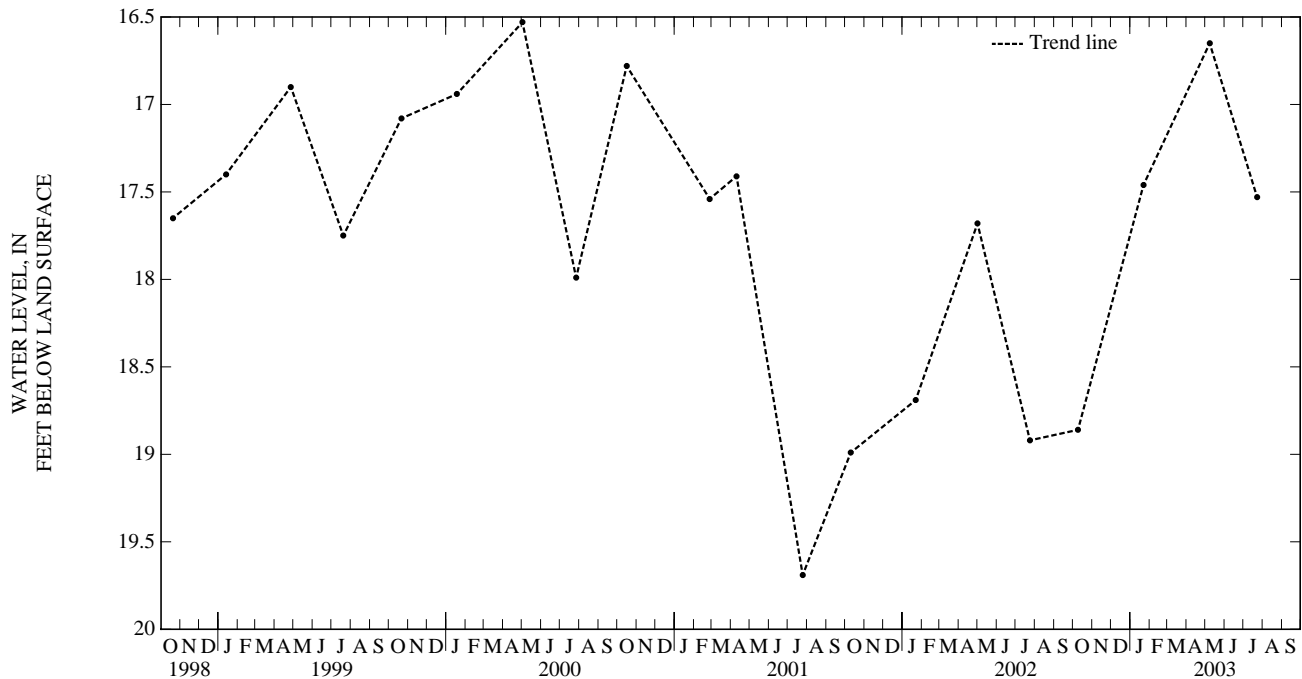
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--October 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 16.11 ft below land-surface datum, Apr. 21, 1998; lowest measured, 27.96 ft below land-surface datum, Oct. 8, 1982.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	18.86	JAN 22	17.46	MAY 08	16.65	JUL 23	17.53
WATER YEAR 2003 HIGHEST		16.65	MAY 08, 2003 LOWEST		18.86	OCT 09, 2002	



## NORTHAMPTON COUNTY—Continued

371709075560802. Local number, 63G 16 SOW 104B.

LOCATION.--Lat 37°17'09", long 75°56'07", NAD83, Hydrologic Unit 02080110, 50 ft north of State Highway 639, 0.1 mi east of intersection of State Highways 600 and 639, and 0.7 mi west of Oyster. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 240 ft, screened 230 to 240 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 24, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 28 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.4 ft above land-surface datum prior to Feb. 29, 1988; 0.9 ft thereafter.

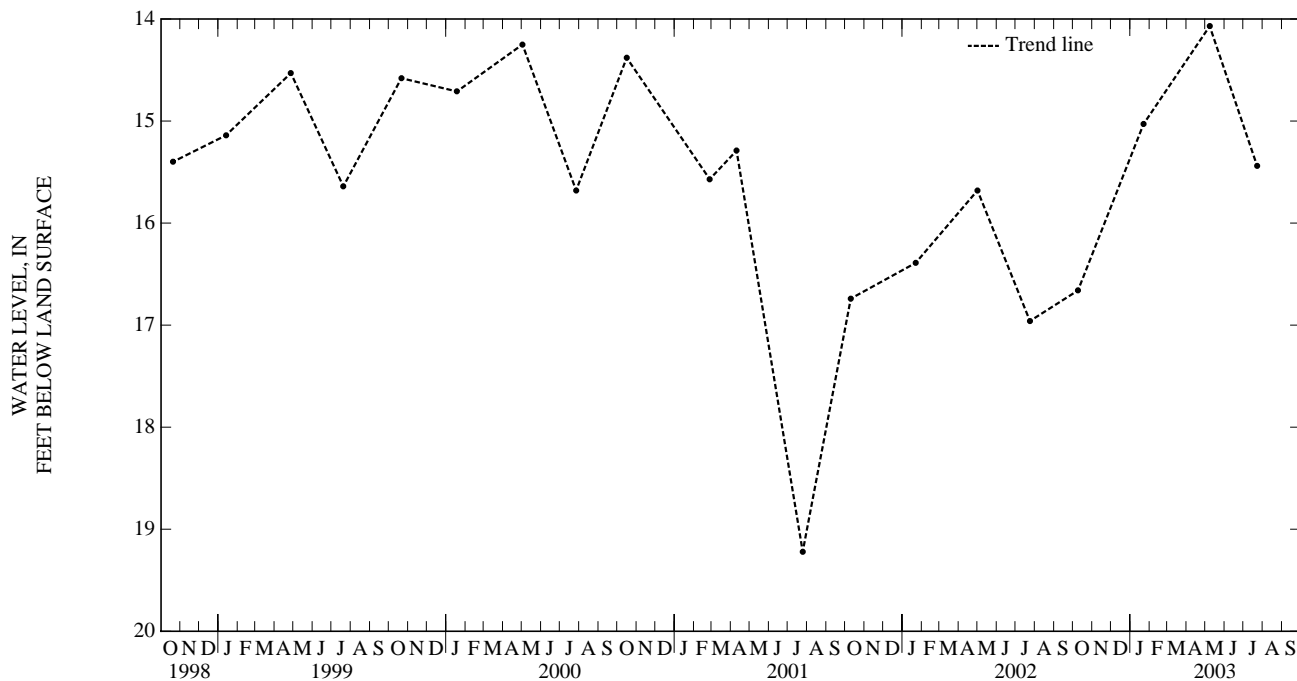
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--October 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.54 ft below land-surface datum, Apr. 21, 1998; lowest measured, 23.47 ft below land-surface datum, Oct. 8, 1982.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	16.66	JAN 22	15.03	MAY 08	14.07	JUL 23	15.44
WATER YEAR 2003		HIGHEST	14.07	MAY 08, 2003	LOWEST	16.66	OCT 09, 2002



## NORTHAMPTON COUNTY—Continued

371709075560803. Local number, 63G 17 SOW 104A.

LOCATION.--Lat 37°17'09", long 75°56'07", NAD83, Hydrologic Unit 02080110, 50 ft north of State Highway 639, 0.1 mi east of intersection of State Highways 600 and 639, and 0.7 mi west of Oyster. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 140 ft, screened 130 to 140 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 24, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 28 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.05 ft above land-surface datum prior to Feb. 29, 1988; 0.5 ft thereafter.

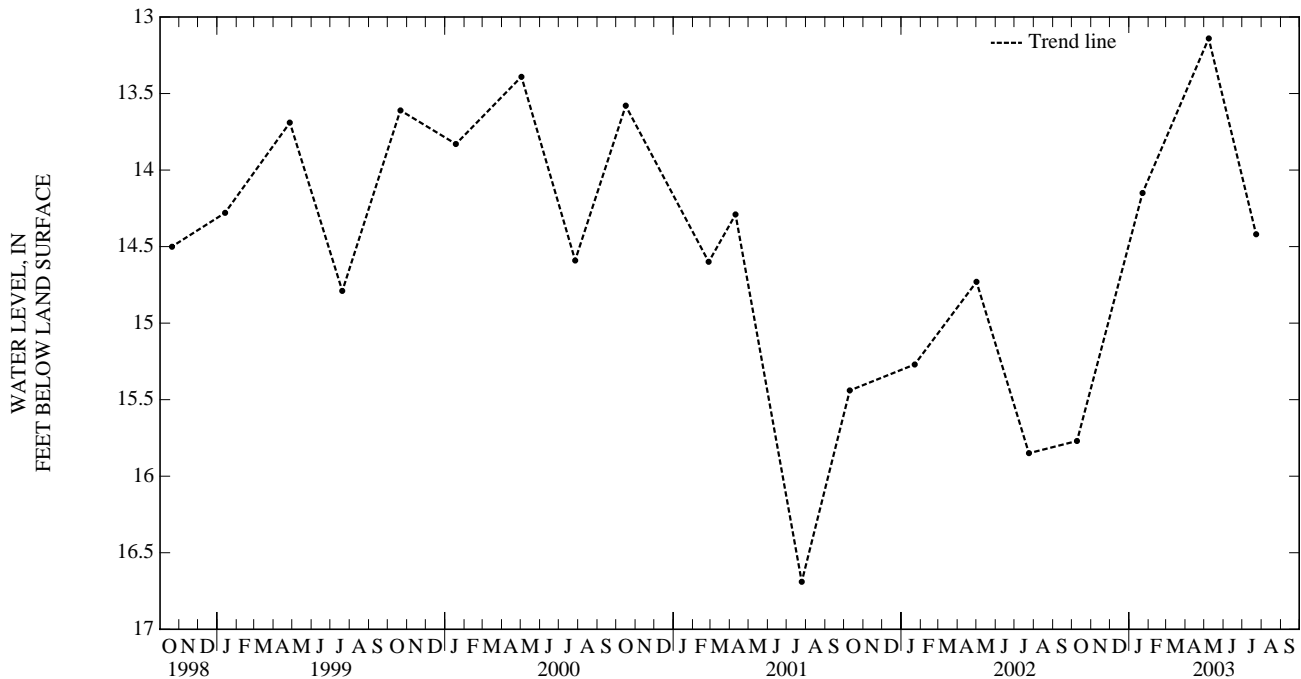
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--October 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.62 ft below land-surface datum, Apr. 21, 1998; lowest measured, 21.99 ft below land-surface datum, Oct. 8, 1982.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	15.77	JAN 22	14.15	MAY 08	13.14	JUL 23	14.42
WATER YEAR 2003 HIGHEST		13.14	MAY 08, 2003	LOWEST	15.77	OCT 09, 2002	





GROUND-WATER LEVELS  
NORTHAMPTON COUNTY—Continued

371653075584801. Local number, 63G 22 SOW 111A.

LOCATION.--Lat 37°16'53", long 75°58'47", NAD83, Hydrologic Unit 02080109, 50 ft west of U.S. Highway 13, 0.4 mi north of intersection of U.S. Highway 13 and State Highway 641, and 0.7 mi southwest of Cheriton. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 150 ft, screened 140 to 150 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 24, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum prior to Apr. 27, 1987; 1.60 ft Apr. 27, 1987 to Feb. 29, 1988; 1.1 ft Mar. 1, 1988 to June 19, 1989; 0.80 ft June 20 1989 to Oct. 19, 1999; 0.85 ft thereafter.

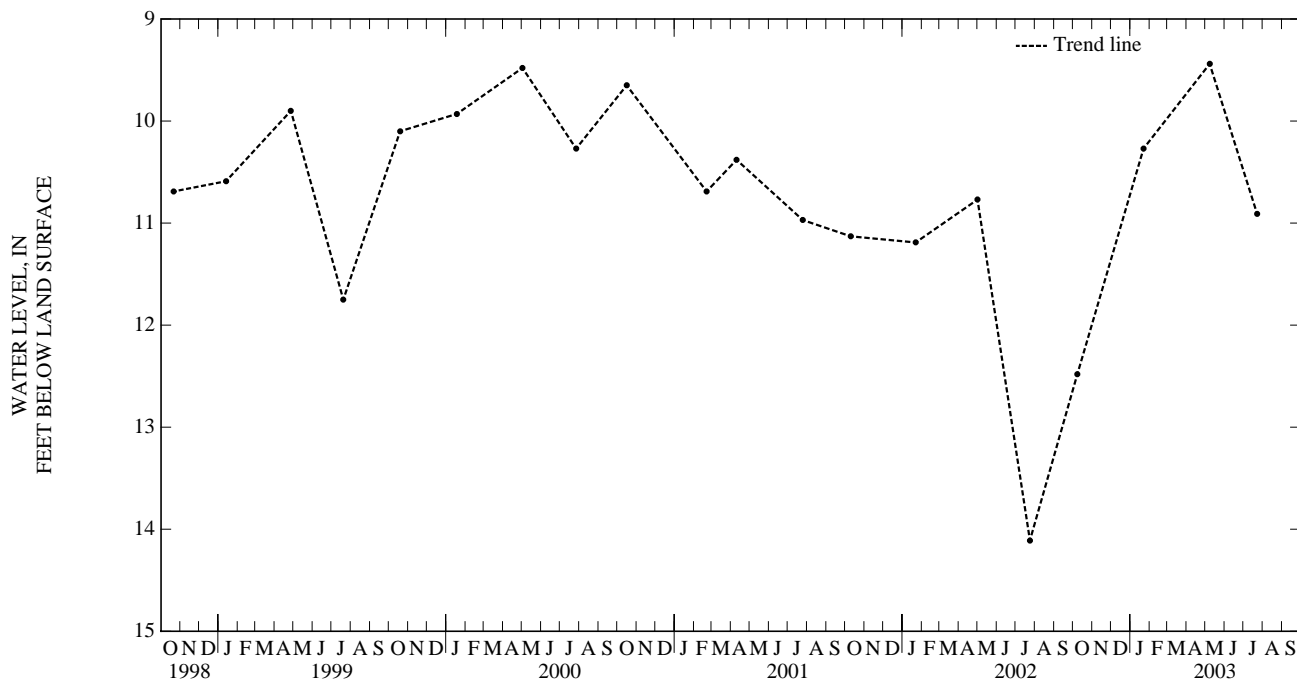
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--July 1979 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.60 ft below land-surface datum, Apr. 21, 1998; lowest measured, 14.51 ft below land-surface datum, Feb. 17, 1981.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	12.48	JAN 22	10.27	MAY 08	9.44	JUL 23	10.91
WATER YEAR 2003		HIGHEST	9.44	MAY 08, 2003	LOWEST	12.48	OCT 08, 2002



## NORTHAMPTON COUNTY—Continued

371653075584802. Local number, 63G 23 SOW 111B.

LOCATION.--Lat 37°16'53", long 75°58'47", NAD83, Hydrologic Unit 02080109, 50 ft west of U.S. Highway 13, 0.4 mi north of intersection of U.S. Highway 13 and State Highway 641, and 0.7 mi southwest of Cheriton. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 280 ft, screened 270 to 280 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. July 20, 1985 to Oct. 24, 1995, continuous strip chart recorder. Prior to July 20, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder shelf, 1.42 ft above land-surface datum prior to July 20, 1987; 1.56 ft thereafter.

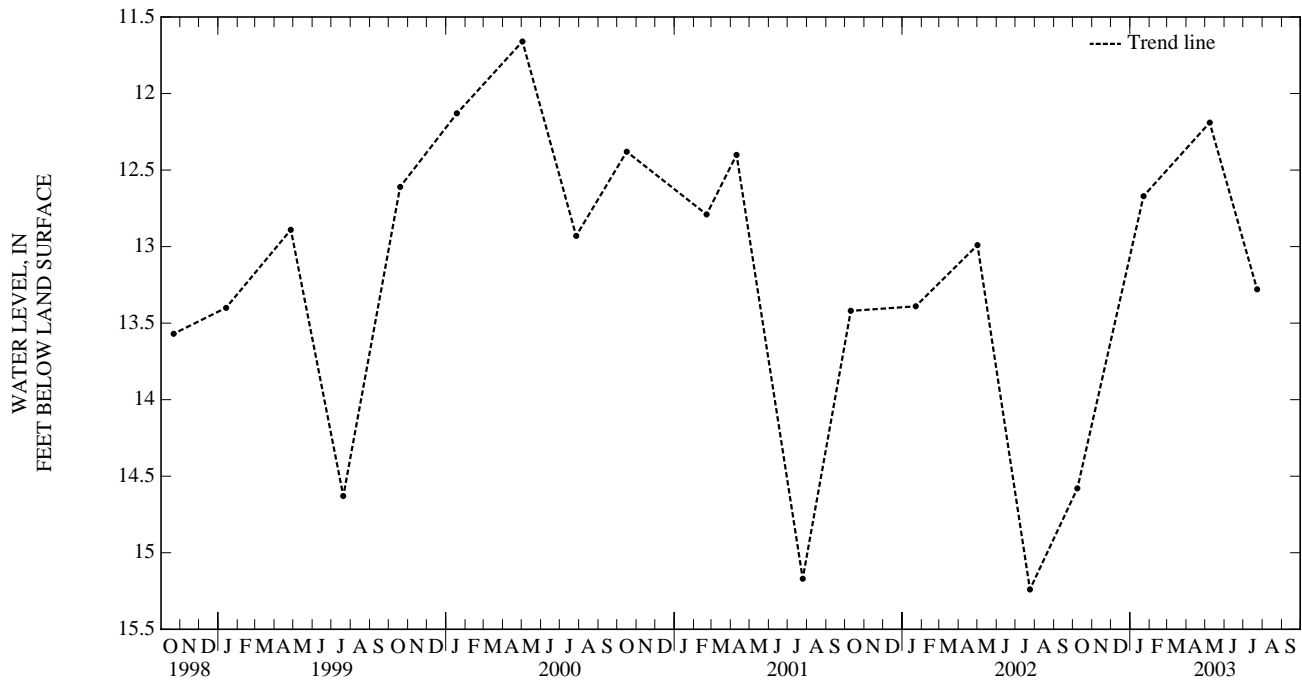
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--July 1979 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.01 ft below land-surface datum, Dec. 30, 1982; lowest measured, 22.47 ft below land-surface datum, Sept. 15, 1982.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	14.58	JAN 22	12.67	MAY 08	12.19	JUL 23	13.28
WATER YEAR 2003		HIGHEST	12.19	MAY 08, 2003	LOWEST	14.58	OCT 08, 2002



LOCATION.--Lat 37°16'53", long 75°58'47", NAD83, Hydrologic Unit 02080109, 50 ft west of U.S. Highway 13, 0.4 mi north of intersection of U.S. Highway 13 and State Highway 641, and 0.7 mi southwest of Cheriton. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 1.25 in., depth 70 ft, screened 60 to 70 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 24, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

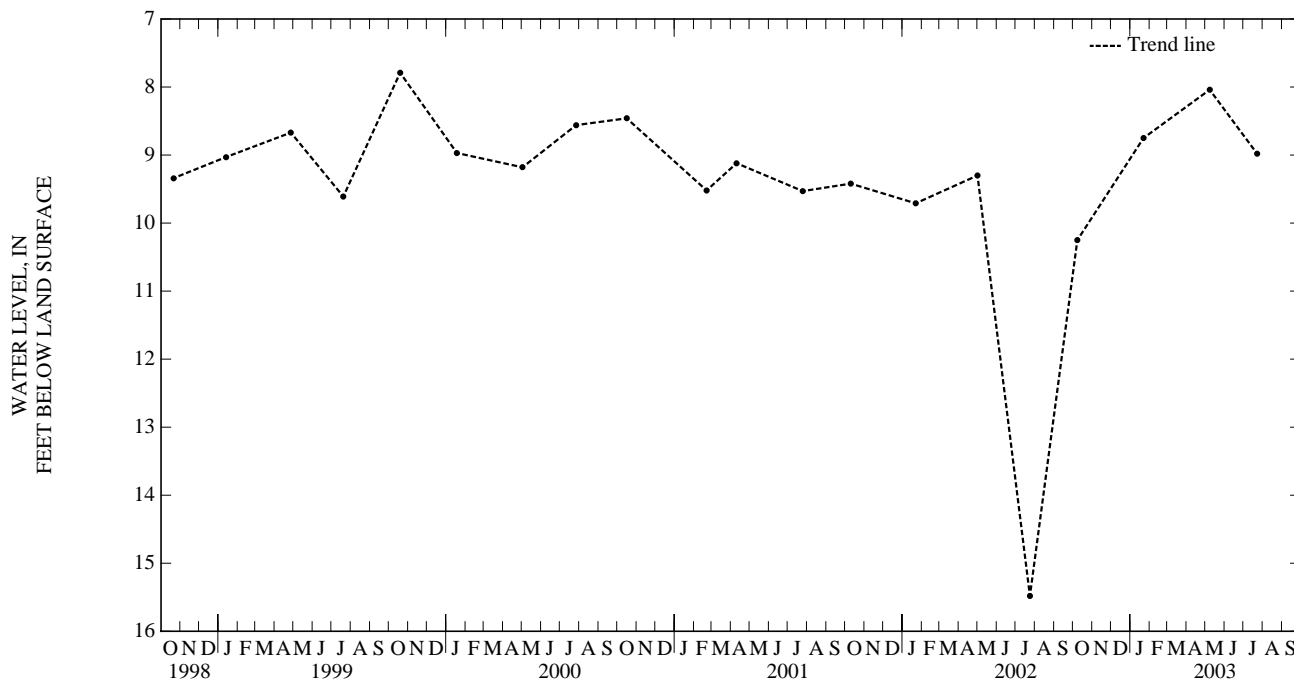
DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.64 ft above land-surface datum prior to Oct. 10, 1996; 0.60 ft thereafter.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--July 1979 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.64 ft below land-surface datum, Apr. 21, 1998; lowest measured, 15.48 ft below land-surface datum, July 24, 2002.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 08	10.25	JAN 22	8.75	MAY 08	8.04	JUL 23	8.98
WATER YEAR 2003		HIGHEST	8.04	MAY 08, 2003		LOWEST	10.25
						OCT 08, 2002	



## NORTHAMPTON COUNTY—Continued

372705075555901. Local number, 63H 4 SOW 103C.

LOCATION.--Lat 37°27'06", long 75°55'58", NAD83, Hydrologic Unit 02080109, 0.2 mi north of State Highway 619, 0.5 mi northwest of intersection of State Highways 619 and 622, and 0.5 mi northwest of Bridgetown. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 235 ft, screened 225 to 235 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 24, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 17 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.5 ft above land-surface datum prior to Mar 1, 1988; 0.8 ft thereafter.

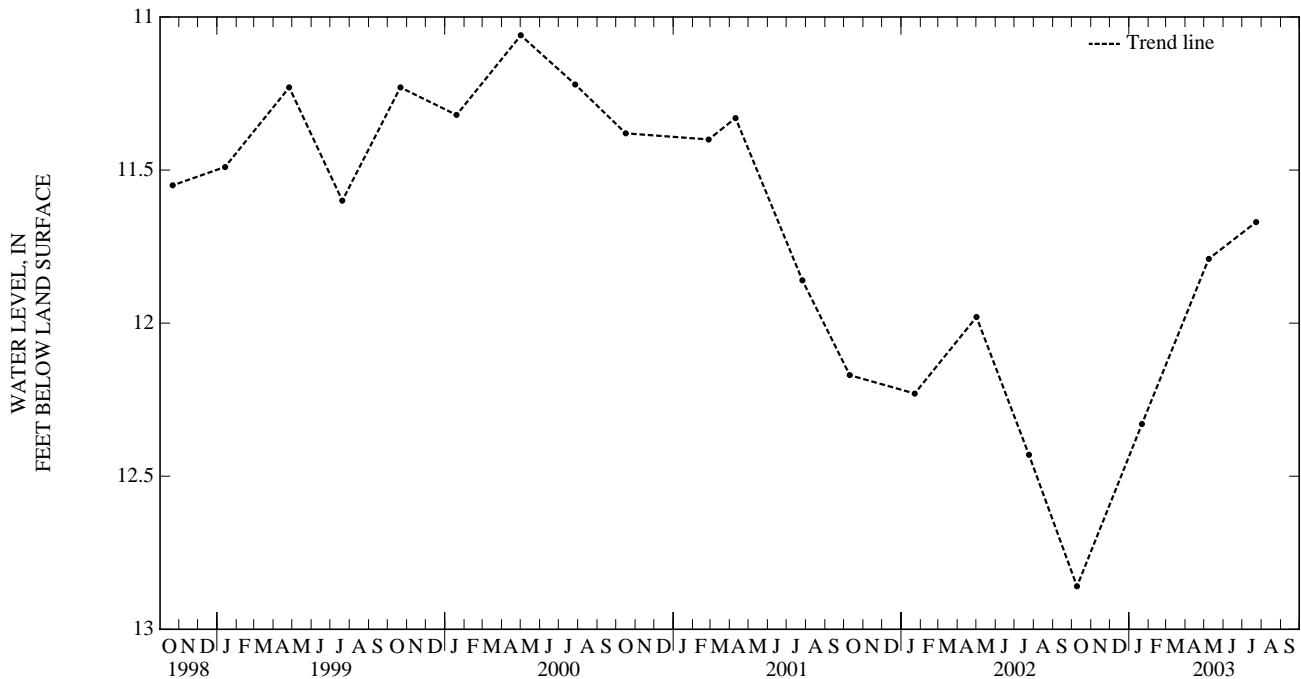
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--October 1977 to current year. Unpublished records available prior to October 1987 in file of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.15 ft below land-surface datum, May 1, 1979; lowest measured, 12.86 ft below land-surface datum, Oct. 9, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	12.86	JAN 21	12.33	MAY 08	11.79	JUL 23	11.67
WATER YEAR 2003 HIGHEST		11.67	JUL 23, 2003	LOWEST		12.86	OCT 09, 2002



GROUND-WATER LEVELS  
NORTHAMPTON COUNTY—Continued

372705075555902. Local number, 63H 5 SOW 103B.

LOCATION.--Lat 37°27'05", long 75°55'58", NAD83, Hydrologic Unit 02080109, 0.2 mi north of State Highway 619, 0.5 mi northwest of intersection of State Highways 619 and 622, and 0.5 mi northwest of Bridgetown. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 132 ft, screened 122 to 132 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 24, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 17 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.55 ft above land-surface datum prior to Mar. 1, 1988; 1.25 ft thereafter.

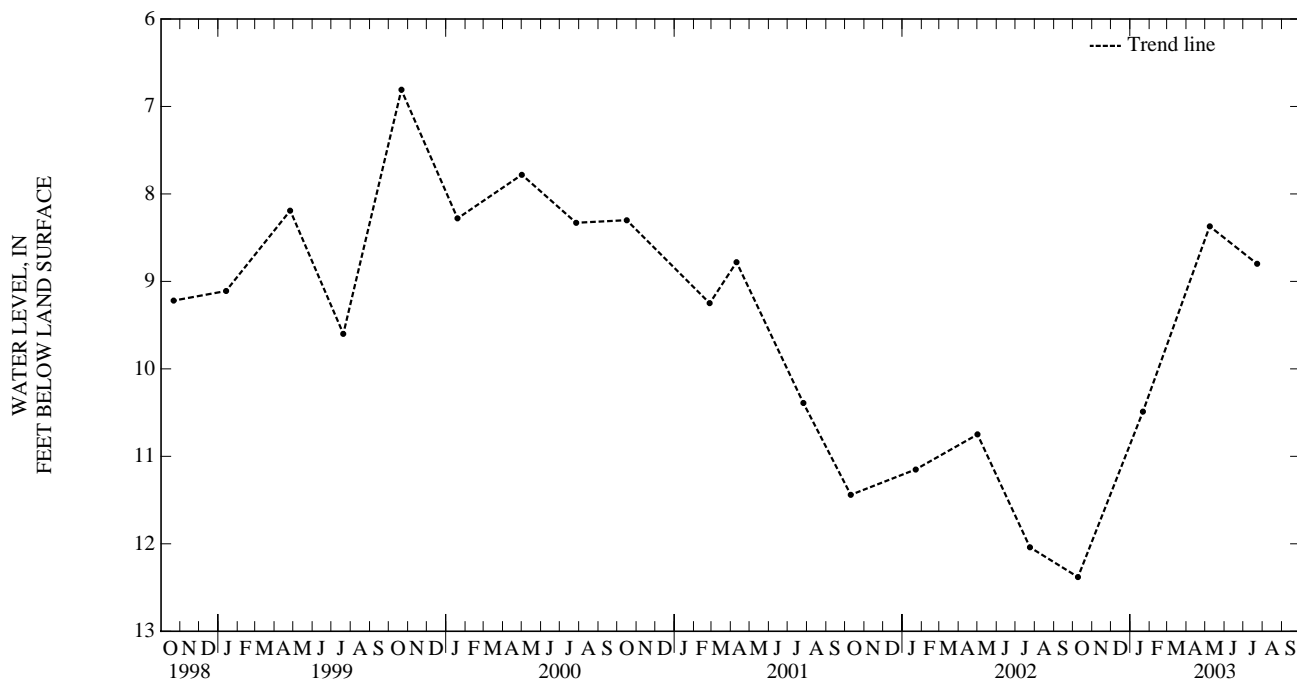
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--October 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.81 ft below land-surface datum, Oct. 21, 1999; lowest measured, 12.38 ft below land-surface datum, Oct. 9, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	12.38	JAN 21	10.49	MAY 08	8.37	JUL 23	8.80
WATER YEAR 2003 HIGHEST		8.37	MAY 08, 2003 LOWEST	12.38	OCT 09, 2002		



## NORTHAMPTON COUNTY—Continued

372705075555903. Local number, 63H 6 SOW 103A.

LOCATION.--Lat 37°27'05", long 75°55'58", NAD83, Hydrologic Unit 02080109, 0.2 mi north of State Highway 619, 0.5 mi northwest of intersection of State Highways 619 and 622, and 0.5 mi northwest of Bridgetown. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 37 ft, screened 27 to 37 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 24, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 17 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.2 ft above land-surface datum prior to July 23, 2003; 1.33 ft thereafter.

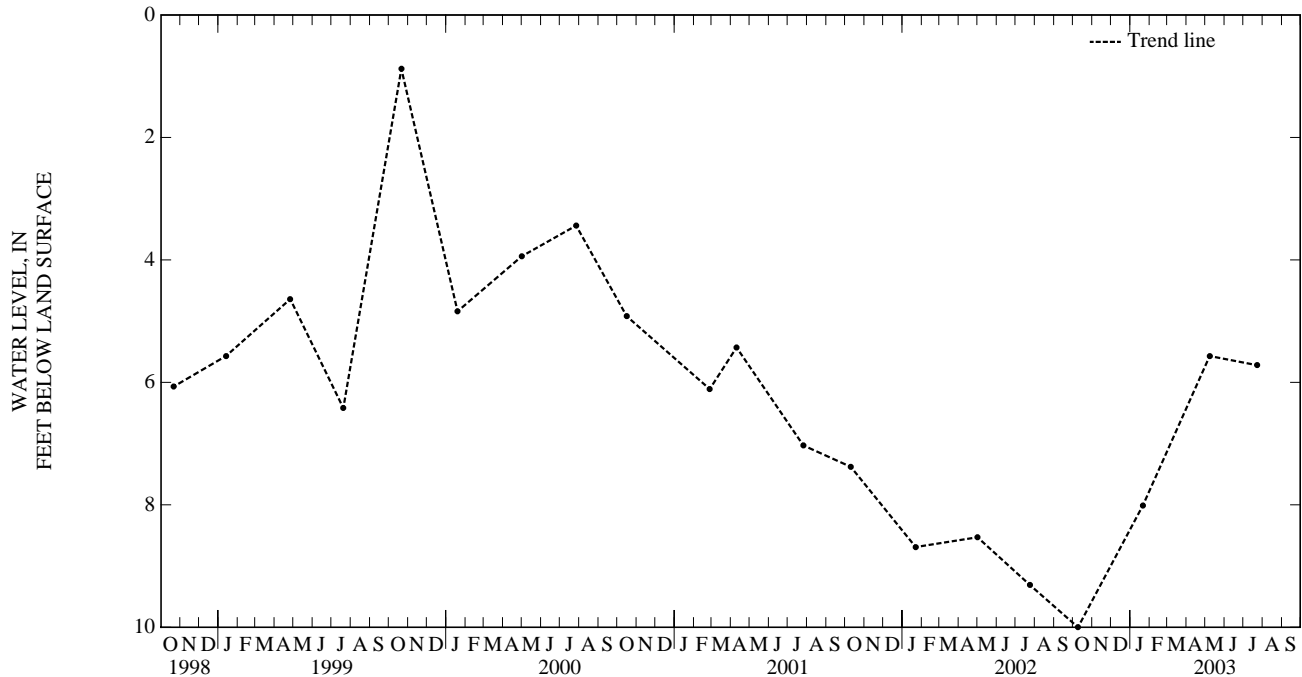
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--October 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.88 ft below land-surface datum, Oct. 21, 1999; lowest measured, 10.00 ft below land-surface datum, Oct. 9, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	10.00	JAN 21	8.01	MAY 08	5.57	JUL 23	5.72
WATER YEAR 2003 HIGHEST		5.57	MAY 08, 2003	LOWEST		10.00	OCT 09, 2002



GROUND-WATER LEVELS  
NORTHAMPTON COUNTY—Continued

373230075541001. Local number, 63J 1 SOW 113A.

LOCATION.--Lat 37°32'16", long 75°54'06", NAD83, Hydrologic Unit 02080109, 0.15 mi north of State Highway 183, 0.4 mi east of intersection of State Highways 183 and 611, and 1.3 mi west of Wardtown. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 120 ft, screened 110 to 120 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 22 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.32 ft above land-surface datum prior to Oct. 6, 1988; 1.5 ft thereafter.

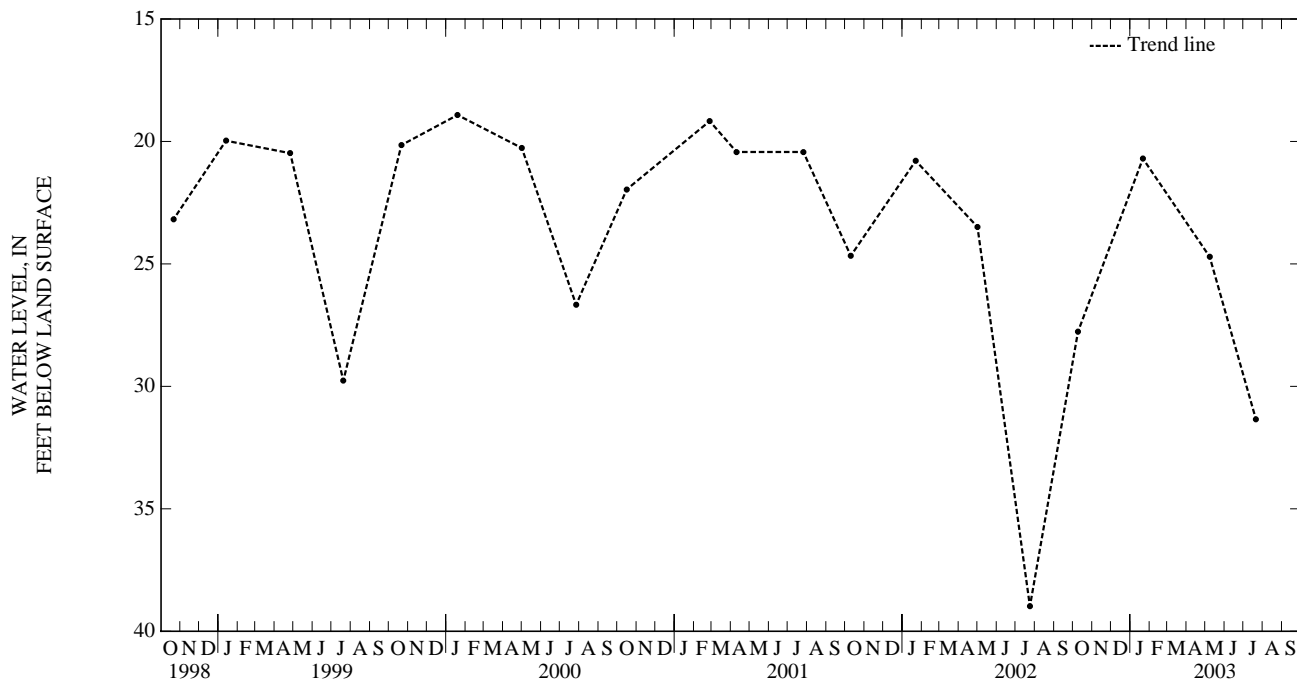
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--July 1981 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.79 ft below land-surface datum, Apr. 21, 1983; lowest measured, 38.98 ft below land-surface datum, July 24, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	27.77	JAN 21	20.70	MAY 08	24.71	JUL 21	31.34
WATER YEAR 2003		HIGHEST	20.70	JAN 21, 2003	LOWEST	31.34	JUL 21, 2003



## NORTHAMPTON COUNTY—Continued

373230075541002. Local number, 63J 2 SOW 113B.

LOCATION.--Lat 37°32'16", long 75°54'06", NAD83, Hydrologic Unit 02080109, 0.15 mi north of State Highway 183, 0.40 mi east of intersection of State Highways 183 and 611, and 1.3 mi west of Wardtown. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 225 ft, screened 215 to 225 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 22 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.52 ft above land-surface datum prior to Oct. 6, 1988; 1.3 ft thereafter.

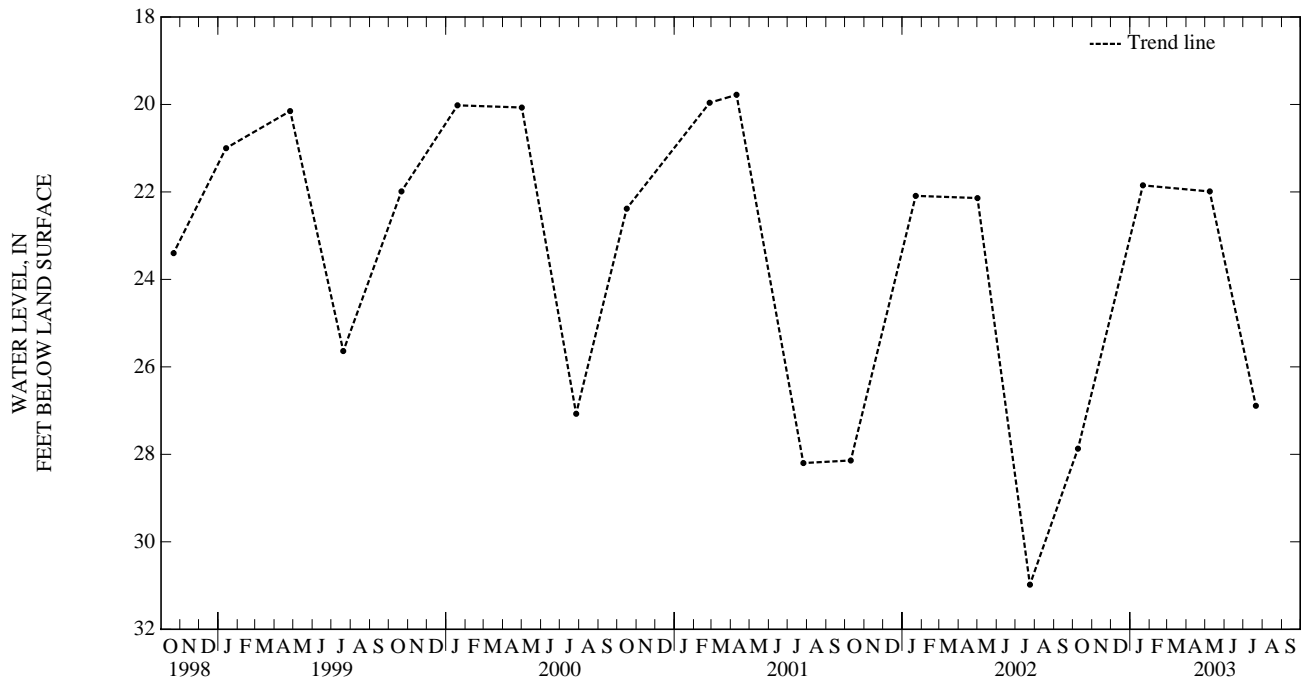
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--July 1981 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.20 ft below land-surface datum, Apr. 21, 1983; lowest measured, 30.98 ft below land-surface datum, July 24, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	27.87	JAN 21	21.85	MAY 08	21.99	JUL 21	26.89
WATER YEAR 2003		HIGHEST	21.85	JAN 21, 2003	LOWEST	27.87	OCT 09, 2002





GROUND-WATER LEVELS  
NORTHAMPTON COUNTY—Continued

373230075541003. Local number, 63J 3 SOW 113C.

LOCATION.--Lat 37°32'16", long 75°54'06", NAD83, Hydrologic Unit 02080109, 0.15 mi north of State Highway 183, 0.4 mi east of intersection of State Highways 183 and 611, and 1.3 mi west of Wardtown. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 290 ft, screened 280 to 290 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 20, 1995, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 22 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.44 ft above land-surface datum.

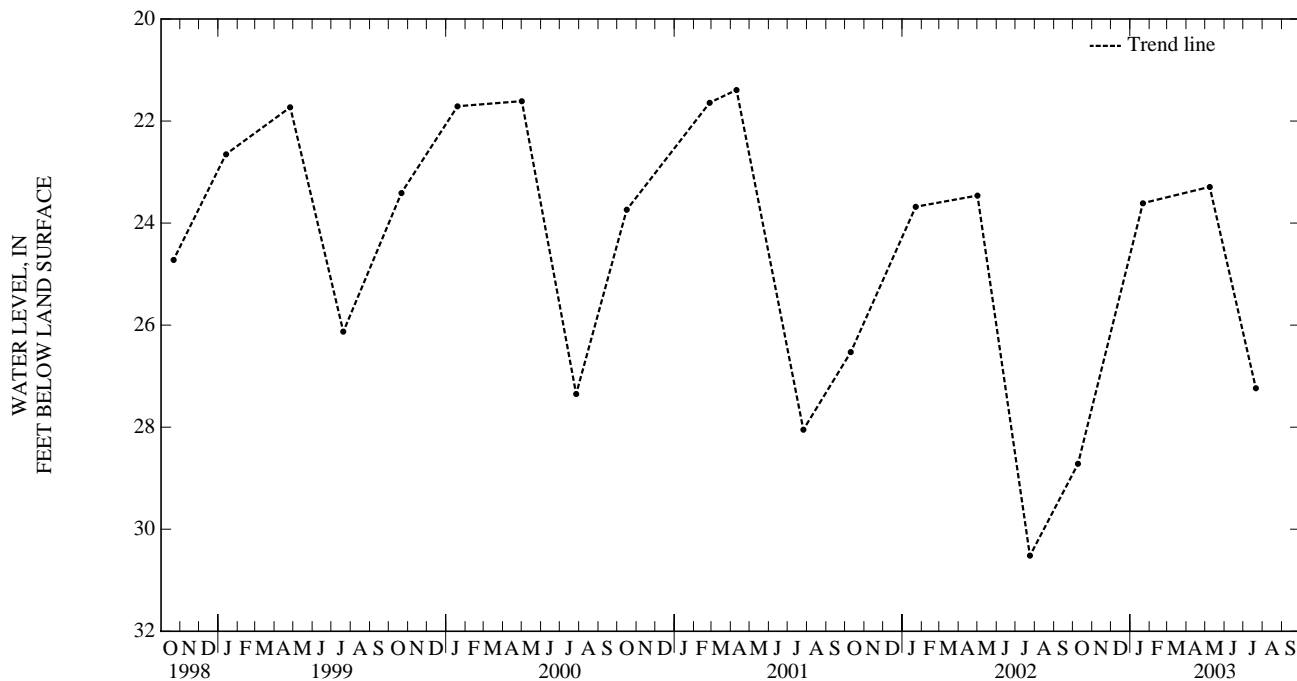
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--July 1981 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.26 ft below land-surface datum, Apr. 21, 1983; lowest measured, 30.52 ft below land-surface datum, July 24, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	28.72	JAN 21	23.61	MAY 08	23.29	JUL 21	27.24
WATER YEAR 2003		HIGHEST	23.29	MAY 08, 2003	LOWEST	28.72	OCT 09, 2002



## NORTHAMPTON COUNTY—Continued

373059075484501. Local number, 64J 9 SOW 112A.

LOCATION.--Lat 37°30'59", long 75°48'44", NAD83, Hydrologic Unit 02080109, 100 ft northeast of State Highway 660, 0.3 mi southeast of intersection of State Highways 660 and 600, and 0.3 mi west of Willis Wharf. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 135 ft, screened 125 to 135 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 24, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 30 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum prior to Feb. 29, 1988; 0.7 ft thereafter.

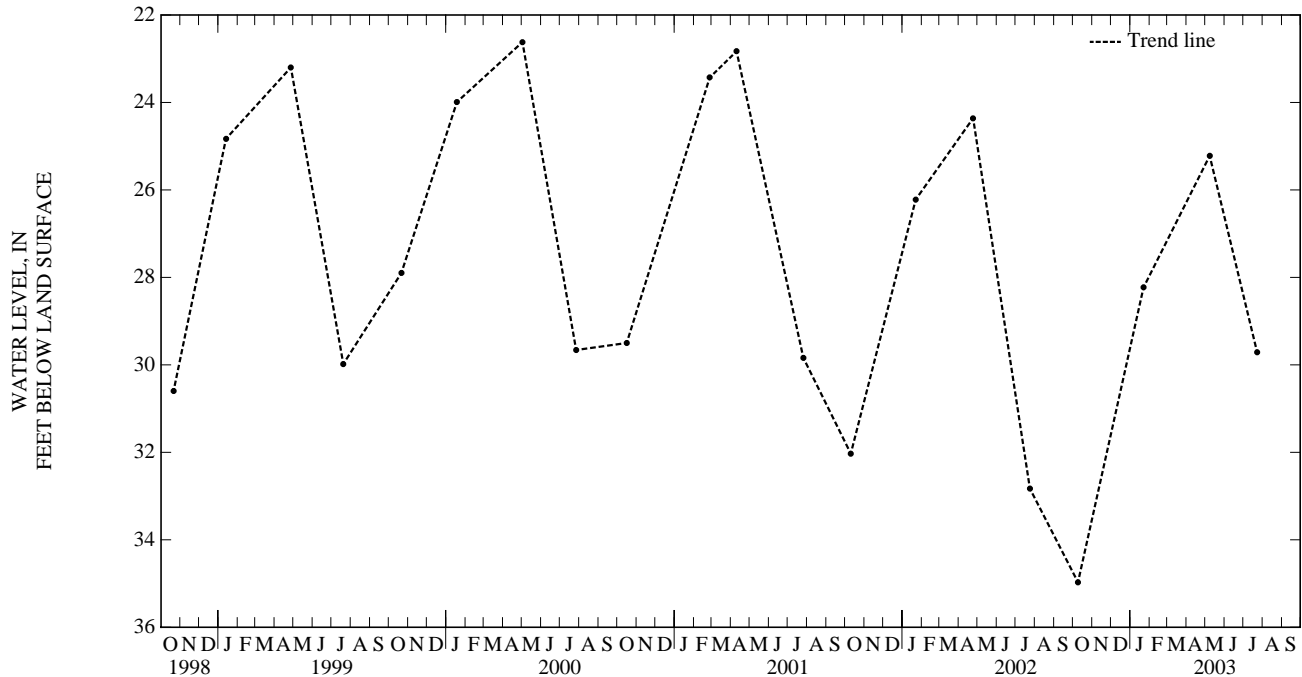
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage.

PERIOD OF RECORD.--July 1979 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.19 ft below land-surface datum, Feb. 22, 1993; lowest measured, 34.97 ft below land-surface datum, Oct. 9, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	34.97	JAN 22	28.23	MAY 08	25.22	JUL 23	29.71
WATER YEAR 2003 HIGHEST		25.22	MAY 08, 2003	LOWEST		34.97	OCT 09, 2002



GROUND-WATER LEVELS  
NORTHAMPTON COUNTY—Continued

373059075484502. Local number, 64J 10 SOW 112B.

LOCATION.--Lat 37°30'59", long 75°48'44", NAD83, Hydrologic Unit 02080109, 100 ft northeast of State Highway 660, 0.3 mi southeast of intersection of State Highways 600 and 660, and 0.3 mi west of Willis Wharf. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 210 ft, screened 200 to 210 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 5, 1985 to Oct. 23, 1995, continuous strip-chart recorder. Prior to Oct. 5, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 30 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder shelf, 1.5 ft above land-surface datum prior to Aug. 12, 1987; 1.6 ft thereafter.

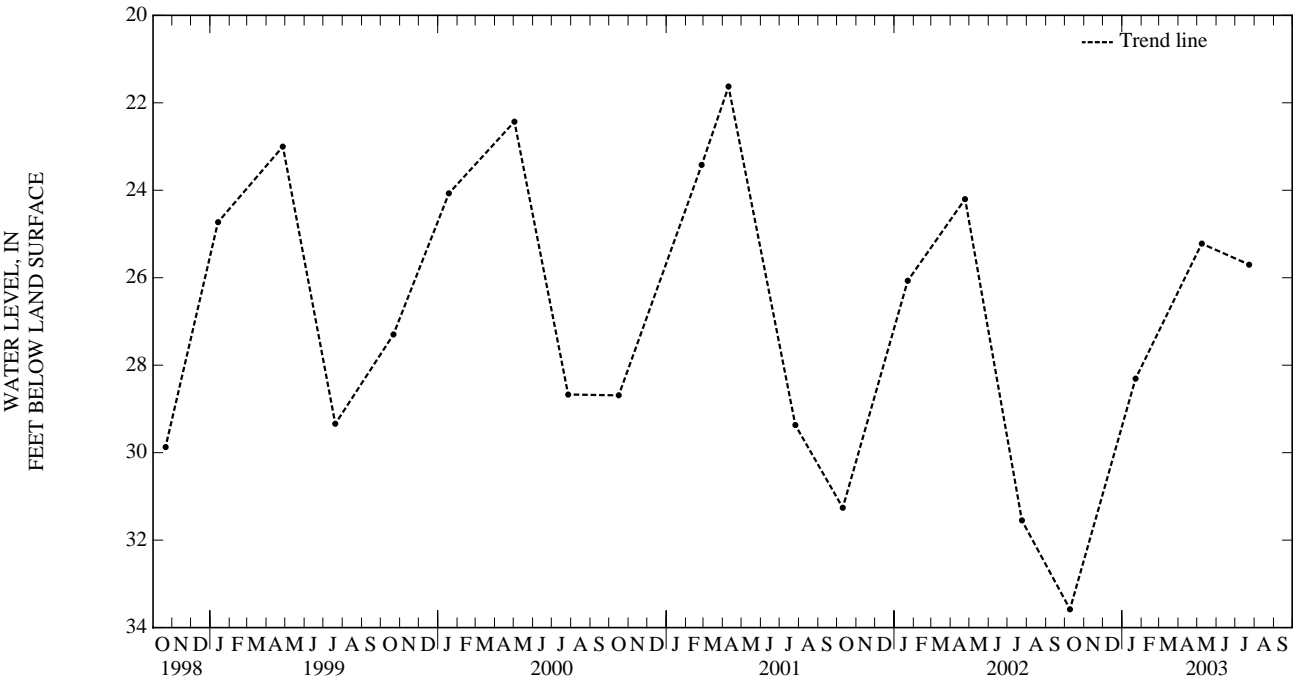
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by tidal effects and local pumpage.

PERIOD OF RECORD.--July 1979 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 20.42 ft below land-surface datum, Mar. 13, 1993; lowest measured, 33.58 ft below land-surface datum, Oct. 9, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	33.58	JAN 22	28.31	MAY 08	25.22	JUL 23	25.70
WATER YEAR 2003 HIGHEST				25.22	MAY 08, 2003 LOWEST		
				33.58	OCT 09, 2002		



## NORTHAMPTON COUNTY—Continued

373059075484503. Local number, 64J 11 SOW 112C.

LOCATION.--Lat 37°30'59", long 75°48'44", NAD83, Hydrologic Unit 02080109, 100 ft northeast of State Highway 660, 0.3 mi southeast of intersection of State Highways 600 and 660, and 0.3 mi west of Willis Wharf. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 313 ft, screened 303 to 313 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 30, 1985, to July 24, 1995, bimonthly measurement with chalked tape. Prior to Sept. 30, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 30 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.4 ft above land-surface datum prior to Apr. 27, 1987; 0.65 ft thereafter.

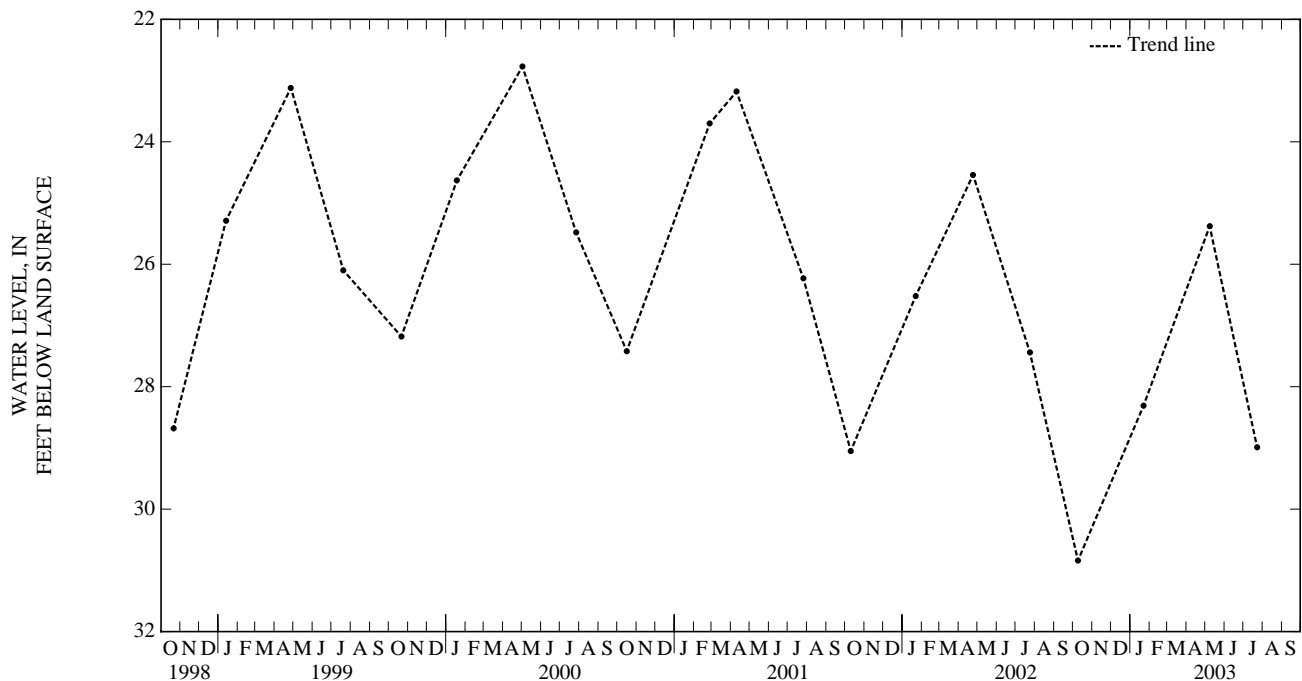
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by tidal effects and local pumpage.

PERIOD OF RECORD.--July 1979 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.78 ft below land-surface datum, Mar. 29, 1984; lowest measured, 35.70 ft below land-surface datum, Dec. 5, 1980.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	30.84	JAN 22	28.31	MAY 08	25.38	JUL 23	28.99
WATER YEAR 2003 HIGHEST 25.38 MAY 08, 2003				LOWEST 30.84 OCT 09, 2002			



## ORANGE COUNTY

381002078094201. Local number, 45P 1 SOW 030.

LOCATION.--Lat 38°10'02", long 78°09'41", NAD83, Hydrologic Unit 02080106, off U.S. Highway 15, 2.3 mi north of Gordonsville. Owner: M. L. Johnson.

**AQUIFER.**--Phyllite of Evington Group of Cambrian or Precambrian age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 98 ft, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked taped by Virginia Department of Environmental Quality - Water Division personnel. Prior to Oct. 31, 1995, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 480 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.40 ft above land-surface datum prior to June 27, 1996; 1.90 ft thereafter.

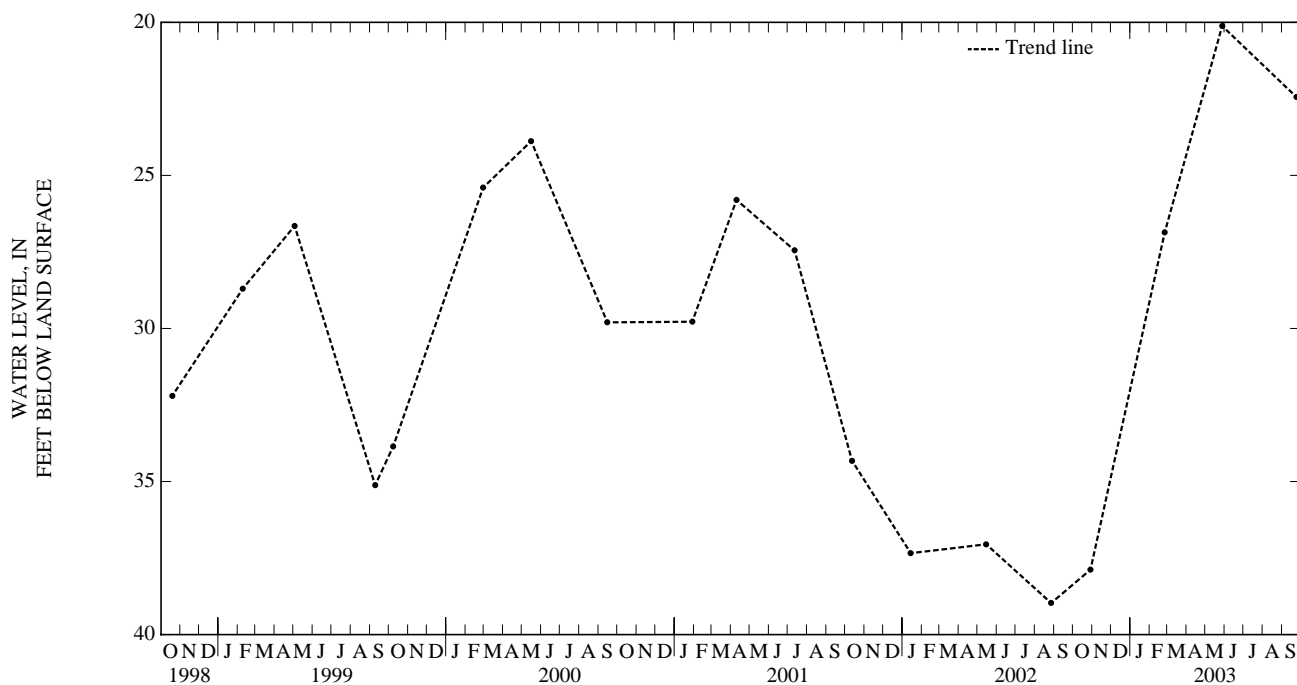
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.83 ft below land-surface datum, Apr. 10, 1973; lowest recorded, 38.97 ft below land-surface datum, Aug. 27, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	37.88	FEB 25	26.86	MAY 28	20.12	SEP 24	22.44
WATER YEAR 2003		HIGHEST	20.12	MAY 28, 2003	LOWEST	37.88	OCT 29, 2002



## PATRICK COUNTY

364732080070301. Local number, 30C 1 SOW 010.

LOCATION.--Lat 36°47'32", long 80°07'02", NAD83, Hydrologic Unit 03010103, 300 ft west of State Highway 623, 1.0 mi northeast of intersection of State Highways 57 and 623, and 6.2 mi west of Philpott. Owner: Commonwealth of Virginia.

AQUIFER.--Lynchburg Group of Late Proterozoic age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6.25 in., depth 250 ft, cased to 9 ft, open hole 9 to 250 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Oct. 1, 1996 to Oct. 1, 1999, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to Oct. 1, 1996, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

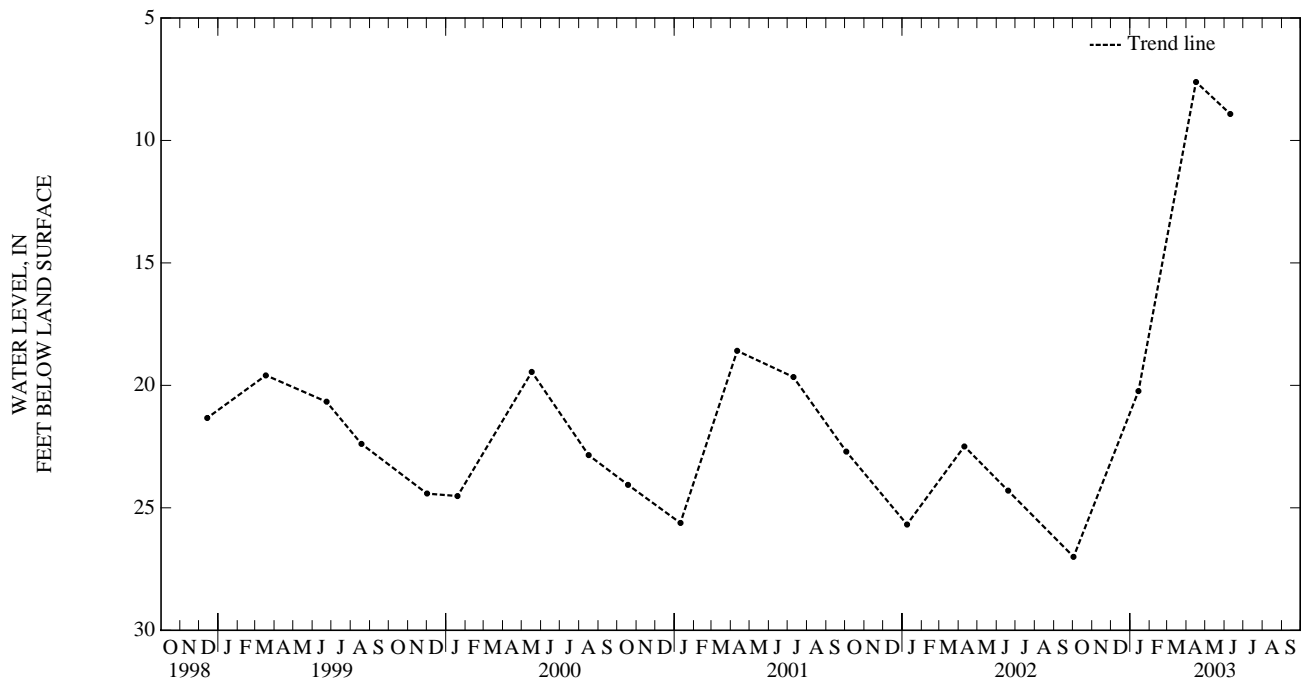
DATUM.--Elevation of land-surface datum is 1,060 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.5 ft above land-surface datum.

PERIOD OF RECORD.--May 1966 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.98 ft below land-surface datum, Mar. 23, 1993; lowest measured, 27.00 ft below land-surface datum, Oct. 2, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	27.00	JAN 14	20.23	APR 16	7.61	JUN 10	8.92
WATER YEAR 2003 HIGHEST		7.61	APR 16, 2003 LOWEST		27.00	OCT 02, 2002	



## CITY OF PORTSMOUTH

364823076181501. Local number, 60C 27.

LOCATION.--Lat 36°48'24", long 76°18'14", NAD83, Hydrologic Unit 02080208, 100 ft east of State Highway 239 (Victory Boulevard), 0.1 mi south of the intersection of State Highway 239 (Victory Boulevard) and State Highway 337 (Elem Avenue) in the city of Portsmouth. Owner: U.S. Department of the Navy.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 908 ft, screened 903 to 908 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 18 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.5 ft above land-surface datum.

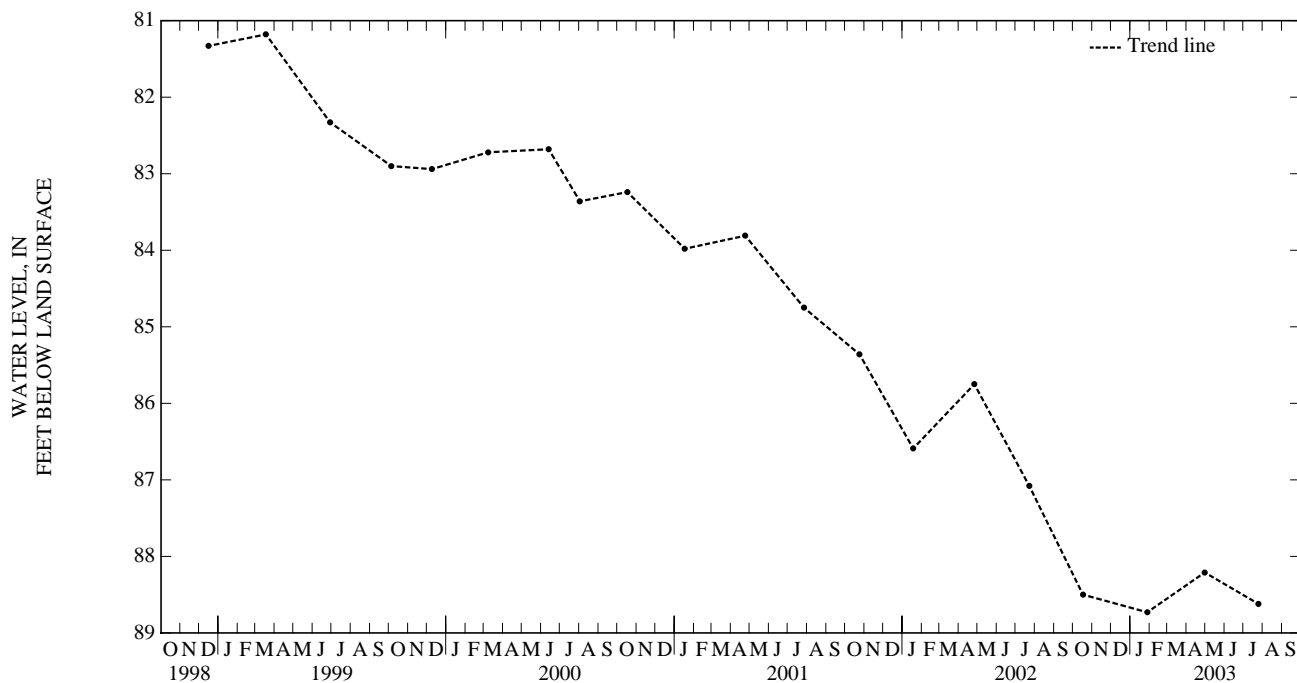
REMARKS.--Water level affected by regional drawdown.

PERIOD OF RECORD.--June 1985 to current year. Unpublished records available prior to October 1987 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 63.65 ft below land-surface datum, June 19, 1985; lowest measured, 88.73 ft below land-surface datum, Jan. 28, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	88.50	JAN 28	88.73	APR 30	88.21	JUL 25	88.62
WATER YEAR 2003 HIGHEST 88.21		APR 30, 2003		LOWEST 88.73		JAN 28, 2003	



## CITY OF PORTSMOUTH—Continued

365313076215101. Local number, 60D 2.

LOCATION.--Lat 36°53'14", long 76°21'50", NAD83, Hydrologic Unit 02080208, 1.1 mi east of the main gate of the U.S. Naval Supply Center on Main Street in Building 285, 2.0 mi northwest of West Norfolk in the city of Portsmouth, and 2.25 mi north of the intersection of U.S. Highway 17 and Cedar Lane (Craney Island Road). Owner: U.S. Department of the Navy.

AQUIFER.--Chickahominy-Piney Point aquifer of Eocene-Oligocene age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in. to 170 ft, diameter 4 in. from 170 to 565 ft, depth 565 ft, screened 545 to 565 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

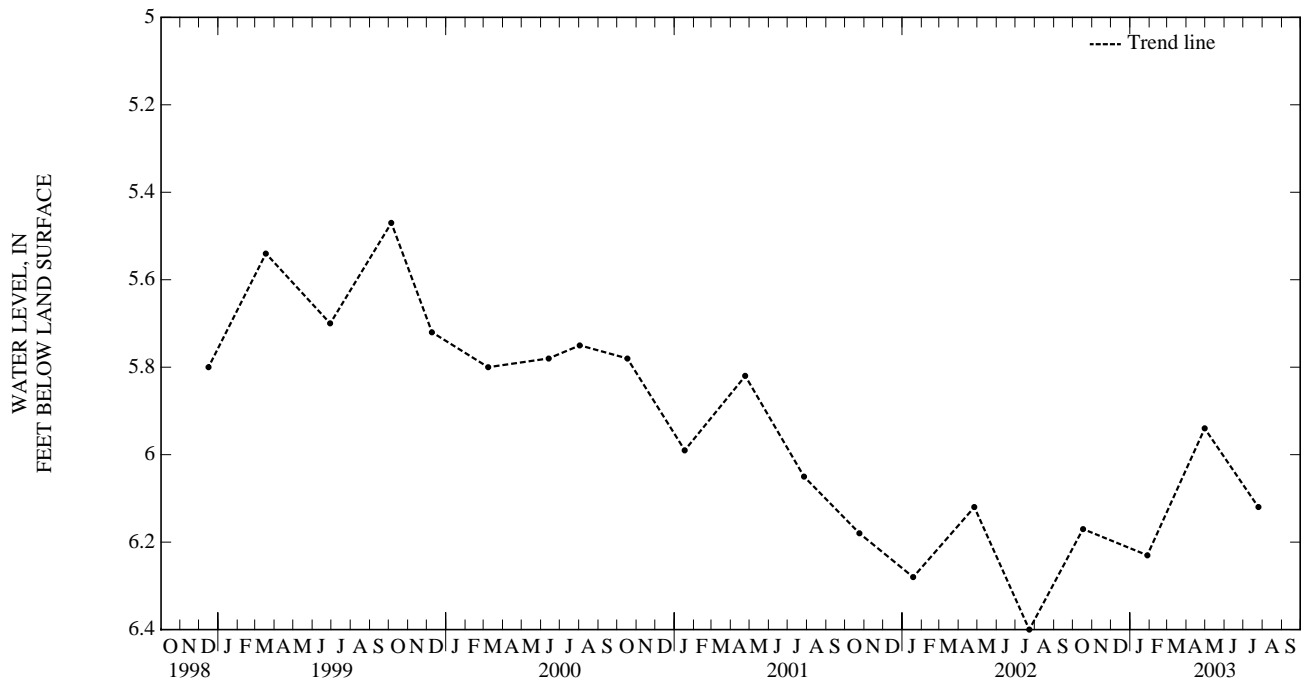
DATUM.--Elevation of land-surface datum is 12 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.6 ft above land-surface datum.

PERIOD OF RECORD.--January 1984 to current year. Unpublished records available prior to October 1987 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.01 ft below land-surface datum, Sept. 18, 1985; lowest measured, 6.40 ft below land-surface datum, July 23, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	6.17	JAN 28	6.23	APR 30	5.94	JUL 25	6.12
WATER YEAR 2003		HIGHEST	5.94	APR 30, 2003	LOWEST	6.23	JAN 28, 2003





370501077214401. Local number, 52E 2.

LOCATION.--Lat 37°05'02", long 77°21'43", NAD83, Hydrologic Unit 03010201, at Virginia Department of Transportation - Carson Area Headquarters, 1500 ft west of intersection of State Highway 35 and Interstate 95. Owner: U.S. Geological Survey.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 69.47 ft, screened 64.47 ft to 69.47 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1998 to Oct. 1, 1999, occasional measurement with chalked tape by USGS personnel. Prior to Oct. 1, 1998, monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 140 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.85 ft above land-surface datum prior to Dec. 23, 1998; 1.08 ft thereafter.

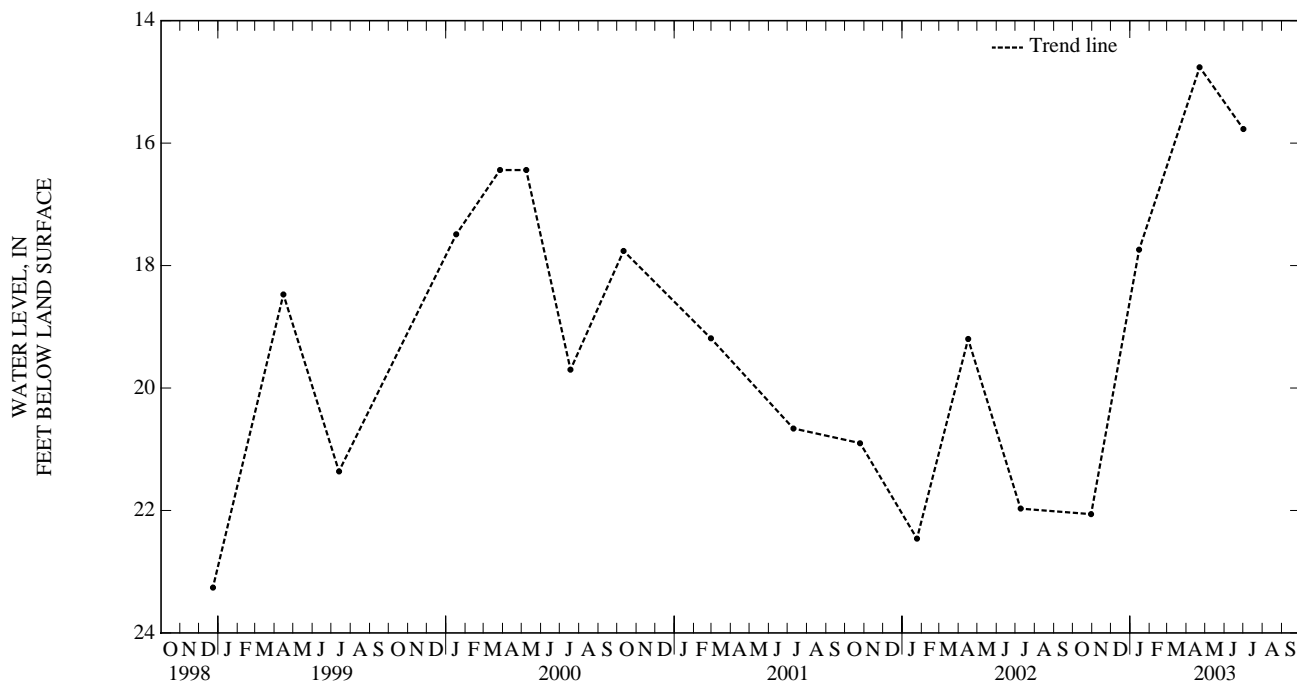
REMARKS.--Records provided by Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--May 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.76 ft below land-surface datum, Apr. 22, 2003; lowest measured, 23.26 ft below land-surface datum, Dec. 23, 1998.

#### WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	22.06	JAN 15	17.74	APR 22	14.76	JUL 01	15.77
WATER YEAR 2003 HIGHEST		14.76	APR 22, 2003	LOWEST		22.06	OCT 30, 2002



## PRINCE GEORGE COUNTY—Continued

371315077171901. Local number, 52F 1 SOW 038.

LOCATION.--Lat 37°13'16", long 77°17'18", NAD83, Hydrologic Unit 03010202, 0.1 mi north of State Highway 106 in Prince George. Owner: Prince George County.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 180 ft, cased to 170 ft, open hole 170 to 180 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 10, 1985, to July 10, 1995, bimonthly measurement with chalked tape. May 25, 1974, to Oct. 9, 1985, occasional measurement with chalked tape. Jan. 31, 1971, to May 25, 1974, continuous strip-chart recorder. Prior to Jan. 31, 1971, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 132 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder shelf, 3.4 ft above land-surface datum.

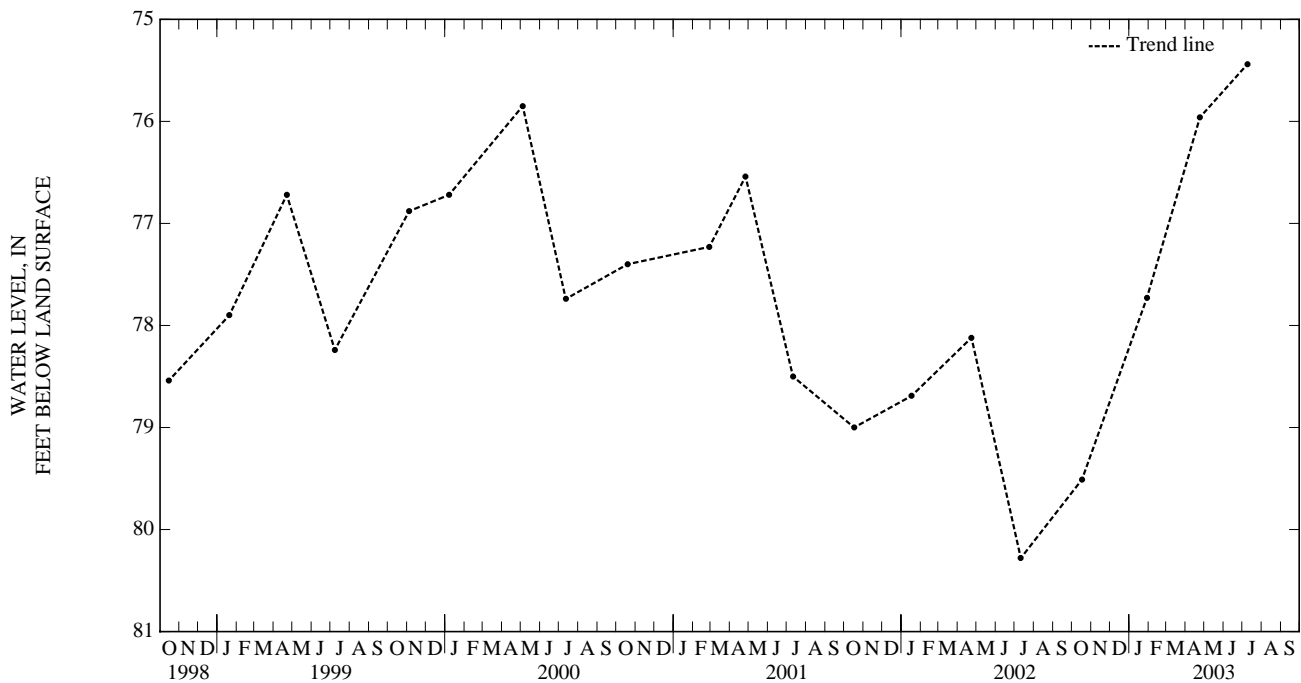
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--December 1970 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 69.32 ft below land-surface datum, Feb. 4, 1980; lowest measured, 80.28 ft below land-surface datum, July 11, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	79.51	JAN 29	77.73	APR 24	75.96	JUL 09	75.44
WATER YEAR 2003 HIGHEST 75.44 JUL 09, 2003				LOWEST 79.51 OCT 17, 2002			



## PRINCE WILLIAM COUNTY

384931077420301. Local number, 49U 1.

LOCATION.--Lat 38°49'30", long 77°42'07", NAD83, Hydrologic Unit 02070010, 500 ft north of State Highway 55, 0.8 mi east of Thoroughfare Gap, and 3.7 mi west of Haymarket. Owner: Virginia Department of Transportation.

AQUIFER.--Waterfall Formation of Early Jurassic age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 7 in., depth 345 ft, cased to 20 ft, open hole 20 to 345 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to February 1980, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 383 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

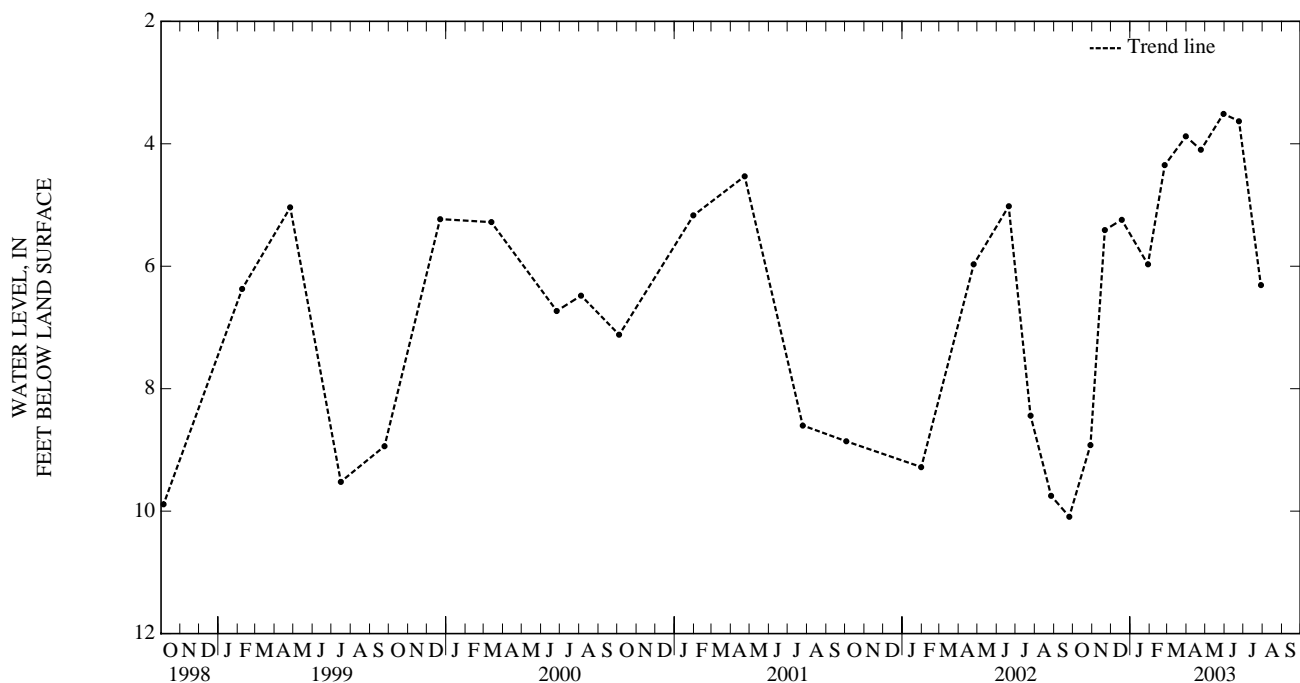
PERIOD OF RECORD.--October 1968 to current year. Unpublished records available prior to May 1969 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.59 ft below land-surface datum, Mar. 19, 1975; lowest measured, 10.33 ft below land-surface datum, Oct. 14, 1988.

# WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	8.92	DEC 18	5.24	FEB 25	4.35	APR 24	4.10	JUN 24	3.63
NOV 21	5.41	JAN 29	5.97	MAR 31	3.88	MAY 30	3.51	JUL 29	6.31

WATER YEAR 2003    HIGHEST    3.51    MAY 30, 2003    LOWEST    8.92    OCT 29, 2002



## PRINCE WILLIAM COUNTY—Continued

385607077381101. Local number, 49V 1.

LOCATION.--Lat 38°56'07", long 77°38'10", NAD83, Hydrologic Unit 02070010, near intersection of State Highways 600 and 615, 2.8 mi south of Aldie.  
Owner: J. H. Hutchison.

AQUIFER.--Turkey Run Formation of Early Jurassic age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 7 in., depth 165 ft, cased to 10 ft, open hole 10 to 165 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. June 19, 1979 to Oct. 1, 1995, digital recorder 60-minute punch.  
Prior to June 19, 1979, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 420 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum prior to Sept. 11, 2003; top of 1 inch conduit pipe, 3.29 ft above land-surface datum thereafter. Readings from 1979 to 1981 should be 0.7 ft lower than previously published.

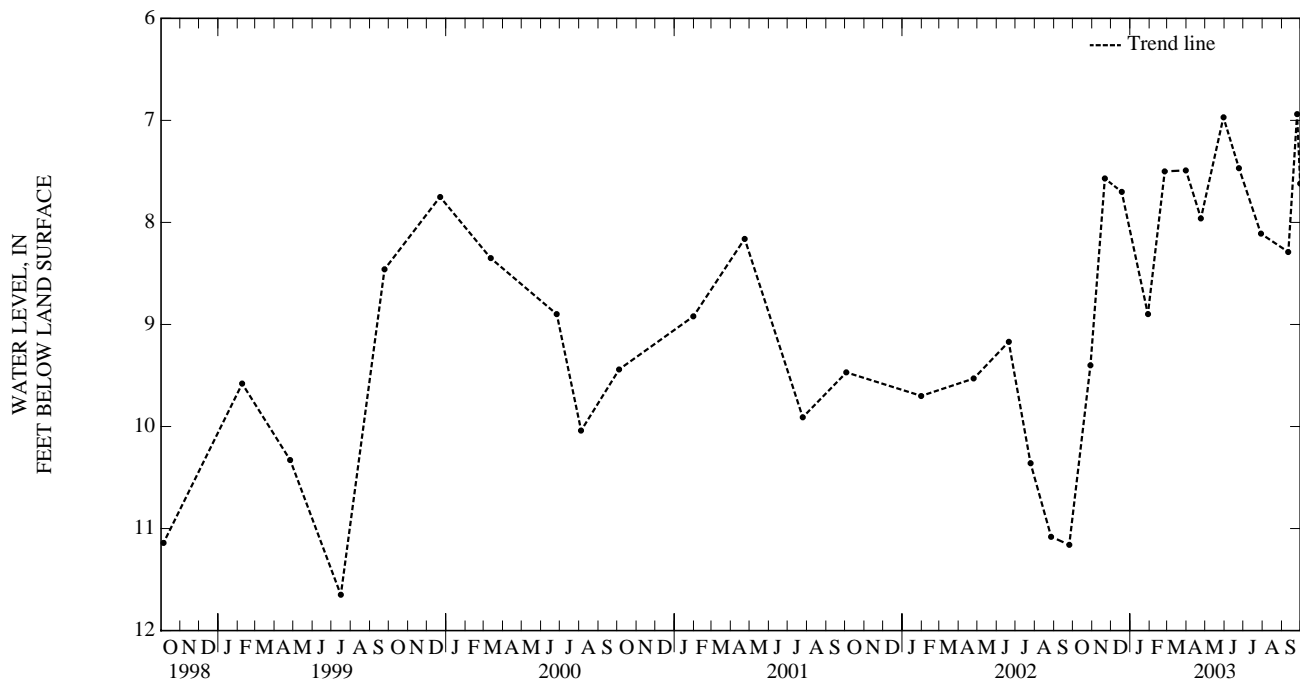
PERIOD OF RECORD.--November 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.85 ft below land-surface datum, Oct. 12, 1979; lowest recorded, 13.09 ft below land-surface datum, Sept. 16, 1991.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	9.40	JAN 29	8.90	APR 24	7.96	JUL 29	8.11	SEP 30	7.62
NOV 21	7.57	FEB 25	7.50	MAY 30	6.97	SEP 11	8.29		
DEC 18	7.70	MAR 31	7.49	JUN 24	7.47	25	6.94		

WATER YEAR 2003 HIGHEST 6.94 SEP 25, 2003 LOWEST 9.40 OCT 29, 2002



GROUND-WATER LEVELS  
PRINCE WILLIAM COUNTY—Continued

383423077245901. Local number, 51S 7.

LOCATION.--Lat 38°34'23", long 77°24'58", NAD83, Hydrologic Unit 02070011, in Prince William Forest Park, 700 ft north of State Highway 619, 0.7 mi southeast of Balfair Crossroads, and 4.6 mi south of Independent Hill. Owner: National Park Service.

AQUIFER.--Lunga Reservoir Formation of Cambrian age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 490 ft, cased to 50 ft, open hole 50 to 490 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Dec. 21, 1982 to Feb. 1, 1996, digital recorder 60-minute punch. Prior to Dec. 21, 1982, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 295 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

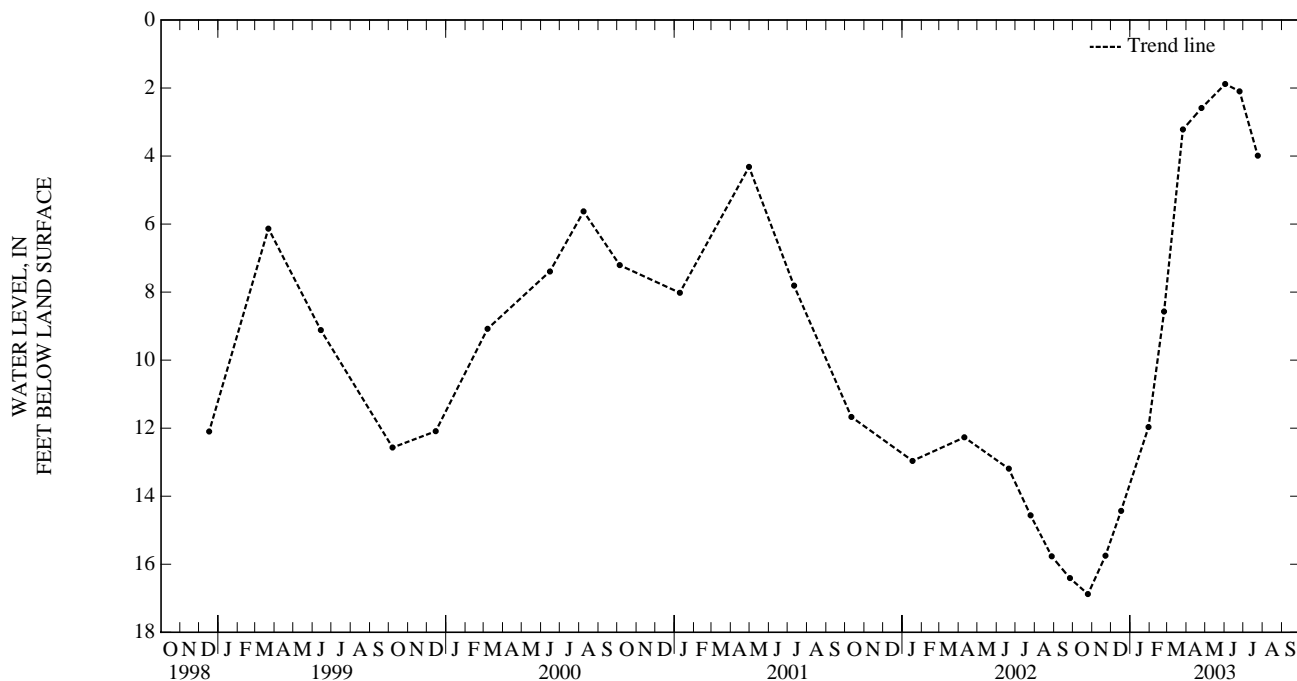
PERIOD OF RECORD.--September 1973 to November 1975, December 1977 to current year. Unpublished records available prior to December 1977 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.00 ft above land-surface datum, Mar. 29, 1994; lowest measured, 16.88 ft below land-surface datum, Oct. 25, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	16.88	DEC 17	14.43	FEB 24	8.57	APR 25	2.59	JUN 25	2.10
NOV 22	15.75	JAN 30	11.97	MAR 26	3.22	JUN 02	1.88	JUL 24	3.99

WATER YEAR 2003    HIGHEST    1.88 JUN 02, 2003    LOWEST    16.88 OCT 25, 2002



## PRINCE WILLIAM COUNTY—Continued

383634077151301. Local number, 52S 4.

LOCATION.--Lat 38°36'34", long 77°15'12", NAD83, Hydrologic Unit 02070010, 193 ft east of Richmond, Fredericksburg, and Potomac (RFP) railroad tracks, 1.1 mi southeast of the intersection of U.S. Highway 1 and State Highway 636 (Featherstone Road), 1.4 mi south of the intersection of State Highway 636 (Featherstone Road) and RFP railroad tracks, and near Woodbridge. Owner: District of Columbia Department of Sanitary Engineering.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 10 in., depth 186 ft, screened 156 to 176 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Aug. 1, 1971, to July 10, 1978, continuous strip-chart recorder. Prior to Aug. 1, 1971, occasional measurement with chalked tape.

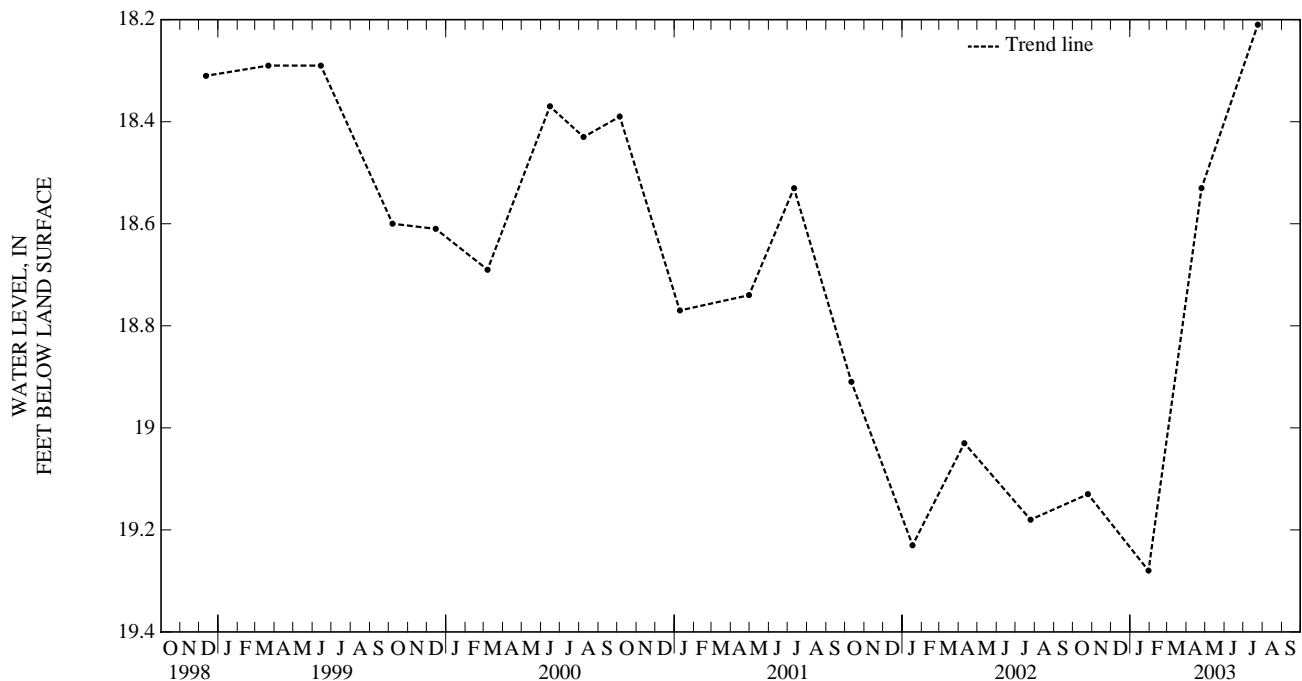
DATUM.--Elevation of land-surface datum is 28 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 3.3 ft above land-surface datum prior to Aug. 28, 1978; 1.9 ft thereafter.

PERIOD OF RECORD.--June 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 17.17 ft below land-surface datum, Apr. 28, 1973; lowest measured, 22.17 ft below land-surface datum, July 1, 1969.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	19.13	JAN 30	19.28	APR 25	18.53	JUL 24	18.21
WATER YEAR 2003 HIGHEST		18.21	JUL 24, 2003	LOWEST		19.28	JAN 30, 2003



## PRINCE WILLIAM COUNTY—Continued

383830077135502. Local number, 53T 2 SOW 029.

LOCATION.--Lat 38°38'30", long 77°13'54", NAD83, Hydrologic Unit 02070010, at U.S. Army Woodbridge Research Facility, 1.5 mi east of Woodbridge.  
Owner: U.S. Department of the Army.

AQUIFER.--Lower Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in., depth 162 ft, screened 130 to 156 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Oct. 1, 1996 to Sept. 30, 1999, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 25, 1985, to Oct. 1, 1996, bimonthly measurement with chalked tape. Prior to Sept. 25, 1985, occasional measurement with chalked tape.

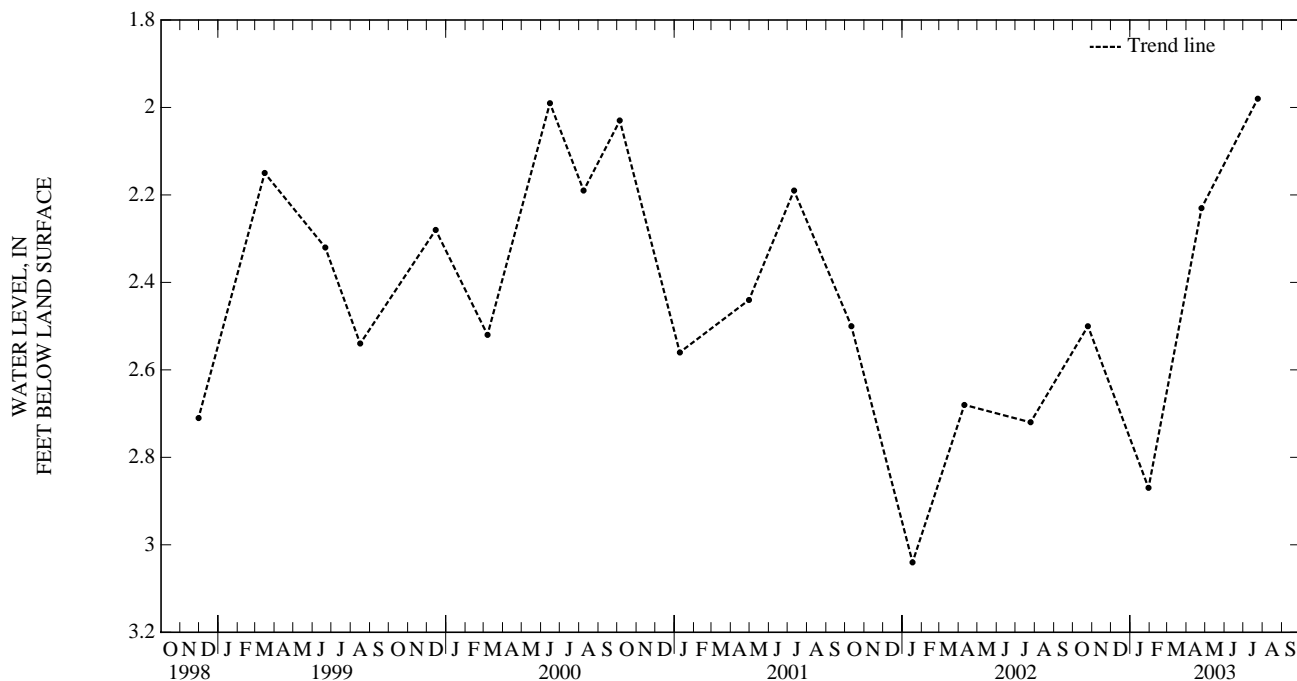
DATUM.--Elevation of land-surface datum is 5 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

PERIOD OF RECORD.--March 1970 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.60 ft below land-surface datum, Apr. 4, 1973; lowest measured, 10.35 ft below land-surface datum, Oct. 12, 1977.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	2.50	JAN 30	2.87	APR 25	2.23	JUL 24	1.98
WATER YEAR 2003		HIGHEST	1.98	JUL 24, 2003	LOWEST	2.87	JAN 30, 2003



## PULASKI COUNTY

370254080374401. Local number, 25E 1 SOW 009.

LOCATION.--Lat 37°02'54", long 80°37'43", NAD83, Hydrologic Unit 05050001, 300 ft east of State Highway 100, 0.3 mi south of intersection of State Highways 682 and 700, and 1.1 mi south of Dublin. Owner: Commonwealth of Virginia.

AQUIFER.--Elbrook Formation of Middle to Late Cambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 318 ft, cased to 56 ft, open hole 56 to 318 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to Oct. 1, 1996, bimonthly measurement with chalked tape. Prior to Oct. 1, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 1,880 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum.

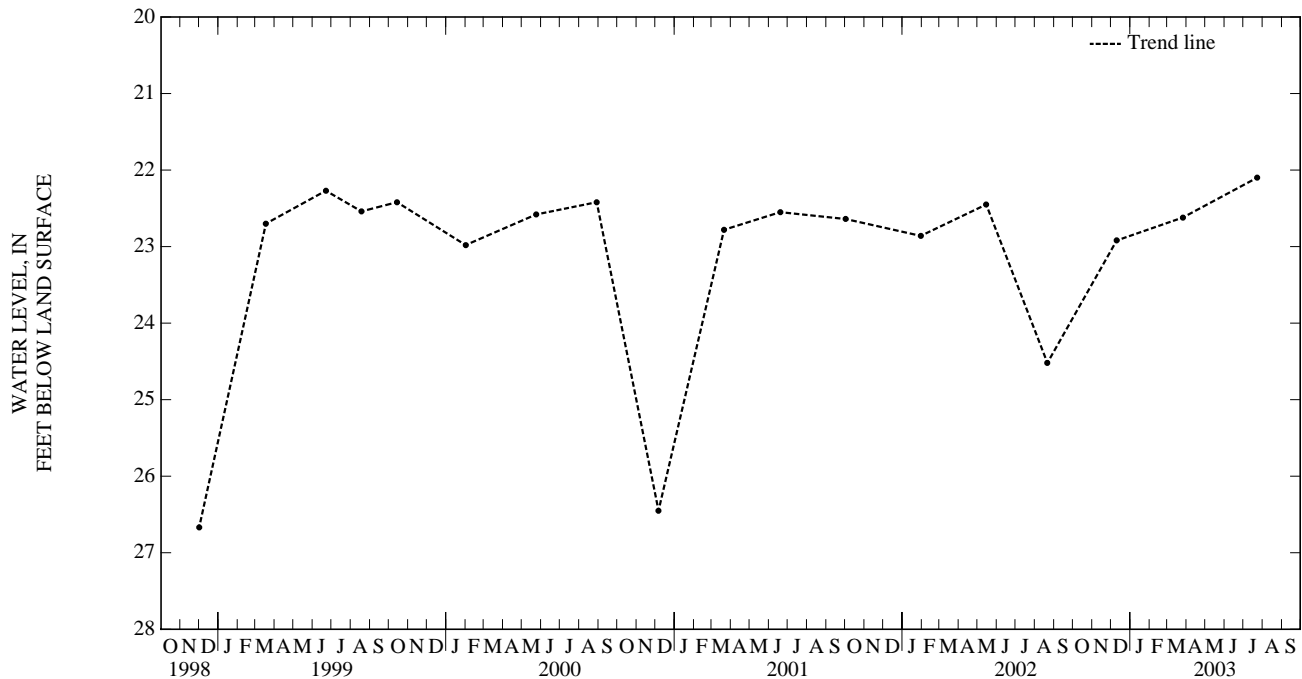
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--October 1969 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.15 ft below land-surface datum, Mar. 31, Apr. 30, 1975; lowest measured, 27.25 ft below land-surface datum, Dec. 13, 1976.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 10	22.92	MAR 26	22.62	JUL 23	22.10
WATER YEAR 2003    HIGHEST    22.10    JUL 23, 2003    LOWEST    22.92    DEC 10, 2002					





GROUND-WATER LEVELS  
PULASKI COUNTY—Continued

370516080411501. Local number, 25E 2 SOW 059.

LOCATION.--Lat 37°05'16", long 80°41'14", NAD83, Hydrologic Unit 05050001, 400 ft east of State Highway 100, 0.5 mi south of Dublin. Owner: Town of Dublin.

AQUIFER.--Conococheague Formation of Late Cambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 370 ft, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to Oct. 1, 1996, bimonthly measurement with chalked tape. July 20, 1974, to Oct. 1, 1985, occasional measurement with chalked tape. Prior to July 20, 1974, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 2,170 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, at land-surface datum.

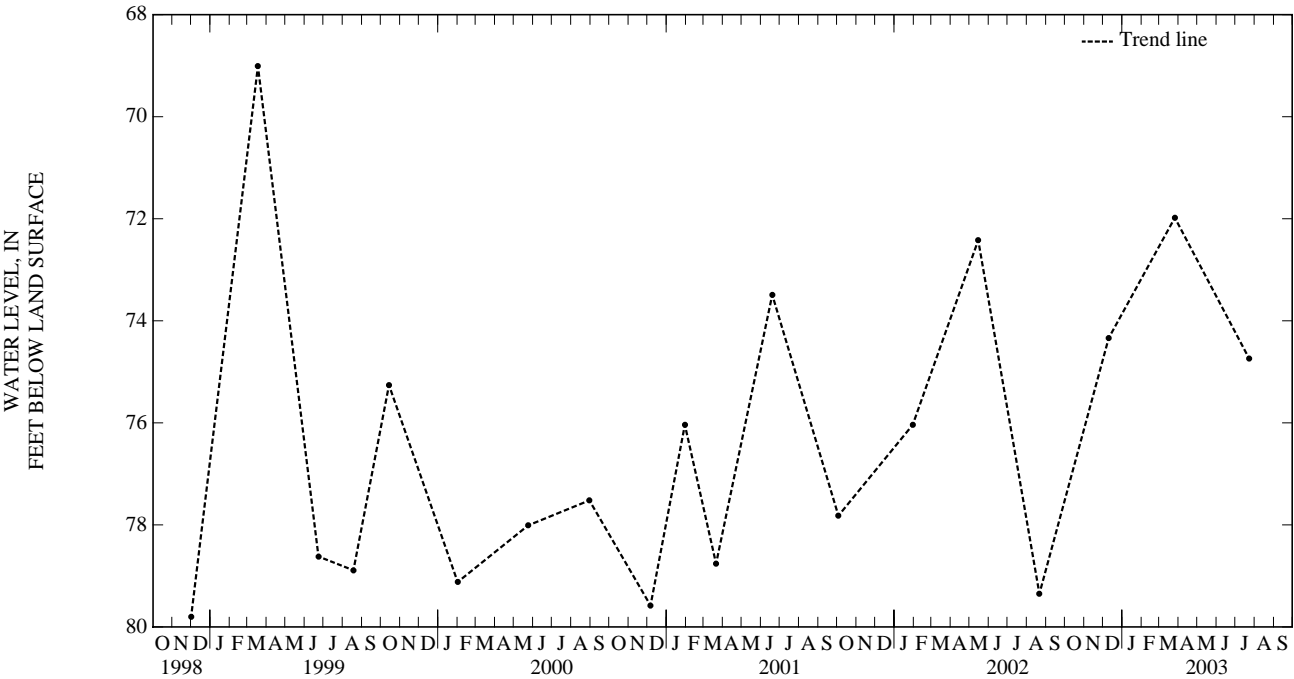
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--April 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 60.00 ft below land-surface datum, Mar. 18, 1973; lowest measured, 82.50 ft below land-surface datum, Oct. 5, 1982.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 10	74.34	MAR 26	71.98	JUL 23	74.74
WATER YEAR 2003    HIGHEST 71.98 MAR 26, 2003    LOWEST 74.74 JUL 23, 2003					



## RICHMOND COUNTY

375523076431801. Local number, 57M 4.

LOCATION.--Lat 37°55'23", long 76°43'17", NAD83, Hydrologic Unit 02080104, 50 ft west of Totuskey Creek, off of State Highway 3 at Totuskey Creek Brige, near Warsaw. Owner: L. Jones.

AQUIFER.--Chickahominy-Pine Point aquifer of Eocene-Oligocene age.

WELL CHARACTERISTICS.--Jetted unused water well, diameter 2 in, depth 180 ft, screened 177 to 180 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

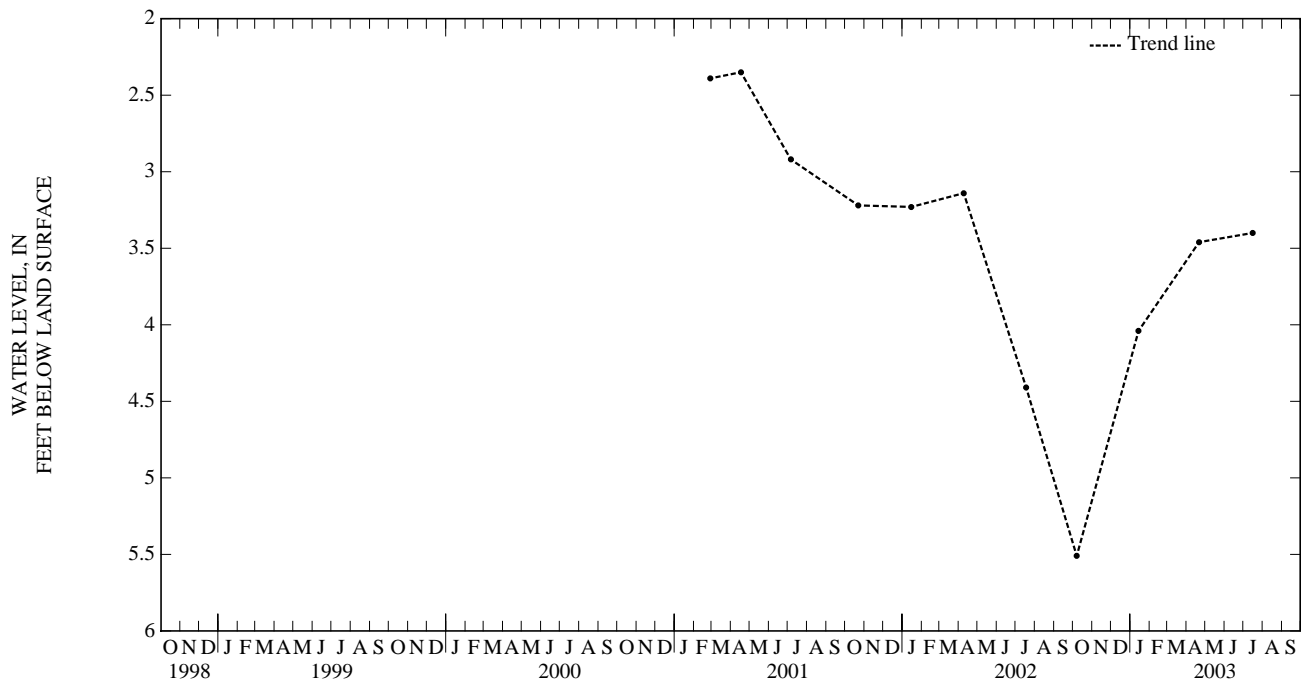
DATUM.--Elevation of land-surface datum is 3 ft, above NGVD of 1929, from topographic map. Measuring point: Top of casing at land-surface.

PERIOD OF RECORD.--1906, February 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.35 ft below land-surface datum, Apr. 17, 2001 ; lowest measured, 5.51 ft below land-surface datum, Oct. 7, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	5.51	JAN 14	4.04	APR 21	3.46	JUL 16	3.40
WATER YEAR 2003 HIGHEST		3.40	JUL 16, 2003	LOWEST		5.51	OCT 07, 2002



## CITY OF ROANOKE

371653079552101. Local number, 31G 1 SOW 008.

LOCATION.--Lat 37°16'53", long 79°55'20", NAD83, Hydrologic Unit 03010101, 700 ft south of intersection of 10th Street and Orange Avenue in Roanoke. Owner: Nelson-Roanoke Corporation.

AQUIFER.--Rome Formation of Cambrian age. Prior to 1974, reported as Elbrook Formation.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 48 ft, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to Oct. 1, 1996, bimonthly measurement with chalked tape. July 20, 1974, to Sept. 30, 1985, occasional measurement with chalked tape. Prior to July 20, 1974, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 930 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.94 ft above land-surface datum.

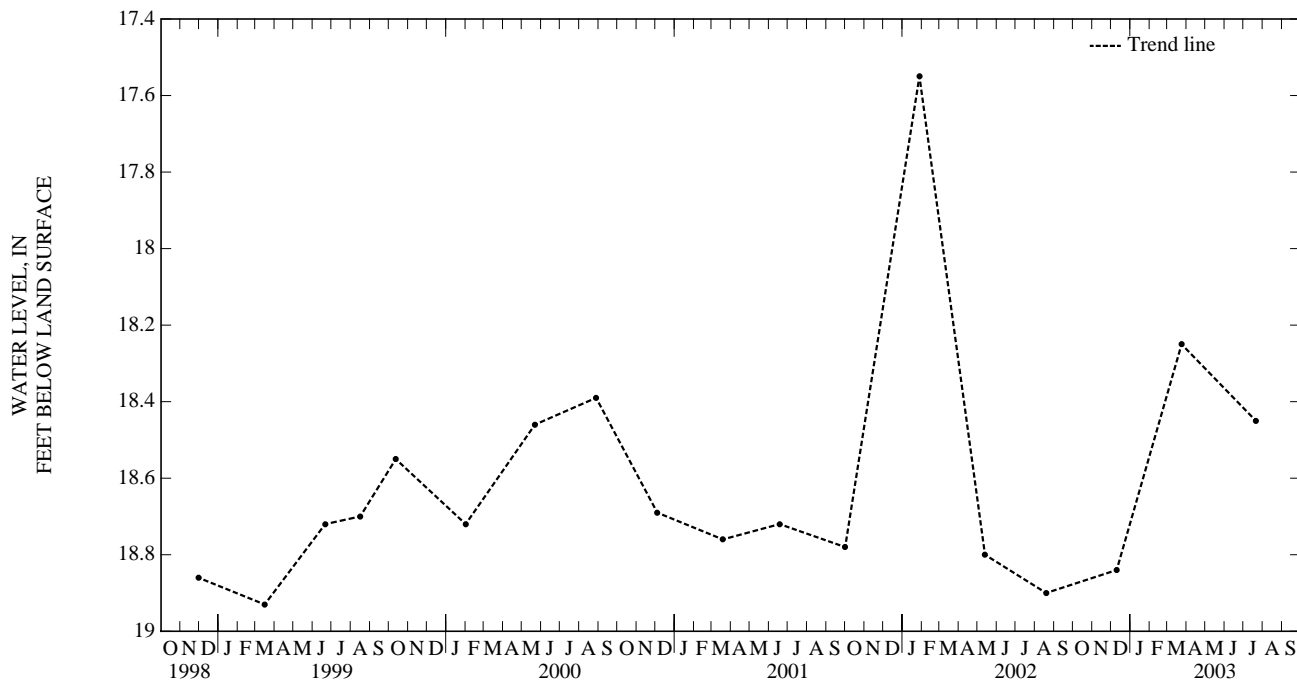
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--August 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.36 ft below land-surface datum, Feb. 18, 1986; lowest measured, 19.29 ft below land-surface datum, June 23, 1987.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 10	18.84	MAR 24	18.25	JUL 21	18.45
WATER YEAR 2003    HIGHEST 18.25 MAR 24, 2003    LOWEST 18.84 DEC 10, 2002					



## ROCKBRIDGE COUNTY

373758079271601. Local number, 35K 1 SOW 063.

LOCATION.--Lat 37°37'58", long 79°27'15", NAD83, Hydrologic Unit 02080202, 0.35 mi northwest of intersection of State Highways 130 and 684 in Glasgow. Owner: Town of Glasgow.

AQUIFER.--Rome Formation of Cambrian age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in., depth 695 ft, cased to 101 ft, open hole from 101 to 695 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel, prior to Oct. 1, 1995 continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 745 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

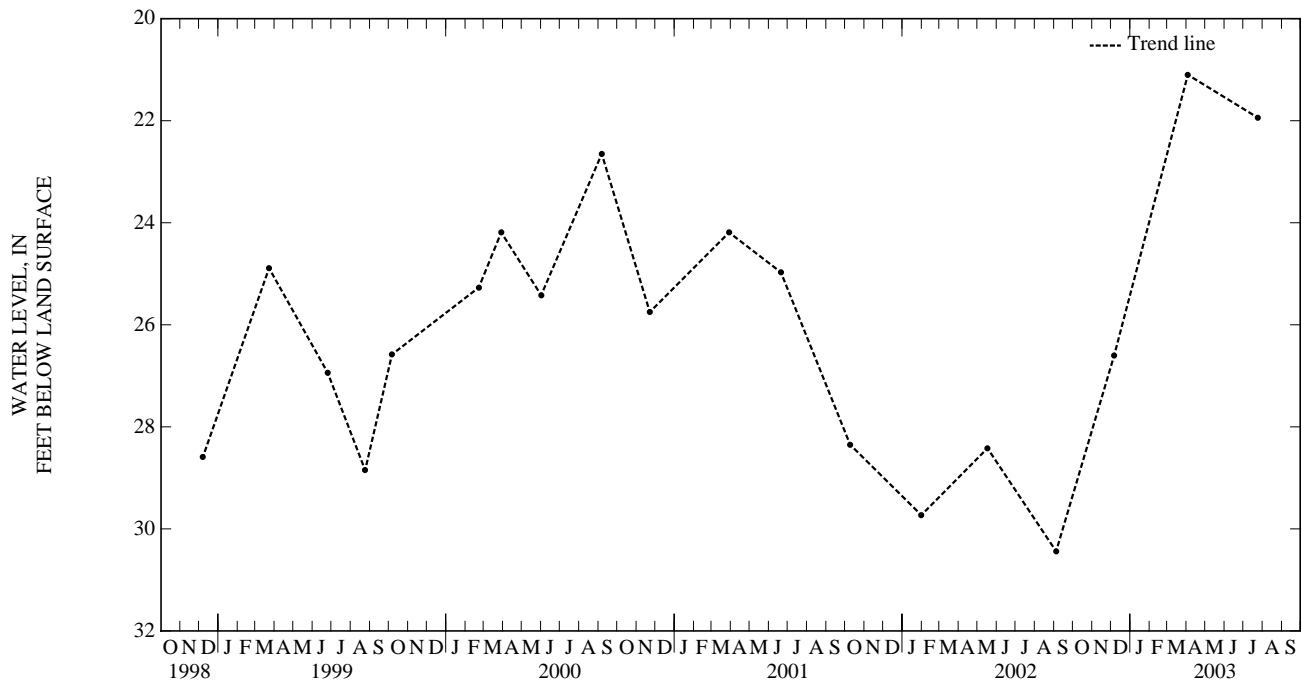
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--June 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 14.27 ft below land-surface datum, Apr. 29, 1987; lowest recorded, 30.44 ft below land-surface datum, Sept. 4, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 06	26.60	APR 03	21.10	JUL 24	21.94
WATER YEAR 2003    HIGHEST   21.10   APR 03, 2003    LOWEST   26.60   DEC 06, 2002					



## ROCKINGHAM COUNTY

382150078424001. Local number, 41Q 1.

LOCATION.--Lat 38°21'50", long 78°42'39", NAD83, Hydrologic Unit 02070005, at Virginia Department of Transportation garage, 1.3 mi southeast of McGaheysville. Owner: U.S. Geological Survey.

AQUIFER.--Conococheague Formation of Late Cambrian age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6.25 in., depth 310 ft, cased to 131 ft, open hole 131 to 310 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. June 27, 1979 to Oct. 1, 1995, digital recorder 60-minute punch. Prior to June 27, 1979, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 1,105 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing 2.4 ft above land-surface datum. Prior to Feb. 27, 1996, top edge of recorder shelf, 3.5 ft above land-surface datum.

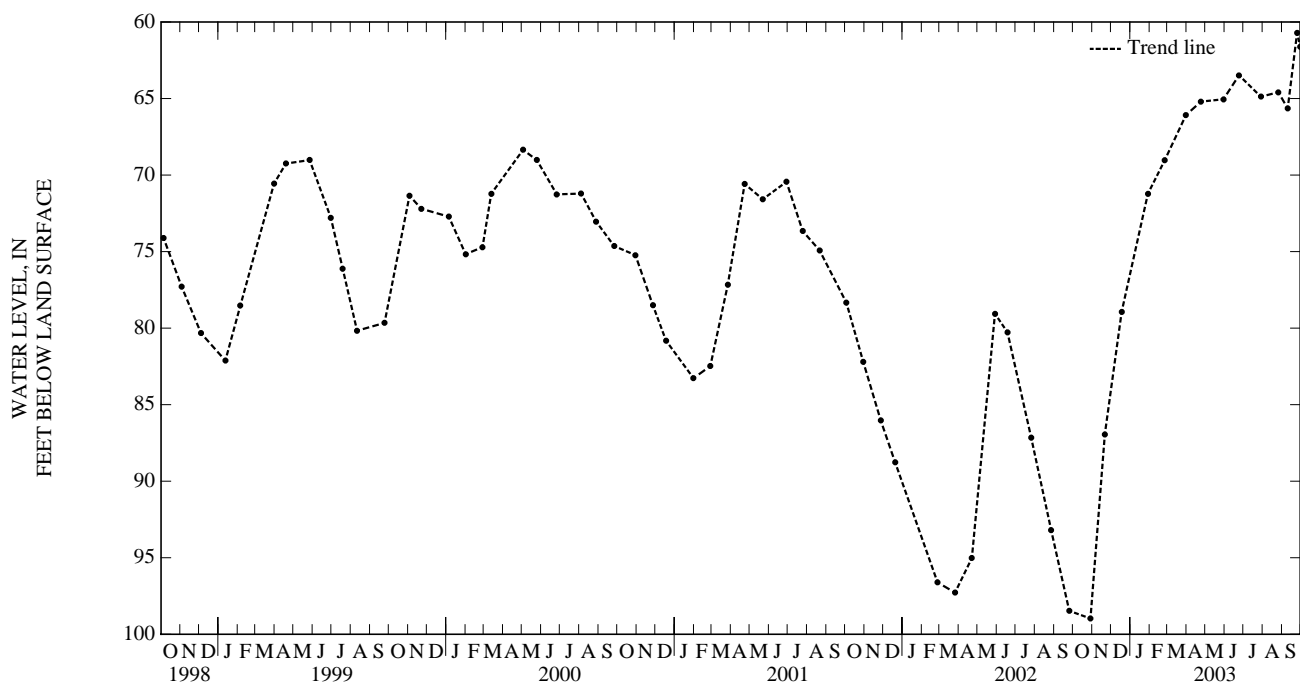
PERIOD OF RECORD.--August 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 57.73 ft below land-surface datum, Feb. 27, 1998; lowest measured, 98.97 ft below land-surface datum, Oct. 29, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	98.97	JAN 29	71.22	APR 24	65.20	JUL 29	64.88	SEP 25	60.71
NOV 21	86.94	FEB 25	69.03	MAY 30	65.05	AUG 26	64.59	30	61.62
DEC 18	78.93	MAR 31	66.08	JUN 24	63.48	SEP 10	65.65		

WATER YEAR 2003 HIGHEST 60.71 SEP 25, 2003 LOWEST 98.97 OCT 29, 2002



## SOUTHAMPTON COUNTY

364109077230701. Local number, 51B 3.

LOCATION.--Lat 36°41'10", long 77°23'06", NAD83, Hydrologic Unit 03010201, 150 ft, west of the intersection of U.S. Highway 58 and State Highway 615, and 0.5mi south of Adams Grove. Owner: U.S. Geological Survey.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 175 ft, screened 165 to 175 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. July 1977 to September 1995, digital recorder 60-minute punch. July 1975 to July 1977 continuous strip-chart recorder. Prior to July 1975 occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 126 ft, above NGVD of 1929, from topographic map. Measuring point: top of recorder shelf, 3.12 ft above land-surface datum.

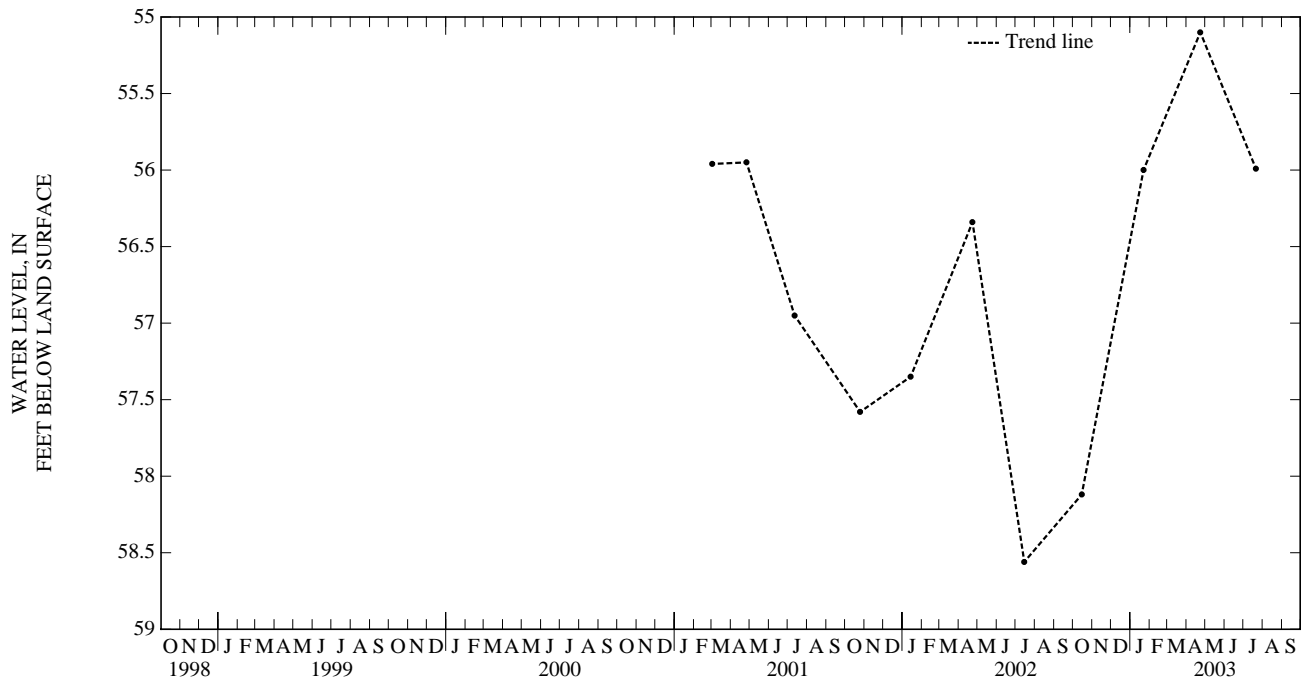
REMARKS.--Water level may be affected by regional drawdown. The depth of the well was reported incorrectly as 253 ft, for the period October 1981 to September 1993.

PERIOD OF RECORD.--October 1974 to September 1995. March 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 54.21 ft, below land-surface datum, Apr. 30, 1978; lowest recorded, 60.03 ft below land-surface datum, Oct. 24, 25, 1981.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	58.12	JAN 22	56.00	APR 23	55.10	JUL 21	55.99
WATER YEAR 2003 HIGHEST		55.10	APR 23, 2003 LOWEST		58.12	OCT 15, 2002	



GROUND-WATER LEVELS  
SOUTHAMPTON COUNTY—Continued

363410077150801. Local number, 52A 1.

LOCATION.--Lat 36°34'11", long 77°15'07", NAD83, Hydrologic Unit 03010204, along Seaboard Coastline railroad, 0.15 mi northwest of intersection of State Highways 195 and 701 in Branchville. Owner: L. W. Grizzard.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 217 ft, screened 204 to 217 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 44 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.

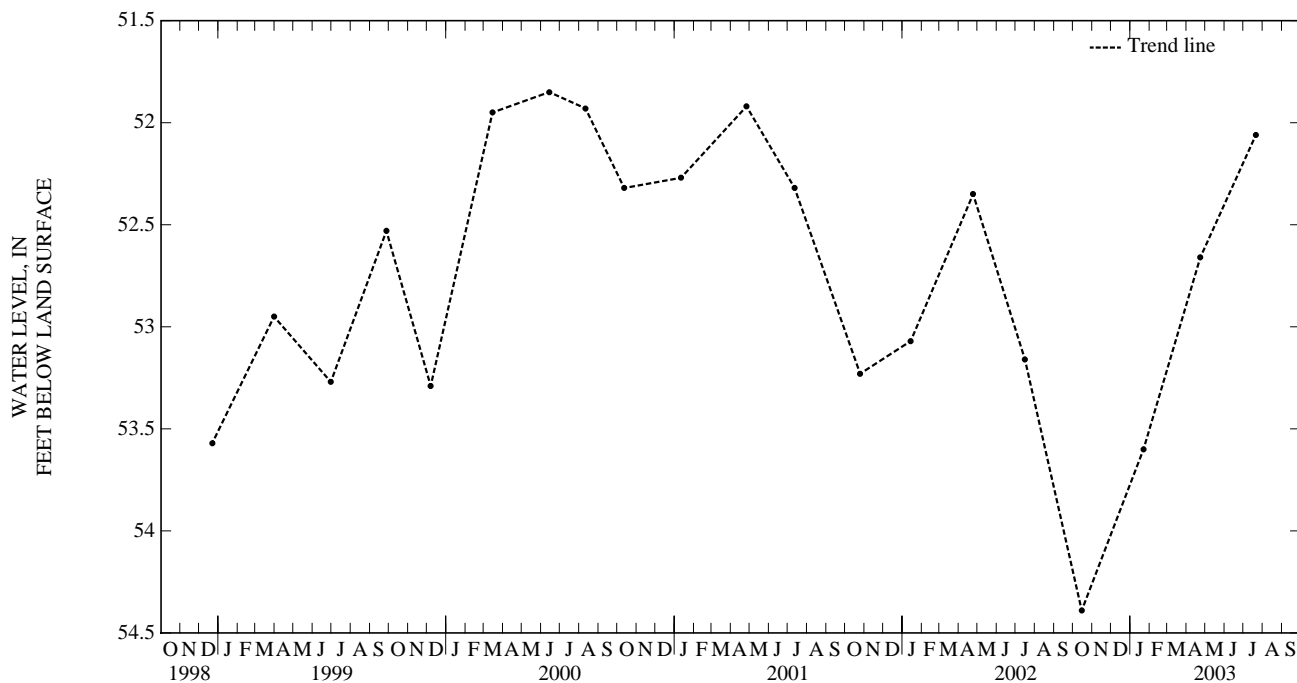
REMARKS.--Water level affected by regional drawdown.

PERIOD OF RECORD.--September 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.85 ft below land-surface datum, Sept. 9, 1970; lowest measured, 54.39 ft below land-surface datum, Oct. 15, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	54.39	JAN 22	53.60	APR 23	52.66	JUL 21	52.06
WATER YEAR 2003    HIGHEST   52.06   JUL 21, 2003    LOWEST   54.39   OCT 15, 2002							



## SOUTHAMPTON COUNTY—Continued

363916077201001. Local number, 52B 8 SOW 178A.

LOCATION.--Lat 36°39'17", long 77°20'09", NAD83, Hydrologic Unit 03010204, 0.25 mi northeast of State Highway 661, 0.6 mi south of the intersection of State Highways 652 and 661, and 4.5 mi southeast of Drewryville. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Newark Supergroup sandstone of Jurassic and Triassic age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 316 ft, screened 285 to 295 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 120 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.6 ft above land-surface datum.

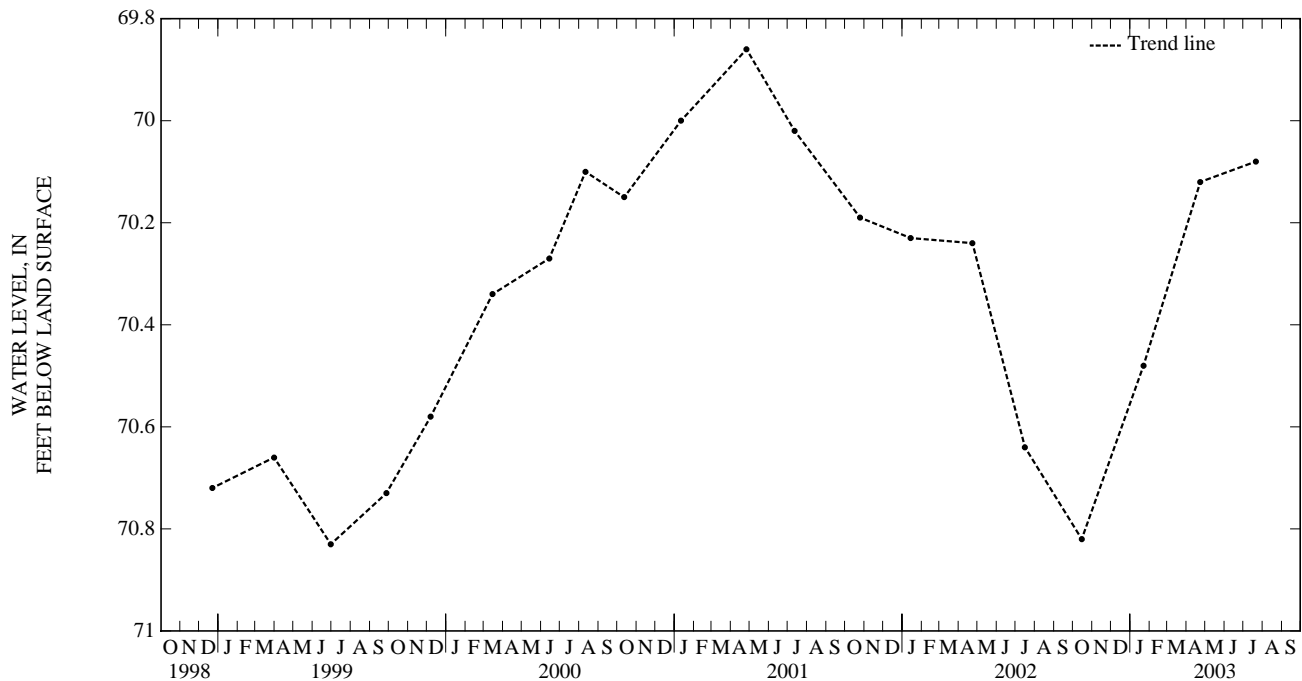
REMARKS.--Water level may be affected by regional drawdown. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--March 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 69.30 ft below land-surface datum, Mar. 15, 1990; lowest measured, 71.39 ft below land-surface datum, Sept. 20, 1995.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	70.82	JAN 22	70.48	APR 23	70.12	JUL 21	70.08
WATER YEAR 2003 HIGHEST		70.08	JUL 21, 2003	LOWEST		70.82	OCT 15, 2002





GROUND-WATER LEVELS  
SOUTHAMPTON COUNTY—Continued

363916077201004. Local number, 52B 11 SOW 178D.

LOCATION.--Lat 36°39'17", long 77°20'09", NAD83, Hydrologic Unit 03010204, 0.25 mi northeast of State Highway 661, 0.6 mi south of intersection of State Highways 652 and 661, and 4.5 mi southeast of Drewryville. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 190 ft, screened 160 to 170 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to November 1987, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 120 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.1 ft above land-surface datum.

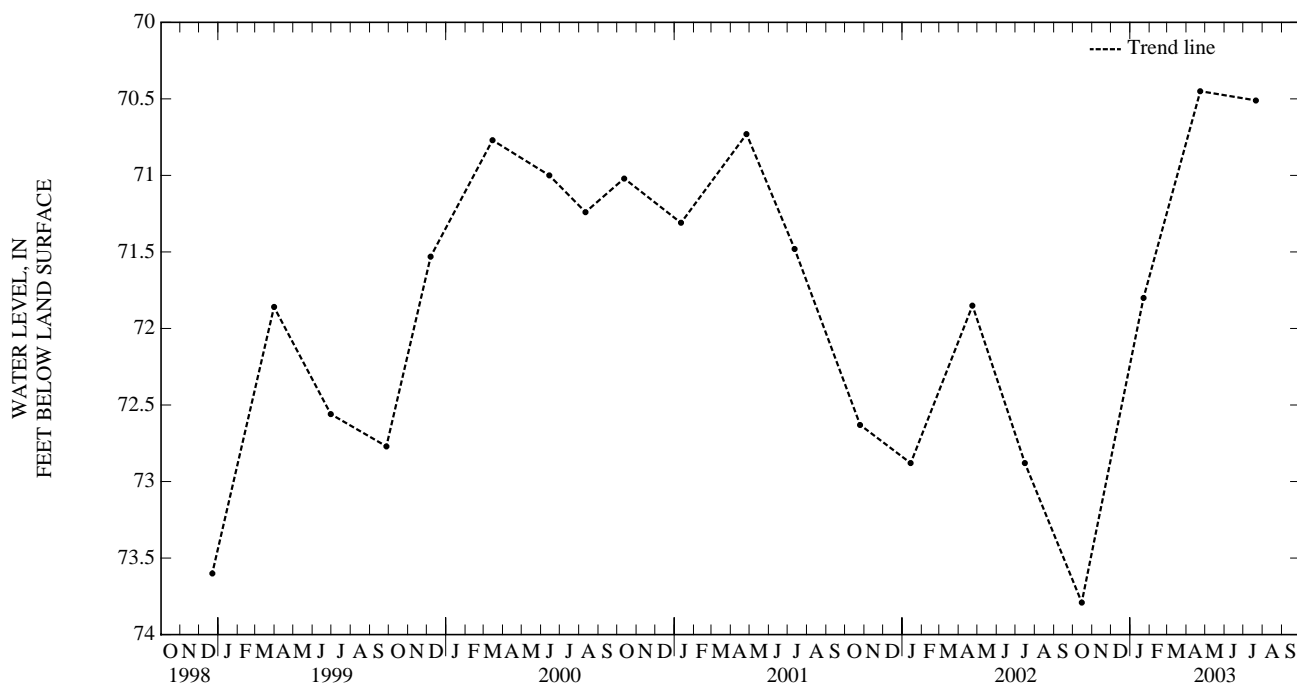
REMARKS.--Water level may be affected by regional drawdown.

PERIOD OF RECORD.--December 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 69.81 ft below land-surface datum, Apr. 16, 1987; lowest measured, 73.89 ft below land-surface datum, Sept. 20, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	73.79	JAN 22	71.80	APR 23	70.45	JUL 21	70.51
WATER YEAR 2003 HIGHEST 70.45 APR 23, 2003				LOWEST 73.79 OCT 15, 2002			



## SOUTHAMPTON COUNTY—Continued

363916077201005. Local number, 52B 12 SOW 178E.

LOCATION.--Lat 36°39'17", long 77°20'09", NAD83, Hydrologic Unit 03010204, 0.25 mi northeast of State Highway 661, 0.6 mi south of intersection of State Highways 652 and 661, and 4.5 mi southeast of Drewryville. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 135 ft, screened 120 to 130 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to November 1987, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 120 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.2 ft above land-surface datum.

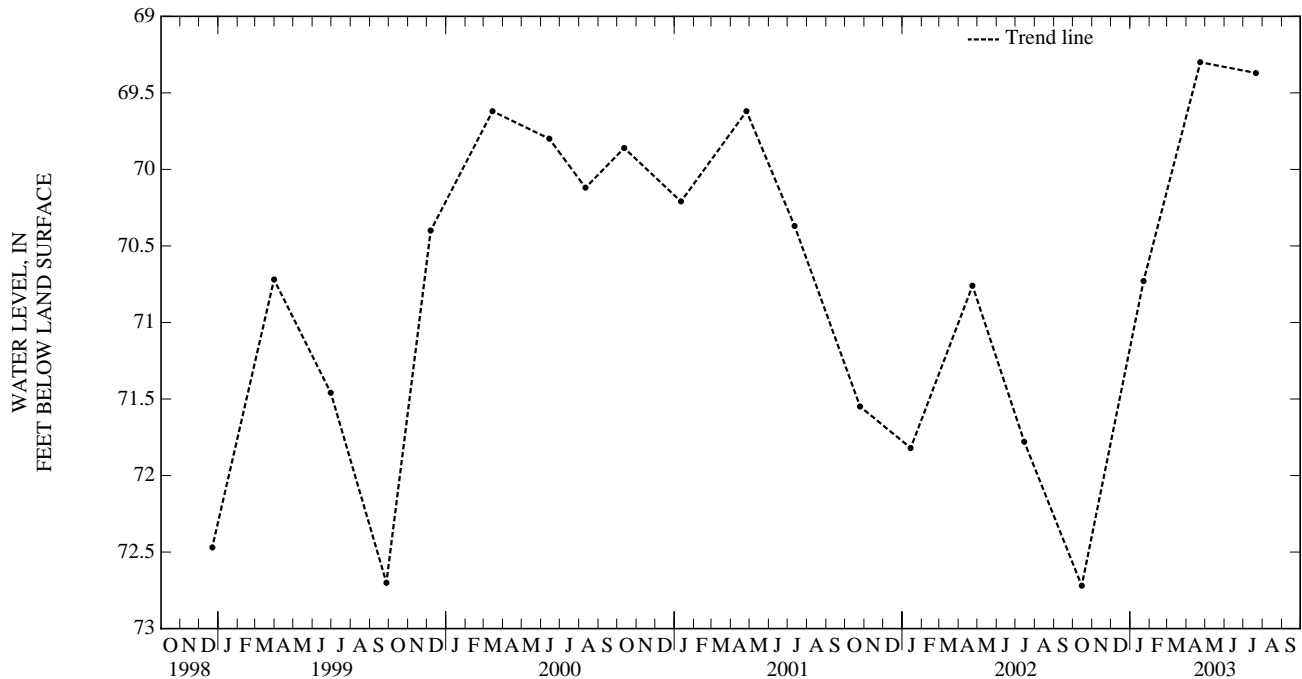
REMARKS.--Water level may be affected by regional drawdown.

PERIOD OF RECORD.--December 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 68.75 ft below land-surface datum, Apr. 16, 1987; lowest measured, 72.86 ft below land-surface datum, Sept. 20, 1995.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	72.72	JAN 22	70.73	APR 23	69.30	JUL 21	69.37
WATER YEAR 2003 HIGHEST		69.30	APR 23, 2003	LOWEST		72.72	OCT 15, 2002



GROUND-WATER LEVELS  
SOUTHAMPTON COUNTY—Continued

363916077201006. Local number, 52B 13 SOW 178F.

LOCATION.--Lat 36°39'17", long 77°20'09", NAD83, Hydrologic Unit 03010204, 0.25 mi northeast of State Highway 661, 0.6 mi south of intersection of State Highways 652 and 661, and 4.5 mi southeast of Drewryville. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 65 ft, screened 40 to 50 ft.

INSTRUMENTATION.--Occasional measurements with chalked tape by USGS personnel. Prior to November 1987, digital recorder 60-minute punch.

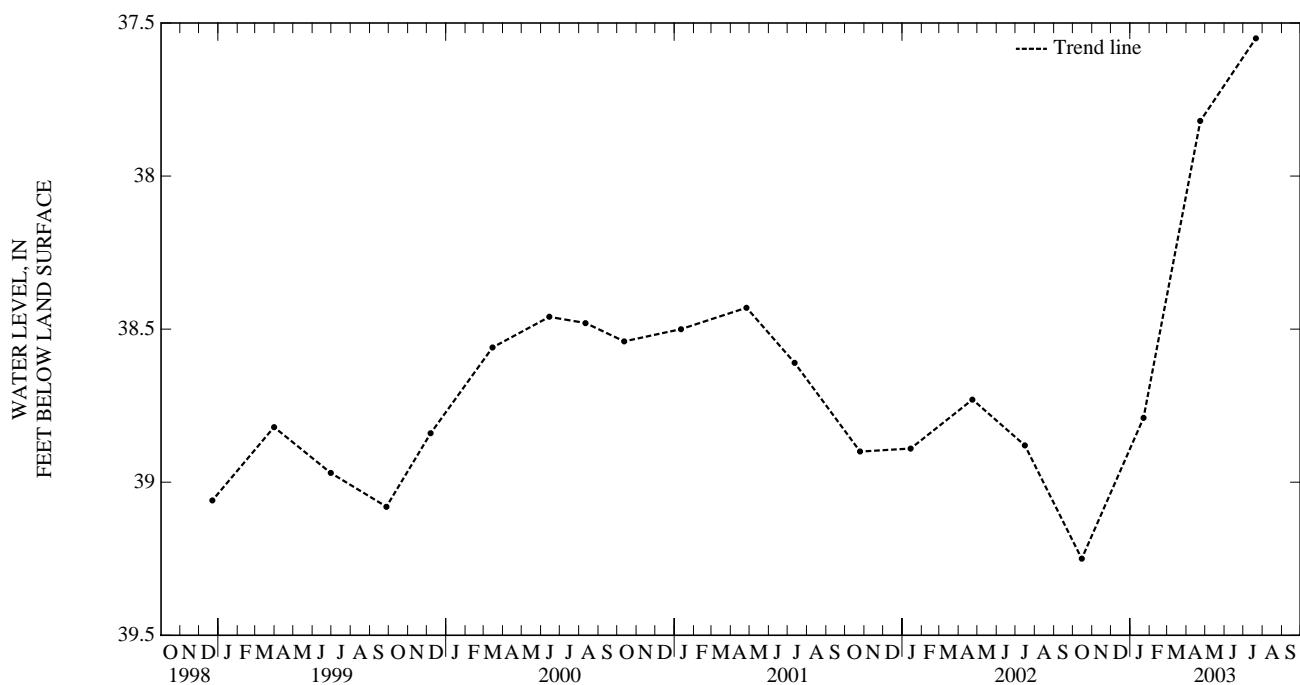
DATUM.--Elevation of land-surface datum is 120 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.9 ft above land-surface datum.

PERIOD OF RECORD.--December 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.55 ft below land-surface datum, July 21, 2003; lowest recorded, 43.77 ft below land-surface datum, Oct. 6-9, 1987.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	39.25	JAN 22	38.79	APR 23	37.82	JUL 21	37.55
WATER YEAR 2003 HIGHEST		37.55	JUL 21, 2003	LOWEST		39.25	OCT 15, 2002



## SOUTHAMPTON COUNTY—Continued

364242077121501. Local number, 53B 6.

LOCATION.--Lat 36°42'43", long 77°12'14", NAD83, Hydrologic Unit 03010201, at Virginia Department of Transportation - Capron Area Headquarters, 50 ft east of State Highway 654 and 2000 ft north of U.S. Highway 58. Owner: U.S. Geological Survey.

AQUIFER.--Aquia of Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 115.65 ft, screened 110.65 ft to 115.65 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1998 to Oct. 1, 1999, occasional measurement with chalked tape by USGS personnel. Prior to Oct. 1, 1998, monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 95 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.88 ft above land-surface datum prior to Dec. 23, 1998; 1.16 ft thereafter.

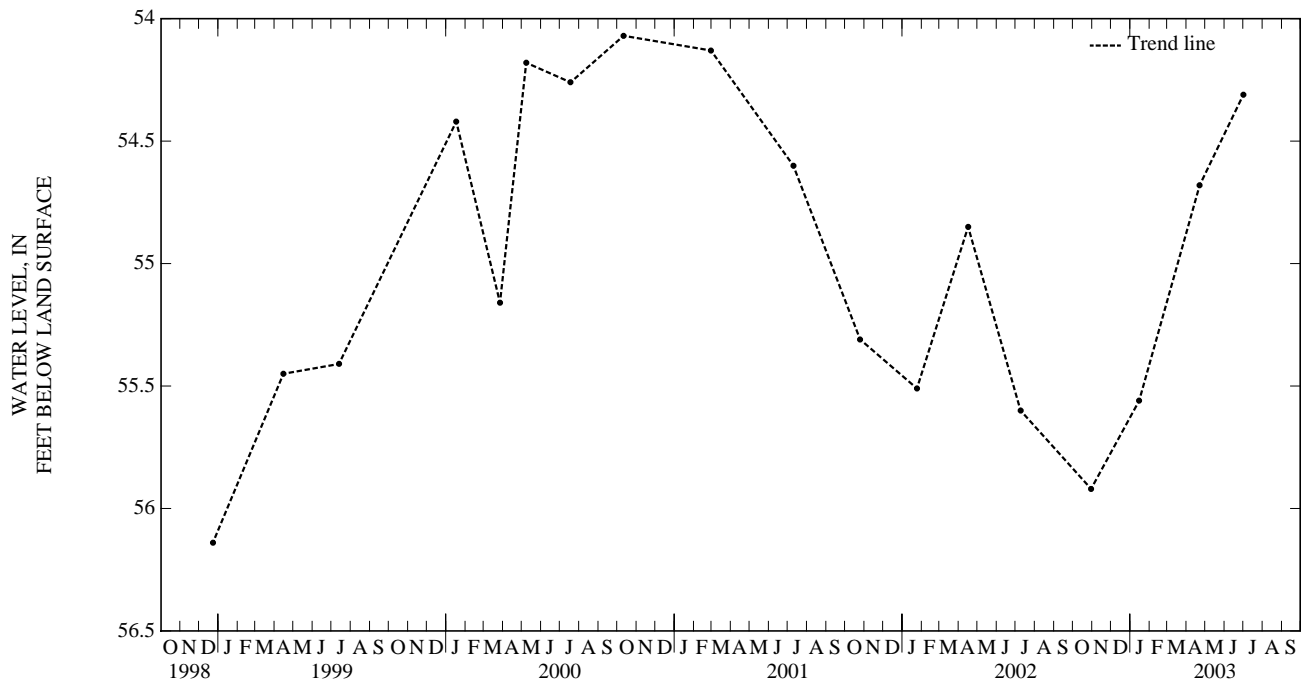
REMARKS.--Records provided by Virginia Department of Environmental Quality - Water Division. Well drilled as part of Fall Zone ground-water study.

PERIOD OF RECORD.--May 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.18 ft below land-surface datum, May 8, 2000; lowest measured, 56.14 ft below land-surface datum, Dec. 23, 1998.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	55.92	JAN 15	55.56	APR 22	54.68	JUL 01	54.31
WATER YEAR 2003 HIGHEST		54.31	JUL 01, 2003 LOWEST		55.92	OCT 30, 2002	



GROUND-WATER LEVELS  
SOUTHAMPTON COUNTY—Continued

364242077121502. Local number, 53B 7.

LOCATION.--Lat 36°42'43", long 77°12'14", NAD83, Hydrologic Unit 03010201, at Virginia Department of Transportation - Capron Area Headquarters, 50 ft east of State Highway 654 and 2000 ft north of U.S. Highway 58. Owner: U.S. Geological Survey.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 80.77 ft, screened 75.77 ft to 80.77 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1998 to Oct. 1, 1999, occasional measurement with chalked tape by USGS personnel. Prior to Oct. 1, 1998, monthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 95 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.82 ft above land-surface datum prior to Dec. 23, 1998; 1.09 ft thereafter.

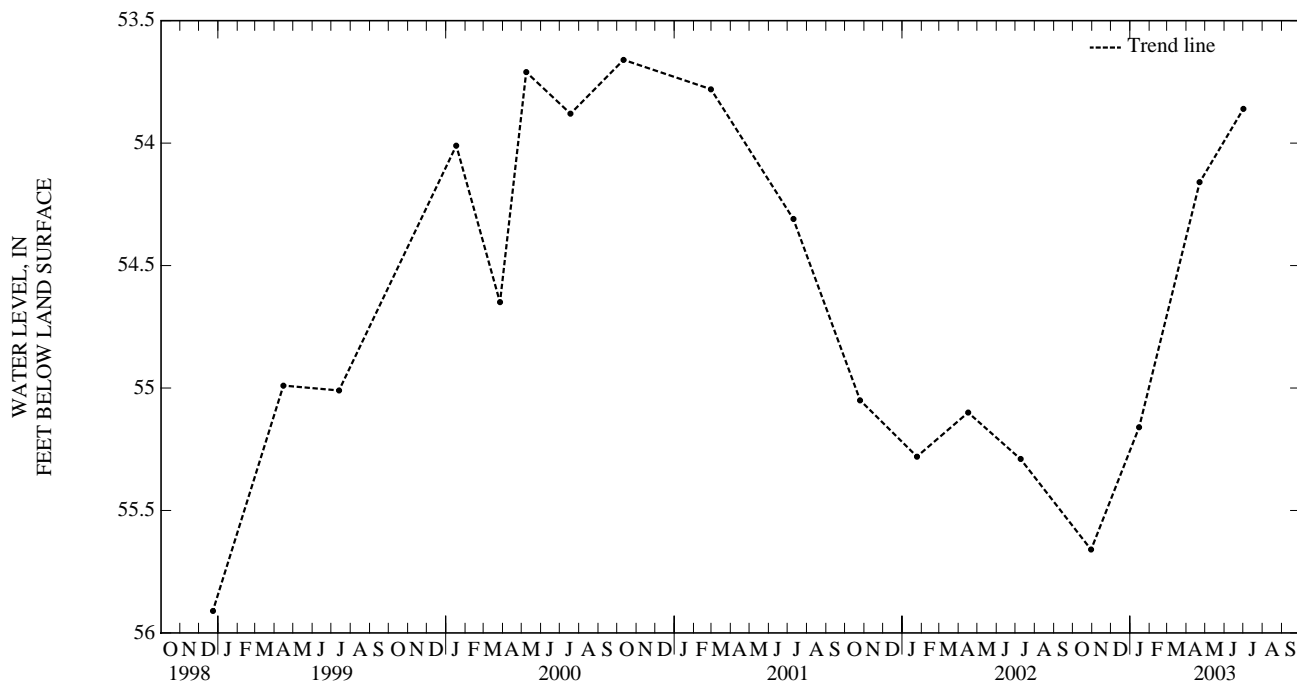
REMARKS.--Records provided by Virginia Department of Environmental Quality - Water Division. Well drilled as part of Fall Zone ground-water study.

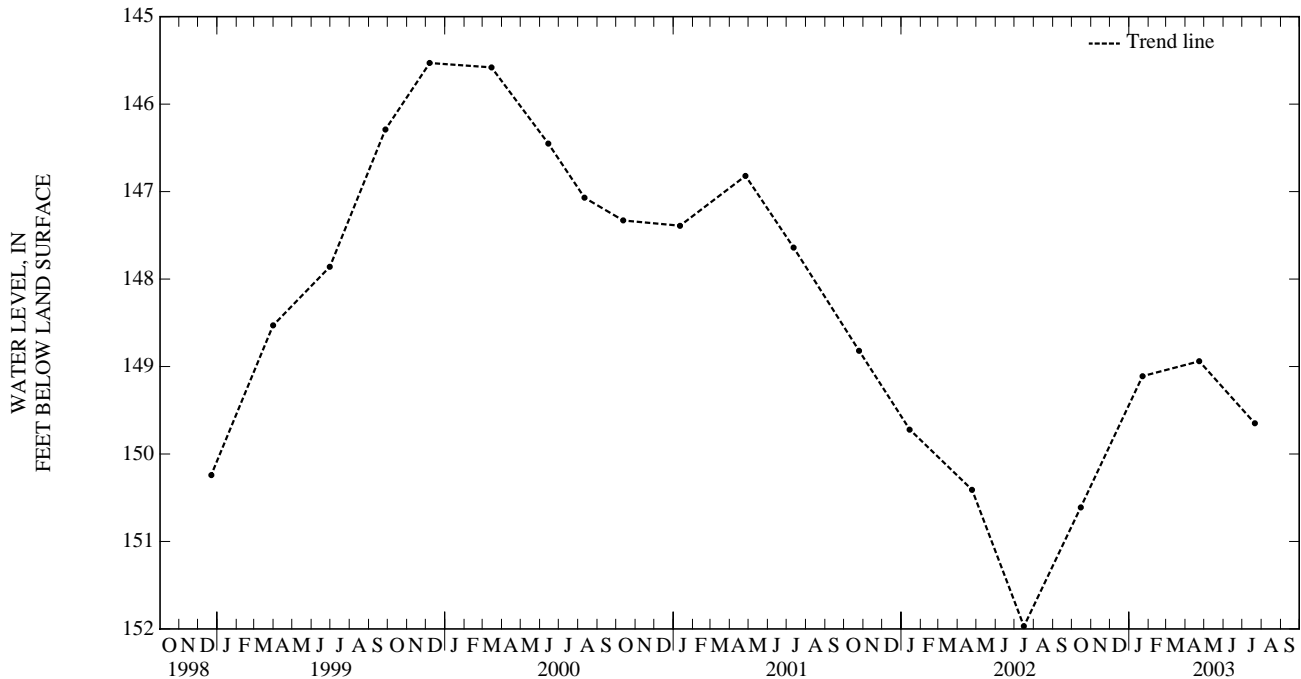
PERIOD OF RECORD.--May 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 53.29 ft below land-surface datum, May 7, 1997; lowest measured, 55.91 ft below land-surface datum, Dec. 23, 1998.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	55.66	JAN 15	55.16	APR 22	54.16	JUL 01	53.86
WATER YEAR 2003 HIGHEST		53.86	JUL 01, 2003 LOWEST		55.66	OCT 30, 2002	





## SOUTHAMPTON COUNTY—Continued

363632076580101. Local number, 55A 3 SOW 086.

LOCATION.--Lat 36°36'33", long 76°58'00", NAD83, Hydrologic Unit 03010201, 0.1 mi southeast of intersection of State Highways 687 and 689, 4.0 mi southwest of Franklin. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Lower Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 745 ft, screened 714 to 724 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 16, 1992, to July 19, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Mar. 2, 1989, to Oct. 15, 1992, occasional measurement with chalked tape by USGS. Prior to Oct. 16, 1989, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 18 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum prior to Jan. 11, 1988; 1.3 ft thereafter.

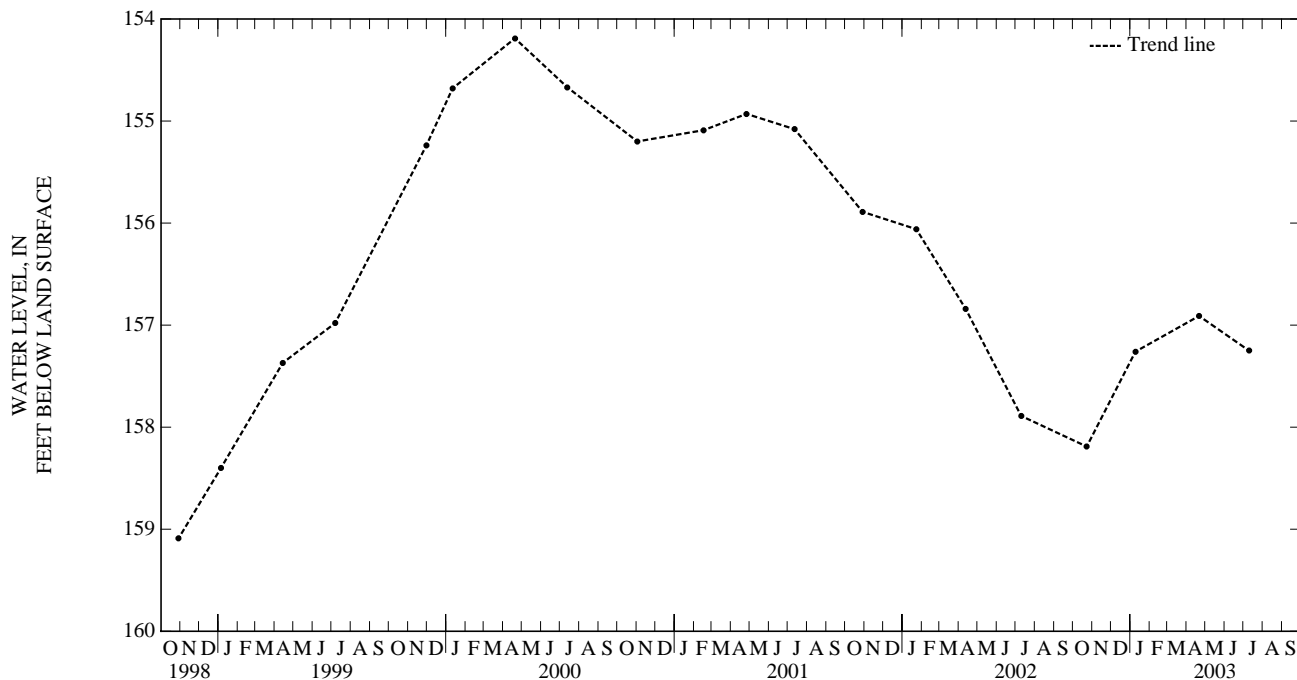
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division prior to Mar. 1, 1989; U.S. Geological Survey Mar. 2, 1989, to Oct. 7, 1992; Virginia Department of Environmental Quality - Water Division thereafter. Water level affected by regional drawdown.

PERIOD OF RECORD.--March 1977, October 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 125.00 ft below land-surface datum, Mar. 18, 1977; lowest measured, 159.67 ft below land-surface datum, Oct. 11, 1995.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	158.19	JAN 09	157.26	APR 21	156.91	JUL 10	157.25
WATER YEAR 2003 HIGHEST		156.91	APR 21, 2003	LOWEST		158.19	OCT 23, 2002



## SOUTHAMPTON COUNTY—Continued

364628076552701. Local number, 55C 3.

LOCATION.--Lat 36°46'29", long 76°25'26", NAD83, Hydrologic Unit 03010202, 0.2 mi north of Black Creek, at the intersection of State Highways 638 and 626. Owner: Black Creek Baptist Church.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTIC.--Drilled unused water well, diameter 4 in., depth 312 ft, screened 300 to 312 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface is 57 ft above NGVD of 1929, from topographic map. Measuring Point: Top of coupling in breather pipe, 1.60 ft above land-surface datum prior to May 29, 2001; 1.12 ft thereafter.

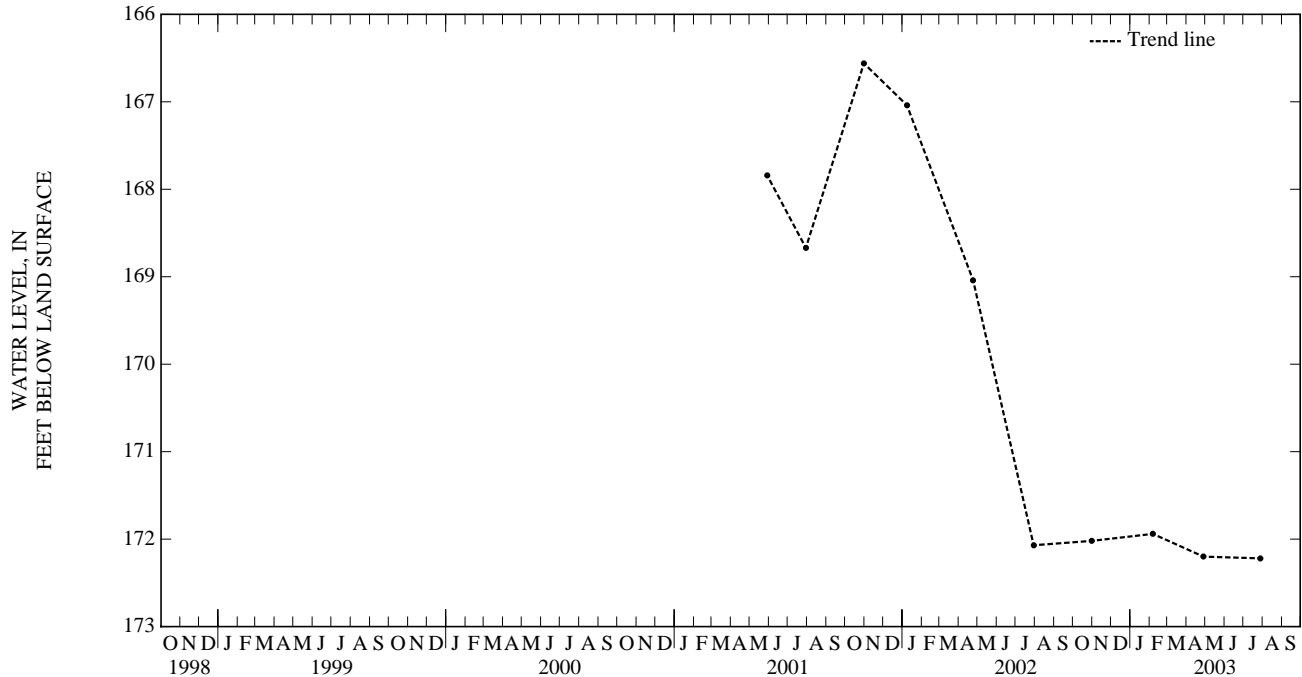
Remarks.--Water level affected by regional drawdown. Unpublished records available prior to October 1986 in files of the Geological Survey.

PERIOD OF RECORD.--August 1970 to December 1975, January 1978 to March 1990, May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 132.80 ft below land-surface datum, Dec. 29, 1970; lowest measured, 172.22 ft below land-surface datum, July 28, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	172.02	FEB 06	171.94	APR 28	172.20	JUL 28	172.22
WATER YEAR 2003 HIGHEST 171.94 FEB 06, 2003				LOWEST 172.22 JUL 28, 2003			





GROUND-WATER LEVELS  
SOUTHAMPTON COUNTY—Continued

365120076585101. Local number, 55C 10.

LOCATION.--Lat 36°51'21", long 76°58'50", NAD83, Hydrologic Unit 03010202, 100 ft west of State Highway 616, 0.3 mi south of Berlin. Owner: R. L. Harrup.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled withdrawal water well, diameter 4 in., depth 326 ft, screened 316 to 326 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 65 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

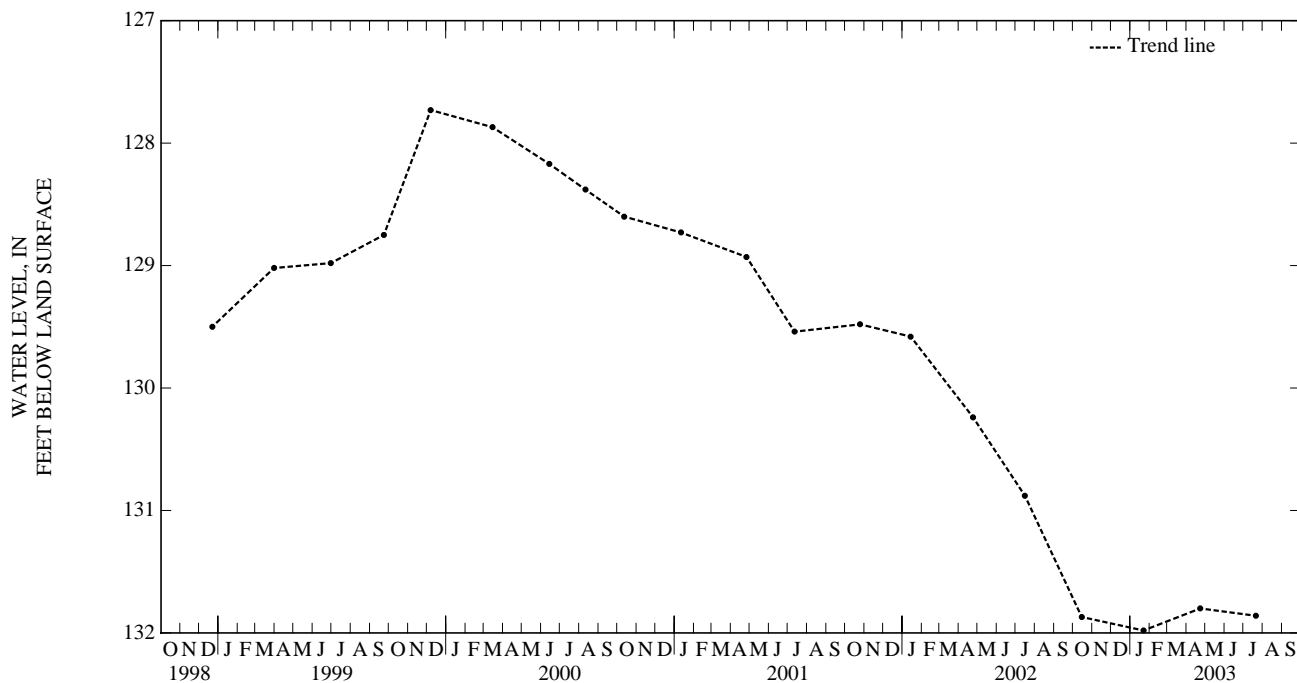
REMARKS.--Water level affected by regional drawdown.

PERIOD OF RECORD.--August 1970 to December 1975, January 1978 to current year. Unpublished records available prior to October 1985 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 94.62 ft below land-surface datum, Aug. 21, 1970; lowest measured, 132.10 ft below land-surface datum, Apr. 2, 1996.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	131.87	JAN 22	131.98	APR 23	131.80	JUL 21	131.86
WATER YEAR 2003    HIGHEST 131.80 APR 23, 2003    LOWEST 131.98 JAN 22, 2003							



## CITY OF SUFFOLK

363345076470201. Local number, 56A 10 SOW 088A.

LOCATION.--Lat 36°33'46", long 76°47'01", NAD83, Hydrologic Unit 03010203, 0.1 mi north of intersection of State Highways 668 and 669, 1.9 mi west of Somerton. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Lower Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 1,060 ft, screened 1,050 to 1,060 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 16, 1992, to July 19, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Mar. 2, 1989, to Oct. 15, 1992, occasional measurement with chalked tape by USGS. Prior to Oct. 16, 1989, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 45 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum prior to Jan. 12, 1988; 1.3 ft thereafter.

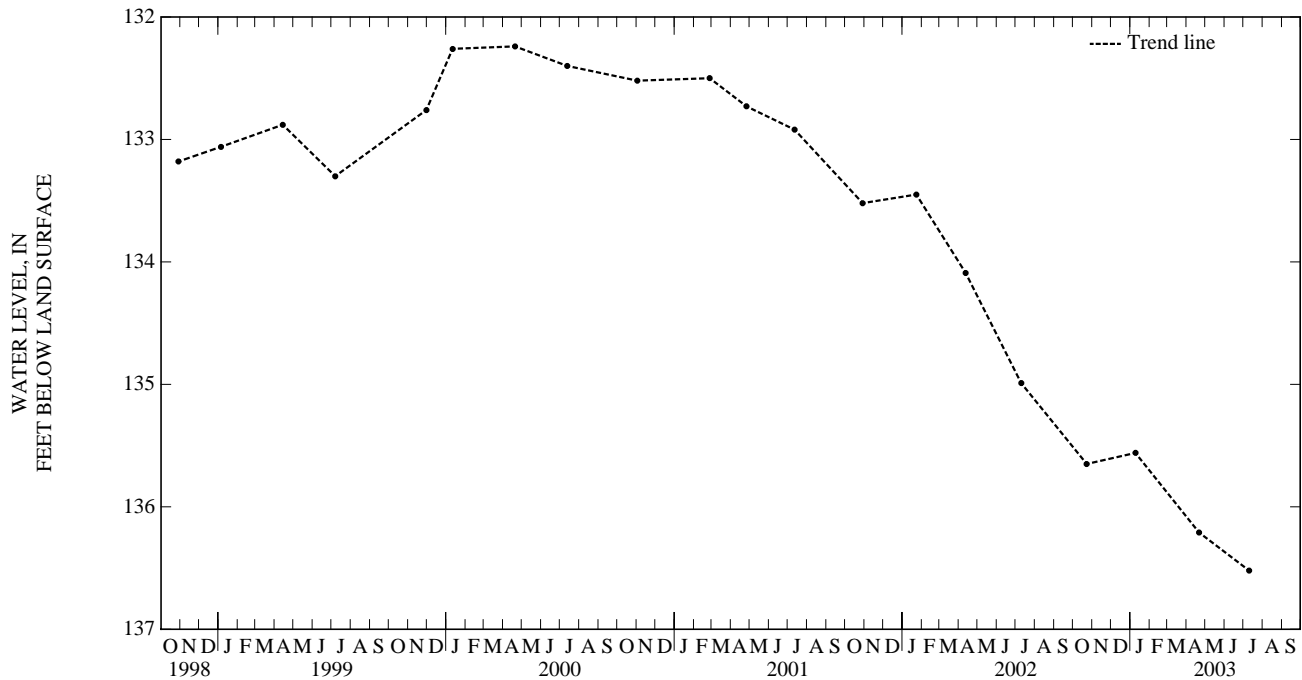
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division prior to Mar. 1, 1989; U.S. Geological Survey Mar. 2, 1989, to Oct. 15, 1992; Virginia Department of Environmental Quality - Water Division thereafter. Water level affected by regional drawdown.

PERIOD OF RECORD.--June 1977 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 104.70 ft below land-surface datum, June 30, 1980; lowest measured, 136.52 ft below land-surface datum, July 10, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	135.65	JAN 09	135.56	APR 21	136.21	JUL 10	136.52
WATER YEAR 2003 HIGHEST 135.56		JAN 09, 2003		LOWEST 136.52		JUL 10, 2003	



GROUND-WATER LEVELS  
CITY OF SUFFOLK—Continued

363653076455401. Local number, 56A 11 SOW 089.

LOCATION.--Lat 36°36'54", long 76°45'53", NAD83, Hydrologic Unit 03010203, off State Highway 616, 1.1 mi east of Holy Neck Church, and 3.4 mi north of Somerton. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 861 ft, screened 830 to 840 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 16, 1992, to July 19, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Mar. 2, 1989, to Oct. 15, 1992, occasional measurement with chalked tape by USGS. Prior to Oct. 16, 1989, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 79 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum prior to Nov. 18, 1987; 0.6 ft Nov. 18, 1987, to Jan. 12, 1988; 1.3 ft thereafter.

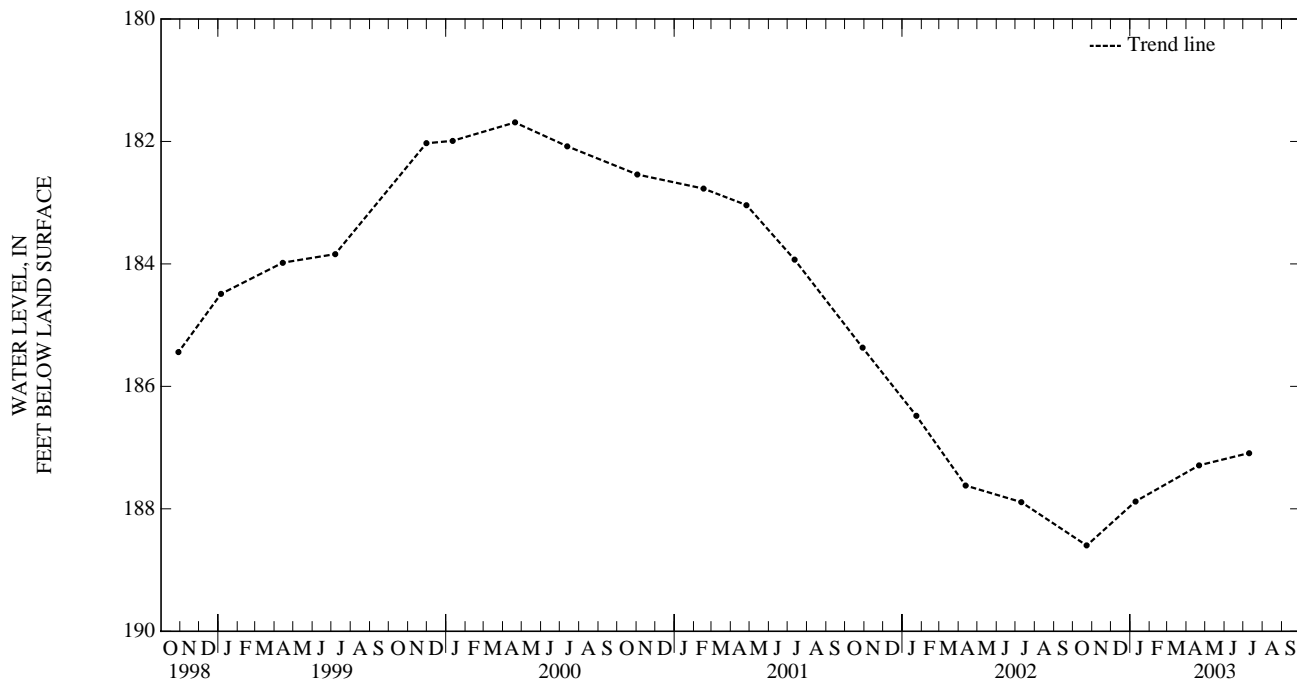
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division prior to Mar. 1, 1989; U.S. Geological Survey Mar. 2, 1989, to Oct. 15, 1992; Virginia Department of Environmental Quality - Water Division thereafter. Water level affected by regional drawdown.

PERIOD OF RECORD.--August 1977 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 154.00 ft below land-surface datum, Aug. 9, 1977; lowest measured, 188.60 ft below land-surface datum, Oct. 23, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	188.60	JAN 09	187.88	APR 21	187.29	JUL 10	187.09
WATER YEAR 2003		HIGHEST	187.09	JUL 10, 2003	LOWEST	188.60	OCT 23, 2002



## CITY OF SUFFOLK—Continued

363345076470202. Local number, 56A 12 SOW 088B.

LOCATION.--Lat 36°33'46", long 76°47'01", NAD83, Hydrologic Unit 03010203, 0.1 mi north of intersection of State Highways 668 and 669, 1.9 mi west of Somerton. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 580 ft, screened 570 to 580 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 8, 1992, to July 19, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Mar. 2, 1989, to Oct. 7, 1992, occasional measurement with chalked tape by USGS. Prior to Oct. 8, 1989, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 45 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum prior to Jan. 12, 1988; 1.3 ft thereafter.

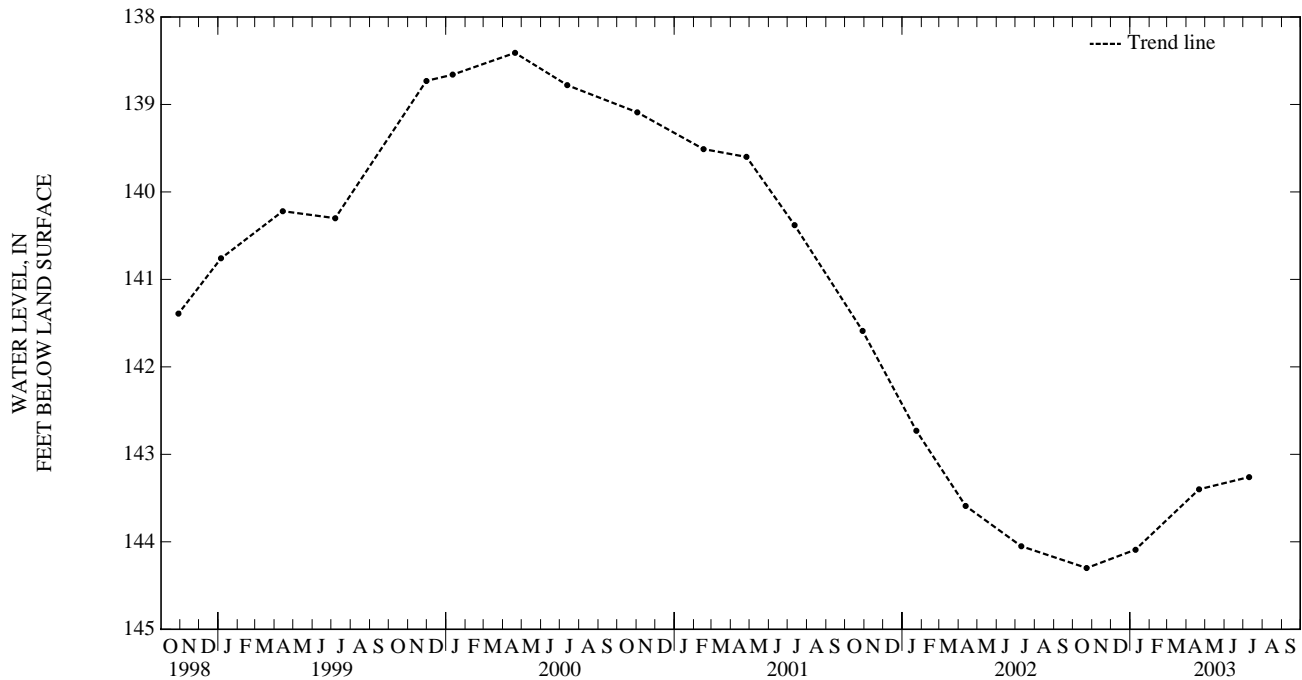
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division prior to Mar. 1, 1989; U.S. Geological Survey Mar. 2, 1989, to Oct. 7, 1992; Virginia Department of Environmental Quality - Water Division thereafter. Water level affected by regional drawdown.

PERIOD OF RECORD.--June 1977 to November 1982, June 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 103.00 ft below land-surface datum, June 30, 1977; lowest measured, 144.30 ft below land-surface datum, Oct. 23, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	144.30	JAN 09	144.09	APR 21	143.40	JUL 10	143.26
WATER YEAR 2003 HIGHEST		143.26	JUL 10, 2003 LOWEST		144.30	OCT 23, 2002	



GROUND-WATER LEVELS  
CITY OF SUFFOLK—Continued

363625076522602. Local number, 56A 13 SOW 076B.

LOCATION.--Lat 36°36'26", long 76°52'25", NAD83, Hydrologic Unit 03010203, 700 ft west of State Highway 615, 0.5 mi southwest of Olive Branch Church, and 8.1 mi south of Holland. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Lower Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 807 ft, screened 797 to 802 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 16, 1992, to July 19, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Mar. 2, 1989, to Oct. 15, 1992, occasional measurement with chalked tape by USGS. Prior to Oct. 16, 1989, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 75 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum prior to Jan. 12, 1988; 0.8 ft thereafter.

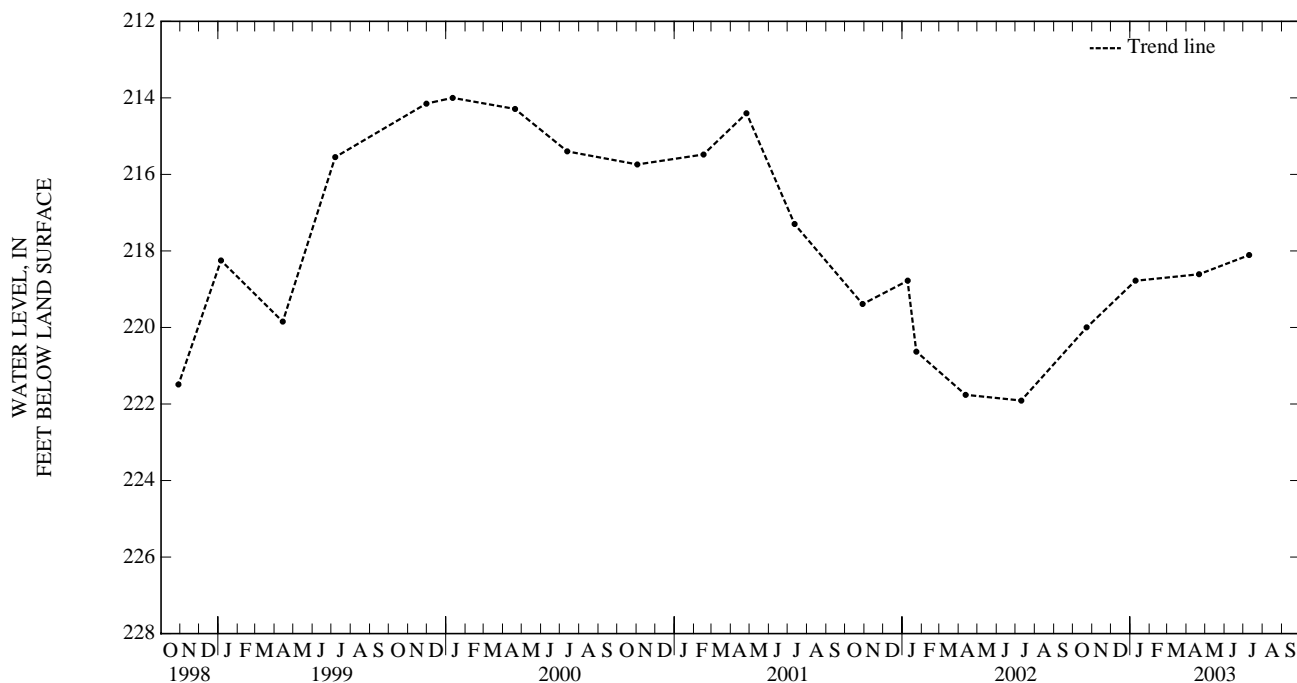
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division prior to Mar. 1, 1989; U.S. Geological Survey Mar. 2, 1989, to Oct. 15, 1992; Virginia Department of Environmental Quality - Water Division thereafter. Water level affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--May 1979 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 204.34 ft below land-surface datum, Oct. 26, 1982; lowest measured, 228.29 ft below land-surface datum, May 5, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	220.00	JAN 09	218.78	APR 21	218.61	JUL 10	218.11
WATER YEAR 2003 HIGHEST 218.11 JUL 10, 2003				LOWEST 220.00 OCT 23, 2002			



## CITY OF SUFFOLK—Continued

363625076522603. Local number, 56A 14 SOW 076C.

LOCATION.--Lat 36°36'26", long 76°52'25", NAD83, Hydrologic Unit 03010203, 700 ft west of State Highway 615, 0.5 mi southwest of Olive Branch Church, and 8.1 mi south of Holland. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 735 ft, screened 730 to 735 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 16, 1992, to July 19, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Mar. 2, 1989, to Oct. 15, 1992, occasional measurement with chalked tape by USGS. Prior to Oct. 16, 1989, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 75 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum prior to Jan. 12, 1988; 1.2 ft thereafter.

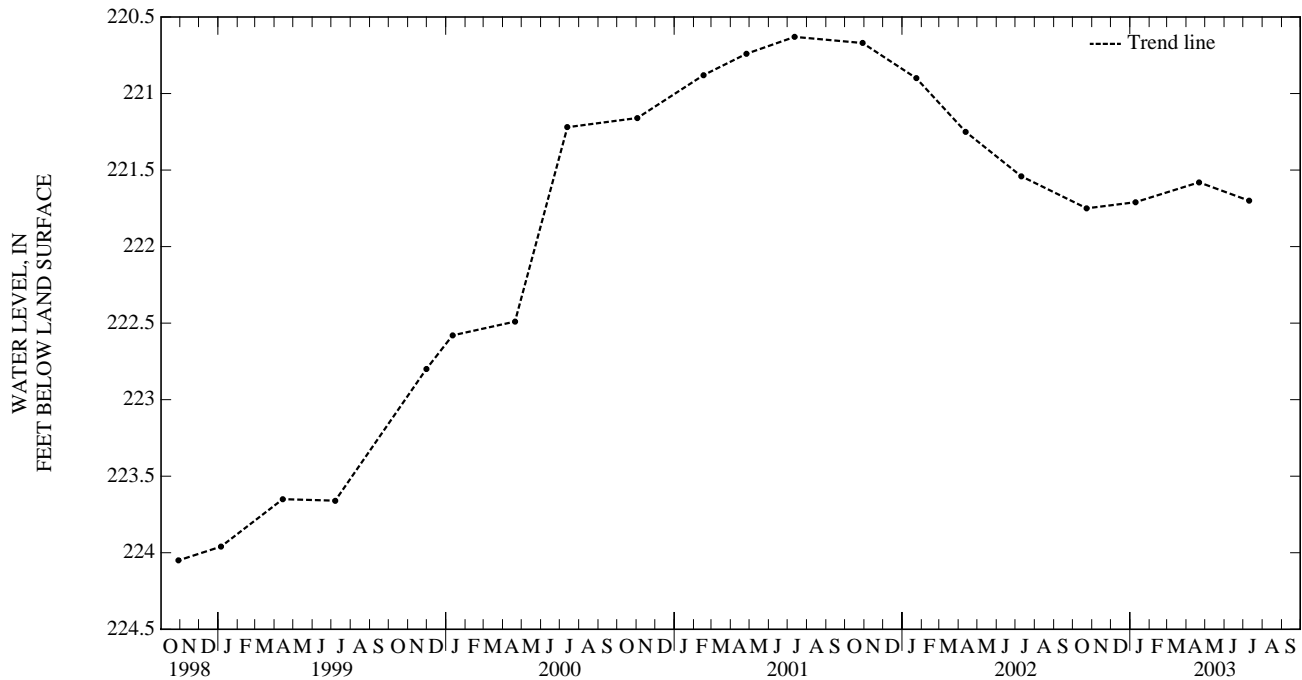
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division prior to Mar. 1, 1989; U.S. Geological Survey Mar. 2, 1989, to Oct. 15, 1992; Virginia Department of Environmental Quality - Water Division thereafter. Water level affected by regional drawdown.

PERIOD OF RECORD.--March 1979 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 205.62 ft below land-surface datum, Mar. 7, 1979; lowest measured, 224.05 ft below land-surface datum, Oct. 29, 1998.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	221.75	JAN 09	221.71	APR 21	221.58	JUL 10	221.70
WATER YEAR 2003		HIGHEST	221.58	APR 21, 2003	LOWEST	221.75	OCT 23, 2002



GROUND-WATER LEVELS  
CITY OF SUFFOLK—Continued

363834076382301. Local number, 57B 8.

LOCATION.--Lat 36°38'28", long 76°38'04", NAD83, Hydrologic Unit 03010205, 0.3 mi southwest of State Highway 664, 0.8 mi southeast of U.S. Highway 13, and 1.1 mi south of Nurneysville. Owner: Russ Family.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled flowing water well, diameter 2 in., depth 65 ft, screened 50 to 65 ft.

INSTRUMENTATION.--Occasional measurement with manometer by USGS personnel. Dec. 1, 1988, to June 1, 1990, quarterly measurement with a manometer. Prior to Dec. 1, 1988, bimonthly measurement with a manometer.

DATUM.--Elevation of land-surface datum is 45 ft above NGVD of 1929, from topographic map. Measuring point: At land-surface datum.

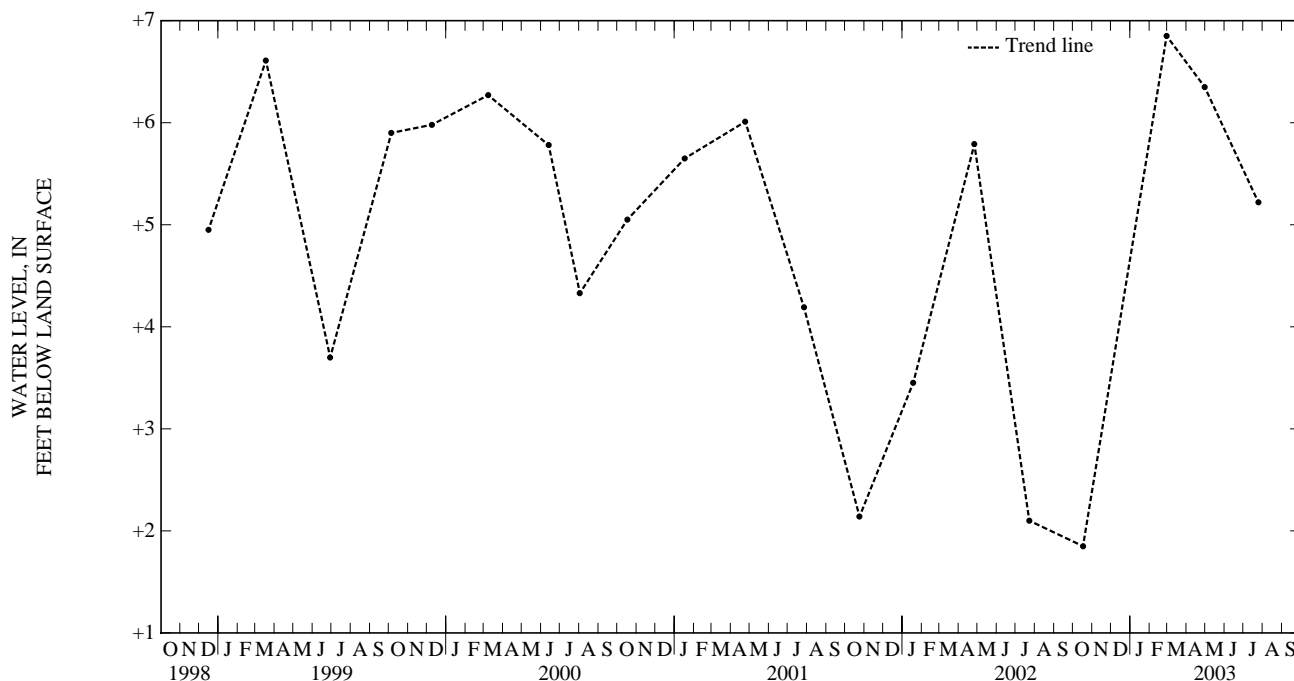
REMARKS.--Capped flowing well; readings are above land-surface datum. Occasional small withdrawals that supply nearby cabin can effect water levels.

PERIOD OF RECORD.--March 1975, November 1977 to current year. Unpublished records available March 1975 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.85 ft above land-surface datum, Feb. 28, 2003; lowest measured, at land-surface datum, Sept. 26, 1980.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM (READINGS ABOVE LAND-SURFACE INDICATED BY "+"), WATER YEAR  
OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	+1.85	FEB 28	+6.85	APR 30	+6.35	JUL 25	+5.22
WATER YEAR 2003		HIGHEST	+6.85 FEB 28, 2003	LOWEST	+1.85	OCT 17, 2002	



364703076383701. Local number, 57C 21 SOW 099A.

LOCATION.--Lat 36°47'04", long 76°38'36", NAD83, Hydrologic Unit 02080208, 700 ft south of U.S. Highway 460, 0.5 mi west of Providence Church, and 1.0 mi west of Kings Fork. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Aquia aquifer of Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 248 ft, screened 238 to 248 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 7, 1985, to July 19, 1995, bimonthly measurement with chalked tape. Prior to Oct. 7, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 72 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum prior to Jan. 12, 1988; 1.1 ft thereafter.

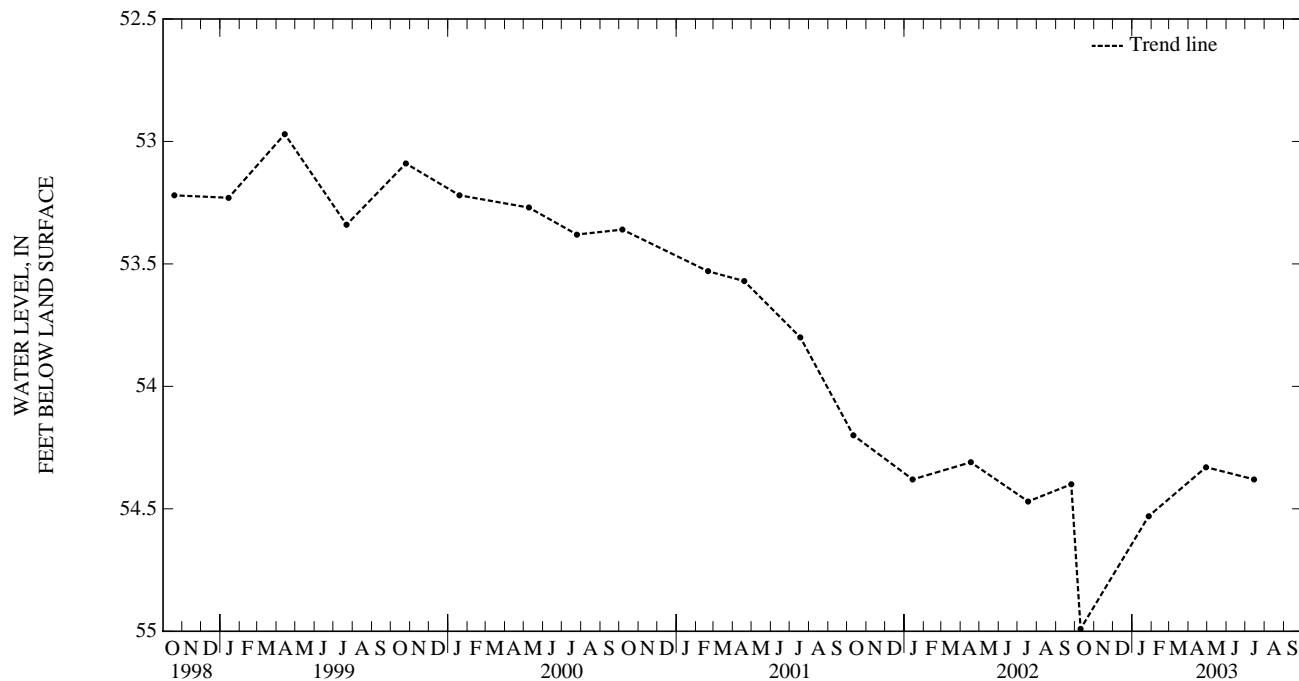
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--September 1983 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 46.32 ft below land-surface datum, Apr. 19, 1984; lowest measured, 54.99 ft below land-surface datum, Oct 10, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	54.99	JAN 27	54.53	APR 29	54.33	JUL 15	54.38
WATER YEAR 2003		HIGHEST	54.33	APR 29, 2003	LOWEST	54.99	OCT 10, 2002





GROUND-WATER LEVELS  
CITY OF SUFFOLK—Continued

364703076383702. Local number, 57C 22 SOW 099B.

LOCATION.--Lat 36°47'04", long 76°38'36", NAD83, Hydrologic Unit 02080208, 700 ft south of U.S. Highway 460, 0.5 mi west of Providence Church, and 1.0 mi west of Kings Fork. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 694 ft, screened 684 to 694 ft.

INSTRUMENTATION.--Continuous strip-chart recorder. Prior to Aug. 5, 1981, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 72 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder shelf, 2.0 ft above land-surface datum prior to July 14, 1987; 1.7 ft thereafter.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage and regional drawdown. Missing record due to recorder malfunction.

PERIOD OF RECORD.--February 1980 to current year. Unpublished records available prior to August 1985 in files of the Virginia Department of Environmental Quality - Water Division.

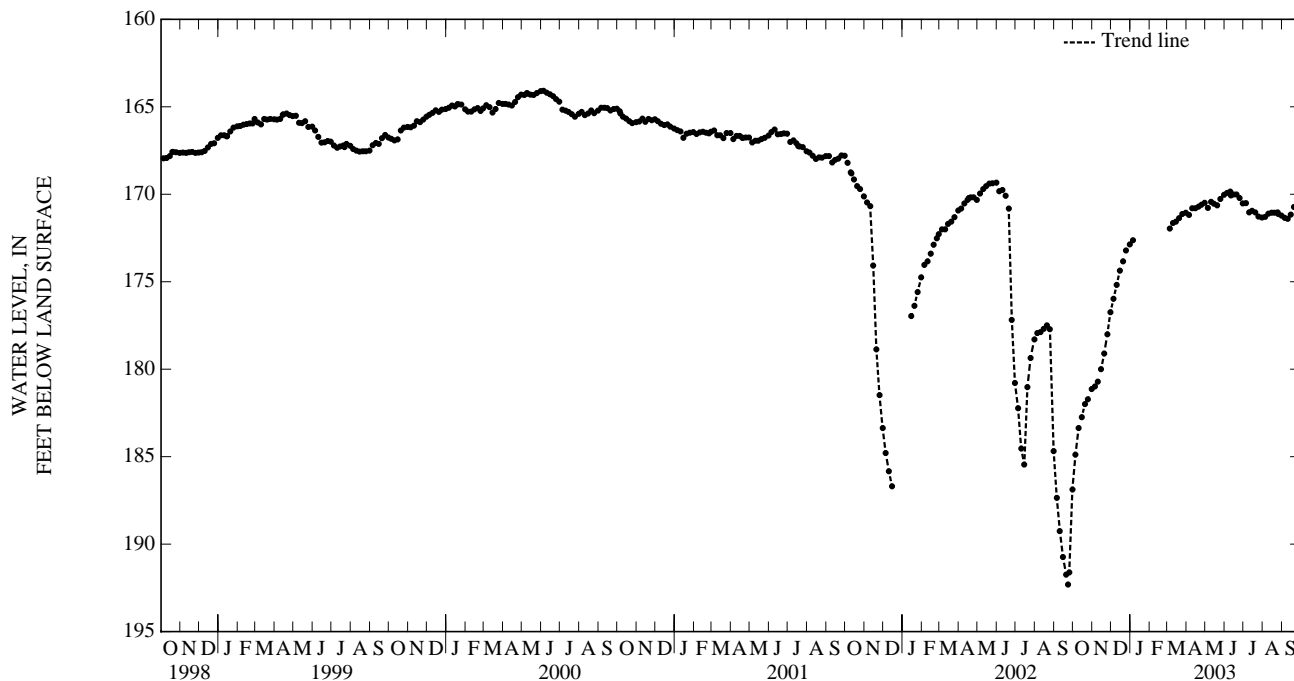
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 128.24 ft below land-surface datum, Feb. 18, 1980; lowest recorded, 192.37 ft below land-surface datum, Sept. 24, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 169.85 ft below land-surface datum, June 10, 11; lowest instantaneous water level, 186.67 ft below land-surface datum, Oct. 1.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	184.88	180.99	175.97	172.63	---	171.96	171.18	170.78	169.92	170.50	171.30	171.35
10	183.36	180.71	175.18	---	---	171.64	170.80	170.43	169.85	171.04	171.10	171.41
15	182.75	180.00	174.37	---	---	171.56	170.80	170.55	170.02	170.95	171.06	171.16
20	182.00	179.11	173.83	---	172.17	171.36	170.70	170.63	170.02	171.04	171.05	170.72
25	181.71	178.00	173.21	---	---	171.13	170.60	170.27	170.21	171.28	171.04	170.63
EOM	181.14	176.74	172.87	---	---	171.05	170.48	170.03	170.52	171.33	171.22	170.55

WATER YEAR 2003    HIGHEST 169.85 JUN 10, 2003    LOWEST 184.88 OCT 05, 2002



## CITY OF SUFFOLK—Continued

364703076383704. Local number, 57C 24 SOW 099D.

LOCATION.--Lat 36°47'04", long 76°38'36", NAD83, Hydrologic Unit 02080208, 700 ft south of U.S. Highway 460, 0.5 mi west of Providence Church, and 1.0 mi west of Kings Fork. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 25 ft, screened 20 to 25 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 7, 1985, to July 19, 1995, bimonthly measurement with chalked tape. Prior to Oct. 7, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 72 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.5 ft above land-surface datum prior to Mar. 25, 1987; 2.0 ft Mar. 25, 1987, to Jan. 12, 1988; 1.3 ft Jan. 13, 1988, to June 24, 1990; 0.3 ft June 25 to Aug. 15, 1990; 1.8 ft thereafter.

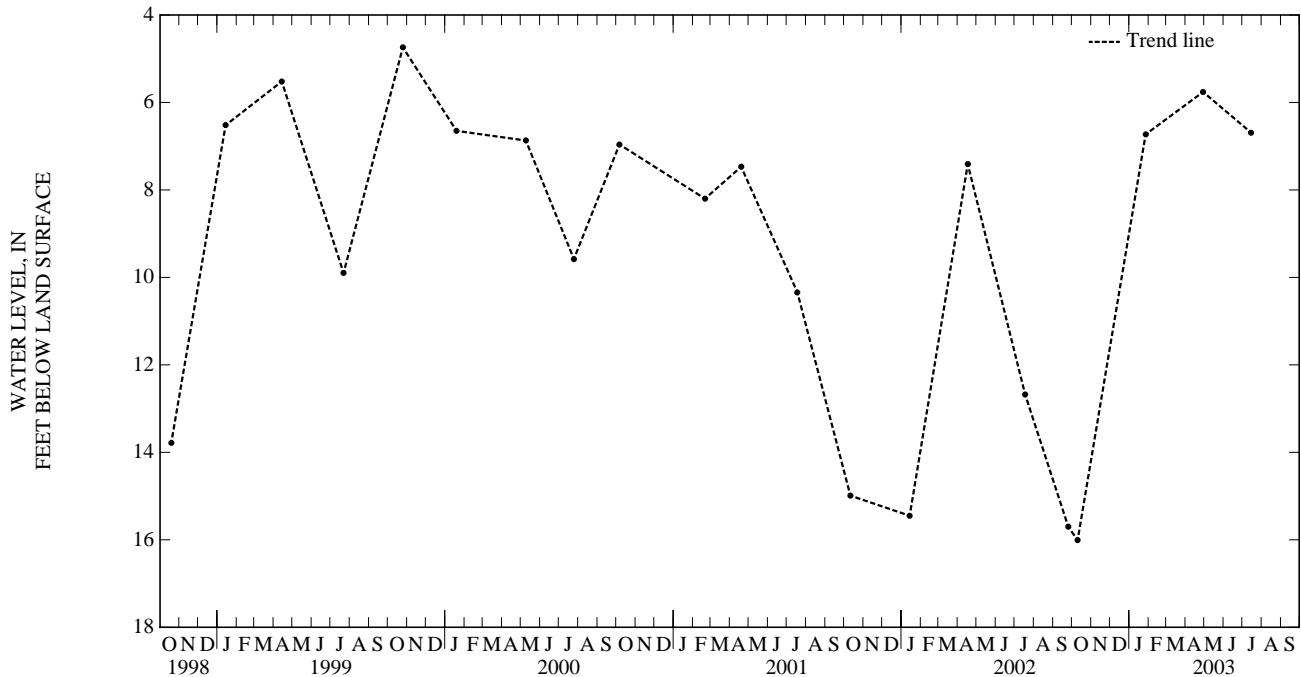
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--September 1983 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.90 ft below land-surface datum, Mar. 14, 1989; lowest measured, 16.38 ft below land-surface datum, Oct. 15, 1995.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	16.01	JAN 27	6.73	APR 29	5.76	JUL 15	6.69
WATER YEAR 2003 HIGHEST		5.76	APR 29, 2003	LOWEST		16.01	OCT 10, 2002



GROUND-WATER LEVELS  
CITY OF SUFFOLK—Continued

363303076330201. Local number, 58A 75 SOW 170.

LOCATION.--Lat 36°33'04", long 76°33'01", NAD83, Hydrologic Unit 03010205, 100 ft north of North Carolina State line, 0.4 mi east of Desert Road, and 5.0 mi southeast of Cypress Chapel. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Virginia Beach aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 535 ft, screened 525 to 535 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 15, 1992, to July 19, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Mar. 2, 1989, to Oct. 14, 1992, occasional measurement with chalked tape by USGS. Prior to Oct. 15, 1989, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 40 ft above mean NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

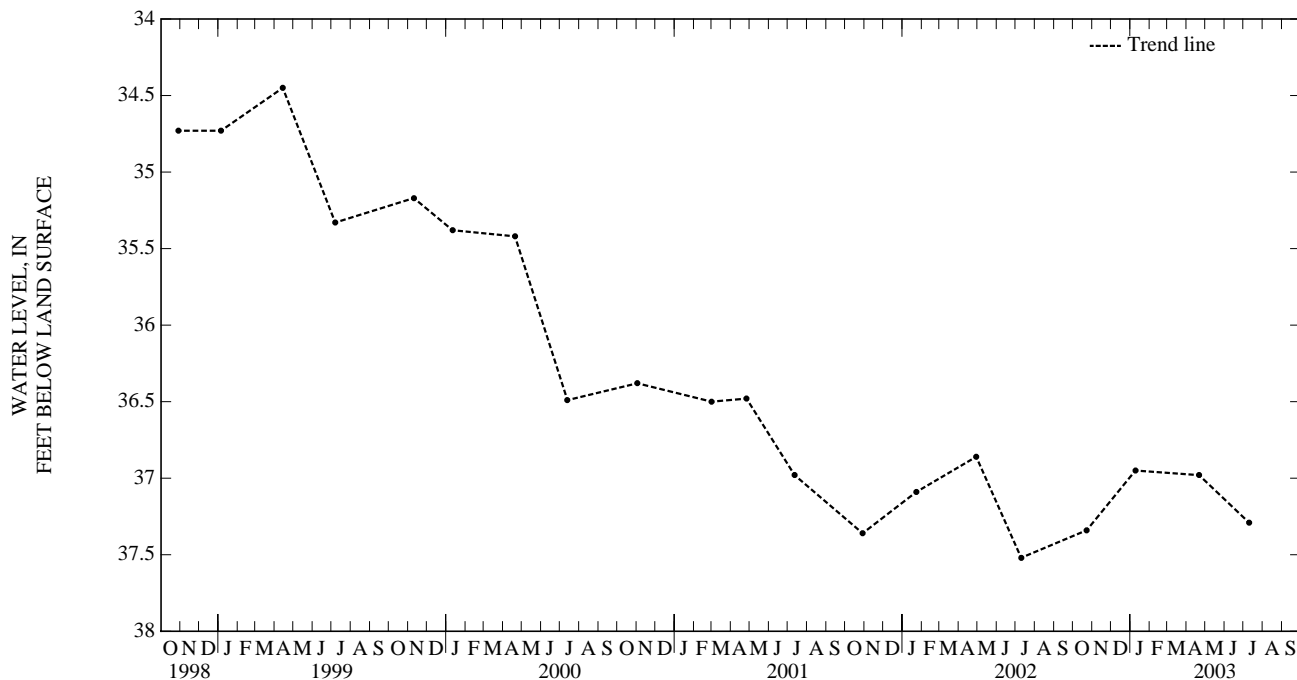
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division prior to Mar. 1, 1989; U.S. Geological Survey Mar. 2, 1989, to Oct. 14, 1992; Virginia Department of Environmental Quality - Water Division thereafter. Water level affected by regional drawdown.

PERIOD OF RECORD.--July 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.52 ft below land-surface datum, July 11, 1985; lowest measured, 37.52 ft below land-surface datum, July 10, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	37.34	JAN 09	36.95	APR 21	36.98	JUL 10	37.29
WATER YEAR 2003 HIGHEST		36.95	JAN 09, 2003	LOWEST		37.34	OCT 23, 2002



363655076332002. Local number, 58A 77 SOW 180A.

LOCATION.--Lat 36°36'56", long 76°33'19", NAD83, Hydrologic Unit 03010205, 0.3 mi north of Great Dismal Swamp Wildlife Refuge Headquarters on Desert Road, 2.0 mi east of Cypress Chapel. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Lower Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 1,158 ft, diameter 3 in. from 1,136 to 1,209 ft, depth 1,209 ft, screened 1,199 to 1,209 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Apr. 15, 1992, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 34.02 ft above NGVD of 1929. Measuring point: Top of casing, 2.5 ft above land-surface datum prior to Apr. 15, 1992; 1.5 ft thereafter.

REMARKS.--Water level affected by regional drawdown. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

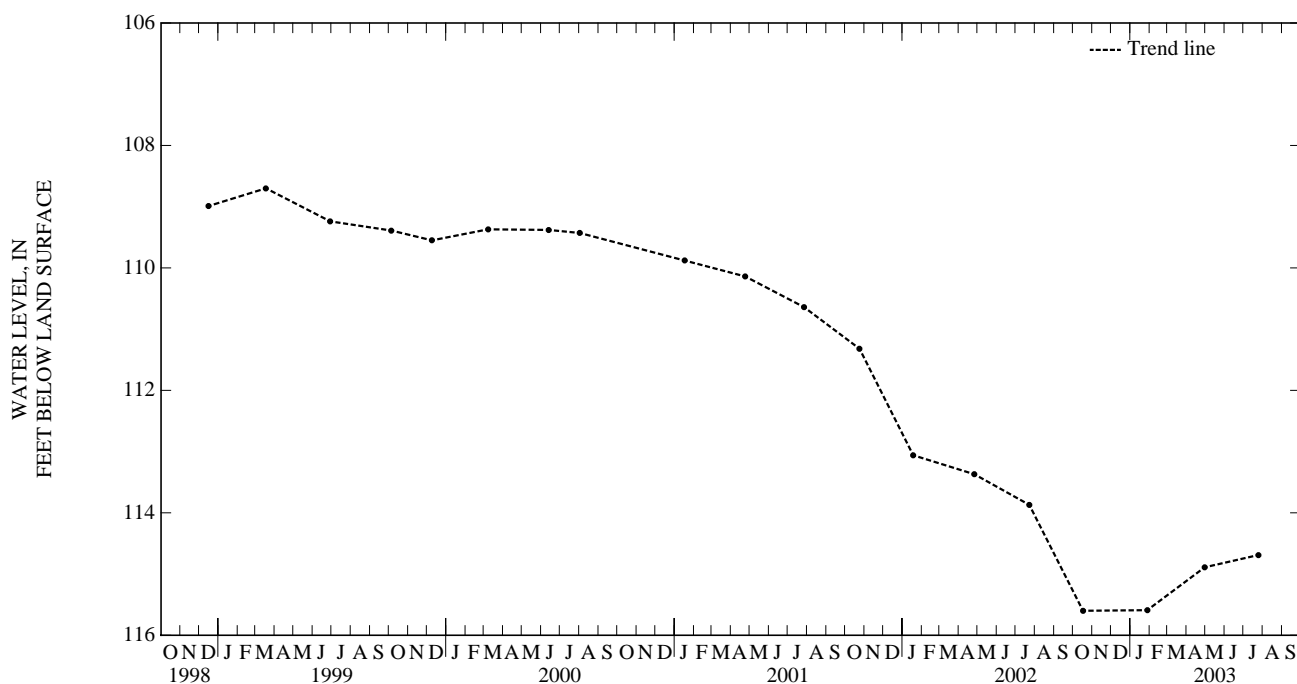
PERIOD OF RECORD.--February 1987 to current year.

REVISED RECORDS.--WDR VA-89-1: 1987.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 96.83 ft below land-surface datum, Sept. 30, 1987; lowest measured, 115.60 ft below land-surface datum, Oct. 17, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	115.60	JAN 28	115.59	APR 30	114.89	JUL 25	114.69
WATER YEAR 2003 HIGHEST		114.69	JUL 25, 2003 LOWEST		115.60	OCT 17, 2002	



GROUND-WATER LEVELS  
CITY OF SUFFOLK—Continued

363655076332003. Local number, 58A 78 SOW 180B.

LOCATION.--Lat 36°36'56", long 76°33'19", NAD83, Hydrologic Unit 03010205, 0.3 mi north of Great Dismal Swamp Wildlife Refuge Headquarters on Desert Road, 2.0 mi east of Cypress Chapel. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 811 ft, diameter 2 in. from 766 to 880 ft, depth 880 ft, screened 850 to 860 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Apr. 15, 1992, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 34.02 ft above NGVD of 1929. Measuring point: Top of casing, 2.5 ft above land-surface datum prior to April 15, 1992; 1.4 ft thereafter.

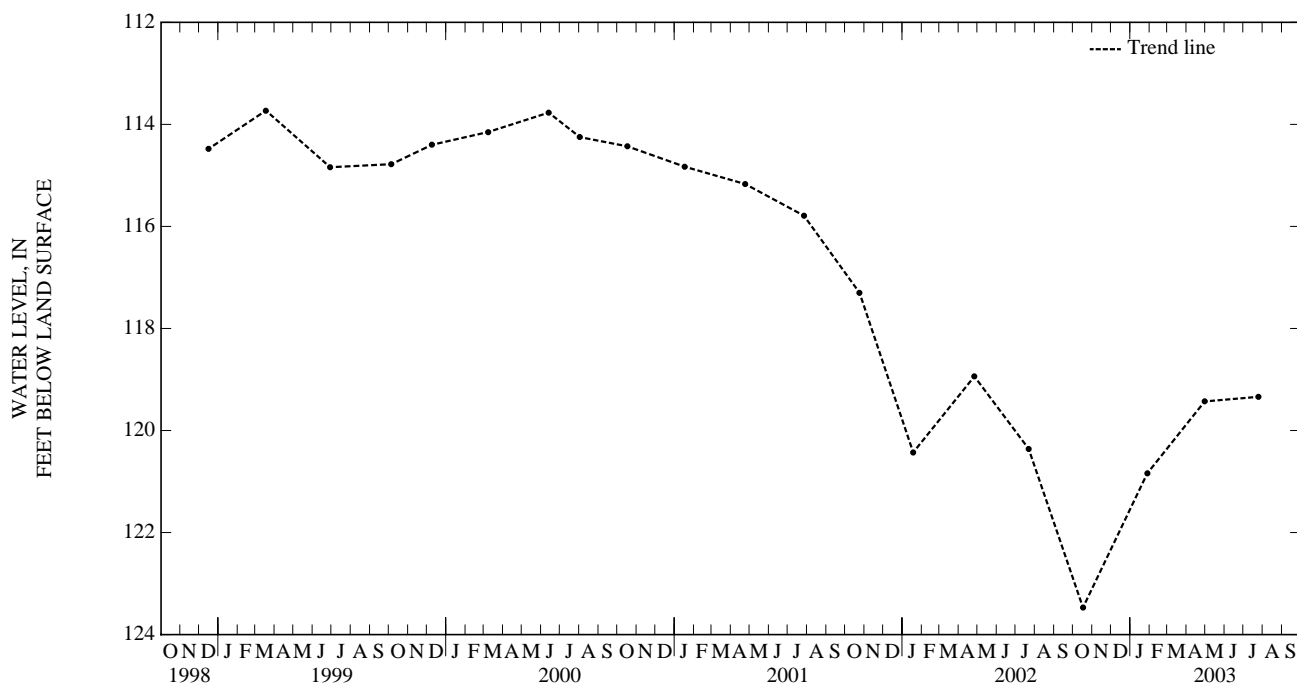
REMARKS.--Water level affected by regional drawdown and occasional pumpage for water-quality sampling.

PERIOD OF RECORD.--February 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 102.14 ft below land-surface datum, June 5, 27, 1987; lowest measured, 123.47 ft below land-surface datum, Oct. 17, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	123.47	JAN 28	120.84	APR 30	119.43	JUL 25	119.34
WATER YEAR 2003 HIGHEST 119.34 JUL 25, 2003				LOWEST 123.47 OCT 17, 2002			



## CITY OF SUFFOLK—Continued

363655076332004. Local number, 58A 79 SOW 180C.

LOCATION.--Lat 36°36'56", long 76°33'19", NAD83, Hydrologic Unit 03010205, 0.3 mi north of Great Dismal Swamp Wildlife Refuge Headquarters on Desert Road, 2.0 mi east of Cypress Chapel. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 670 ft, diameter 2 in. from 657 to 710 ft, depth 710 ft, screened 700 to 710 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Apr. 15, 1992, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 33.97 ft above NGVD of 1929. Measuring point: Top of casing, 2.4 ft above land-surface datum prior to Apr. 15, 1992; 1.3 ft thereafter.

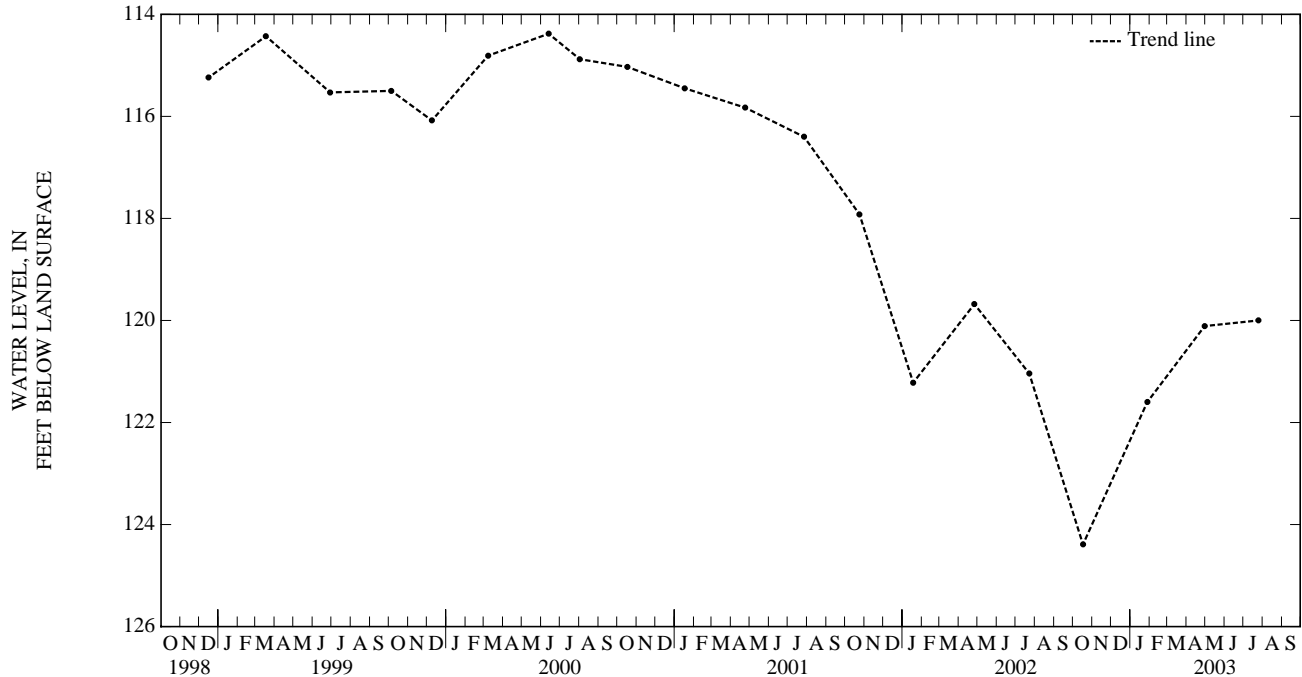
REMARKS.--Water level affected by regional drawdown and occasional pumpage from water-quality sampling.

PERIOD OF RECORD.--February 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 102.72 ft below land-surface datum, May 11, 1987; lowest measured, 124.39 ft below land-surface datum, Oct. 17, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	124.39	JAN 28	121.60	APR 30	120.11	JUL 25	120.00
WATER YEAR 2003 HIGHEST 120.00 JUL 25, 2003				LOWEST 124.39 OCT 17, 2002			



GROUND-WATER LEVELS  
CITY OF SUFFOLK—Continued

363655076332005. Local number, 58A 80 SOW 180D.

LOCATION.--Lat 36°36'56", long 76°33'19", NAD83, Hydrologic Unit 03010205, 0.3 mi north of Great Dismal Swamp Wildlife Refuge Headquarters on Desert Road, 2.0 mi east of Cypress Chapel. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Virginia Beach aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 397 ft, diameter 2 in. from 388 to 440 ft, depth 440 ft, screened 430 to 440 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Oct. 29, 1987 to Sept. 30, 1990, digital recorder 60-minute punch. Prior to Oct. 29, 1987, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 34.26 ft above NGVD of 1929. Measuring point: Top of casing, 2.3 ft above land-surface datum prior to Apr. 15, 1992; 1.9 ft thereafter.

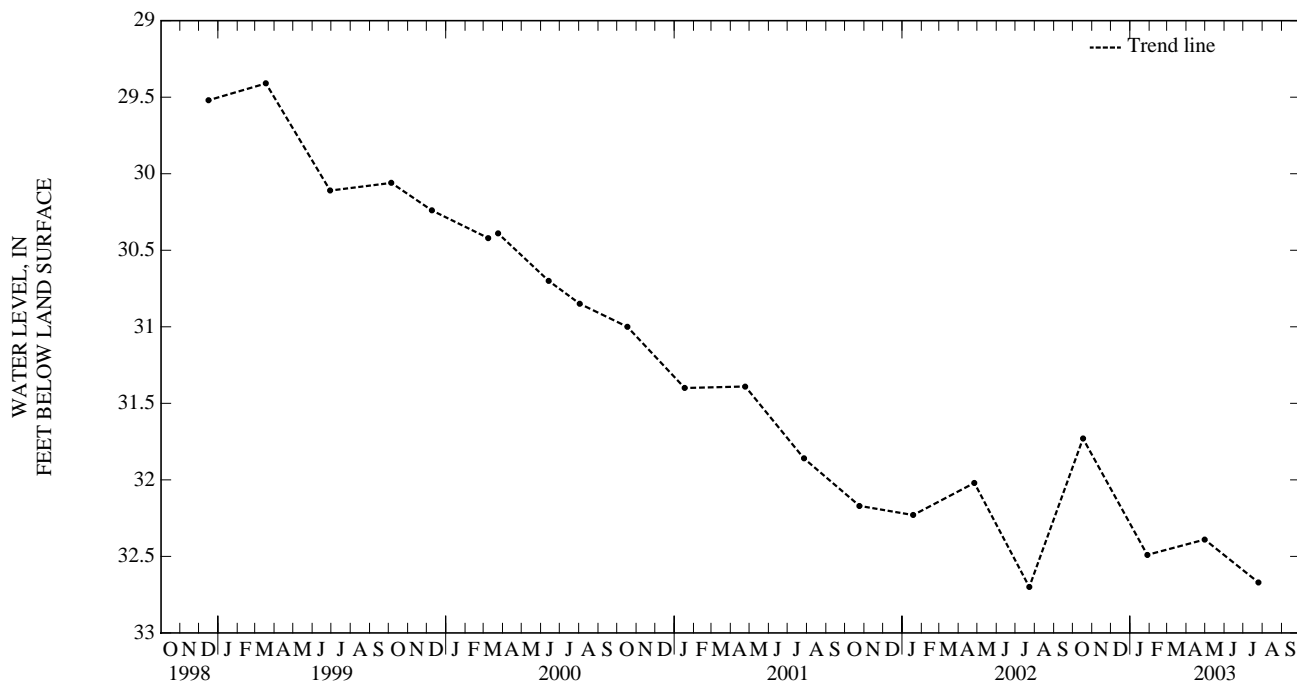
REMARKS.--Water level affected by regional drawdown.

PERIOD OF RECORD.--June 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.55 ft below land-surface datum, June 17, 1987; lowest measured, 32.70 ft below land-surface datum, July 23, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	31.73	JAN 28	32.49	APR 30	32.39	JUL 25	32.67
WATER YEAR 2003 HIGHEST		31.73	OCT 17, 2002 LOWEST		32.67	JUL 25, 2003	



## CITY OF SUFFOLK—Continued

363655076332006. Local number, 58A 81 SOW 180E.

LOCATION.--Lat 36°36'56", long 76°33'19", NAD83, Hydrologic Unit 03010205, 0.3 mi north of Great Dismal Swamp Wildlife Refuge Headquarters on Desert Road, 2.0 mi east of Cypress Chapel. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Chickahominy-Piney Point aquifer of Eocene-Oligocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 309 ft, diameter 2 in. from 298 to 329 ft, depth 329 ft, screened 319 to 329 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Apr. 15, 1992, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 34.00 ft above NGVD of 1929. Measuring point: Top of casing, 2.4 ft above land-surface datum prior to Apr. 15, 1992; 1.4 ft thereafter.

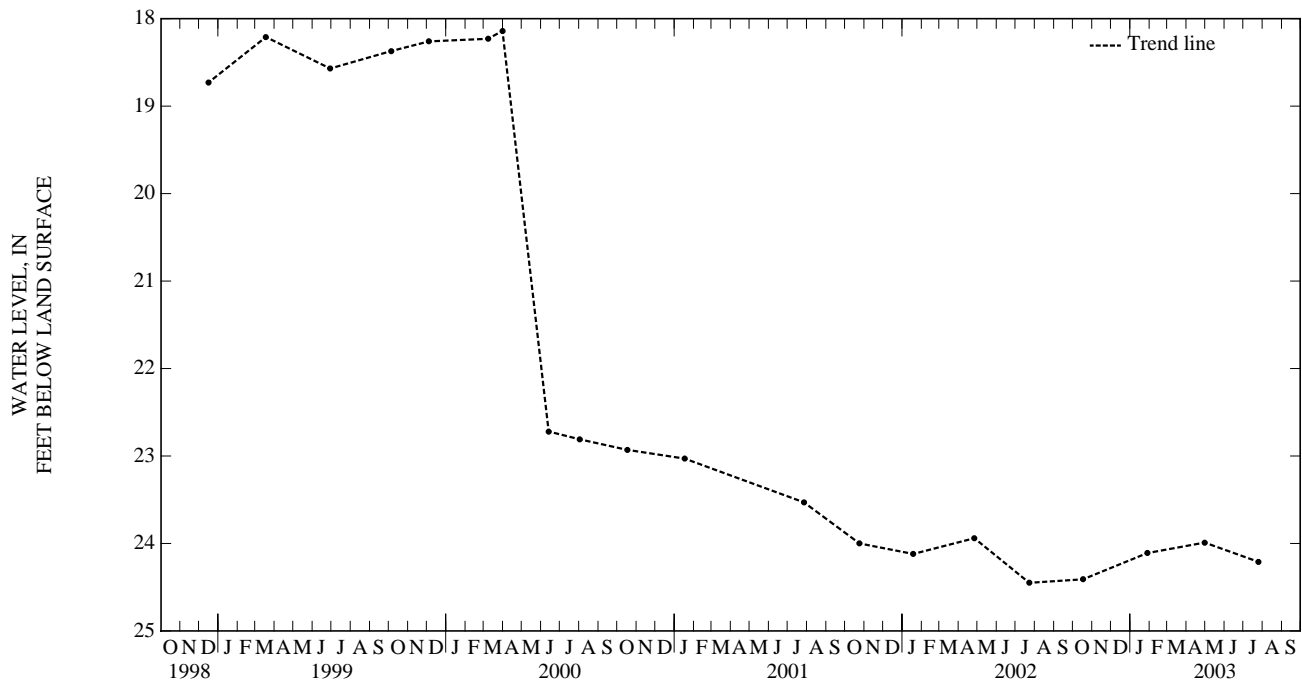
REMARKS.--Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L. Water level affected by pumpage for water-quality sampling on Mar. 31, 2000. Cause of nonrecovery to pre-pumpage level unknown.

PERIOD OF RECORD.--February 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 15.07 ft below land-surface datum, Feb. 23, 1987; lowest measured, 24.45 ft below land-surface datum, July 23, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	24.41	JAN 28	24.11	APR 30	23.99	JUL 25	24.21
WATER YEAR 2003 HIGHEST		23.99	APR 30, 2003	LOWEST		24.41	OCT 17, 2002





GROUND-WATER LEVELS  
CITY OF SUFFOLK—Continued

363655076332008. Local number, 58A 83 SOW 180G.

LOCATION.--Lat 36°36'56", long 76°33'19", NAD83, Hydrologic Unit 03010205, 0.3 mi north of Great Dismal Swamp Wildlife Refuge Headquarters on Desert Road, 2.0 mi east of Cypress Chapel. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 145 ft, diameter 2 in. from 135 to 165 ft, depth 165 ft, screened 155 to 165 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Feb. 15, 1996, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 33.84 ft above NGVD of 1929. Measuring point: Top of casing, 2.5 ft above land-surface datum.

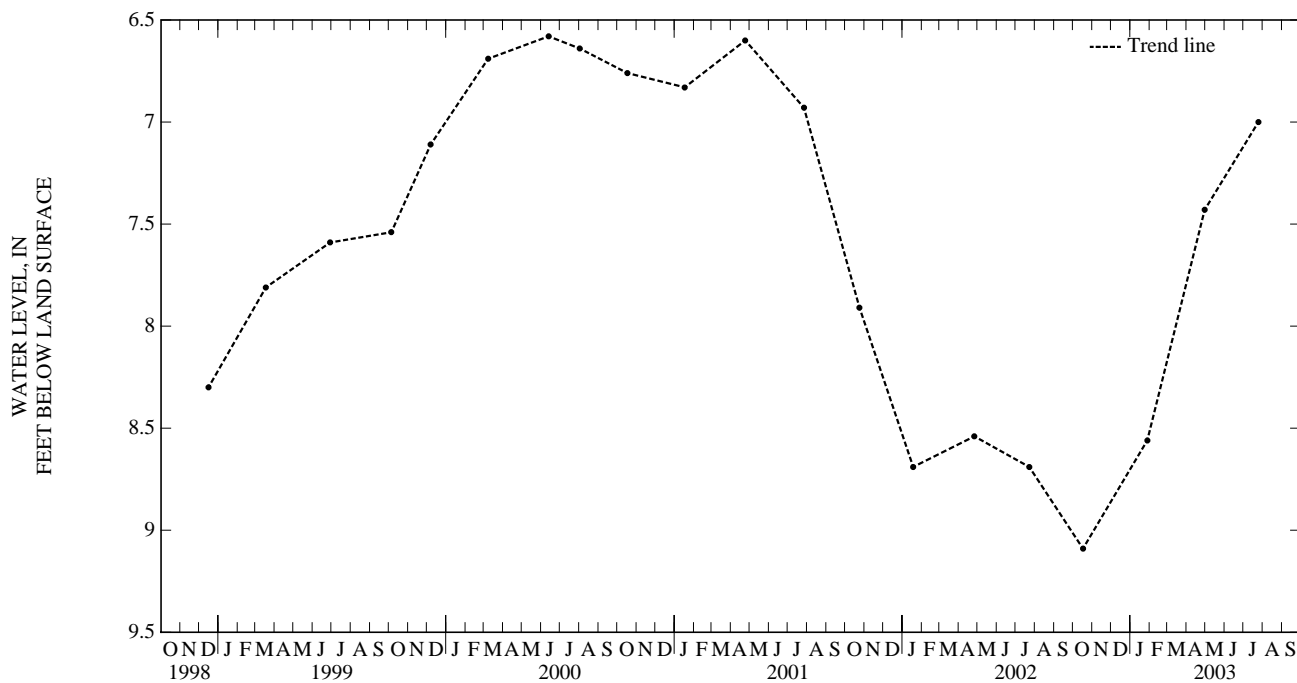
REMARKS.--Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--February 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.09 ft below land-surface datum, May 29, 1990; lowest recorded, 9.20 ft below land-surface datum, Dec. 29, 30, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	9.09	JAN 28	8.56	APR 30	7.43	JUL 25	7.00
WATER YEAR 2003		HIGHEST	7.00	JUL 25, 2003	LOWEST	9.09	OCT 17, 2002



## CITY OF SUFFOLK—Continued

363655076332009. Local number, 58A 84 SOW 180H.

LOCATION.--Lat 36°36'56", long 76°33'19", NAD83, Hydrologic Unit 03010205, 0.3 mi north of Great Dismal Swamp Wildlife Refuge Headquarters on Desert Road, 2.0 mi east of Cypress Chapel. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 20 ft, screened 10 to 20 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Feb. 15, 1996, digital recorder 60-minute punch.

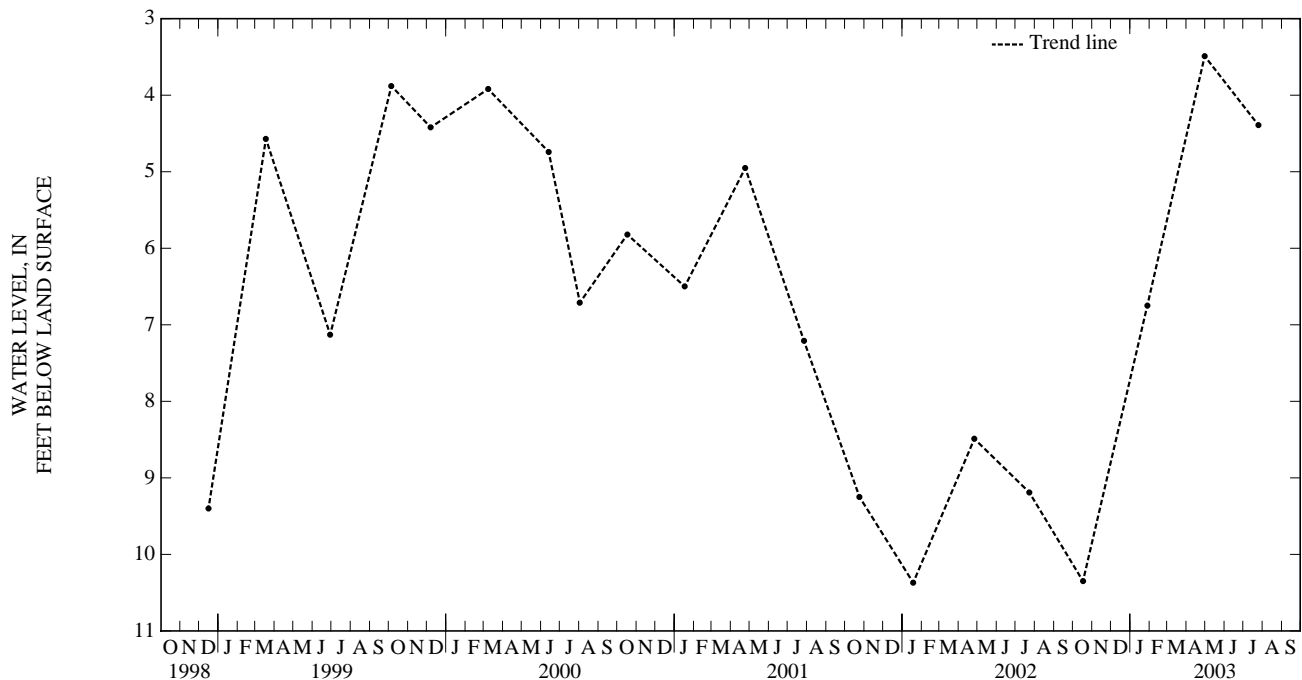
DATUM.--Elevation of land-surface datum is 33.87 ft above NGVD of 1929. Measuring point: Top of casing, 2.5 ft above land-surface datum.

PERIOD OF RECORD.--February 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.47 ft below land-surface datum, Mar. 24, 1989; lowest measured, 10.37 ft below land-surface datum, Jan. 18, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	10.35	JAN 28	6.75	APR 30	3.49	JUL 25	4.39
WATER YEAR 2003 HIGHEST		3.49	APR 30, 2003	LOWEST		10.35	OCT 17, 2002



GROUND-WATER LEVELS  
CITY OF SUFFOLK—Continued

363928076332901. Local number, 58B 13.

LOCATION.--Lat 36°39'29", long 76°33'28", NAD83, Hydrologic Unit 03010205, 700 ft east of State Highway 642, 4.0 mi south of Suffolk. Owner: Melvin Brinkley.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Dug unused water well, diameter 22 in., depth 15 ft.

INSTRUMENTATION.--Electronic data logger 60 minute record interval. Mar. 2, 1994 to May 28, 1999, digital recorder 60-minute punch. Sept. 20, 1993 to Mar. 2, 1994, occasional measurement with chalked tape by USGS personnel. Jan. 24, 1981, to Sept. 20, 1993, digital recorder 60-minute punch. Prior to Jan. 24, 1981, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 40 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder shelf, 1.9 ft above land-surface datum.

REMARKS.--Missing record due to recorder malfunction.

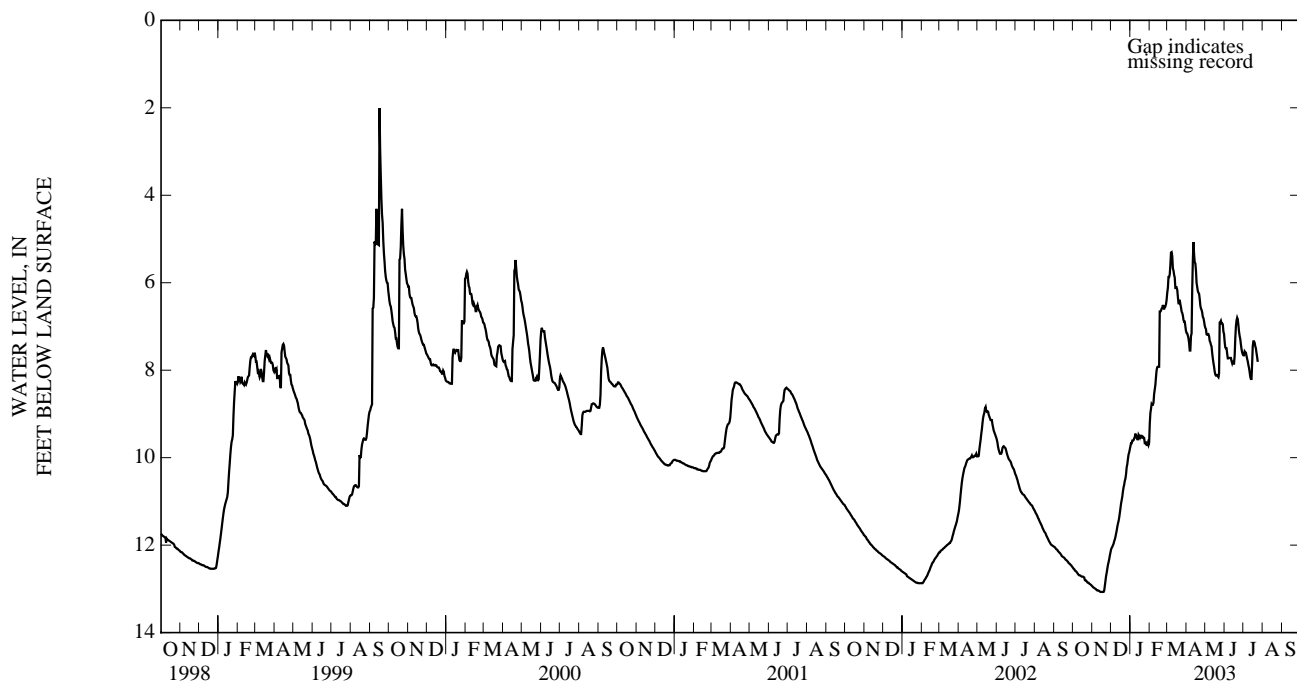
PERIOD OF RECORD.--March 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.59 ft below land-surface datum, Sept. 16, 1999; lowest recorded, 13.44 ft below land-surface datum, Jan. 23-26, 1981.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 4.90 ft below land-surface datum, Apr. 12; lowest instantaneous water level, 13.07 ft below land-surface datum, 14-16, 17-19.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	12.59	12.99	11.97	9.61	8.79	5.81	7.38	7.19	7.62	7.60	---	---
10	12.68	13.04	11.67	9.50	8.33	5.67	6.14	7.42	7.72	7.95	---	---
15	12.72	13.07	11.27	9.51	7.92	6.12	5.56	7.92	7.85	7.84	---	---
20	12.80	13.04	10.77	9.51	6.59	6.47	6.23	8.11	6.86	7.45	---	---
25	12.86	12.54	10.38	9.67	6.54	6.69	6.62	6.90	7.22	---	---	---
EOM	12.93	12.17	9.81	9.66	6.39	7.10	6.98	7.17	7.64	---	---	7.15



## CITY OF SUFFOLK—Continued

364318076365501. Local number, 58B268 SOW 169A.

LOCATION.--Lat 36°43'19", long 76°36'54", NAD83, Hydrologic Unit 02080208, 500 ft north of Norfolk and Western Railroad near Lake Kilby, 0.5 mi west of Suffolk. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quarternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 20 ft, screened 12 to 20 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 19, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 35 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.5 ft above land-surface datum.

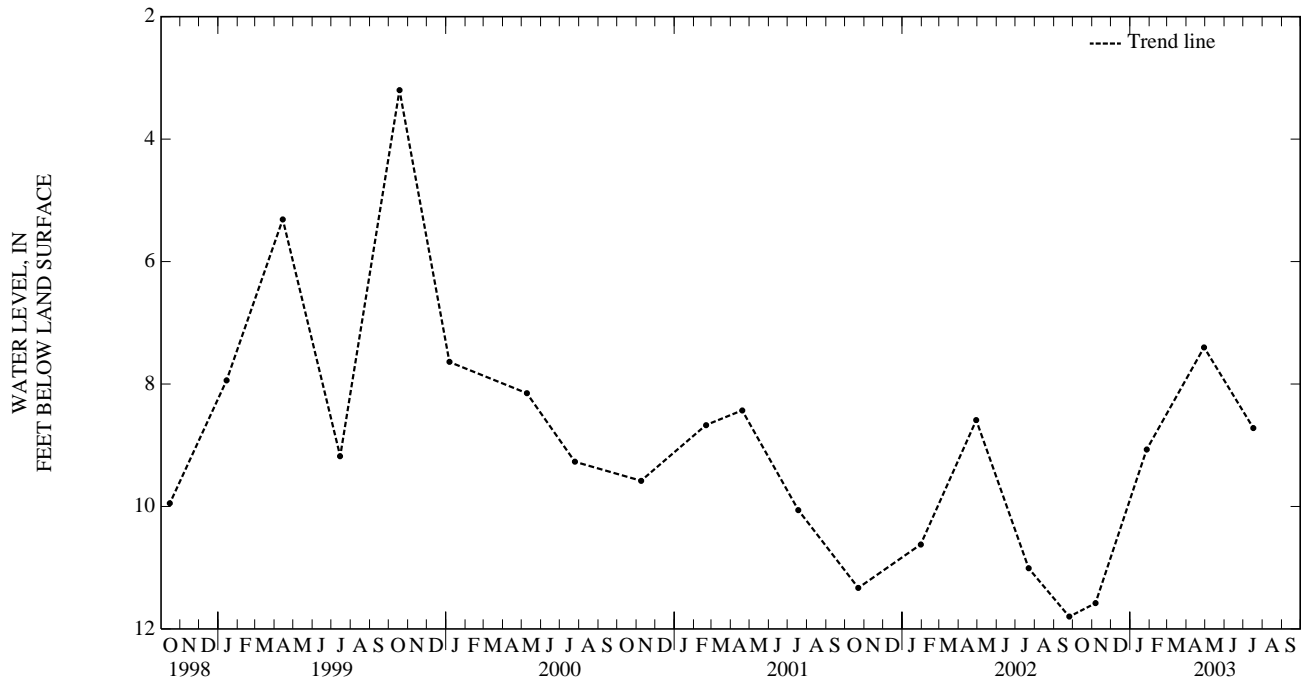
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--February 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.20 ft below land-surface datum, Oct. 18, 1999; lowest measured, 11.86 ft below land-surface datum, Oct. 11, 1995.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 06	11.58	JAN 27	9.07	APR 29	7.40	JUL 17	8.72
WATER YEAR 2003 HIGHEST		7.40	APR 29, 2003 LOWEST		11.58	NOV 06, 2002	



GROUND-WATER LEVELS  
CITY OF SUFFOLK—Continued

364318076365502. Local number, 58B269 SOW 169B.

LOCATION.--Lat 36°43'19", long 76°36'54", NAD83, Hydrologic Unit 02080202, 500 ft north of Norfolk and Western Railroad near Lake Kilby, 0.5 mi west of Suffolk. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Aquia aquifer of Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 360 ft, screened 350 to 360 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 19, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 35 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.

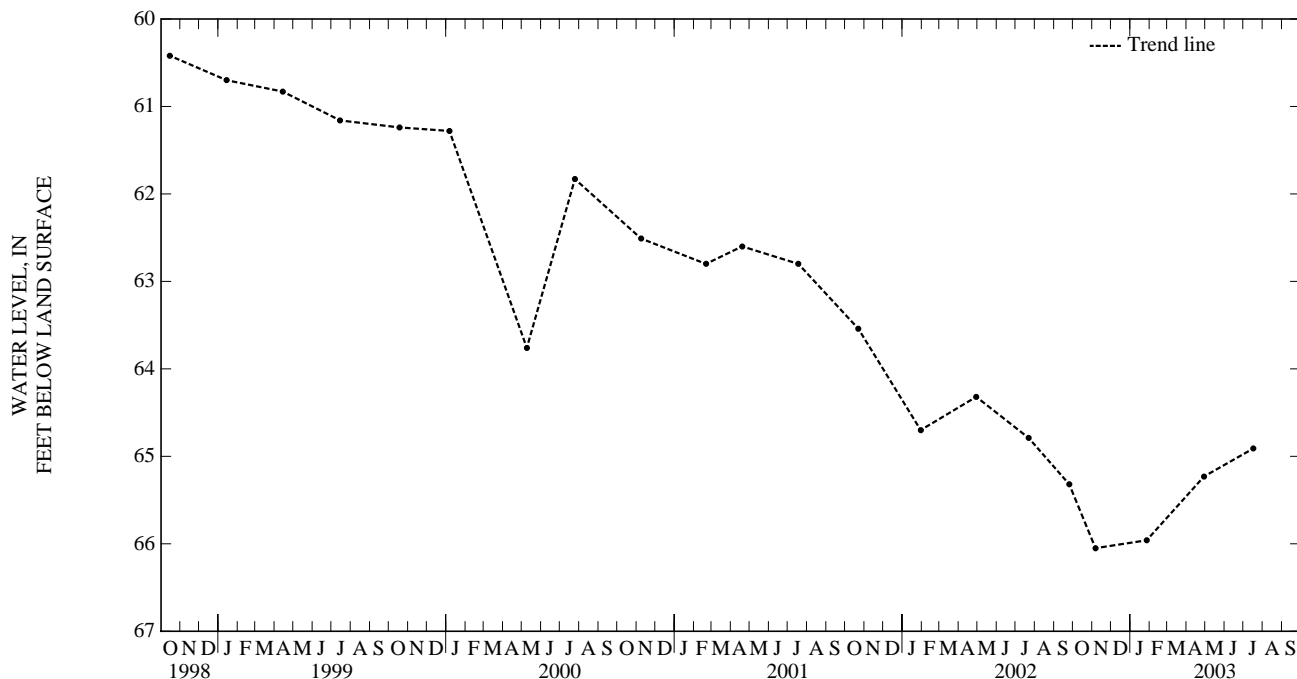
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--July 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 43.06 ft below land-surface datum, July 8, 1985; lowest measured, 66.05 ft below land-surface datum, Nov. 6, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 06	66.05	JAN 27	65.96	APR 29	65.23	JUL 17	64.91
WATER YEAR 2003		HIGHEST	64.91	JUL 17, 2003	LOWEST	66.05	NOV 06, 2002



## CITY OF SUFFOLK—Continued

364318076365503. Local number, 58B270 SOW 169C.

LOCATION.--Lat 36°43'19", long 76°36'54", NAD83, Hydrologic Unit 02080208, 500 ft north of Norfolk and Western Railroad near Lake Kilby, 0.5 mi west of Suffolk. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 500 ft, screened 490 to 500 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to July 19, 1995, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 35 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.4 ft above land-surface datum.

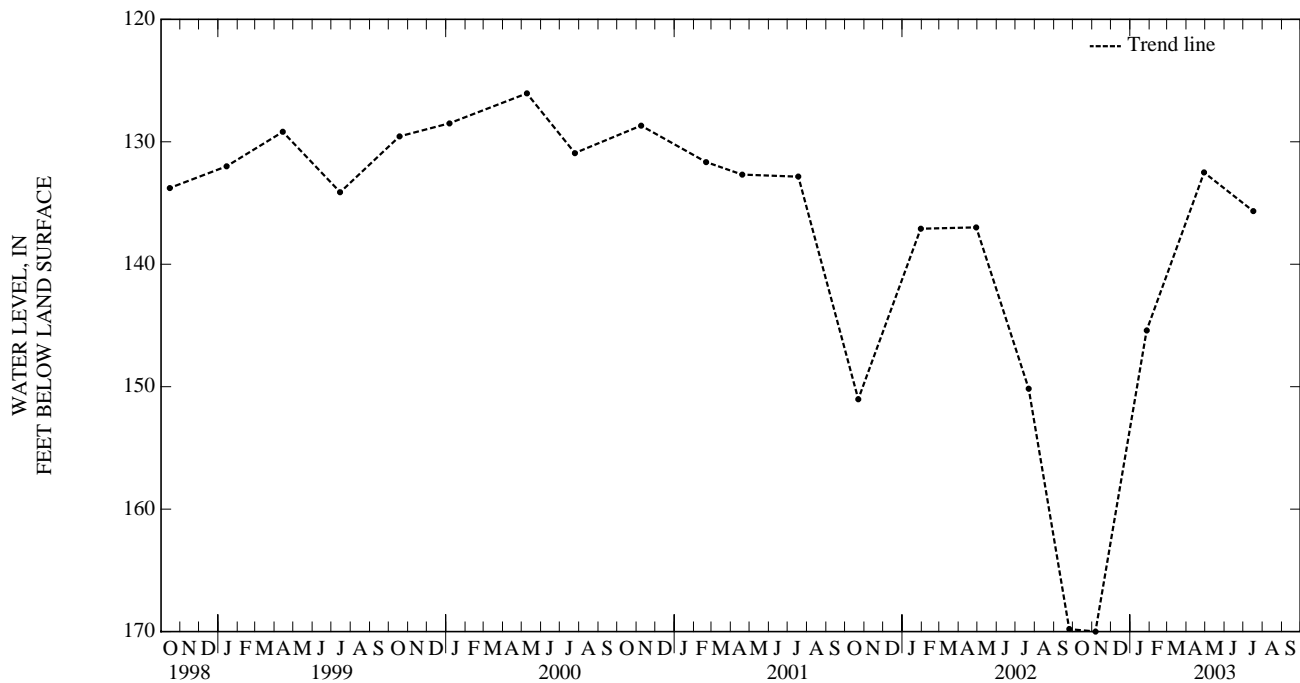
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level may be affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--July 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 112.59 ft below land-surface datum, Feb. 25, 1986; lowest measured, 169.99 ft below land-surface datum, Nov. 6, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 06	169.99	JAN 27	145.40	APR 29	132.51	JUL 17	135.67
WATER YEAR 2003 HIGHEST 132.51 APR 29, 2003				LOWEST 169.99 NOV 06, 2002			



## CITY OF SUFFOLK

364348076363201. Local number, 58B273 SOW 169F.

LOCATION.--Lat 36°43'49", long 76°36'31", NAD83, Hydrologic Unit 02080208, 100 ft south of U.S. Highway 58 near Lake Kilby, 0.2 mi west of Suffolk.  
Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 661 ft, screened 541 to 546 ft, 567 to 572 ft, 635 to 640 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 2, 1992, to July 19, 1995, bimonthly measurement with chalked tape. Nov. 5, 1986, to Oct. 1, 1992, continuous strip-chart recorder. Prior to Nov. 5, 1986, bimonthly measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 26 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.2 ft above land-surface datum.

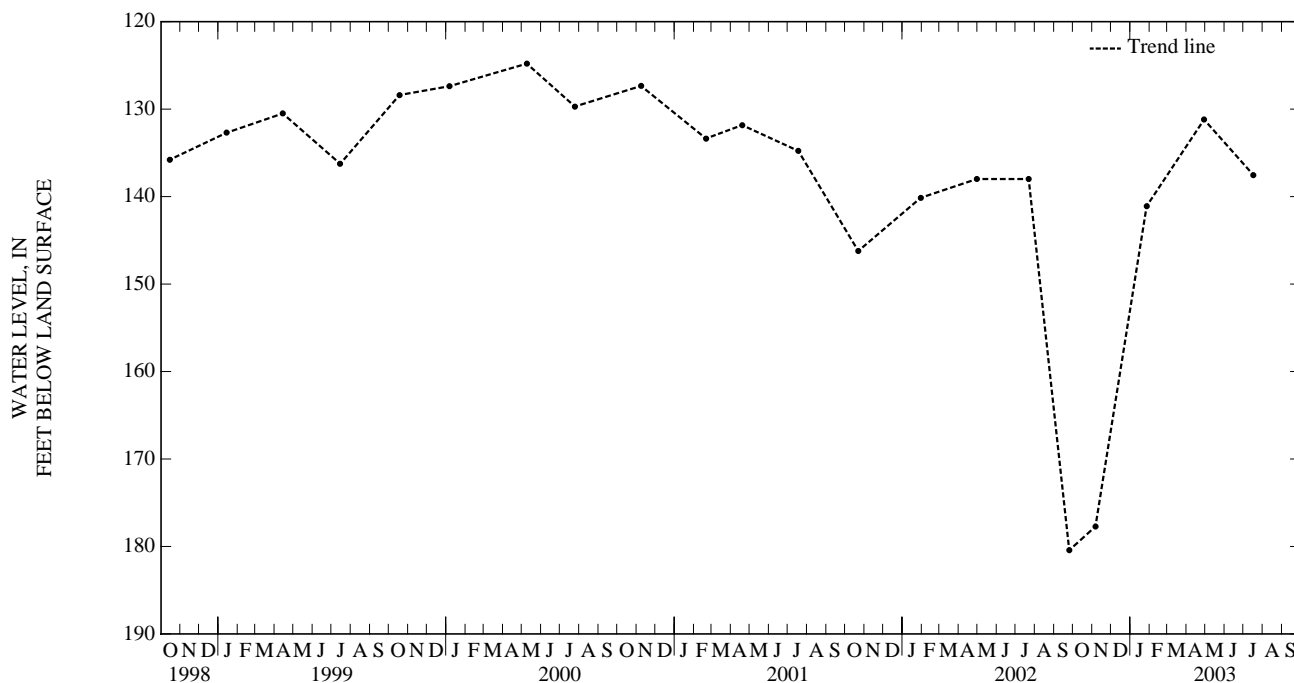
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--July 1985 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 111.00 ft below land-surface datum, July 18, 1991; lowest recorded, 180.43 ft below land-surface datum, Sept. 25, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 06	177.72	JAN 27	141.09	APR 29	131.19	JUL 17	137.53
WATER YEAR 2003		HIGHEST	131.19	APR 29, 2003	LOWEST	177.72	NOV 06, 2002



365133076351201. Local number, 58C 57 SOW 141A.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

**WELL CHARACTERISTICS.**--Drilled observation water well, diameter 4 in., depth 122 ft, screened 112 to 122 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 8, 1985, to July 19, 1995, bimonthly measurement with chalked tape. Prior to Oct. 8, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 52 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.5 ft above land-surface datum prior to Jan. 12, 1988; 1.0 ft Jan. 12, 1988, to Nov. 12, 1991; 2.4 ft Nov. 13, 1991 to July 9, 1998; 1.80 ft thereafter.

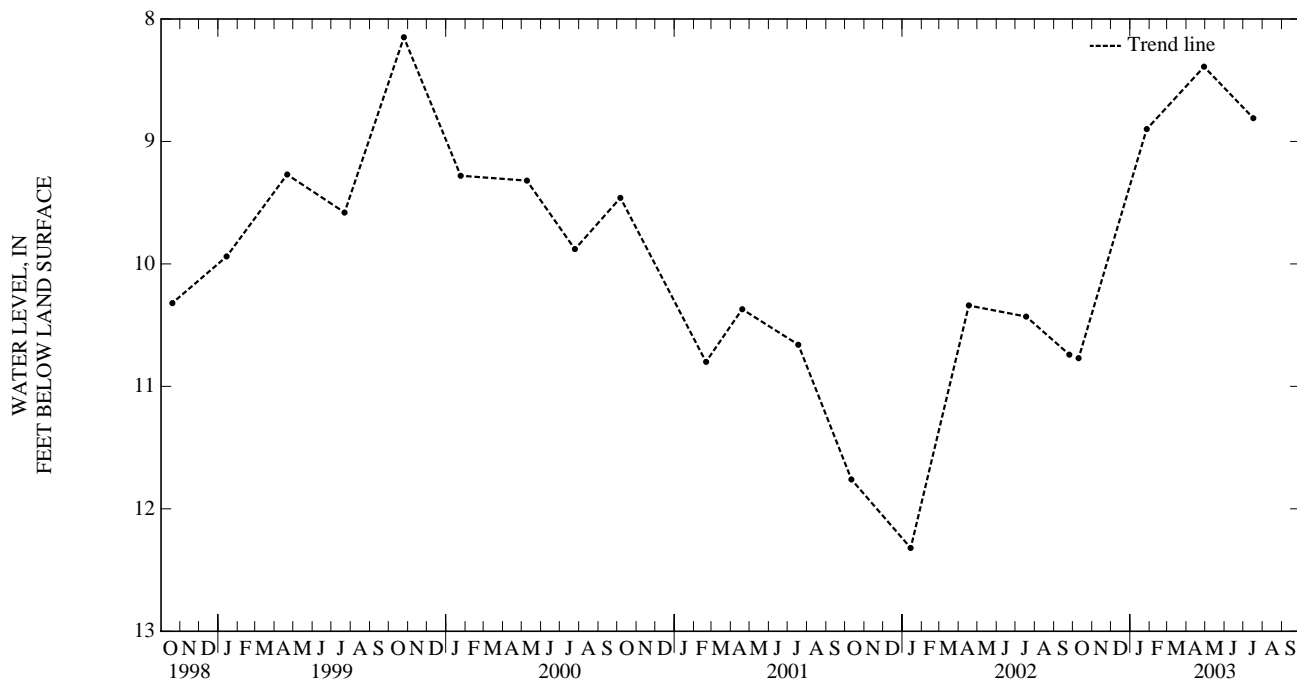
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--February 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

**EXTREMES FOR PERIOD OF RECORD.**--Highest water level measured, 5.90 ft below land-surface datum, Jan. 21, 1998; lowest measured, 12.32 ft below land-surface datum, Jan. 14, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	10.77	JAN 27	8.90	APR 29	8.39	JUL 17	8.81
WATER YEAR 2003	HIGHEST	8.39	APR 29, 2003	LOWEST	10.77	OCT 10, 2002	





GROUND-WATER LEVELS  
CITY OF SUFFOLK—Continued

365133076351202. Local number, 58C 58 SOW 141B.

LOCATION.--Lat 36°51'34", long 76°35'11", NAD83, Hydrologic Unit 02080208, 500 ft west of old Chuckatuck High School in Chuckatuck. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 605 ft, screened 595 to 605 ft.

INSTRUMENTATION.--Continuous strip-chart recorder. July 20, 1995 to Mar. 12, 1997, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 8, 1985, to July 19, 1995, bimonthly measurement with chalked tape. Prior to Oct. 8, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 52 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.5 ft above land-surface datum prior to Jan. 12, 1988; 1.5 ft Jan. 12, 1988, to Mar. 12, 1997; 2.38 ft thereafter.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage and regional drawdown. Missing record due to recorder malfunction.

PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

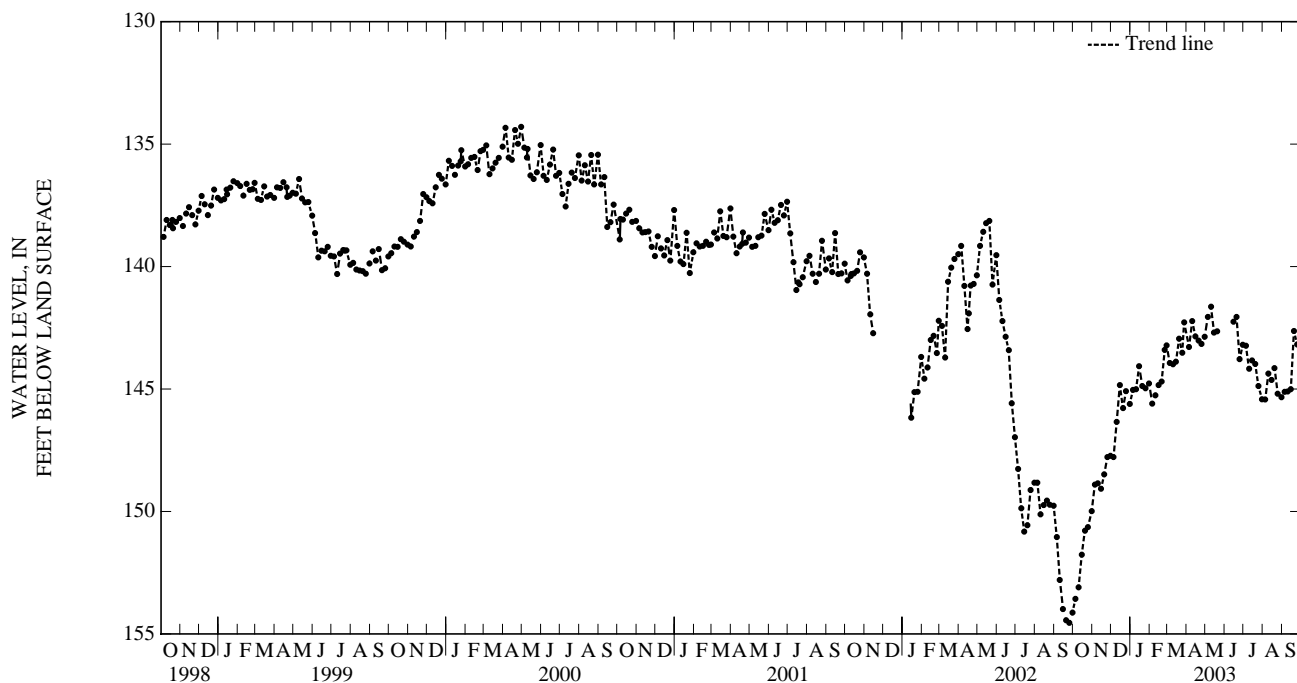
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 108.60 ft below land-surface datum, Apr. 24, 1980; lowest measured, 155.22 ft below land-surface datum, Sept. 24, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 140.12 ft below land-surface datum, July 16; lowest instantaneous water level, 153.83 ft below land-surface datum, Oct. 2.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	153.57	148.90	147.78	145.04	145.60	143.94	143.29	142.05	---	143.23	145.43	145.11
10	153.10	148.85	146.34	145.01	145.26	143.99	142.22	141.64	---	144.17	144.37	145.10
15	151.77	149.07	144.84	144.07	144.84	143.88	142.85	142.69	142.25	143.83	144.63	145.01
20	150.78	148.49	145.78	144.88	144.70	142.94	143.02	142.64	142.06	143.98	144.15	142.63
25	150.64	147.78	145.09	144.97	143.40	143.52	143.16	---	143.78	144.88	145.19	143.18
EOM	149.98	147.73	145.61	144.77	143.22	---	142.87	---	143.19	145.42	145.34	144.03

WATER YEAR 2003    HIGHEST 141.64 MAY 10, 2003    LOWEST 153.57 OCT 05, 2002



## CITY OF SUFFOLK—Continued

365133076351203. Local number, 58C 59 SOW 141C.

LOCATION.--Lat 36°51'34", long 76°35'11", NAD83, Hydrologic Unit 02080208, 500 ft west of old Chuckatuck High School in Chuckatuck. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 447 ft, screened 437 to 447 ft.

INSTRUMENTATION.--Continuous strip-chart recorder. Prior to May 5, 1981, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 52 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Missing record due to recorder malfunction. Water level affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--April 1980 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

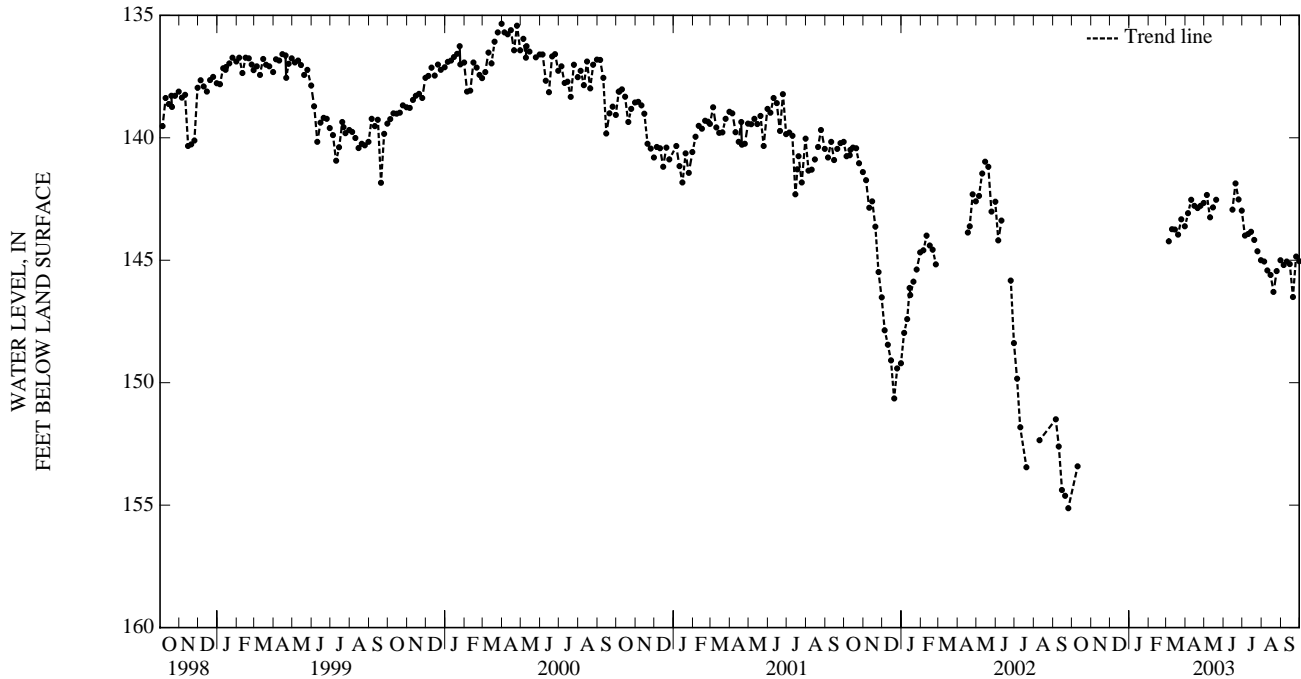
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 108.80 ft below land-surface datum, June 30, 1980; lowest recorded, 156.02 ft below land-surface datum, Oct. 1, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 141.12 ft below land-surface datum, June 16; lowest instantaneous water level, 156.02 ft below land-surface datum, Oct. 1.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	144.23	143.08	142.33	---	143.99	145.05	145.20
10	153.42	---	---	---	---	143.73	142.53	143.25	---	143.93	145.42	145.05
15	---	---	---	---	---	143.75	142.78	142.84	142.93	143.84	145.60	145.16
20	---	---	---	---	---	143.96	142.87	142.53	141.86	144.17	146.29	146.50
25	---	---	---	---	---	143.33	142.78	---	142.52	144.64	145.44	144.85
EOM	---	---	---	---	---	143.62	142.66	---	142.97	145.00	145.00	145.04

WATER YEAR 2003    HIGHEST 141.86 JUN 20, 2003    LOWEST 153.42 OCT 10, 2002



GROUND-WATER LEVELS  
CITY OF SUFFOLK—Continued

365133076351204. Local number, 58C 60 SOW 141D.

LOCATION.--Lat 36°51'34", long 76°35'11", NAD83, Hydrologic Unit 02080208, 500 ft west of old Chuckatuck High School in Chuckatuck. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 20 ft, screened 10 to 20 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 8, 1985, to July 19, 1995, bimonthly measurement with chalked tape. Prior to Oct. 8, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 50 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum prior to Jan. 12, 1988; 1.0 ft thereafter.

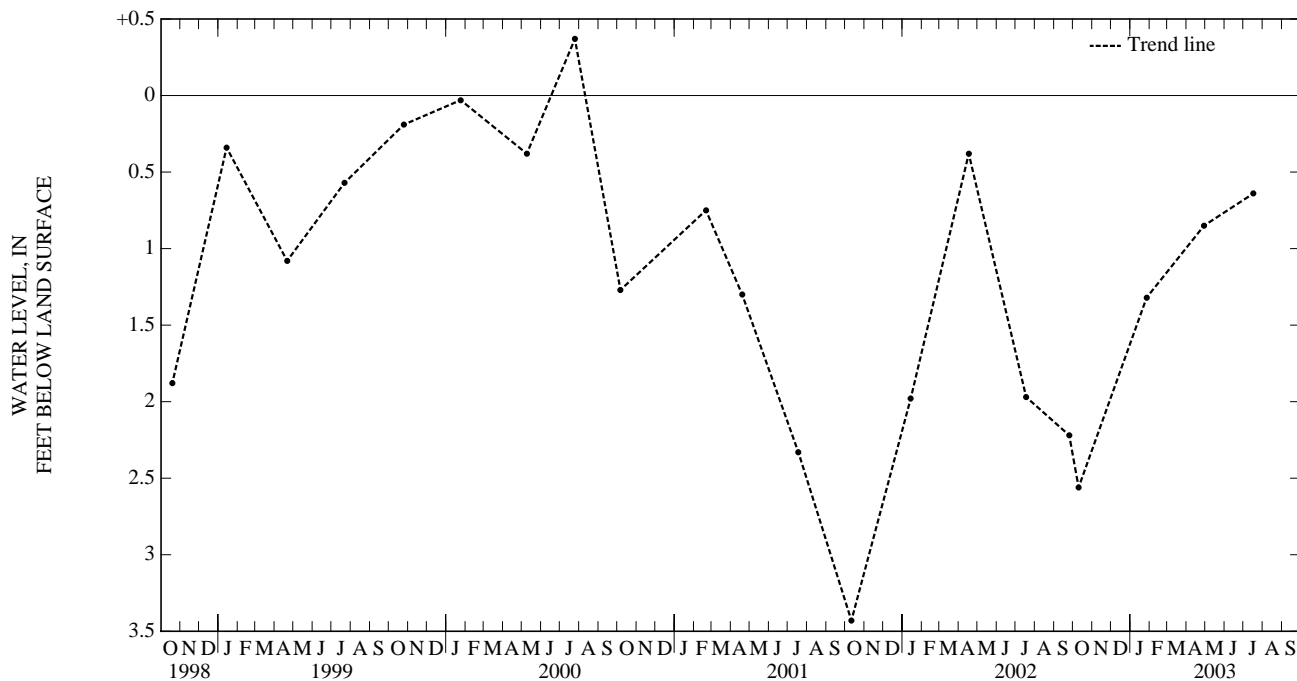
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--February 1980 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.37 ft above land-surface datum, July 25, 2000; lowest measured, 4.20 ft below land-surface datum, Oct. 15, 1993.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	2.56	JAN 27	1.32	APR 29	.85	JUL 17	.64
WATER YEAR 2003	HIGHEST	.64	JUL 17, 2003	LOWEST	2.56	OCT 10, 2002	



## CITY OF SUFFOLK—Continued

364731076355501. Local number, 58C 61 SOW 159A.

LOCATION.--Lat 36°47'32", long 76°35'54", NAD83, Hydrologic Unit 02080208, 0.5 mi northwest of intersection of State Highways 622 and 634, 2.3 mi northwest of Elephant Fork. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 25 ft, screened 20 to 25 ft, sounded to 17.50 ft on Jul. 8, 1985, redrilled to 25 ft on May 15, 1990.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 7, 1985, to July 26, 1995, bimonthly measurement with chalked tape. Prior to Oct. 7, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 40 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.85 ft above land-surface datum prior to June 25, 1990; 1.55 ft thereafter.

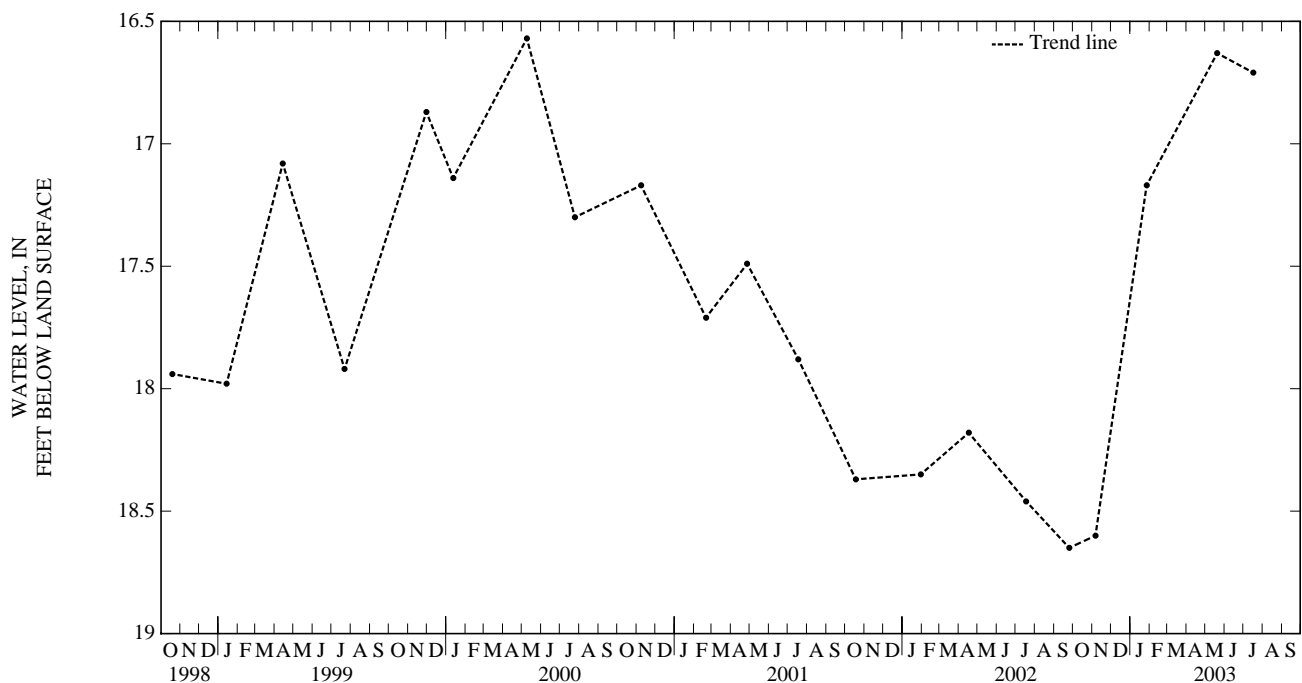
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Well reported dry several days in 1985-1990.

PERIOD OF RECORD.--June 1981 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.95 ft below land-surface datum, Apr. 19, 1984; lowest measured, 18.70 ft below land-surface datum, Oct. 11, 1995.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 06	18.60	JAN 27	17.17	MAY 20	16.63	JUL 17	16.71
WATER YEAR 2003 HIGHEST 16.63 MAY 20, 2003				LOWEST 18.60 NOV 06, 2002			



GROUND-WATER LEVELS  
CITY OF SUFFOLK—Continued

364731076355502. Local number, 58C 62 SOW 159B.

LOCATION.--at 36°47'32", long 76°35'54", NAD83, Hydrologic Unit 02080208, 0.5 mi northwest of intersection of State Highways 622 and 634, 2.3 mi northwest of Elephant Fork. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 2 in., depth 575 ft, screened 555 to 575 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 7, 1985, to July 26, 1995, bimonthly measurement with chalked tape. Prior to Oct. 7, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 40 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.6 ft above land-surface datum.

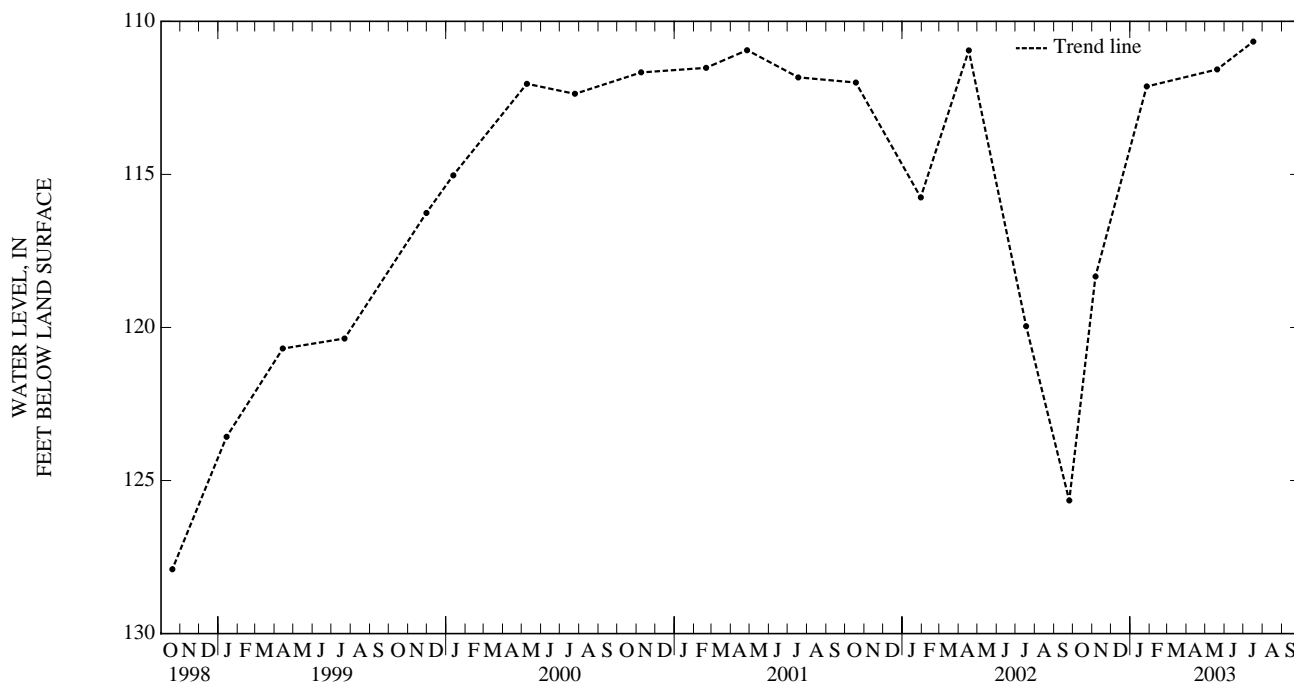
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level may be affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--June 1981 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 110.66 ft below land-surface datum, July 17, 2003; lowest measured, 169.26 ft below land-surface datum, Jan. 11, 1994.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 06	118.33	JAN 27	112.13	MAY 20	111.57	JUL 17	110.66
WATER YEAR 2003 HIGHEST 110.66 JUL 17, 2003		LOWEST 118.33 NOV 06, 2002					



## SURREY COUNTY

370800076500701. Local number, 56F 2 SOW 039.

LOCATION.--Lat 37°08'01", long 76°50'06", NAD83, Hydrologic Unit 02080206, off State Highway 10, at Surry County Administration building in Surry.  
Owner: Town of Surry.

AQUIFER.--Aquia aquifer of Paleocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 367 ft, screened 350 to 362 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 8, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Jan. 10, 1976, to Oct. 7, 1985, occasional measurement with chalked tape. Mar. 15, 1971, to Jan. 10, 1976, continuous strip-chart recorder. Prior to Mar. 15, 1971, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 122 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.1 ft above land-surface datum.

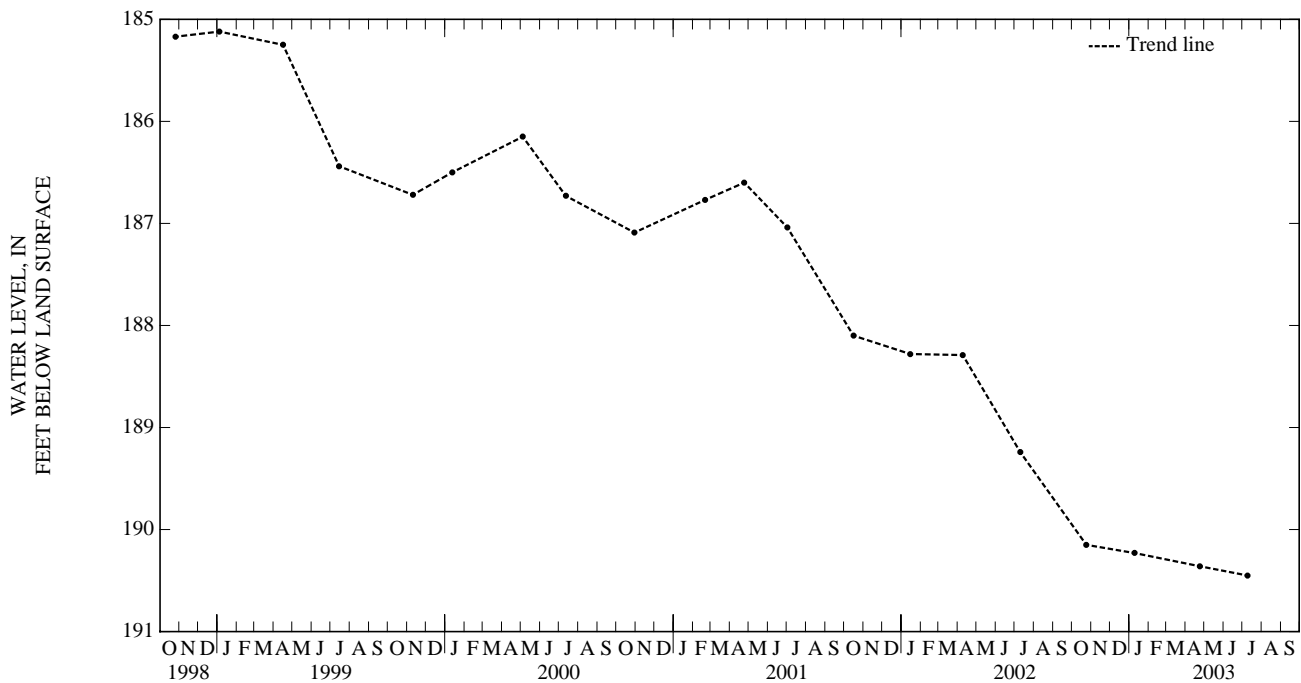
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--December 1970 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 146.43 ft below land-surface datum, Mar. 25, 1971; lowest measured, 190.45 ft below land-surface datum, July 9, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	190.15	JAN 09	190.23	APR 24	190.36	JUL 09	190.45
WATER YEAR 2003 HIGHEST 190.15 OCT 24, 2002				LOWEST 190.45 JUL 09, 2003			



## SURREY COUNTY—Continued

370712076413201. Local number, 57E 11 SOW 094A.

LOCATION.--Lat 37°07'13", long 76°41'31", NAD83, Hydrologic Unit 02080206, 0.5 mi east of State Highway 690, 2.5 mi northwest of Bacons Castle.  
Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 605 ft, screened 595 to 605 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 7, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Oct. 7, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 45 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

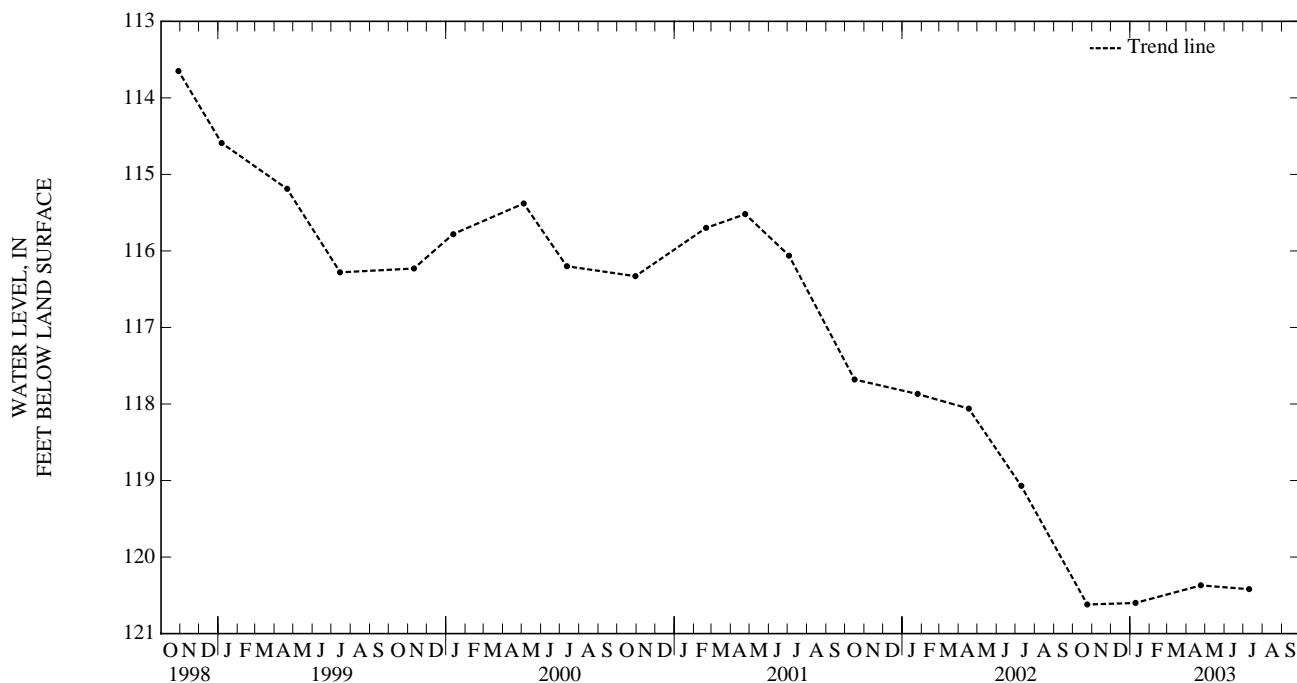
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--July 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 92.19 ft below land-surface datum, July 24, 1980; lowest measured, 120.62 ft below land-surface datum, Oct. 24, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	120.62	JAN 09	120.60	APR 24	120.37	JUL 10	120.42
WATER YEAR 2003		HIGHEST	120.37	APR 24, 2003	LOWEST	120.62	OCT 24, 2002



370712076413203. Local number, 57E 13 SOW 094C.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in. to 41 ft. diameter 3 in. from 41 to 46 ft. depth 46 ft. screened 41 to 46 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 7, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Oct. 7, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 45 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.6 ft above land-surface datum.

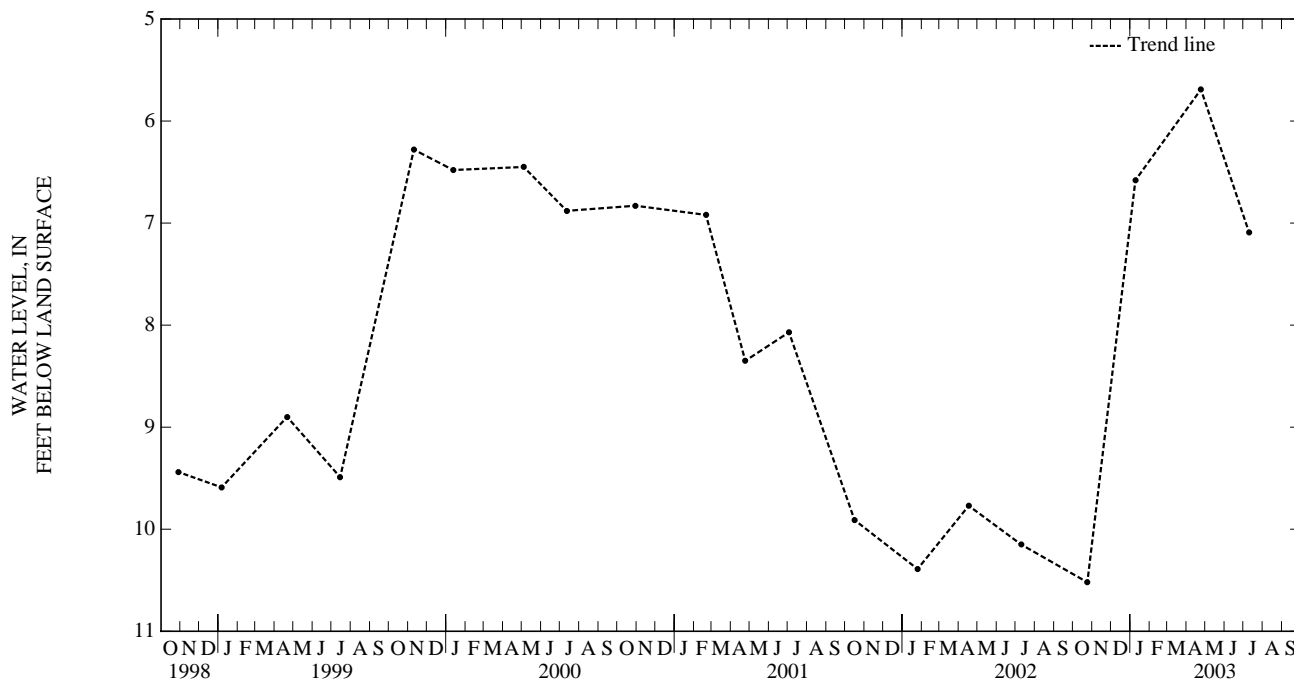
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--July 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.90 ft below land-surface datum, May 29, 1980; lowest measured, 11.17 ft below land-surface datum, Dec. 13, 1981.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	10.52	JAN 09	6.58	APR 24	5.69	JUL 10	7.09
WATER YEAR 2003		HIGHEST	5.69	APR 24, 2003	LOWEST	10.52	OCT 24, 2002





## SURREY COUNTY—Continued

371132076405501. Local number, 57F 16 SOW 087A.

LOCATION.--Lat 37°11'33", long 76°40'54", NAD83, Hydrologic Unit 02080206, at the end of State Highway 650 in Homewood, 7.6 mi northeast of Bacons Castle. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Lower Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 1,206 ft, screened 1,170 to 1,185 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 7, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Oct. 7, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 5 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

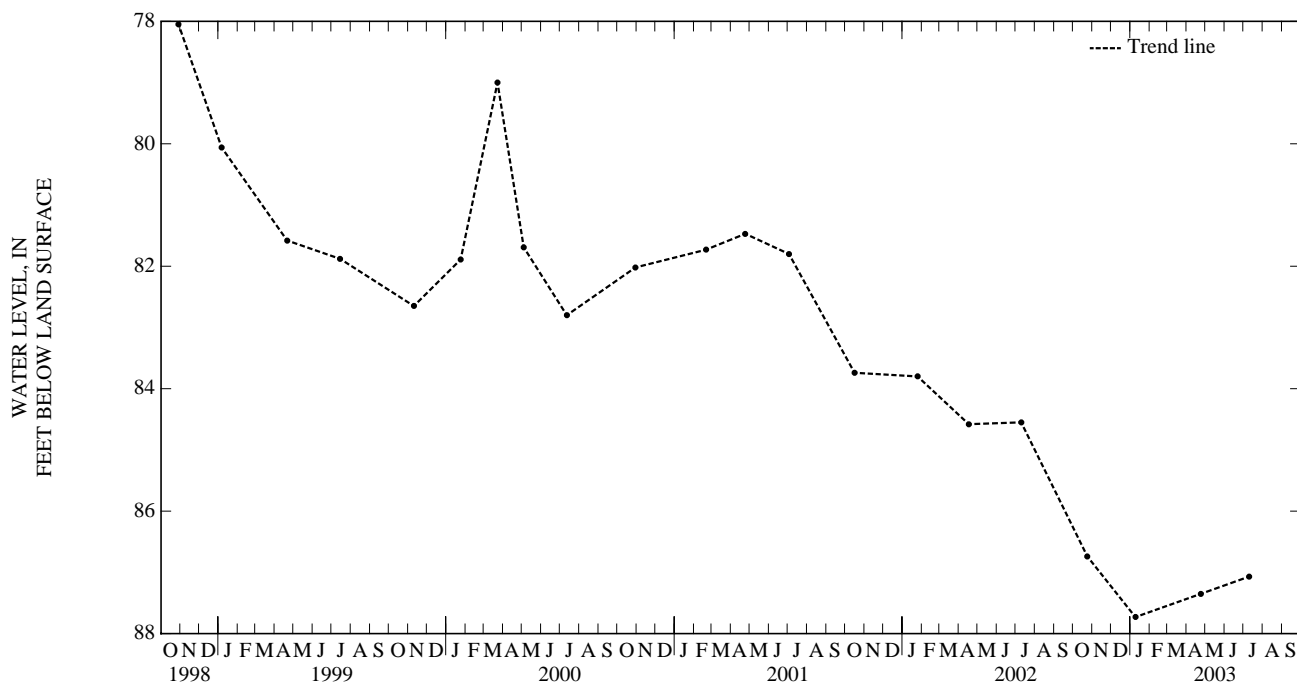
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage and regional drawdown. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--July 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 53.22 ft below land-surface datum, July 20, 1978; lowest measured, 87.73 ft below land-surface datum, Jan. 9, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	86.74	JAN 09	87.73	APR 24	87.35	JUL 10	87.07
WATER YEAR 2003 HIGHEST 86.74 OCT 24, 2002				LOWEST 87.73 JAN 09, 2003			



## SURREY COUNTY—Continued

371132076405502. Local number, 57F 24 SOW 087B.

LOCATION.--Lat 37°11'33", long 76°40'54", NAD83, Hydrologic Unit 02080206, at the end of State Highway 650 in Homewood, 7.6 mi northeast of Bacons Castle. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 520 ft, screened 510 to 520 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 7, 1985, to July 10, 1995, bimonthly measurement with chalked tape. Prior to Oct. 7, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 5 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.0 ft above land-surface datum.

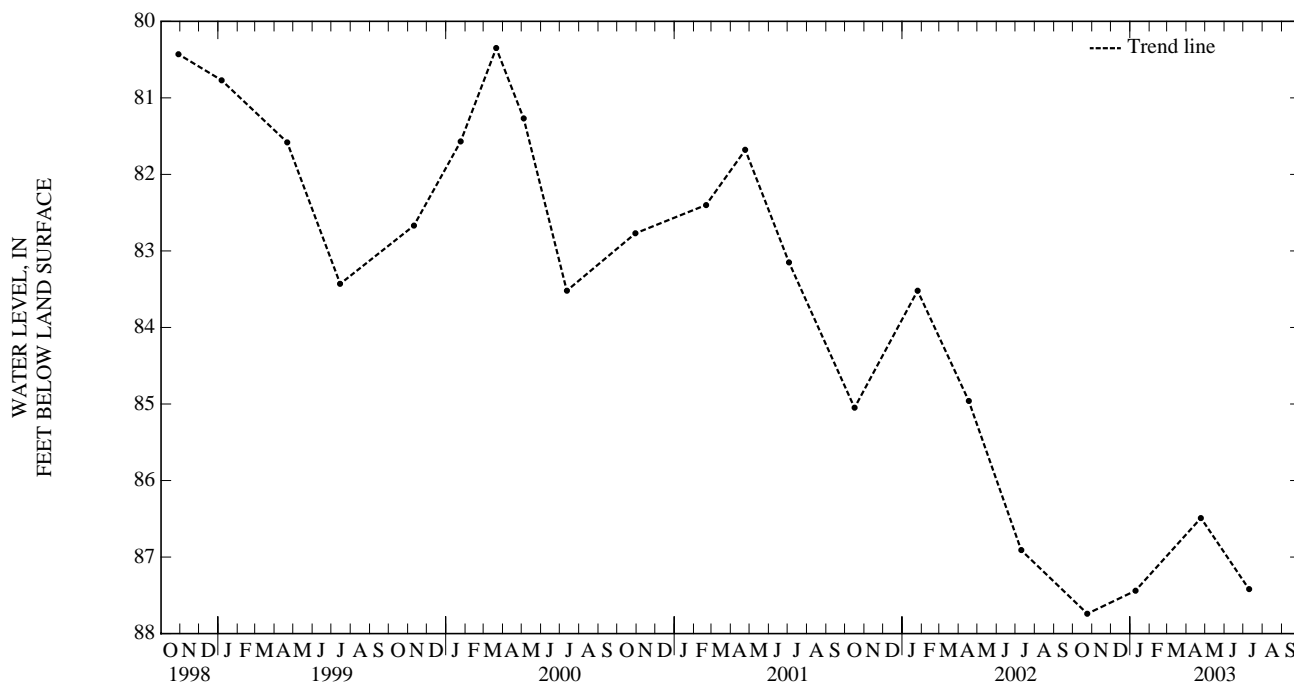
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--July 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 62.17 ft below land-surface datum, Aug. 17, 1982; lowest measured, 87.74 ft below land-surface datum, Oct. 24, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	87.74	JAN 09	87.44	APR 24	86.49	JUL 10	87.42
WATER YEAR 2003 HIGHEST 86.49 APR 24, 2003				LOWEST 87.74 OCT 24, 2002			



## SUSSEX COUNTY

365530077104002. Local number, 53D 6 SOW 179A.

LOCATION.--Lat 36°55'31", long 77°10'39", NAD83, Hydrologic Unit 03010201, off State Highway 634, 1.4 mi south of State Highway 35, and 1.7 mi southeast of Homeville. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Lower Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 460 ft, diameter 2 in., 439 ft to 460 ft, depth 470 ft, screened 460 to 470 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Mar. 1, 1988, digital recorder 60-minute punch.

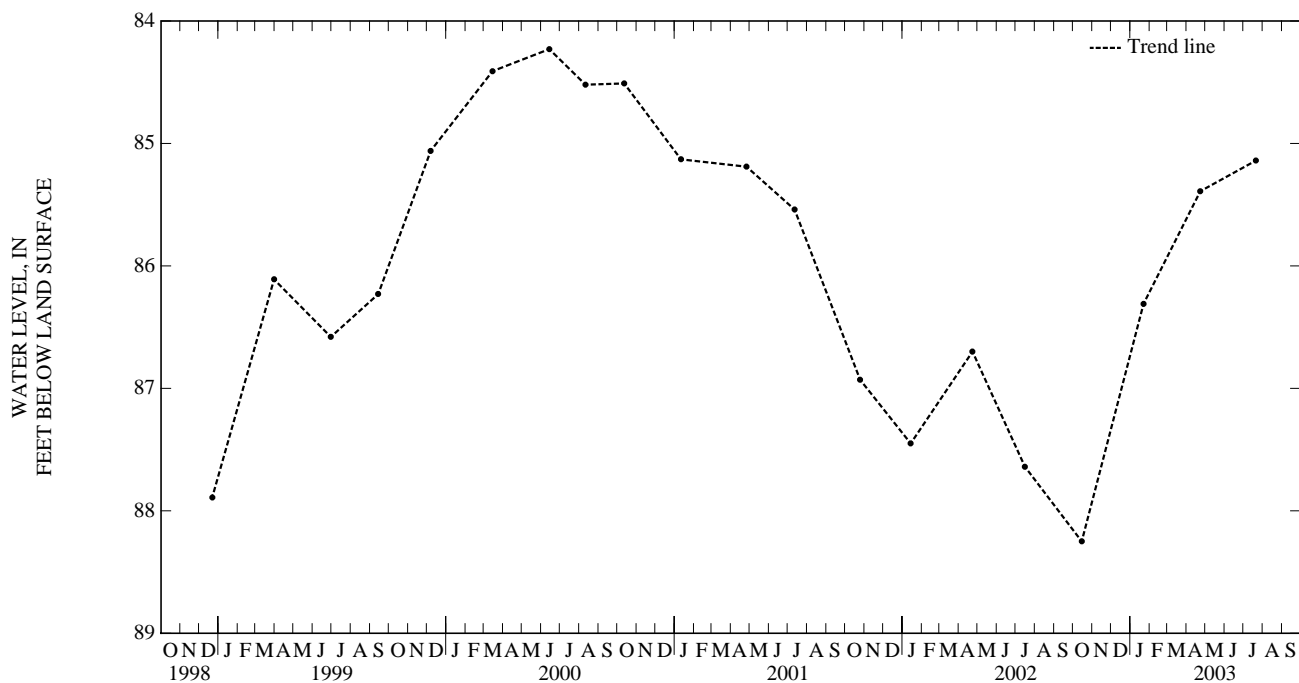
DATUM.--Elevation of land-surface datum is 90 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

PERIOD OF RECORD.--November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 78.50 ft below land-surface datum, Feb. 12, 1988; lowest measured, 88.25 ft below land-surface datum, Oct. 15, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	88.25	JAN 22	86.31	APR 23	85.39	JUL 21	85.14
WATER YEAR 2003 HIGHEST		85.14	JUL 21, 2003 LOWEST		88.25	OCT 15, 2002	



365530077104006. Local number, 53D 10 SOW 179E.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

**WELL CHARACTERISTICS.**--Drilled observation water well, diameter 4.5 in. to 130 ft, diameter 4 in. from 140 to 145 ft, depth 145 ft, screened 130 to 140 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Mar. 1, 1988, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 90 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.3 ft above land-surface datum.

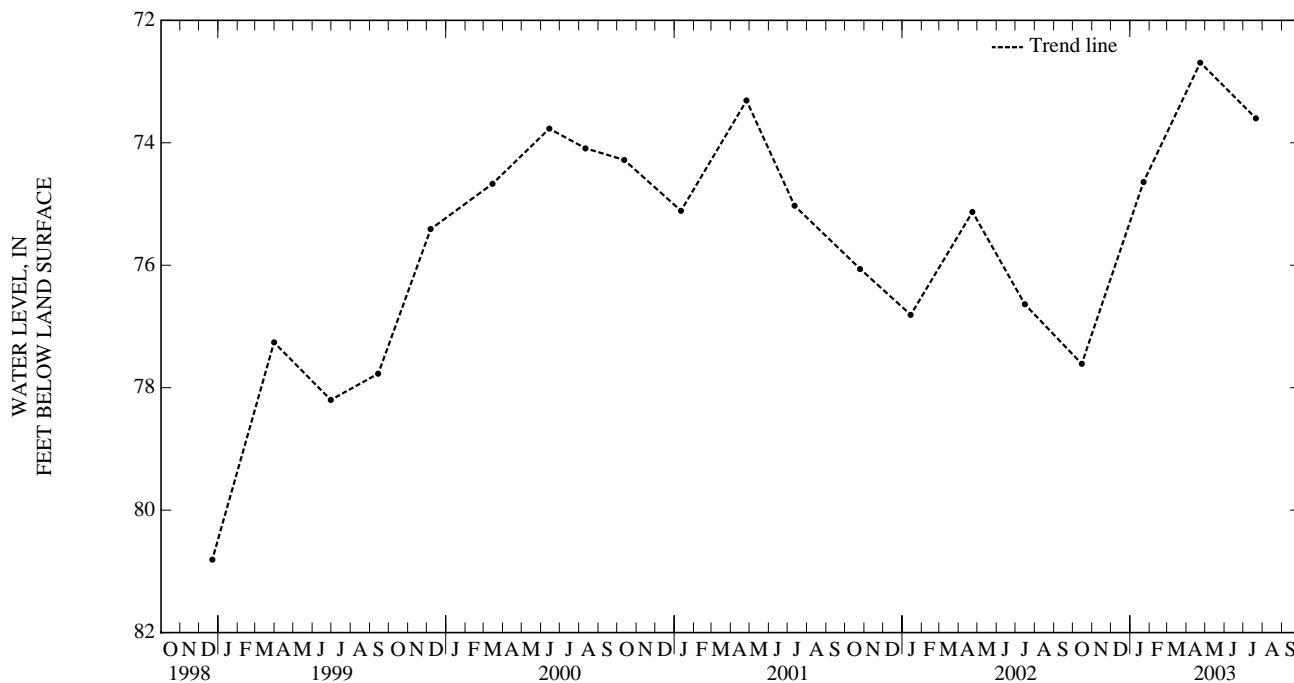
REMARKS.--Water level affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--December 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 72.69 ft below land-surface datum, Apr. 23, 2003; lowest measured, 82.50 ft below land-surface datum, Sept. 12, 1995.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	77.61	JAN 22	74.64	APR 23	72.69	JUL 21	73.60
WATER YEAR 2003		HIGHEST	72.69	APR 23, 2003	LOWEST	77.61	OCT 15, 2002



LOCATION.--Lat 36°55'31", long 77°10'39", NAD83, Hydrologic Unit 03010201, off State Highway 634, 1.4 mi south of State Highway 35, and 1.7 mi southeast of Homeville. Owner: Virginia Department of Environmental Quality.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 82 ft, diameter 4 in. from 92 to 97 ft, depth 97 ft, screened 82 to 92 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Mar. 1, 1988, digital recorder 60-minute punch.

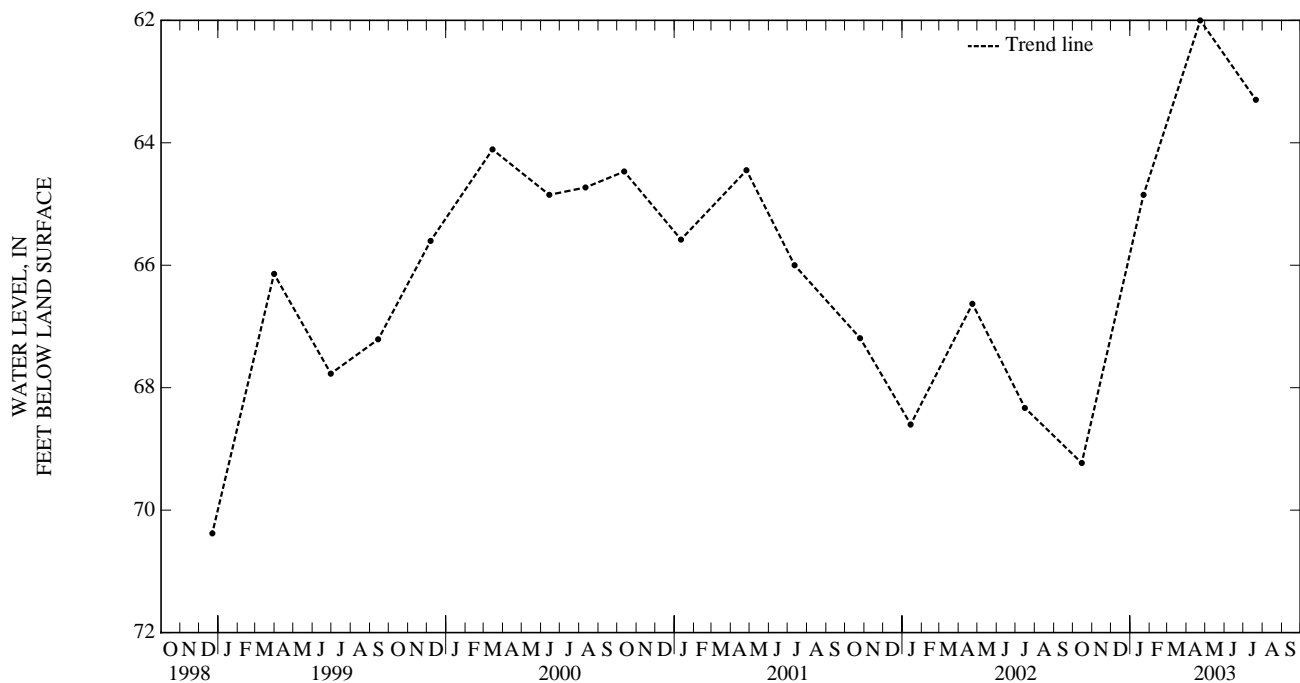
DATUM.--Elevation of land-surface datum is 90 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

REMARKS.--Water level affected by local pumpage.

PERIOD OF RECORD.--December 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 62.00 ft below land-surface datum, Apr. 23, 2003; lowest recorded, 77.16 ft below land-surface datum, Nov. 28 to Dec. 1, 1987.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	69.23	JAN 22	64.85	APR 23	62.00	JUL 21	63.30
WATER YEAR 2003		HIGHEST	62.00	APR 23, 2003	LOWEST	69.23	OCT 15, 2002



## SUSSEX COUNTY—Continued

365235077150501. Local number, 53E 5 SOW 045.

LOCATION.--Lat 37°02'38", long 77°11'29", NAD83, Hydrologic Unit 03010201, 400 ft northeast of State Highway 625, 2.5 mi north of Newville. Owner: Butler Lumber Company.

AQUIFER.--Aquia aquifer of Paleocene age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in., depth 172 ft, screened 162 to 172 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to Mar. 1, 1989, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 126.65 ft above NGVD of 1929. Measuring point: Top of casing, 0.3 ft above land-surface datum prior to Mar. 8, 1988; 1.2 ft thereafter.

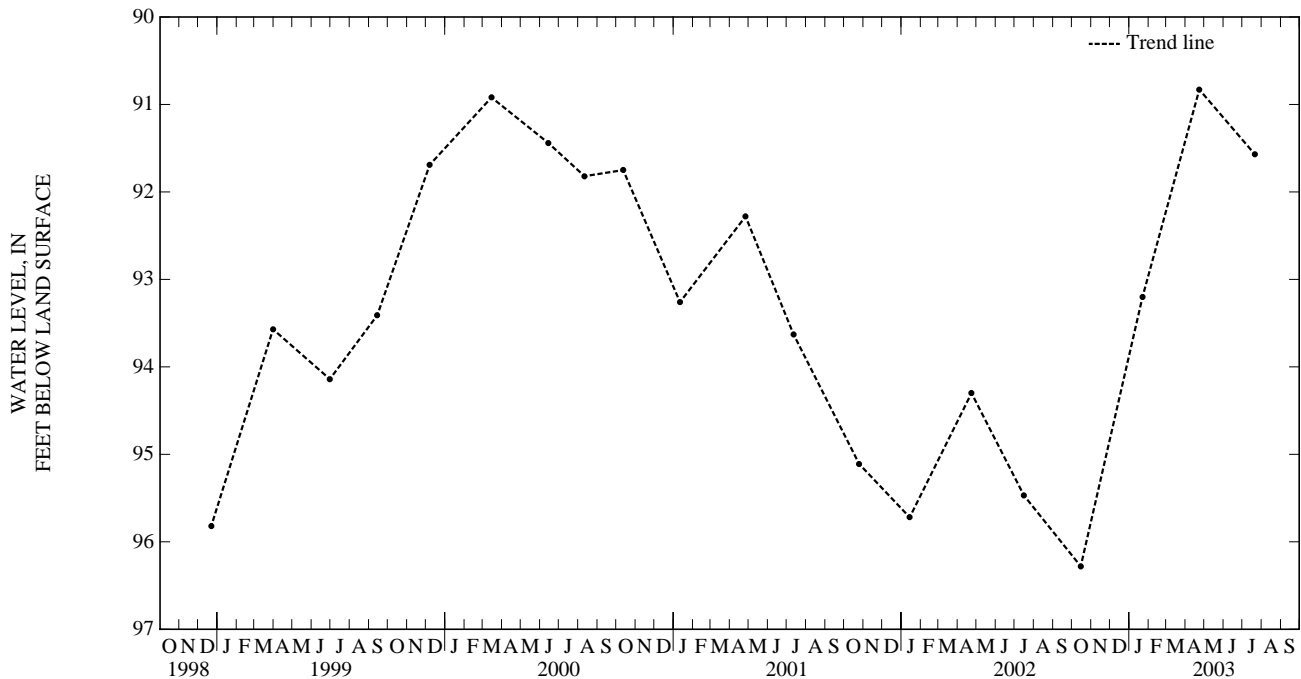
REMARKS.--Water level affected by local pumpage and regional drawdown.

PERIOD OF RECORD.--September 1971, October 1974 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 81.90 ft below land-surface datum, Mar. 16, 1976; lowest measured, 96.28 ft below land-surface datum, Oct. 15, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	96.28	JAN 22	93.20	APR 23	90.83	JUL 21	91.57
WATER YEAR 2003 HIGHEST		90.83	APR 23, 2003	LOWEST		96.28	OCT 15, 2002



GROUND-WATER LEVELS  
CITY OF VIRGINIA BEACH

364920076093201. Local number, 61C 27 SOW 174A.

LOCATION.--Lat 36°49'21", long 76°09'28", NAD83, Hydrologic Unit 02080208, at Kempsville High School in Virginia Beach. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 175 ft, screened 160 to 170 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division and USGS personnel. Oct. 9, 1985, to July 5, 1995, bimonthly measurement with chalked tape. Prior to Oct. 9, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum.

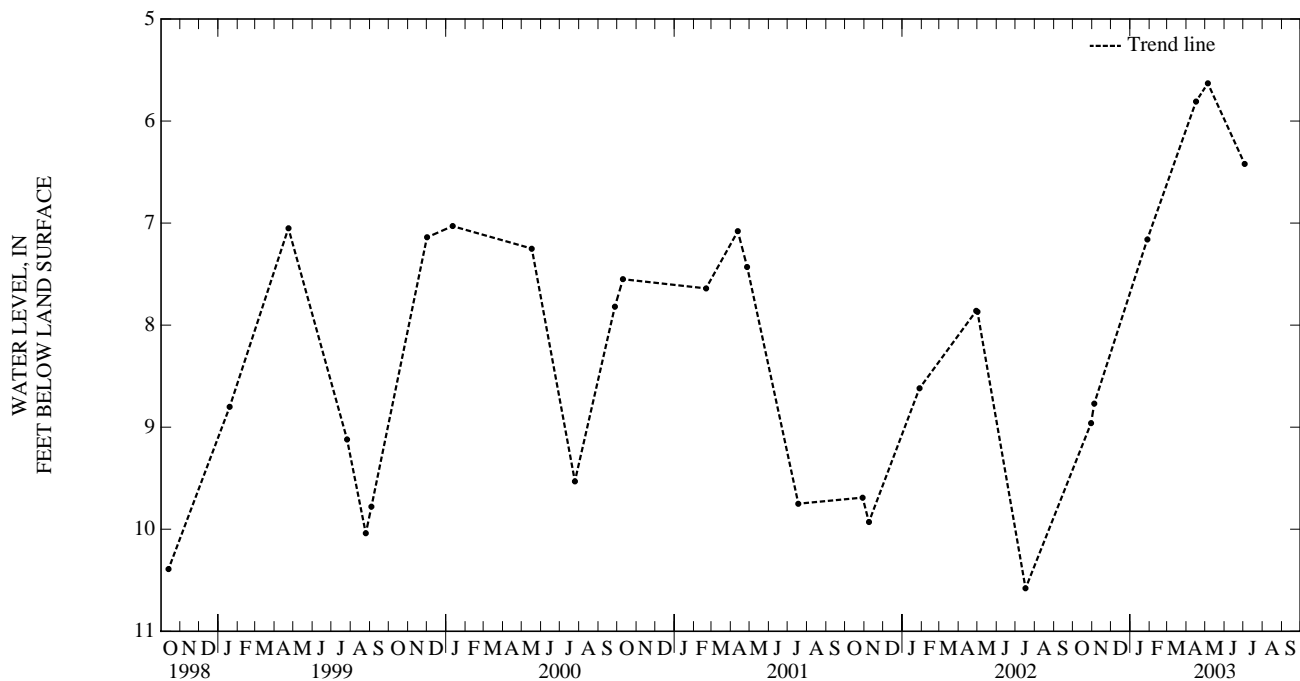
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--April 1984 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.63 ft below land-surface datum, May 5, 2003; lowest measured, 11.73 ft below land-surface datum, Aug. 6, 1986.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, 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	8.96	NOV 04	8.77	JAN 28	7.16	APR 16	5.81	MAY 05	5.63	JUL 03	6.42
WATER YEAR 2003		HIGHEST	5.63	MAY 05, 2003	LOWEST	8.96	OCT 30, 2002				



## CITY OF VIRGINIA BEACH—Continued

364920076093202. Local number, 61C 28 SOW 174B.

LOCATION.--Lat 36°49'14", long 76°09'18", NAD83, Hydrologic Unit 02080208, at Kempsville High School in Virginia Beach. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 80 ft, screened 65 to 75 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division and USGS personnel. Oct. 9, 1985 to July 5, 1995, bimonthly measurement with chalked tape. Prior to Oct. 9, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 13.10 ft above NGVD of 1929. Measuring point: Top of casing, 1.2 ft above land-surface datum prior to Nov. 6, 2001; 1.72 ft thereafter.

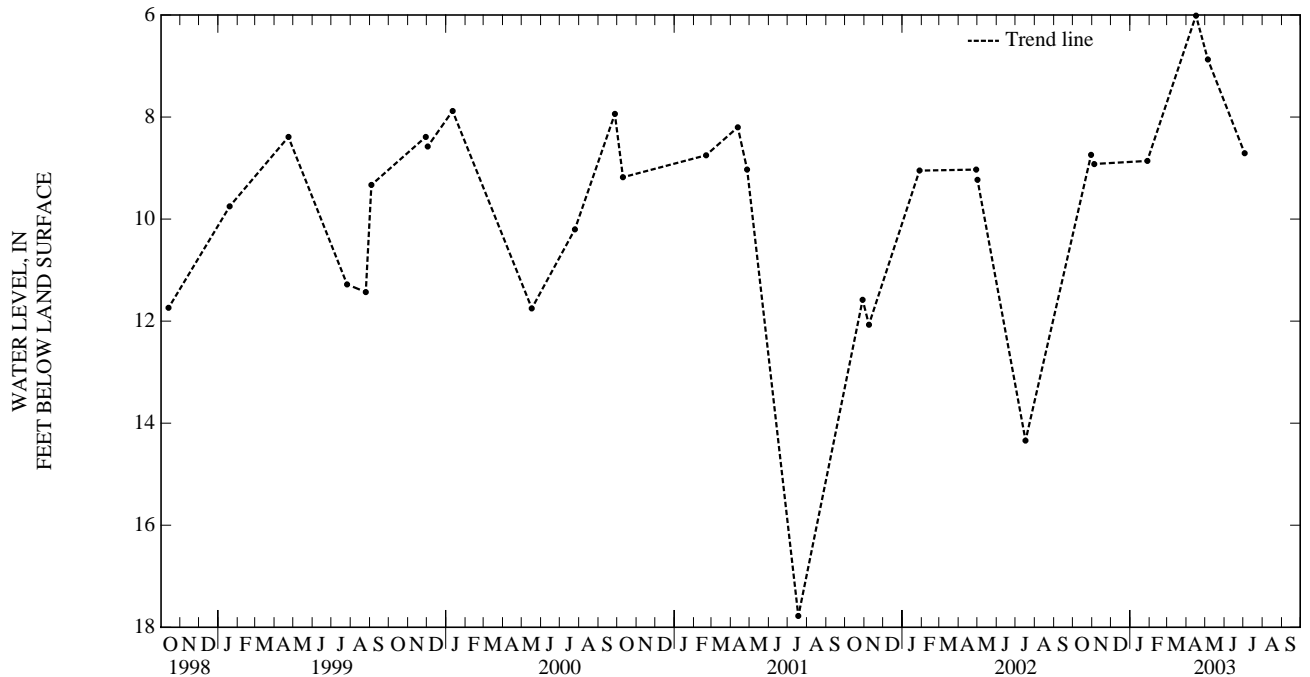
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--April 1984 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.01 ft below land-surface datum, Apr. 16, 2003; lowest measured, 17.99 ft below land-surface datum, July 18, 1986.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, 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	8.74	NOV 04	8.92	JAN 28	8.86	APR 16	6.01	MAY 05	6.87	JUL 03	8.71
WATER YEAR 2003		HIGHEST	6.01	APR 16, 2003	LOWEST	8.92	NOV 04, 2002				





## CITY OF VIRGINIA BEACH—Continued

364558076074501. Local number, 61C 43

LOCATION.--Lat 36°45'58", long 76°07'43", NAD83, Hydrologic Unit 03010205, 40 ft southeast from the northwest corner of Bellwood Estates  
Neighborhood Park Owner: City of Virginia Beach.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 4 in., depth 198 ft, screened 182 to 192 ft.

INSTRUMENTATION.--Electronic pressure transducer data logger 60-minute record interval. Prior to April 12, 2001, occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 5.68 ft above NGVD of 1929. Measuring point: Top of casing, 2.19 ft above land-surface datum.

REMARKS.--Missing record due to recorder malfunction.

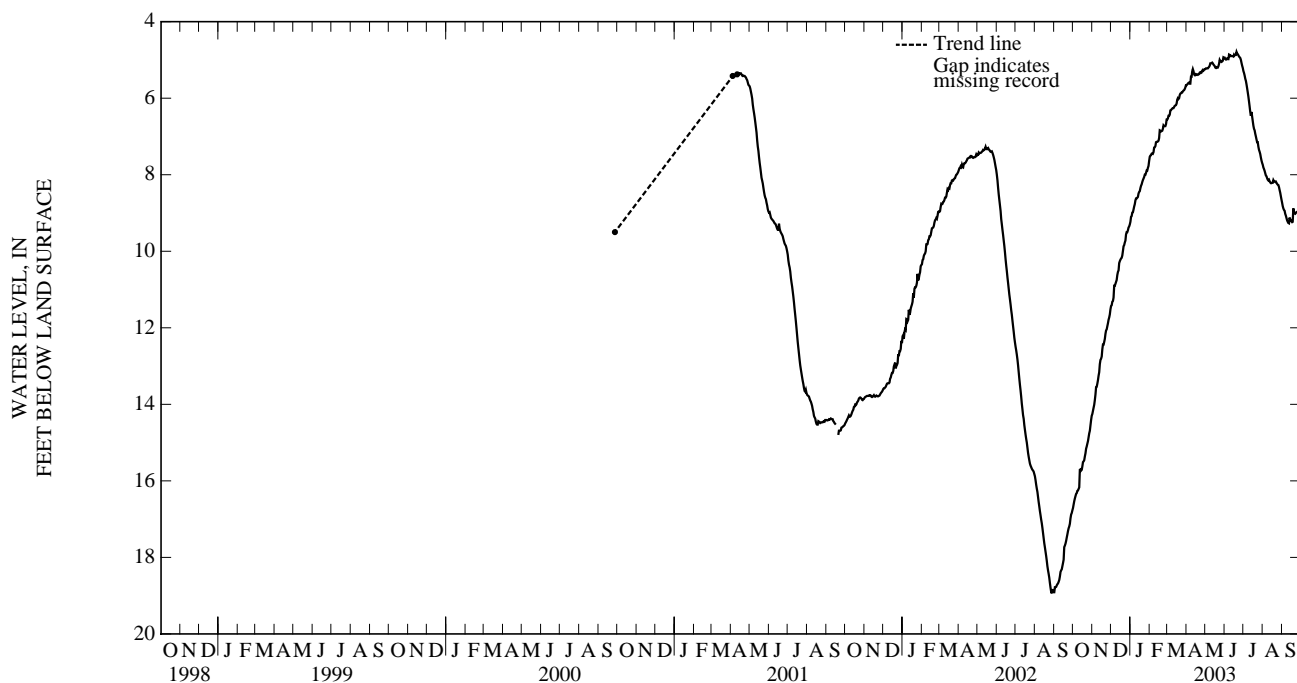
PERIOD OF RECORD.--September 2000 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.75 ft below land-surface datum, June 19, 20, 2003; lowest recorded, 18.94 ft below land-surface datum, Aug. 28, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 4.75 ft below land-surface datum, June 19, 20; lowest instantaneous water level, 16.71 ft below land-surface datum, Oct. 1.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.40	13.89	11.21	8.98	7.44	6.43	5.59	5.22	4.96	5.55	7.96	8.94
10	16.21	13.37	10.75	8.62	7.25	6.26	5.30	5.09	4.90	6.09	8.15	9.23
15	15.71	12.81	10.26	8.45	7.11	6.18	5.40	5.14	4.91	6.48	8.22	9.18
20	15.36	12.37	9.99	8.19	6.86	6.00	5.38	5.20	4.79	6.93	8.18	8.96
25	14.96	11.96	9.56	8.00	6.73	5.85	5.33	5.03	4.93	7.27	8.26	8.97
EOM	14.30	11.52	9.30	7.64	6.56	5.66	5.24	4.94	5.21	7.69	8.65	8.92



## CITY OF VIRGINIA BEACH—Continued

364558076074401. Local number, 61C 44

LOCATION.--Lat 36°45'58", long 76°07'43", NAD83, Hydrologic Unit 03010205, 40 ft southeast from the northwest corner of Bellwood Estates Neighborhood Park. Owner: City of Virginia Beach.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 4 in., depth 107 ft, screened 92 to 102 ft.

INSTRUMENTATION.--Electronic pressure transducer data logger 60-minute record interval. Prior to April 12, 2001, occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 5.77 ft above NGVD of 1929. Measuring point: Top of casing, 2.80 ft above land-surface datum.

REMARKS.--Missing record due to recorder malfunction.

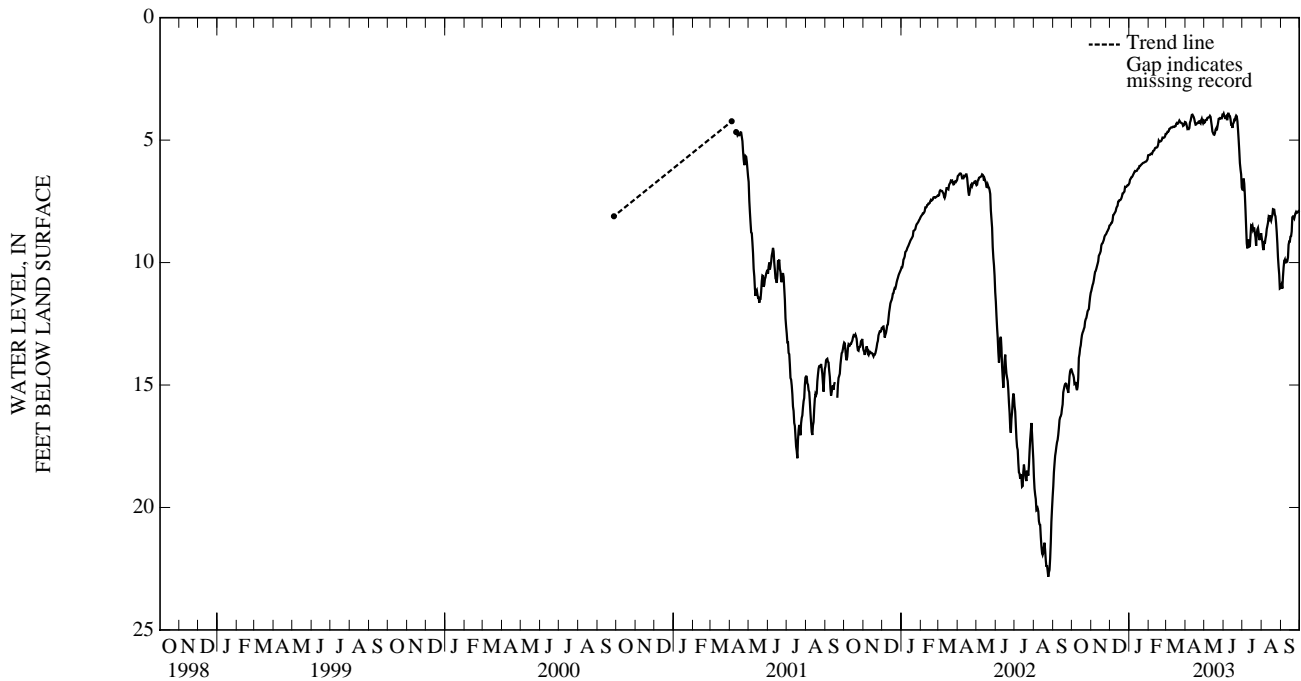
PERIOD OF RECORD.--September 2000 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.86 ft below land-surface datum, May 31, June 1, 2003; lowest recorded, 22.83 ft below land-surface datum, Aug. 24, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 3.86 ft below land-surface datum, May 31, June 1; lowest instantaneous water level, 15.21 ft below land-surface datum, Oct. 9.

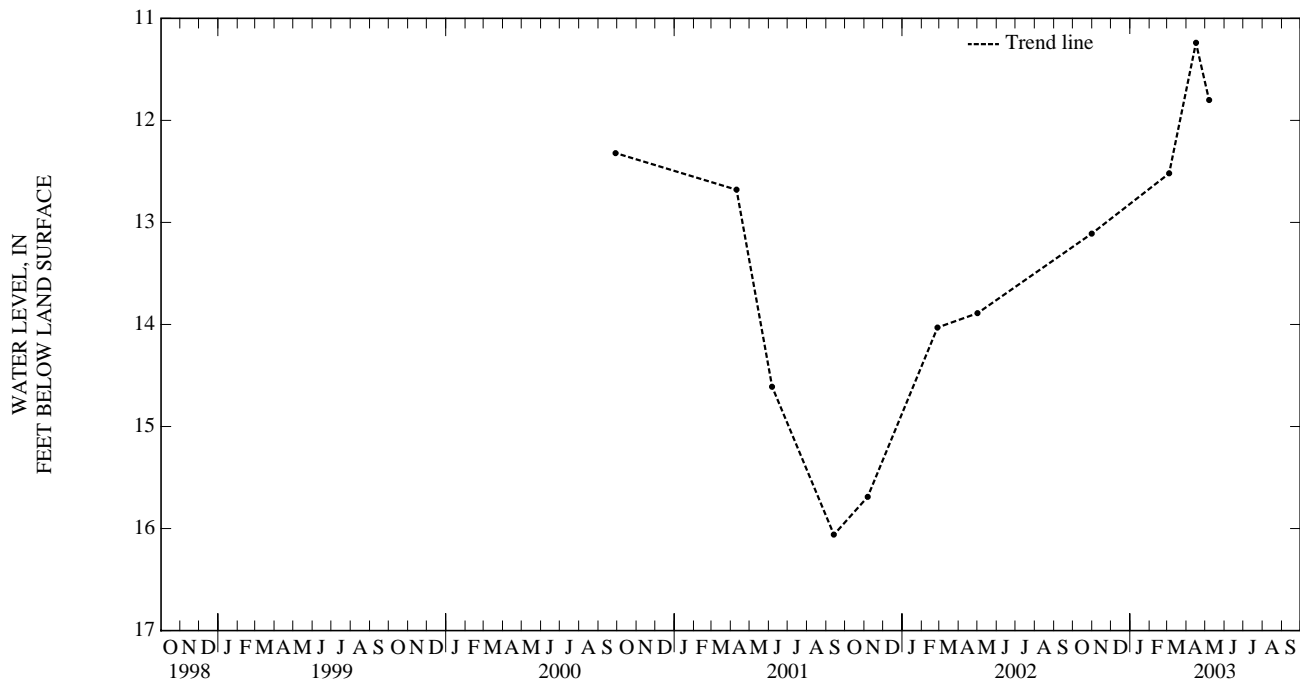
DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	14.96	10.71	8.28	6.51	5.56	4.63	4.54	4.17	4.04	7.28	9.12	10.20
10	15.07	10.15	7.90	6.26	5.40	4.48	4.08	4.01	4.00	9.06	8.51	9.90
15	13.38	9.61	7.50	6.16	5.27	4.44	4.15	4.71	4.50	8.50	8.22	9.14
20	12.71	9.14	7.30	6.00	5.05	4.32	4.30	4.52	4.06	8.60	7.83	8.12
25	12.13	8.82	6.91	5.91	4.90	4.30	4.32	4.12	5.00	8.65	8.75	7.93
EOM	11.24	8.49	6.80	5.62	4.75	4.26	4.23	3.98	6.94	8.80	11.04	7.95



EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.24 ft below land-surface datum, Apr. 16, 2003; lowest measured, 16.06 ft below land-surface datum, Sept. 13, 2001.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	13.11	MAR 04	12.52	APR 16	11.24	MAY 07	11.80
WATER YEAR 2003		HIGHEST	11.24	APR 16, 2003	LOWEST	13.11	OCT 31, 2002



## CITY OF VIRGINIA BEACH—Continued

365212076091202. Local number, 61C 46

LOCATION.--Lat 36°52'12", long 76°09'11", NAD83, Hydrologic Unit 02080108, at Bayside High School in Virginia Beach. Owner: City of Virginia Beach.

AQUIFER.--Yorktown confining unit of Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 4 in., depth 77 ft, screened 62 to 72 ft.

INSTRUMENTATION.--Electronic pressure transducer data logger 60-minute record interval. Prior to April 13, 2001, occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 20.37 ft above NGVD of 1929. Measuring point: Top of casing, 2.36 ft above land-surface datum.

REMARKS.--Missing record due to recorder malfunction.

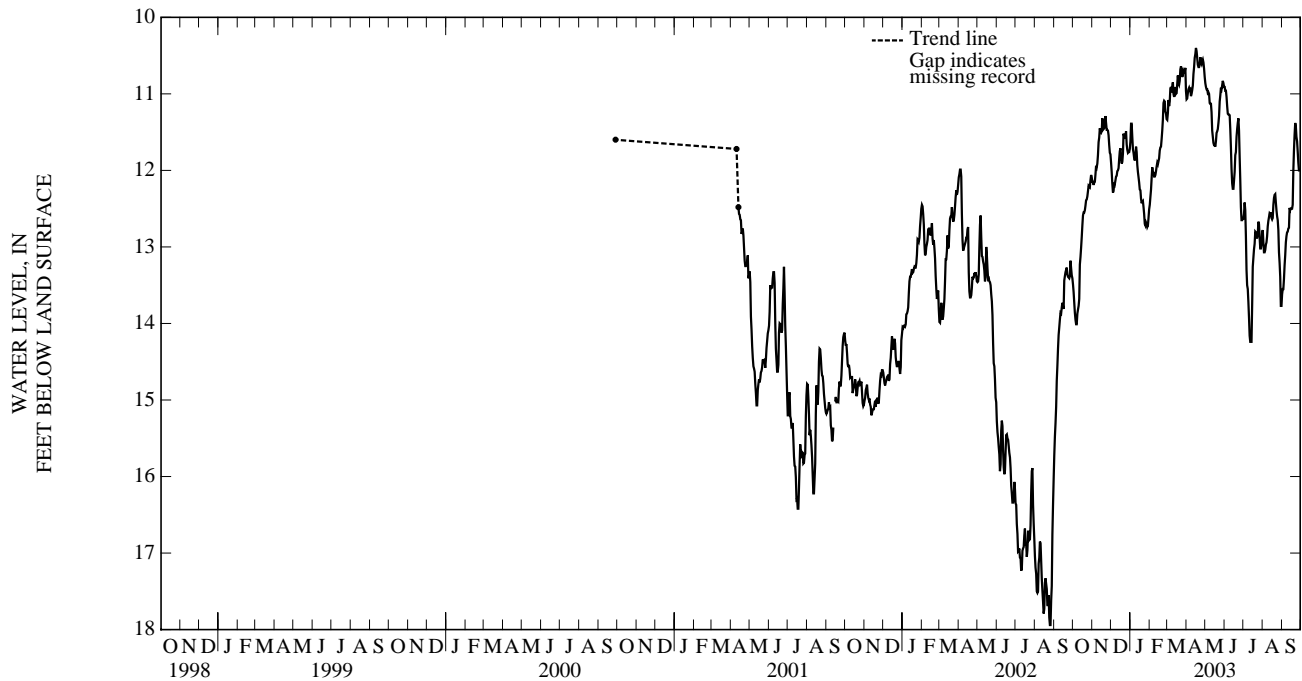
PERIOD OF RECORD.--September 2000 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.35 ft below land-surface datum, Apr. 16, 2003; lowest recorded, 17.94 ft below land-surface datum, Aug. 25, 26, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 10.35 ft below land-surface datum, Apr. 16; lowest instantaneous water level, 14.24 ft below land-surface datum, July 12-14.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	13.95	12.15	12.27	11.72	11.96	11.10	10.92	10.99	11.16	12.86	13.04	13.24
10	13.77	11.80	12.07	11.69	12.06	10.85	10.95	11.13	11.46	13.93	12.66	12.80
15	12.87	11.51	11.75	12.16	11.88	11.00	10.48	11.67	12.24	13.77	12.62	12.50
20	12.52	11.45	11.78	12.41	11.59	10.88	10.65	11.49	11.56	12.80	12.32	11.74
25	12.27	11.47	11.49	12.72	11.10	10.78	10.61	11.02	11.83	12.67	12.65	11.62
EOM	12.09	11.79	11.72	12.51	11.33	10.96	10.78	10.91	12.63	12.81	13.77	11.99



## CITY OF VIRGINIA BEACH—Continued

365425076105001. Local number, 61D 5 SOW 155.

LOCATION.--Lat 36°54'26", long 76°10'49", NAD83, Hydrologic Unit 02080108, 100 ft east of Ferry Road, 0.3 mi northwest of Diamond Springs Road in Virginia Beach. Owner: City of Virginia Beach.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 12 in. to 102 ft, diameter 6 in. from 102 to 150 ft, diameter 4 in. from 150 to 1,380 ft, depth 1,380 ft, screened 1,207 to 1,229 ft, 1,250 to 1,264 ft, 1,286 to 1,306 ft, 1,345 to 1,367 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 9, 1985, to July 5, 1995, bimonthly measurement with chalked tape. Prior to Oct. 9, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 11 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.8 ft above land-surface datum.

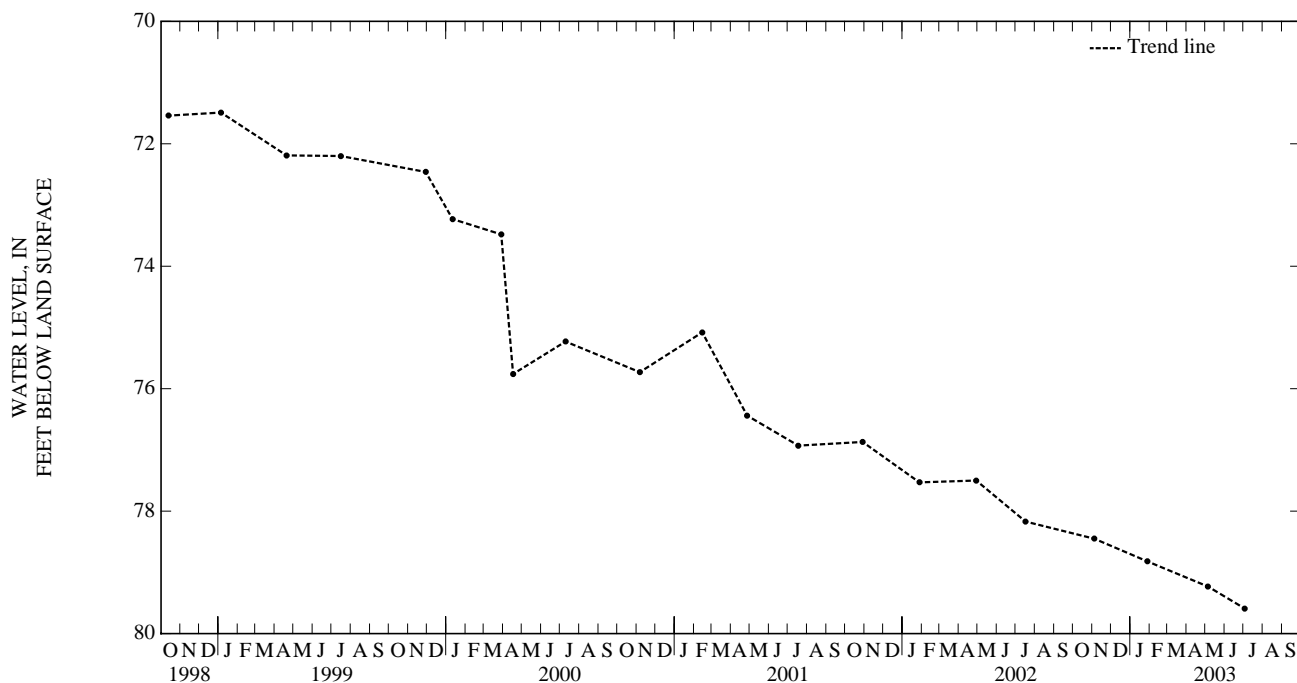
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--December 1980 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.75 ft below land-surface datum, Dec. 17, 1980; lowest measured, 79.59 ft below land-surface datum, July 3, 2003.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 04	78.45	JAN 28	78.82	MAY 05	79.23	JUL 03	79.59
WATER YEAR 2003 HIGHEST 78.45 NOV 04, 2002				LOWEST 79.59 JUL 03, 2003			



## CITY OF VIRGINIA BEACH—Continued

365327076080501. Local number, 61D 6 SOW 124

LOCATION.--Lat 36°53'28", long 76°08'04", NAD83, Hydrologic Unit 02080108, at Thoroughgood Elementary School in Virginia Beach. Owner: City of Virginia Beach.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth 40 ft, screened 25 to 30 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS and Virginia Department of Environmental Quality - Water Division personnel. Prior to August 1999, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

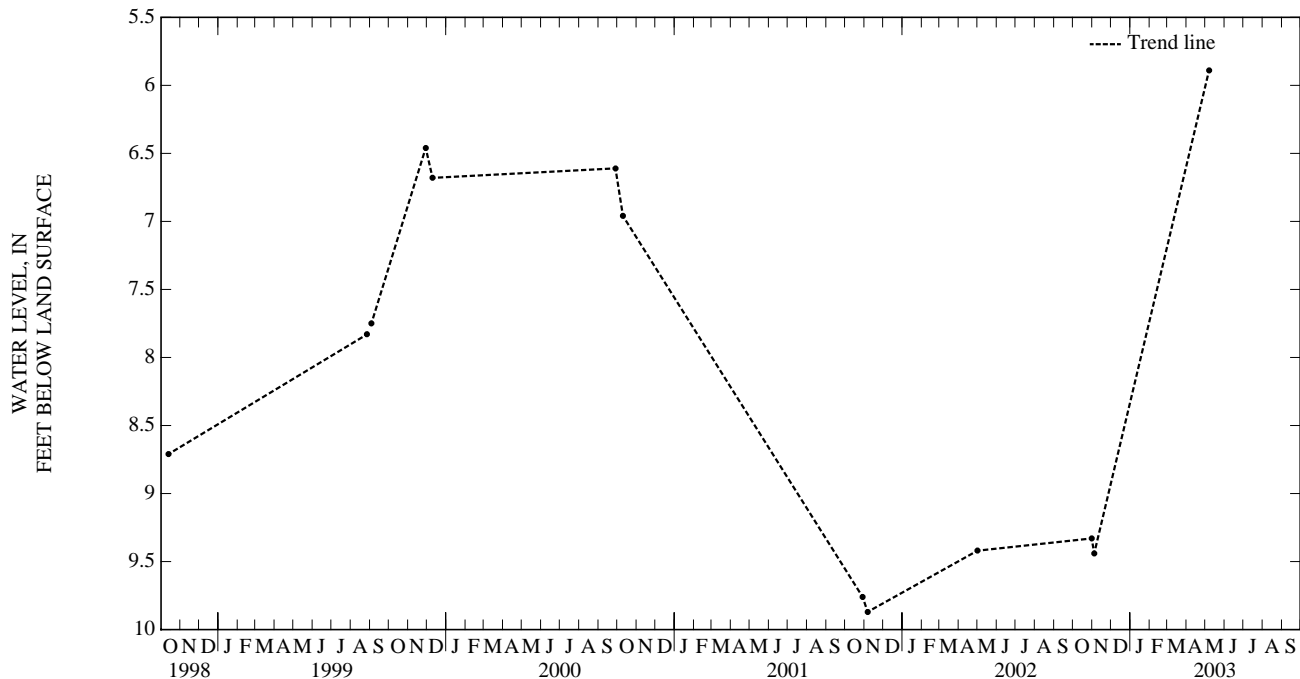
DATUM.--Elevation of land-surface datum is 22.56 ft above NGVD of 1929. Measuring point: Top of casing, 0.80 ft above land-surface datum.

PERIOD OF RECORD.--April 1978 to current year. Unpublished records available October 1995 to September 2002 and prior to October 1985 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.85 ft below land-surface datum, Apr. 7, 1984; lowest measured, 10.72 ft below land-surface datum, Nov. 12, 1986.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	9.33	NOV 04	9.44	MAY 07	5.89
WATER YEAR 2003   HIGHEST   5.89 MAY 07, 2003   LOWEST   9.44 NOV 04, 2002					



## CITY OF VIRGINIA BEACH—Continued

365231076094601. Local number, 61D 9

LOCATION.--Lat 36°52'31", long 76°09'45", NAD83, Hydrologic Unit 02080108, on golf course at the golf tunnel, at Cypress Point Country Club in Virginia Beach.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled water well, diameter 4 in., depth 35 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

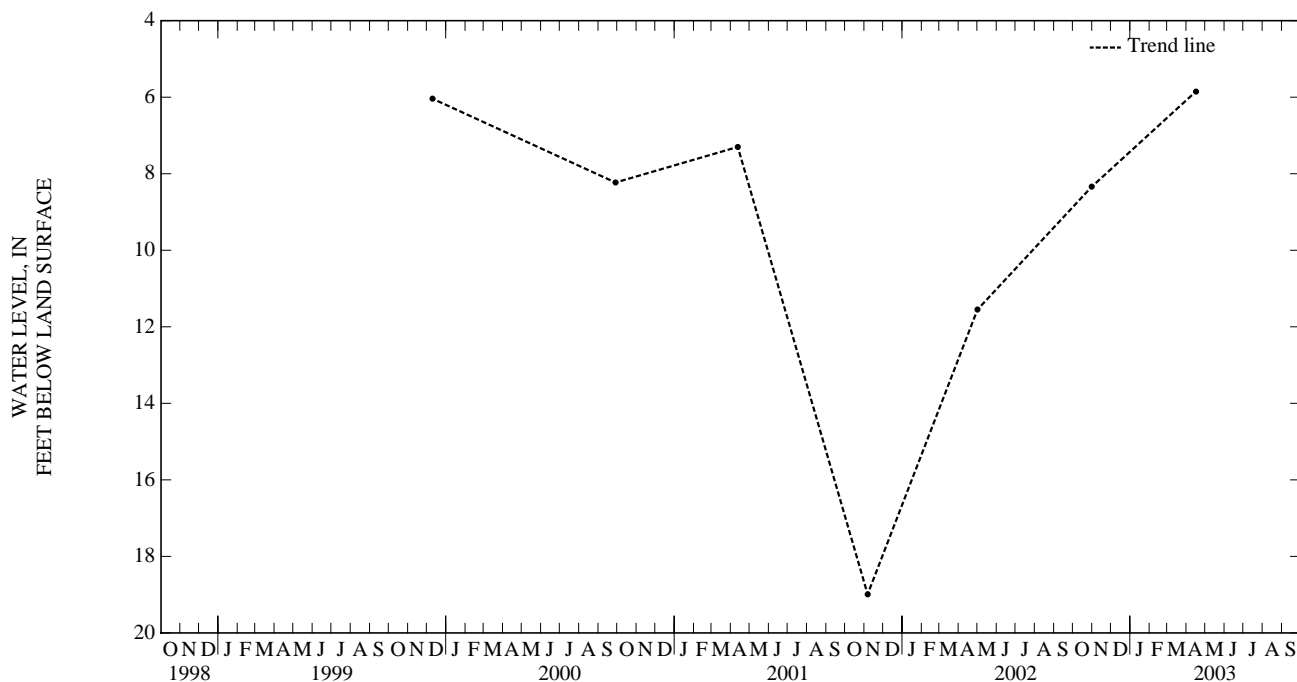
DATUM.--Elevation of land-surface datum is 14.87 ft above NGVD of 1929. Measuring point: Top of casing, 2.74 ft above land-surface datum.

PERIOD OF RECORD.--December 1999 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.85 ft below land-surface datum, Apr. 16, 2003; lowest recorded, 18.99 ft below land-surface datum, Nov. 6, 2001.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	8.34	APR 16	5.85
WATER YEAR 2003 HIGHEST	5.85	APR 16, 2003 LOWEST	8.34
			OCT 31, 2002



## CITY OF VIRGINIA BEACH—Continued

363537076061001. Local number, 62A 2 SOW 097A.

LOCATION.--Lat 36°33'56", long 76°06'15", NAD83, Hydrologic Unit 03010205, 0.2 mi south of Baum Road, 0.25 mi west of Crag Causeway in Virginia Beach. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 76 ft, screened 66 to 76 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division and USGS personnel. Oct. 9, 1985, to July 5, 1995, bimonthly measurement with chalked tape. Prior to Oct. 9, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 7.57 ft above NGVD of 1929. Measuring point: Top of casing, 1.5 ft above land-surface datum prior to Aug. 3, 1988; at land-surface datum Aug. 3, 1988, to Mar. 13, 1989; 0.65 ft Mar. 13, 1989, to Apr. 1, 1991; 1.65 ft thereafter.

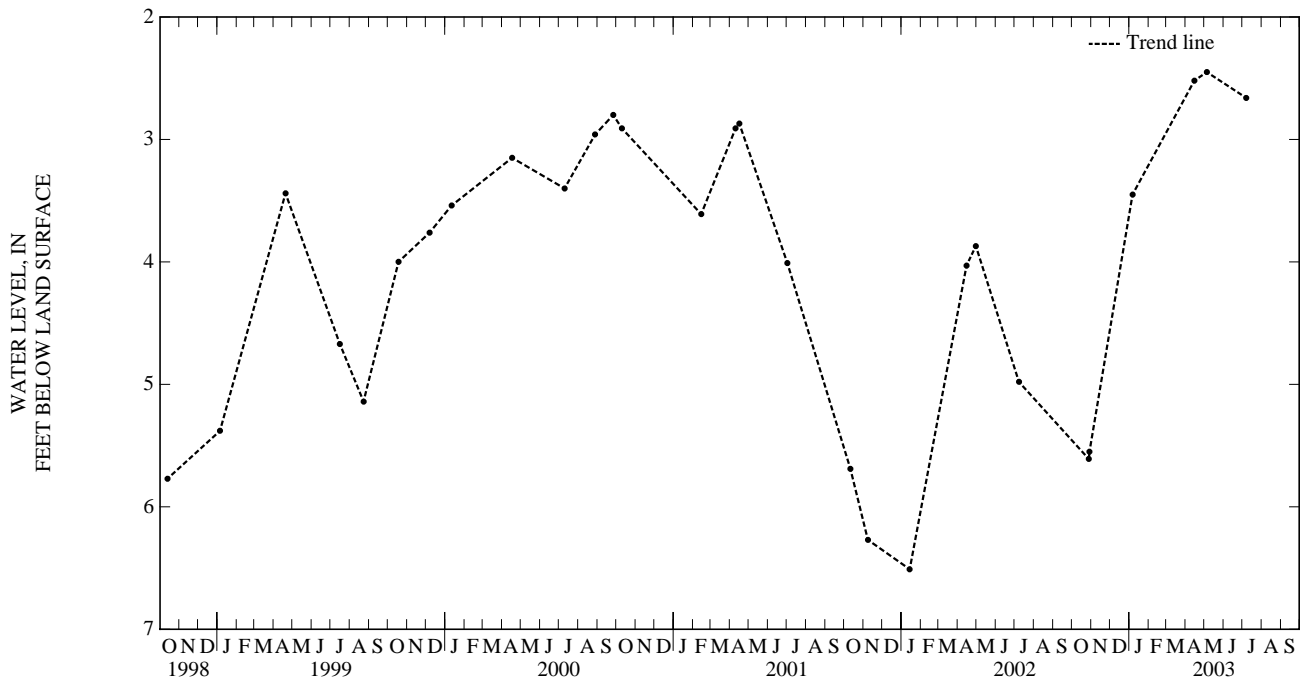
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--July 1979 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.18 ft below land-surface datum, Apr. 30, 1980; lowest measured, 6.68 ft below land-surface datum, Nov. 28, 1983.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, 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	5.61	OCT 29	5.55	JAN 06	3.45	APR 15	2.52	MAY 05	2.45	JUL 07	2.66
WATER YEAR 2003		HIGHEST	2.45	MAY 05, 2003	LOWEST	5.61	OCT 28, 2002				





## CITY OF VIRGINIA BEACH—Continued

363537076061002. Local number, 62A 3 SOW 097B

LOCATION.--Lat 36°33'56", long 76°06'15", NAD83, Hydrologic Unit 03010205, 0.2 mi south of Baum Road, 0.25 mi west of Crag Causeway in Virginia Beach Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 24 ft, screened 20 to 24 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS and Virginia Department of Environmental Quality - Water Division personnel. Prior to August 1999, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

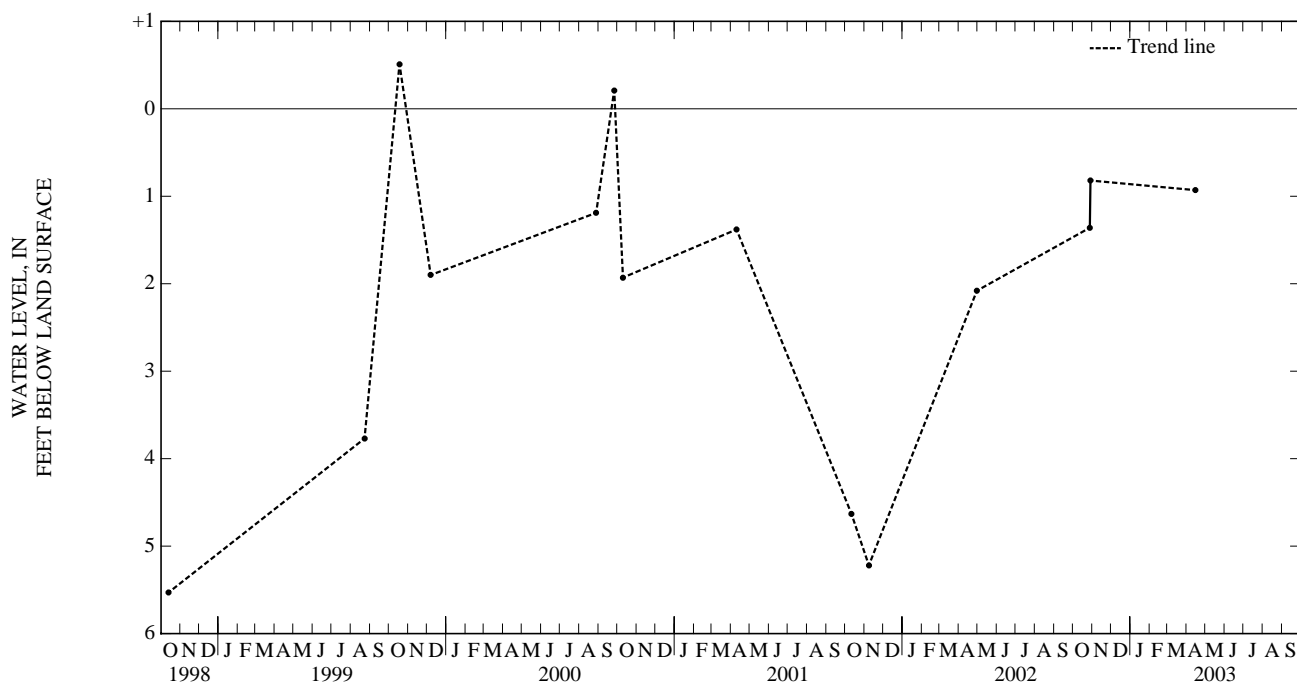
DATUM.--Elevation of land-surface datum is 7.76 ft above NGVD of 1929. Measuring point: Top of casing, 1.50 ft above land-surface datum.

PERIOD OF RECORD.--July 1979 to current year. Unpublished records available October 1995 to September 2002 and prior to October 1985 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.51 ft above land-surface datum, Oct. 18, 1999; lowest measured, 6.50 ft below land-surface datum, Oct. 17, 1983.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	1.36	OCT 29	.82	APR 15	.93
WATER YEAR 2003 HIGHEST .82 OCT 29, 2002 LOWEST 1.36 OCT 28, 2002					



## CITY OF VIRGINIA BEACH—Continued

363325076005201. Local number, 62A 5

LOCATION.--Lat 36°33'27", long 76°00'26", NAD83, Hydrologic Unit 03010205, at Seneca Camp Grounds in Virginia Beach, 5 mi south of intersection of Pungo Ferry Road and Princess Anne Road in Virginia Beach. Owner: Seneca Corp.

AQUIFER.--Yorktown confining unit of Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth 88 ft, screened 58 to 83 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

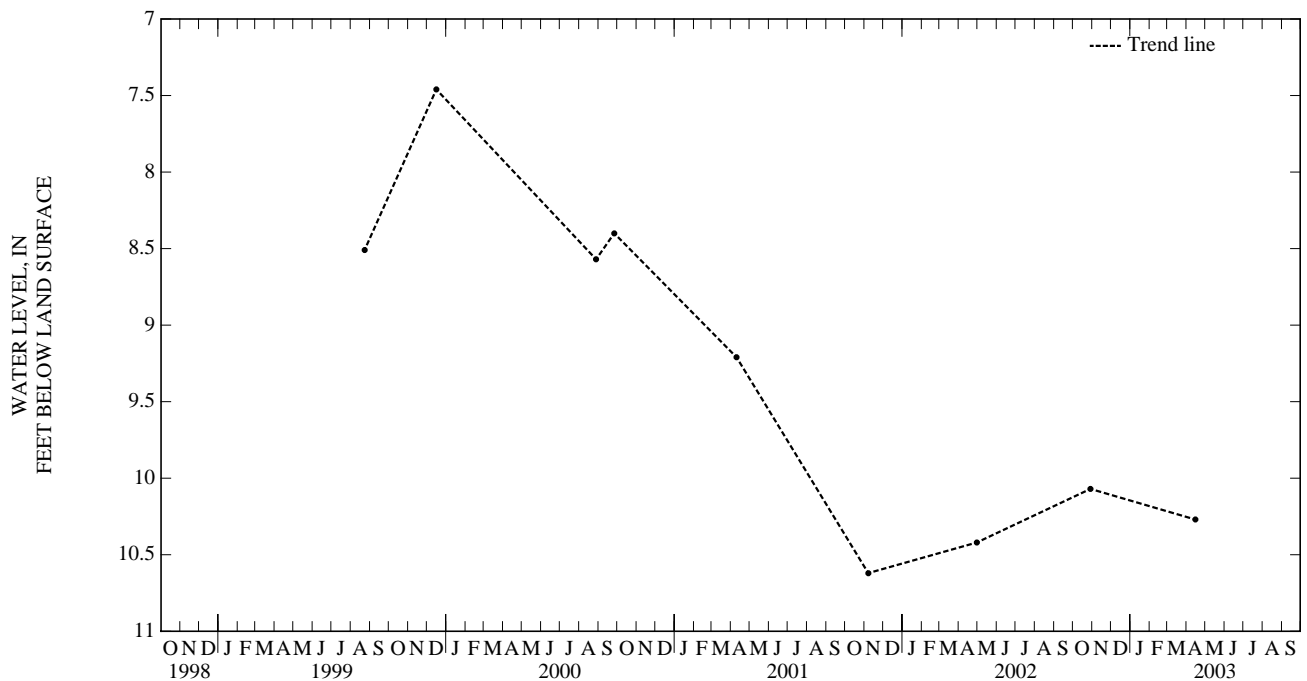
DATUM.--Elevation of land-surface datum is 5 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.92 ft above land-surface datum.

PERIOD OF RECORD.--1972, August 1999 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.00 ft below land-surface datum, July 19, 1972; lowest recorded, 10.62 ft below land-surface datum, Nov. 7, 2001.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	10.07	APR 15	10.27
WATER YEAR 2003    HIGHEST    10.07    OCT 29, 2002    LOWEST    10.27    APR 15, 2003			



GROUND-WATER LEVELS  
CITY OF VIRGINIA BEACH—Continued

363714076063501. Local number, 62A 22

LOCATION.--Lat 36°37'15", long 76°06'34", NAD83, Hydrologic Unit 03010205, at northeast corner of Blackwater Neighborhood Park, on Head of River Road in Virginia Beach. Owner: City of Virginia Beach.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 4 in., depth 178 ft, screened 143 to 168 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. April 2001 to May 2002, electronic pressure transducer data logger 60-minute record interval. Prior to April 2001, occasional measurement with chalked tape by USGS personnel.

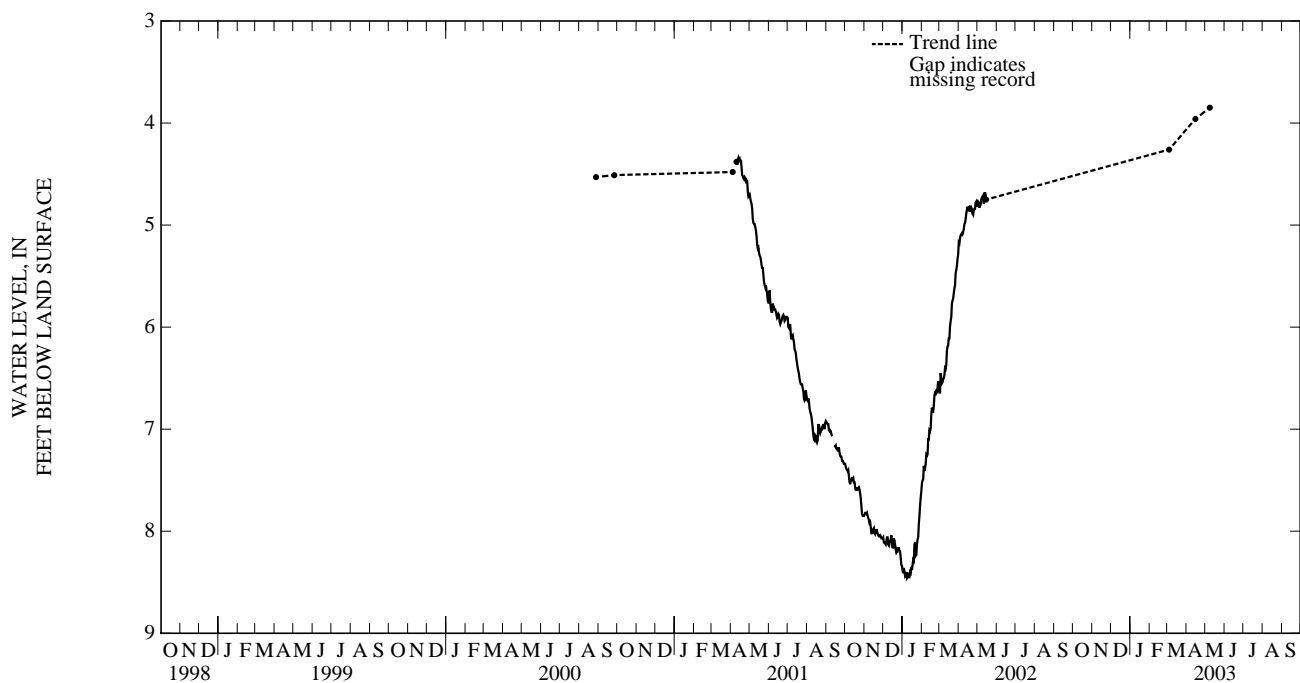
DATUM.--Elevation of land-surface datum is 10.46 ft above NGVD of 1929. Measuring point: Top of casing, 2.17 ft above land-surface datum.

PERIOD OF RECORD.--August 2000 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.85 ft below land-surface datum, May 8, 2003; lowest recorded, 8.46 ft below land-surface datum, Jan. 8, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
MAR 04	4.26	APR 15	3.96	MAY 08	3.85
WATER YEAR 2003   HIGHEST   3.85 MAY 08, 2003   LOWEST   4.26 MAR 04, 2003					



## CITY OF VIRGINIA BEACH—Continued

363714076063502. Local number, 62A 23

LOCATION.--Lat 36°37'15", long 76°06'34", NAD83, Hydrologic Unit 03010205, at northeast corner of Blackwater Neighborhood Park, on Head of River Road in Virginia Beach. Owner: City of Virginia Beach.

AQUIFER.--Yorktown confining unit of Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 4 in., depth 100 ft, screened 88 to 98 ft.

INSTRUMENTATION.--Electronic pressure transducer data logger 60-minute record interval. Prior to April 2001, occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 10.39 ft above NGVD of 1929. Measuring point: Top of casing, 2.17 ft above land-surface datum.

REMARKS.--Missing record due to recorder malfunction.

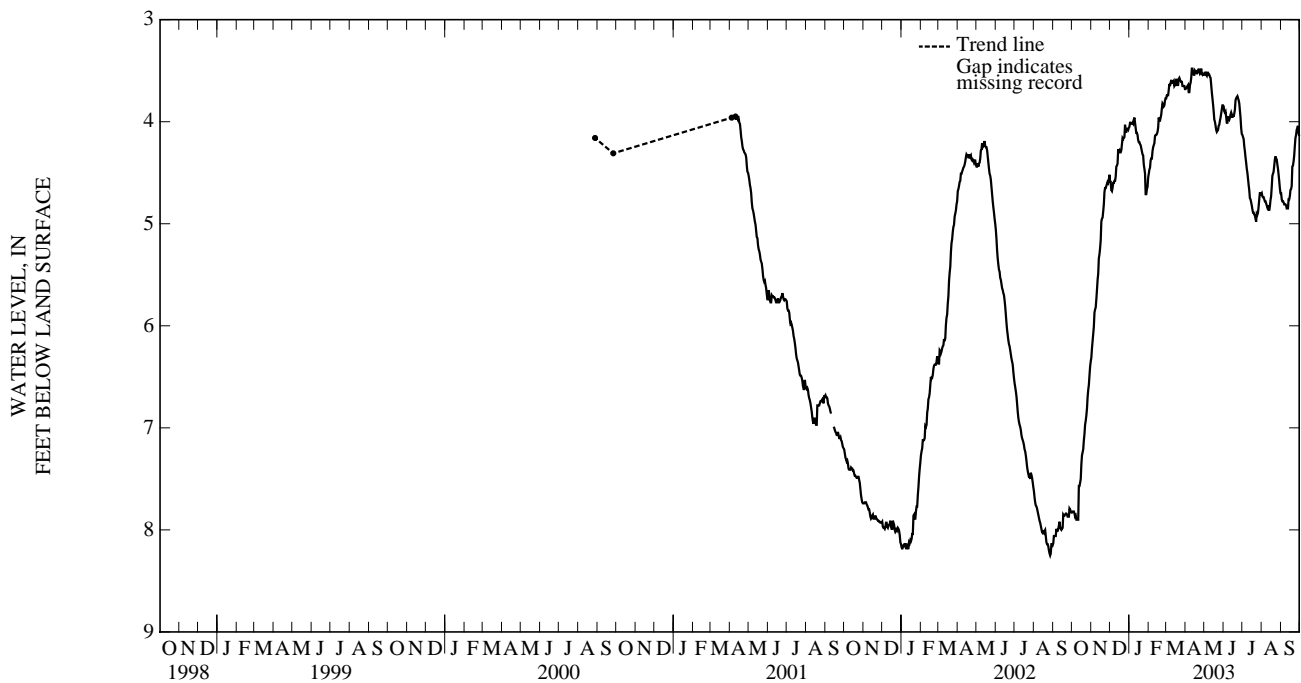
PERIOD OF RECORD.--August 2000 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.42 ft below land-surface datum, Apr. 26, 2003; lowest recorded, 8.25 ft below land-surface datum, Aug. 27, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 3.42 ft below land-surface datum, Apr. 26; lowest instantaneous water level, 7.90 ft below land-surface datum, Dec. 8-11.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.84	6.01	4.65	4.02	4.36	3.69	3.64	3.55	3.95	4.29	4.76	4.79
10	7.90	5.65	4.54	4.01	4.21	3.62	3.57	3.56	3.98	4.56	4.84	4.85
15	7.50	5.24	4.29	4.18	4.10	3.64	3.54	3.83	3.96	4.79	4.77	4.73
20	7.12	4.88	4.22	4.26	3.96	3.64	3.52	4.08	3.79	4.91	4.49	4.43
25	6.81	4.63	4.03	4.46	3.85	3.61	3.52	4.03	3.79	4.91	4.37	4.13
EOM	6.35	4.52	4.06	4.55	3.77	3.68	3.54	3.84	4.12	4.71	4.70	4.14



## CITY OF VIRGINIA BEACH—Continued

364126076003501. Local number, 62B 1 SOW 098A.

LOCATION.--Lat 36°41'28", long 76°00'34", NAD83, Hydrologic Unit 03010205, on north side of Pleasant Ridge Road at the Virginia Beach Mosquito Control shop, 0.9 mi east of Pleasant Ridge in Virginia Beach. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 24 ft, screened 20 to 24 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division and USGS personnel. Oct. 9, 1985, to July 5, 1995, bimonthly measurement with chalked tape. Prior to Oct. 9, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 5.63 ft above NGVD of 1929. Measuring point: Top of casing, 0.8 ft above land-surface datum prior to Mar. 2, 1988; 1.05 ft Mar. 2, 1988 to Sept. 8, 2003; 1.61 ft thereafter.

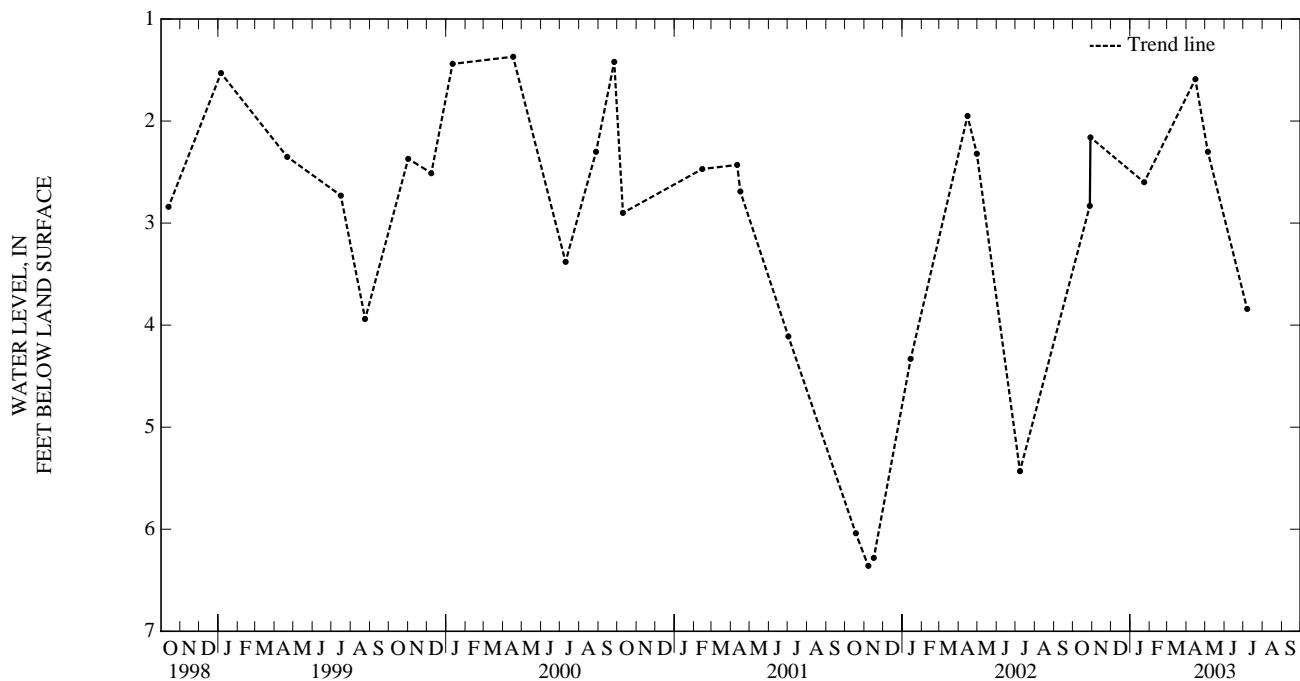
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--June 1979 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.02 ft below land-surface datum, Apr. 1, 1991; lowest measured, 11.95 ft below land-surface datum, Sept. 16, 1980.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, 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	2.83	OCT 29	2.16	JAN 23	2.60	APR 15	1.59	MAY 05	2.30	JUL 07	3.84
WATER YEAR 2003		HIGHEST	1.59	APR 15, 2003	LOWEST	3.84	JUL 07, 2003				



## CITY OF VIRGINIA BEACH—Continued

364126076003502. Local number, 62B 2 SOW 098B.

LOCATION.--Lat 36°41'27", long 76°00'34", NAD83, Hydrologic Unit 03010205, on north side of Pleasant Ridge Road at the Virginia Beach Mosquito Control shop, 0.9 mi east of Pleasant Ridge in Virginia Beach. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 98 ft, screened 88 to 98 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division and USGS personnel. Oct. 9, 1985, to July 5, 1995, bimonthly measurement with chalked tape. Prior to Oct. 9, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 5.54 ft above NGVD of 1929. Measuring point: Top of casing, 0.8 ft above land-surface datum prior to Mar. 2, 1988; 1.2 ft above land-surface datum Mar. 2, 1988, to Dec. 9, 1994; 0.8 ft Dec. 9, 1994 to Nov. 16, 2001; 1.15 ft thereafter.

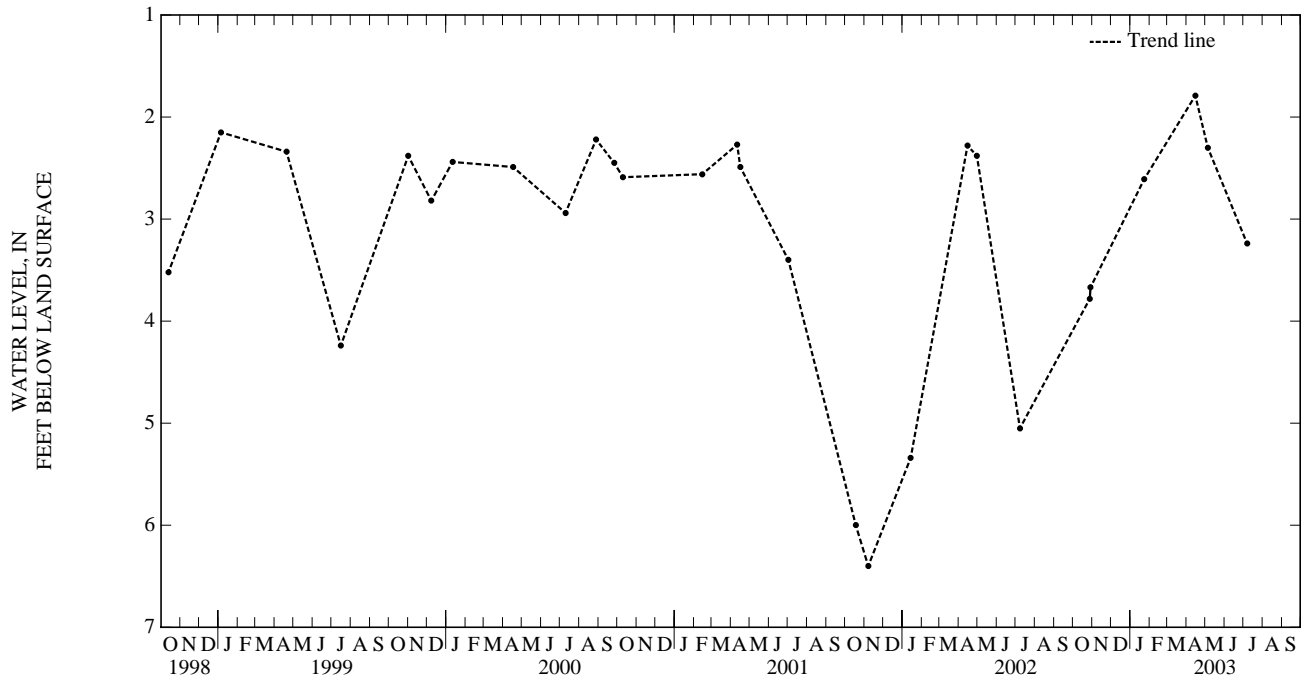
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--June 1979 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.70 ft below land-surface datum, Mar. 13, 1989, Jan. 10, 1990; lowest measured, 11.76 ft below land-surface datum, Sept. 16, 1980.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, 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	3.78	OCT 29	3.67	JAN 23	2.61	APR 15	1.79	MAY 05	2.30	JUL 07	3.24
WATER YEAR 2003		HIGHEST	1.79	APR 15, 2003	LOWEST	3.78	OCT 28, 2002				



GROUND-WATER LEVELS  
CITY OF VIRGINIA BEACH—Continued

364401076003801. Local number, 62B 8

LOCATION.--Lat 36°44'02", long 76°00'37", NAD83, Hydrologic Unit 03010205, on Flannagans Lane 0.4 mi from the intersection of Flannagans Lane and Princess Anne Road. Owner: William Oliver, Jr.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 3 in., depth 132 ft, screened 117 to 127 ft.

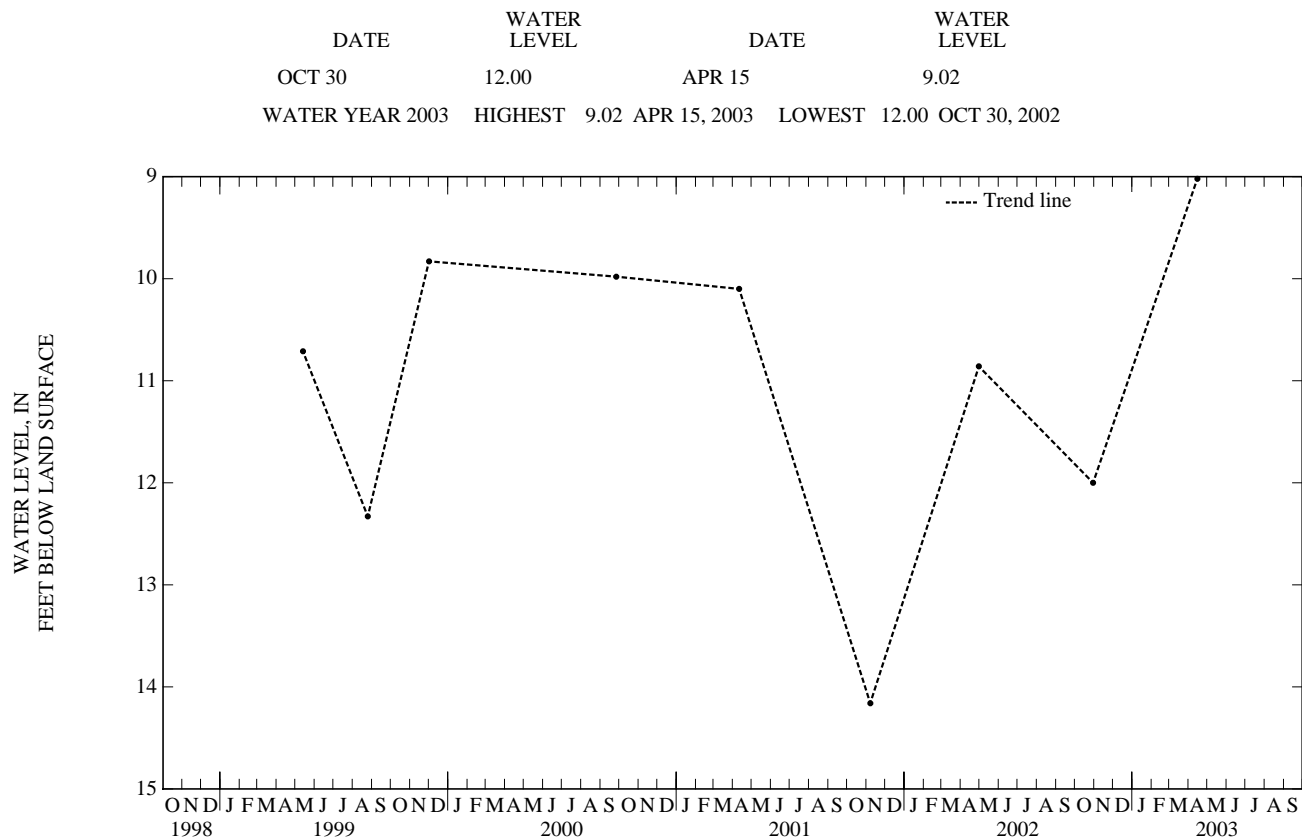
INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 8.8 ft NGVD of above 1929. Measuring point: Top of casing, 2.00 ft above land-surface datum.

PERIOD OF RECORD.--May 1999 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.02 ft below land-surface datum, Apr. 15, 2003; lowest recorded, 14.16 ft below land-surface datum, Nov. 7, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003



## CITY OF VIRGINIA BEACH—Continued

364352076005401. Local number, 62B 9

LOCATION.--Lat 36°43'53", long 76°00'53", NAD83, Hydrologic Unit 03010205, Owner: William Oliver, Jr.

AQUIFER.--Yorktown confining unit of Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 4 in., depth 67 ft, screened 52 to 62 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

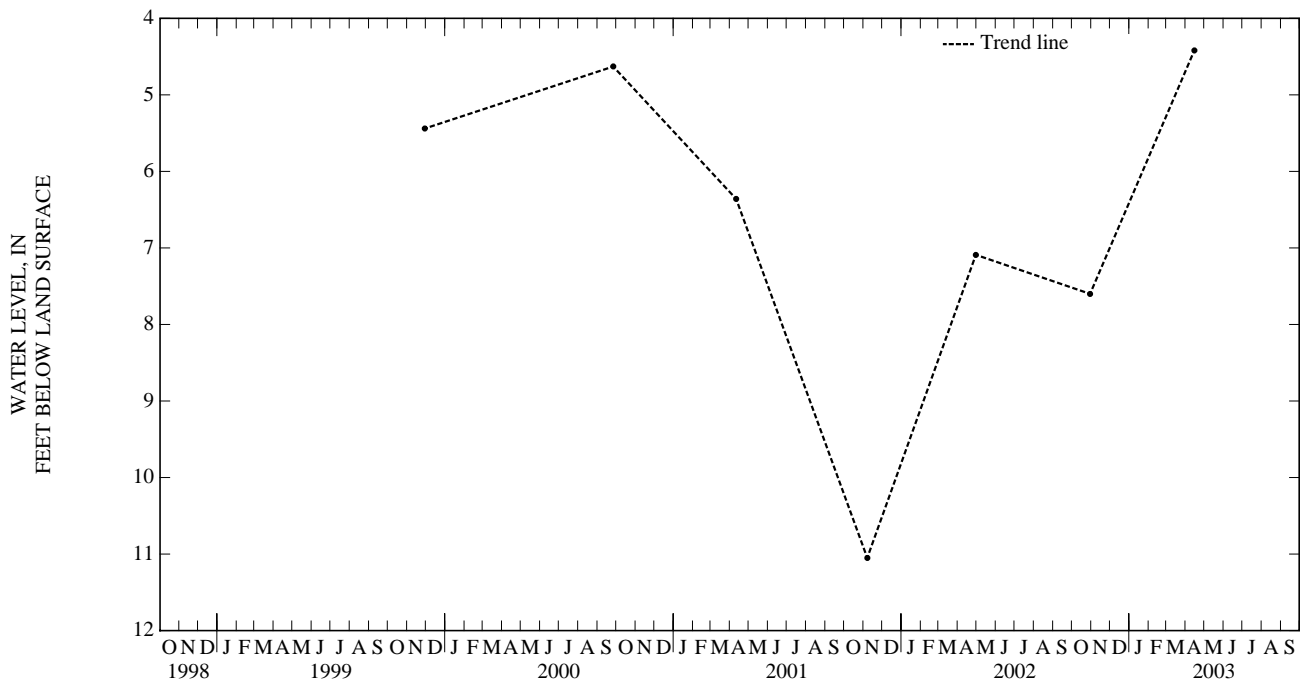
DATUM.--Elevation of land-surface datum is 10.7 ft above NGVD of 1929. Measuring point: Top of casing, 1.94 ft above land-surface datum.

PERIOD OF RECORD.--1981, November 1999 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.42 ft below land-surface datum, Apr. 15, 2003; lowest measured, 11.05 ft below land-surface datum, Nov. 7, 2001.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	7.60	APR 15	4.42
WATER YEAR 2003    HIGHEST    4.42    APR 15, 2003    LOWEST    7.60    OCT 30, 2002			





LOCATION.--Lat 36°38'13", long 76°02'10", NAD83, Hydrologic Unit 03010205, at Creeds Elementary School in Virginia Beach Owner: City of Virginia Beach.

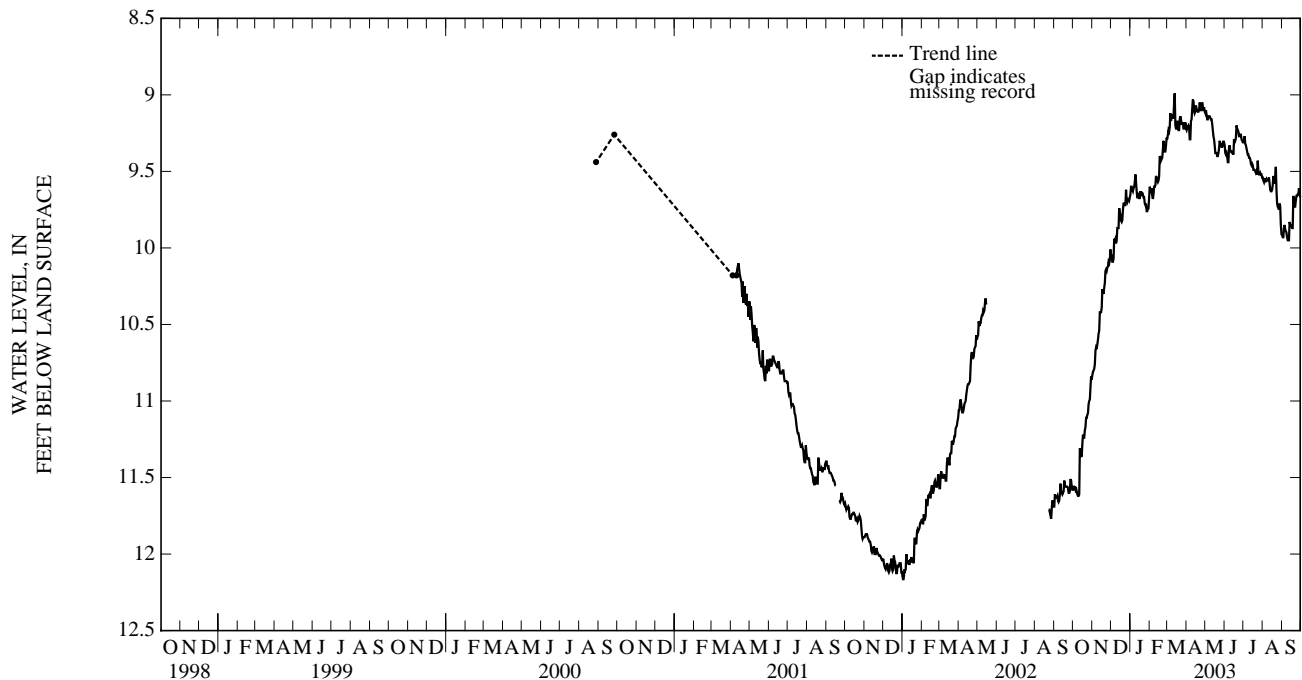
WELL CHARACTERISTICS.--Drilled water well, diameter 4 in., depth 77 ft, screened 65 to 75 ft.

DATUM.--Elevation of land-surface datum is 14.00 ft above NGVD of 1929. Measuring point: Top of casing, 2.13 ft above land-surface datum.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.93 ft below land-surface datum, Mar. 13, 2003; lowest recorded, 12.17 ft below land-surface datum, Jan. 2, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 8.93 ft below land-surface datum, Mar. 13; lowest instantaneous water level, 11.62 ft below land-surface datum, Oct. 9, 10.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.56	10.76	10.07	9.63	9.66	9.21	9.21	9.16	9.40	9.33	9.55	9.85
10	11.62	10.60	9.95	9.57	9.59	9.15	9.09	9.16	9.37	9.41	9.56	9.95
15	11.36	10.42	9.77	9.67	9.56	9.22	9.11	9.29	9.39	9.45	9.63	9.85
20	11.19	10.26	9.75	9.64	9.42	9.23	9.11	9.40	9.20	9.50	9.58	9.70
25	11.08	10.13	9.62	9.72	9.37	9.19	9.10	9.32	9.27	9.50	9.73	9.66
EOM	10.86	10.01	9.67	9.67	9.28	9.22	9.11	9.31	9.31	9.54	9.91	9.67



## CITY OF VIRGINIA BEACH—Continued

363812076021202. Local number, 62B 16

LOCATION.--Lat 36°38'12", long 76°02'10", NAD83, Hydrologic Unit 03010205, at Creeds Elementary School in Virginia Beach Owner: City of Virginia Beach.

AQUIFER.--Yorktown confining unit of Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 4 in., depth 77 ft, screened 65 to 75 ft.

INSTRUMENTATION.--Electronic pressure transducer data logger with 60-minute record interval. Prior to April 11, 2001, occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 14.00 ft above NGVD of 1929. Measuring point: Top of casing, 2.13 ft above land-surface datum.

REMARKS.--Water level affected by local pumpage.

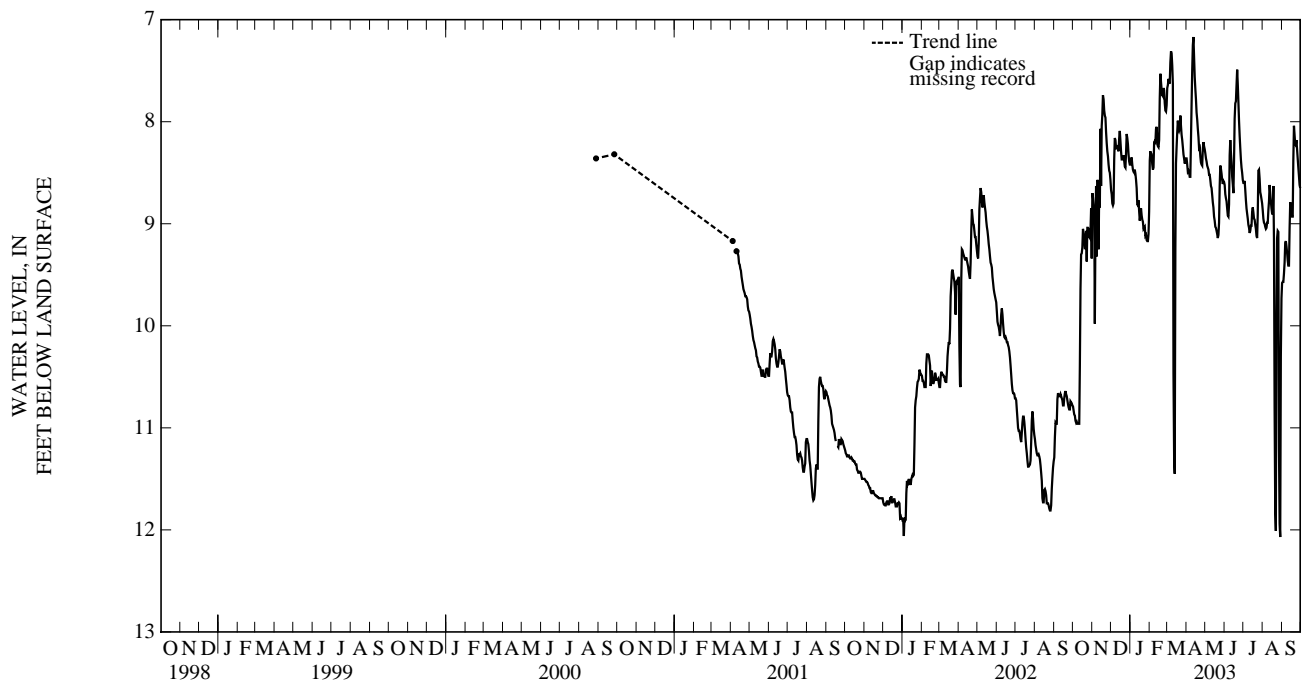
PERIOD OF RECORD.--August 2000 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.11 ft below land-surface datum, Apr. 12, 2003; lowest recorded, 12.06 ft below land-surface datum, Jan. 3, 2002.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 7.11 ft below land-surface datum, Apr. 12; lowest instantaneous water level, 10.96 ft below land-surface datum, Oct. 8-11.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.93	9.98	8.80	8.47	8.42	7.62	8.50	8.45	8.85	8.77	9.03	9.38
10	10.96	8.59	8.26	8.57	8.20	7.63	7.49	8.63	8.18	9.04	8.87	9.36
15	9.29	8.63	8.09	8.88	8.25	8.41	7.68	8.93	8.70	8.88	8.85	8.81
20	9.24	7.89	8.37	8.96	7.69	8.09	8.15	9.10	7.64	9.01	10.79	8.04
25	9.04	8.29	8.31	9.12	7.82	8.18	8.42	8.43	8.14	8.48	9.07	8.27
EOM	9.34	8.57	8.42	8.88	7.84	8.36	8.27	8.59	8.57	8.80	9.73	8.65



GROUND-WATER LEVELS  
CITY OF VIRGINIA BEACH—Continued

364126076013401. Local number, 62B 18

LOCATION.--Lat 36°41'26", long 76°01'32", NAD83, Hydrologic Unit 03010205, at intersection of West Neck Road and Princess Anne Road in Virginia Beach Owner: City of Virginia Beach.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 3 in., depth 135 ft, screened 120 to 130 ft.

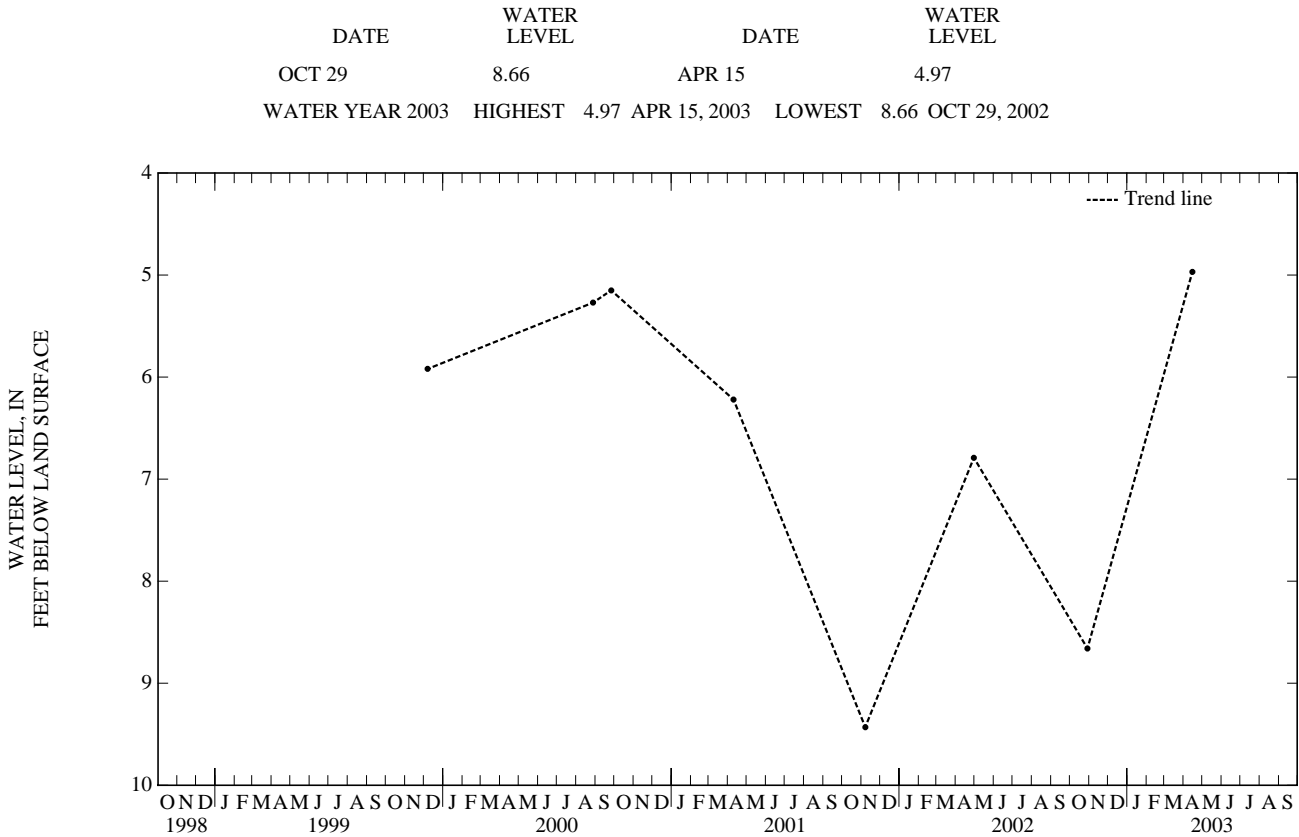
INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 10 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.24 ft above land-surface datum.

PERIOD OF RECORD.--December 1999 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.97 ft below land-surface datum, Apr. 15, 2003; lowest measured, 9.43 ft below land-surface datum, Nov. 7, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003



## CITY OF VIRGINIA BEACH—Continued

364353076005401. Local number, 62B 21

LOCATION.--Lat 36°43'54", long 76°00'53", NAD83, Hydrologic Unit 03010205, 0.2 mi east on Flannagans Lane from the intersection of Flannagans Lane and Princess Anne Road Owner: William Oliver, Jr.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled water well, diameter 3 in., depth 65 ft, screened 50 to 60 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

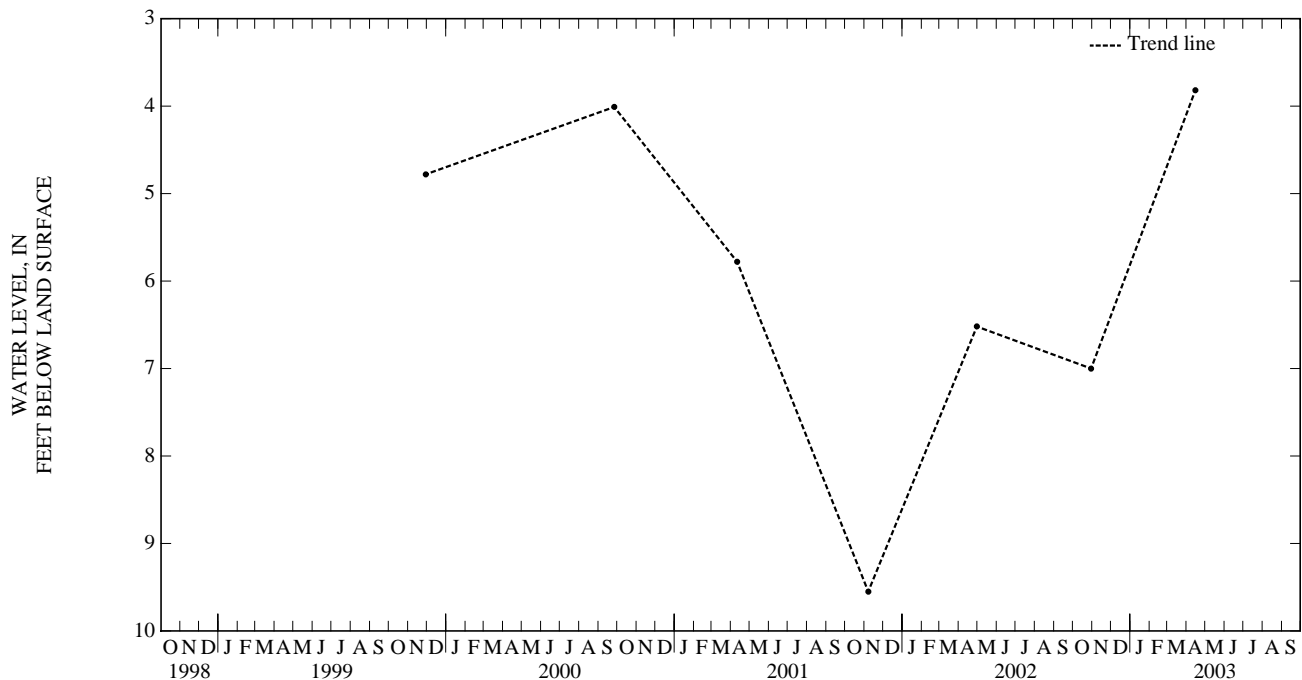
DATUM.--Elevation of land-surface datum is 10.2 ft above NGVD of 1929. Measuring point: Top of casing, 2.36 ft above land-surface datum.

PERIOD OF RECORD.--November 1999 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.82 ft below land-surface datum, Apr. 15, 2003; lowest measured, 9.55 ft below land-surface datum, Nov. 7, 2001.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	7.00	APR 15	3.82
WATER YEAR 2003    HIGHEST    3.82    APR 15, 2003    LOWEST    7.00    OCT 30, 2002			



## CITY OF VIRGINIA BEACH—Continued

364325076011501. Local number, 62B 22

LOCATION.--Lat 36°43'25", long 76°01'14", NAD83, Hydrologic Unit 03010205, 40 ft north of Indian River Road, 0.2 mi west of the intersection of Indian River Road and Princess Anne Road in Virginia Beach Owner: City of Virginia Beach.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 3 in., depth 135 ft, screened 120 to 130 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

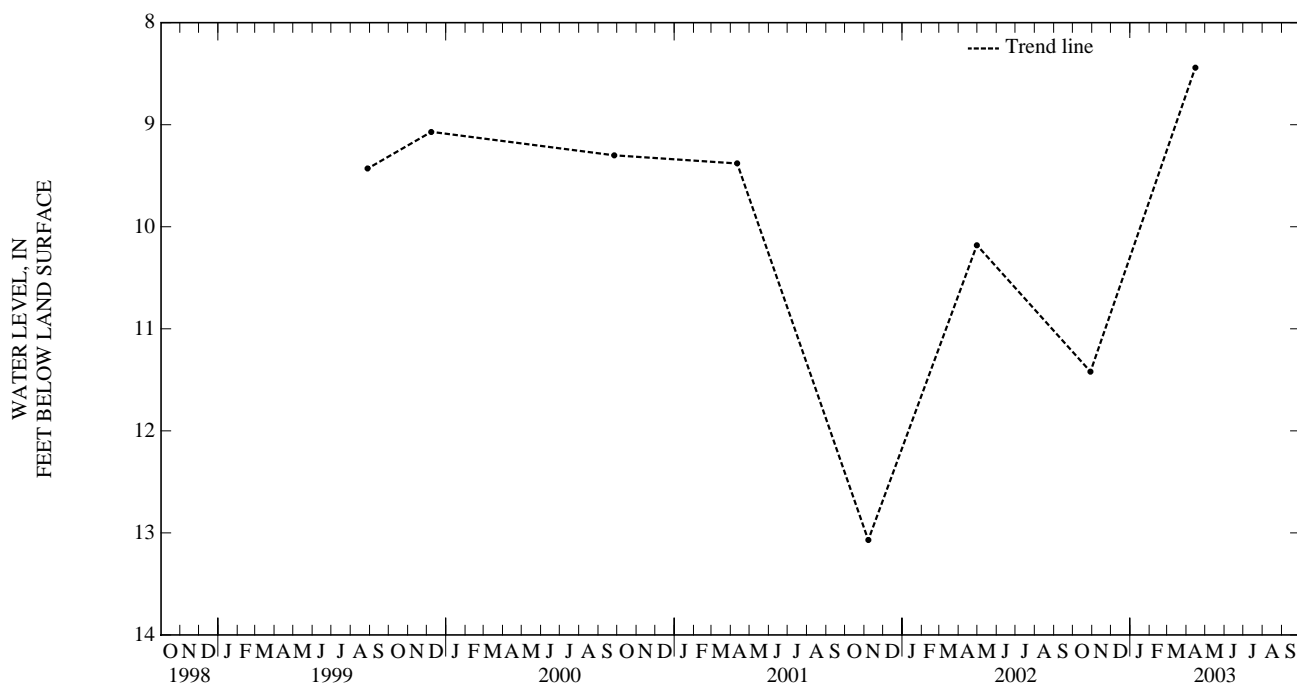
DATUM.--Elevation of land-surface datum is 10.0 ft above NGVD of 1929. Measuring point: Top of casing, 2.44 ft above land-surface datum.

PERIOD OF RECORD.--1981, August 1999 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.40 ft below land-surface datum, Feb. 4, 1981; lowest measured, 13.07 ft below land-surface datum, Nov. 7, 2001.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	11.42	APR 15	8.44
WATER YEAR 2003    HIGHEST    8.44    APR 15, 2003    LOWEST    11.42    OCT 29, 2002			



## CITY OF VIRGINIA BEACH—Continued

364410076002801. Local number, 62B 23

LOCATION.--Lat 36°44'10", long 76°00'27", NAD83, Hydrologic Unit 03010205, 0.7 mi east on Flannagans Lane from the intersection of Flannagans Lane and Princess Anne Road. Owner: William Oliver, Jr.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 3 in., depth 115 ft, screened 100 to 110 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

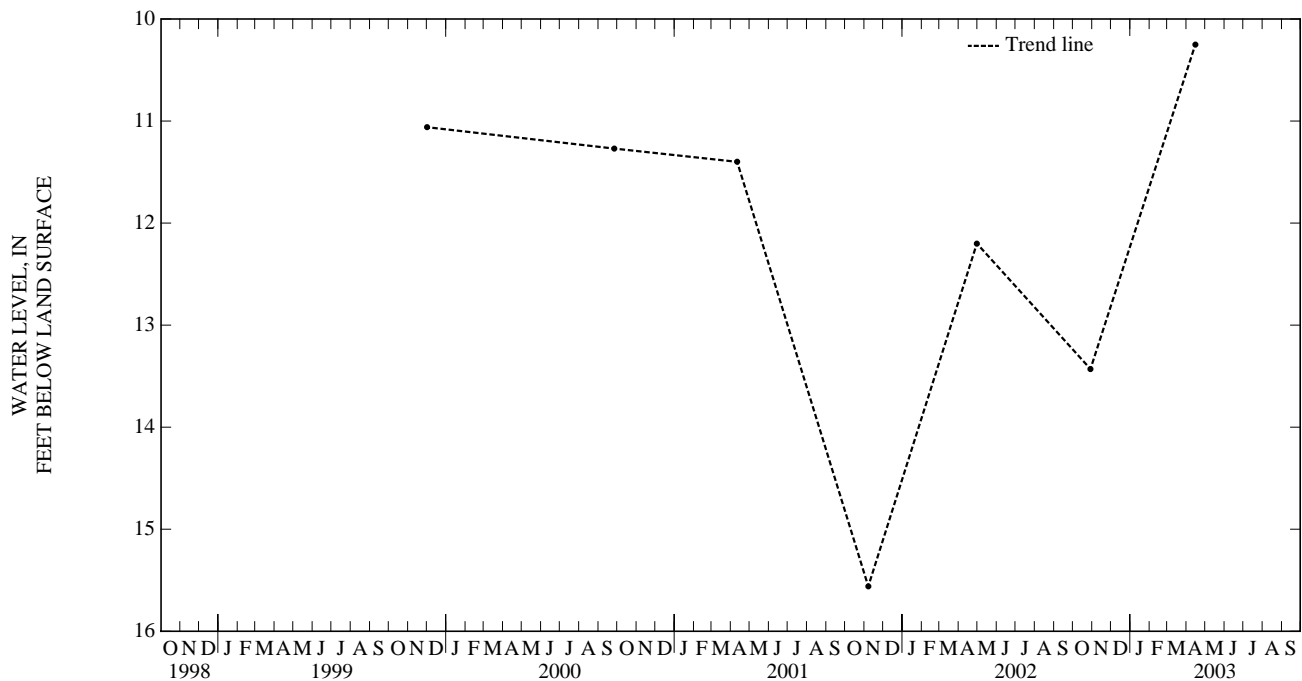
DATUM.--Elevation of land-surface datum is 10 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.58 ft above land-surface datum.

PERIOD OF RECORD.--1981, December 1999 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.55 ft below land-surface datum, Feb. 25, 1981; lowest measured, 15.56 ft below land-surface datum, Nov. 7, 2001.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	13.43	APR 15	10.25
WATER YEAR 2003    HIGHEST    10.25    APR 15, 2003    LOWEST    13.43    OCT 29, 2002			



## CITY OF VIRGINIA BEACH—Continued

364352076005402. Local number, 62B 24

LOCATION.--Lat 36°43'53", long 76°00'53", NAD83, Hydrologic Unit 03010205, 0.2 mi east on Flannagans Lane from the intersection of Flannagans Lane and Princess Anne Road Owner: William Oliver, Jr.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled water well, diameter 3 in., depth 30 ft, screened 20 to 25 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

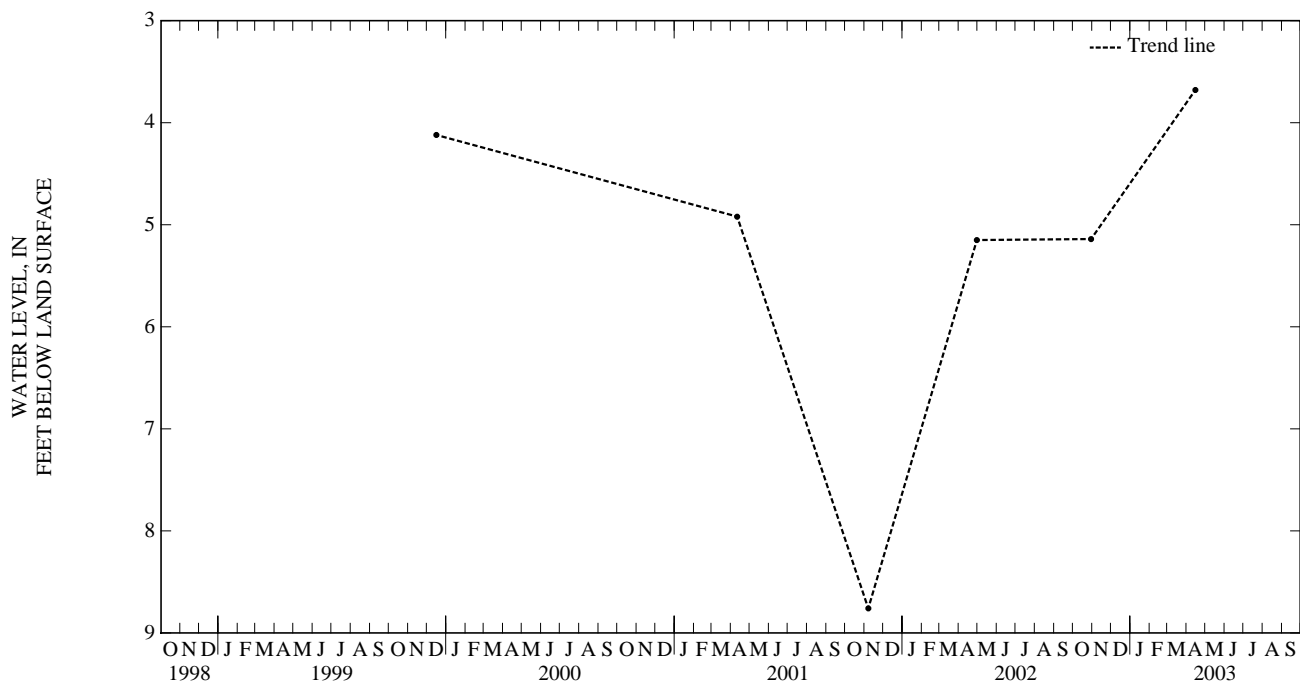
DATUM.--Elevation of land-surface datum is 10.5 ft above NGVD of 1929. Measuring point: Top of casing, 0.27 ft above land-surface datum.

PERIOD OF RECORD.--1981, December 1999 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.68 ft below land-surface datum, Apr. 15, 2003; lowest measured, 8.76 ft below land-surface datum, Nov. 7, 2001.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	5.14	APR 15	3.68
WATER YEAR 2003    HIGHEST    3.68    APR 15, 2003    LOWEST    5.14    OCT 30, 2002			



## CITY OF VIRGINIA BEACH—Continued

364713076030701. Local number, 62C 2 SOW 092A.

LOCATION.--Lat 36°47'15", long 76°03'06", NAD83, Hydrologic Unit 03010205, at entrance to Oceana Naval Air Station on London Bridge Road in Virginia Beach. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 102 ft, screened 97 to 102 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division and USGS personnel. Oct. 10, 1985, to July 5, 1995, bimonthly measurement with chalked tape. Prior to Oct. 10, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.08 ft above land-surface datum prior to Mar. 2, 1988; 0.7 ft thereafter.

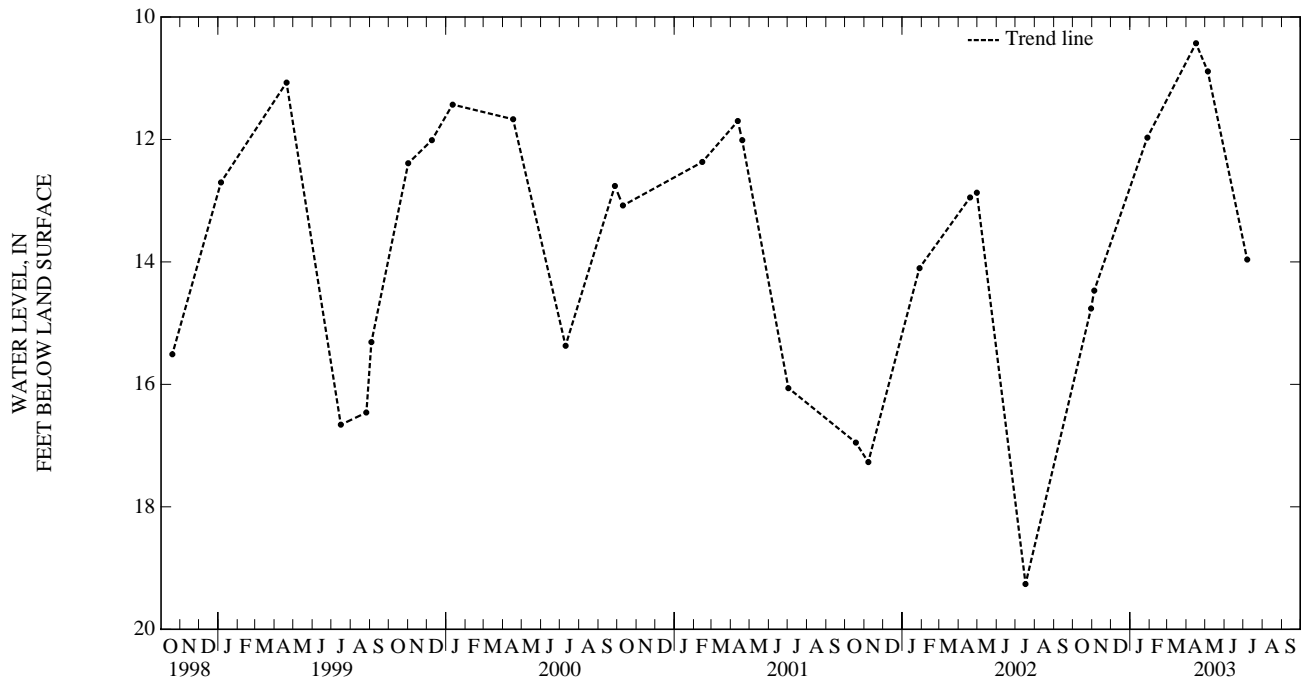
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--December 1977 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.00 ft below land-surface datum, Dec. 1, 1977; lowest measured, 19.26 ft below land-surface datum, July 17, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, 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	14.76	NOV 04	14.47	JAN 28	11.97	APR 16	10.43	MAY 05	10.89	JUL 07	13.96
WATER YEAR 2003		HIGHEST	10.43	APR 16, 2003	LOWEST	14.76	OCT 30, 2002				





## CITY OF VIRGINIA BEACH—Continued

364715076030801. Local number, 62C 3 SOW 092B.

LOCATION.--Lat 36°47'15", long 76°03'06", NAD83, Hydrologic Unit 03010205, at entrance to Oceana Naval Air Station on London Bridge Road in Virginia Beach. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in., depth 58 ft, screened 53 to 58 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division and USGS personnel. Oct. 10, 1985, to July 5, 1995, bimonthly measurement with chalked tape. Prior to Oct. 10, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.05 ft above land-surface datum prior to Mar. 2, 1988; 0.9 ft thereafter.

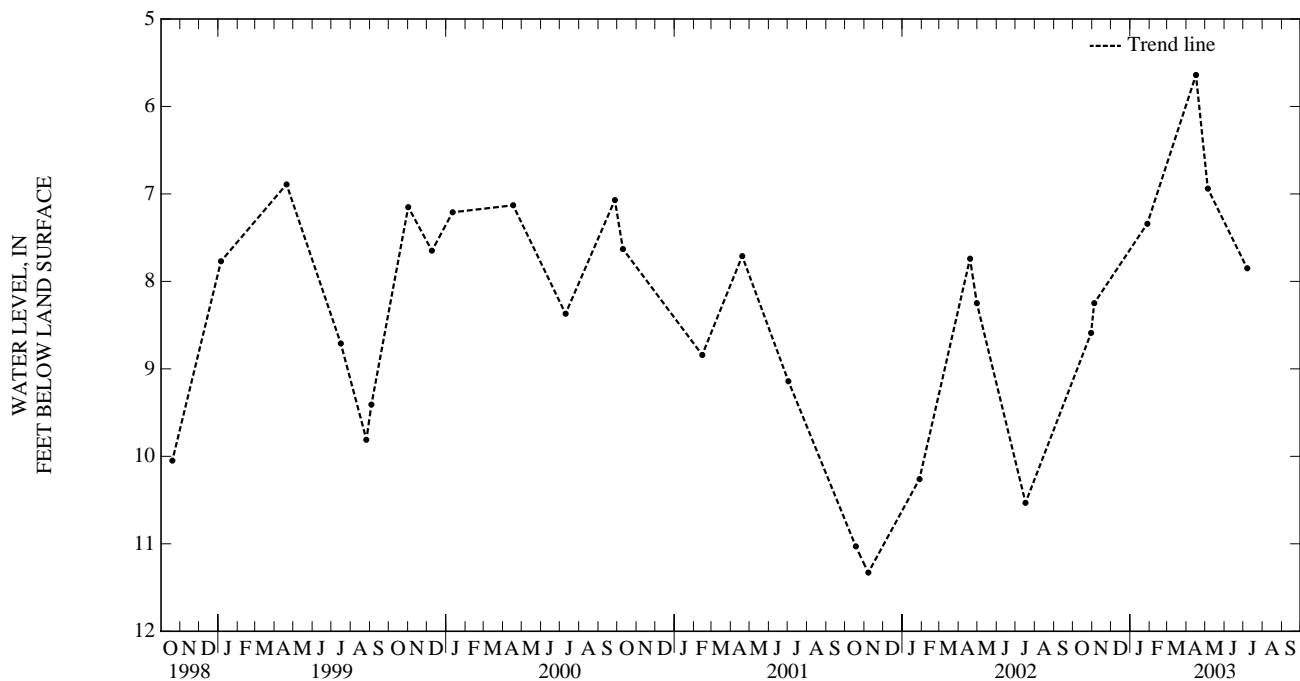
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--February 1978 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.36 ft below land-surface datum, Feb. 16, 1983; lowest measured, 11.55 ft below land-surface datum, July 14, 1997.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, 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	8.59	NOV 04	8.25	JAN 28	7.34	APR 16	5.64	MAY 05	6.94	JUL 07	7.85
WATER YEAR 2003		HIGHEST	5.64	APR 16, 2003	LOWEST	8.59	OCT 30, 2002				



## CITY OF VIRGINIA BEACH—Continued

364504076031301. Local number, 62C 5 SOW 093

LOCATION.--Lat 36°44'57", long 76°03'00", NAD83, Hydrologic Unit 03010205, behind Kellam Hardware and 500 feet southeast of the intersection of Princess Anne Road and North Landing Road Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled water well, diameter 4 in., depth 65 ft, screened 60 to 65 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS and Virginia Department of Environmental Quality - Water Division personnel. Prior to August 1999, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

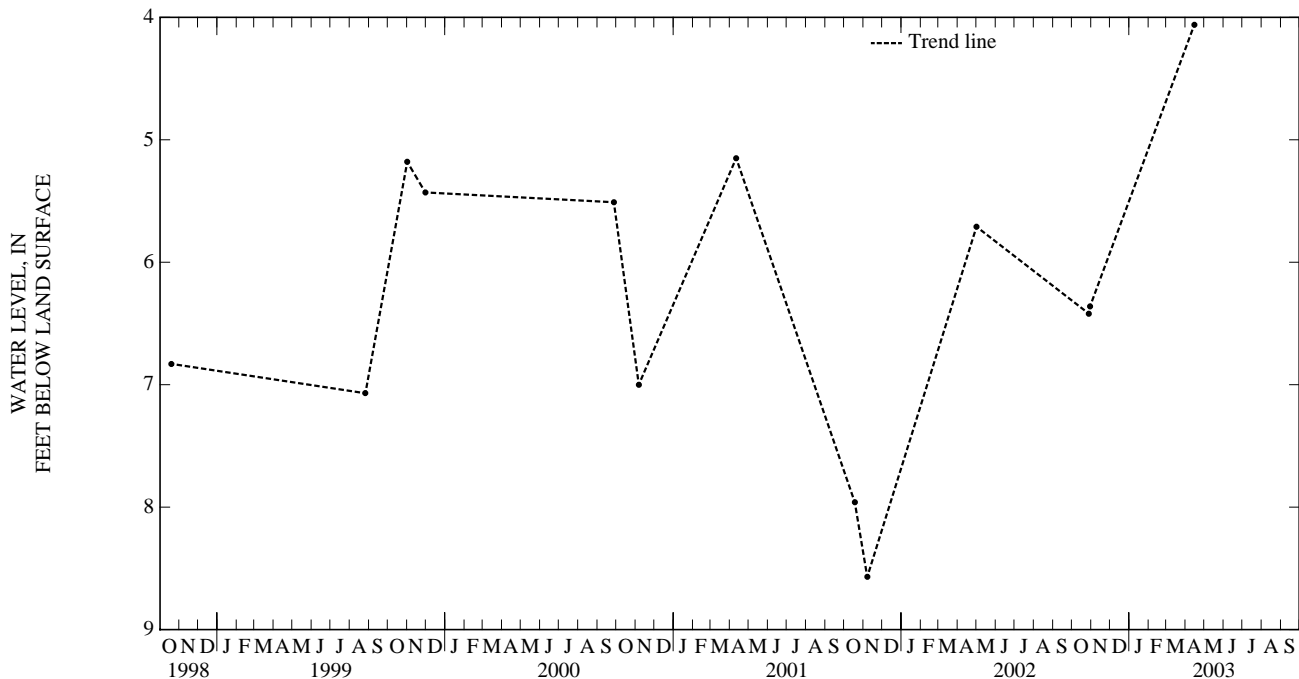
DATUM.--Elevation of land-surface datum is 14 ft above NGVD of 1929. Measuring point: Top of casing, 0.60 ft above land-surface datum.

PERIOD OF RECORD.--December 1977 to current year. Unpublished records available October 1995 to September 2002 and prior to October 1985 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.84 ft below land-surface datum, Feb. 8, 1978; lowest measured, 8.57 ft below land-surface datum, Nov. 7, 2001.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	6.42	OCT 30	6.36	APR 15	4.06
WATER YEAR 2003    HIGHEST    4.06    APR 15, 2003    LOWEST    6.42    OCT 28, 2002					



## CITY OF VIRGINIA BEACH—Continued

364529076031501. Local number, 62C 8 SOW 127

LOCATION.--Lat 36°45'34", long 76°03'19", NAD83, Hydrologic Unit 02080108, at Kellam High School in Virginia Beach Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth 60 ft, screened 50 to 55 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to December 1984, Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division.

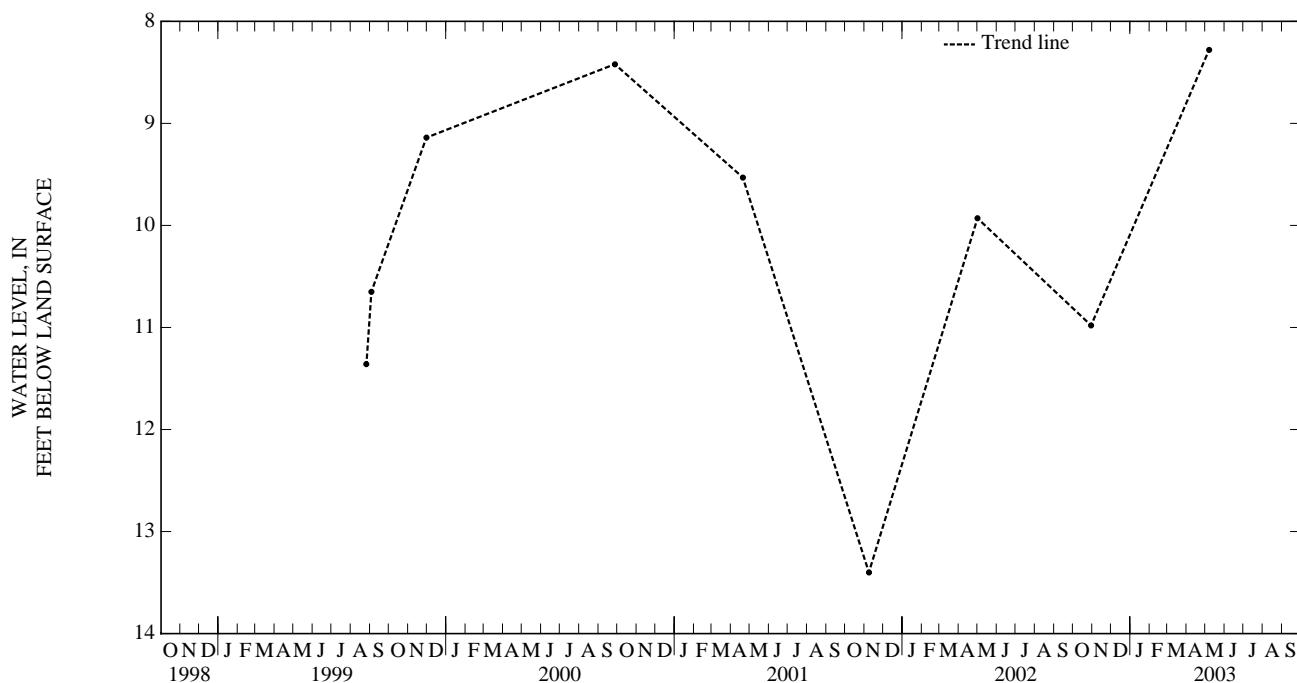
DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929. Measuring point: Top of casing, 0.10 ft above land-surface datum.

PERIOD OF RECORD.--April 1978 to December 1984, August 1999 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.00 ft below land-surface datum, Feb. 28, 1979; lowest measured, 13.40 ft below land-surface datum, Nov. 28, 2001.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	10.98	MAY 07	8.28
WATER YEAR 2003    HIGHEST    8.28    MAY 07, 2003    LOWEST    10.98    OCT 30, 2002			



## CITY OF VIRGINIA BEACH—Continued

364745076004301. Local number, 62C 9 SOW 172A

LOCATION.--Lat 36°47'46.05", long 76°00'41.64", NAD27, Hydrologic Unit 03010250, at end of Phantom Blvd, 0.3 mi south of intersection of Phantom Blvd and Harpers Road Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown confining unit of Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 3 in., depth 170 ft, screened 155 to 165 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS and Virginia Department of Environmental Quality - Water Division personnel. Prior to August 1999, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

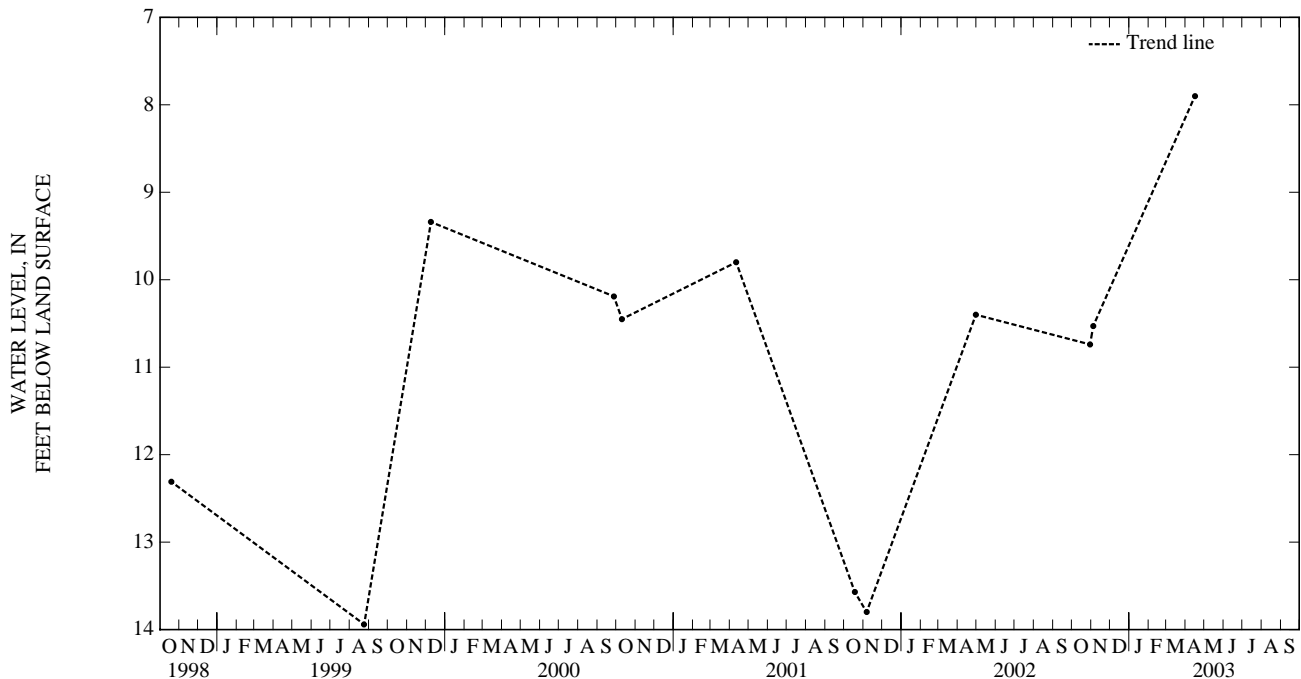
DATUM.--Elevation of land-surface datum is 17 ft above NGVD of 1929. Measuring point: Top of casing, 1.60 ft above land-surface datum.

PERIOD OF RECORD.--April 1978 to current year. Unpublished records available October 1995 to September 2002 and prior to October 1985 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.46 ft below land-surface datum, Apr. 25, 1984; lowest measured, 13.96 ft below land-surface datum, July 5, 1995.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	10.74	NOV 04	10.53	APR 16	7.90
WATER YEAR 2003    HIGHEST   7.90 APR 16, 2003    LOWEST   10.74 OCT 30, 2002					



## CITY OF VIRGINIA BEACH—Continued

364745076004302. Local number, 62C 10 SOW 172B.

LOCATION.--Lat 36°47'46", long 76°00'42", NAD83, Hydrologic Unit 03010205, at the end of Phantom Boulevard, 0.25 mi south of Harpers Road and Oceana Naval Air Station in Virginia Beach. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 280 ft, screened 270 to 280 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division and USGS personnel. Oct. 10, 1985, to July 5, 1995, bimonthly measurement with chalked tape. Prior to Oct. 10, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 17 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.8 ft above land-surface datum.

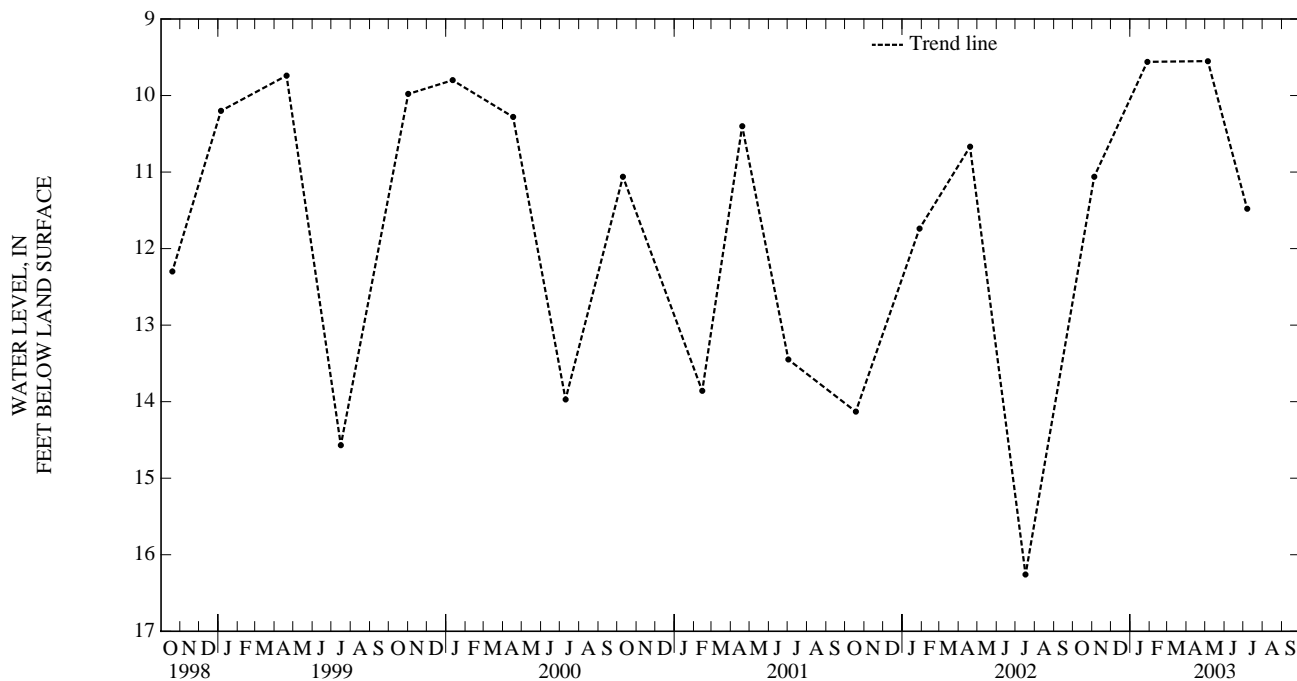
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--April 1984 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.10 ft below land-surface datum, Jan. 30, 1991; lowest measured, 17.80 ft below land-surface datum, July 14, 1997.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 04	11.06	JAN 28	9.56	MAY 05	9.55	JUL 07	11.48
WATER YEAR 2003 HIGHEST		9.55	MAY 05, 2003	LOWEST		11.48	JUL 07, 2003



## CITY OF VIRGINIA BEACH—Continued

364745076004303. Local number, 62C 11 SOW 172C.

LOCATION.--Lat 36°47'47", long 76°00'42", NAD83, Hydrologic Unit 03010205, at the end of Phantom Boulevard, 0.25 mi south of Harpers Road and Oceana Naval Air Station in Virginia Beach. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 35 ft, screened 20 to 30 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division and USGS personnel. Oct. 10, 1985, to July 5, 1995, bimonthly measurement with chalked tape. Prior to Oct. 10, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 17.14 ft above NGVD of 1929. Measuring point: Top of casing, 1.7 ft above land-surface datum prior to Nov. 26, 2001; 2.27 ft thereafter.

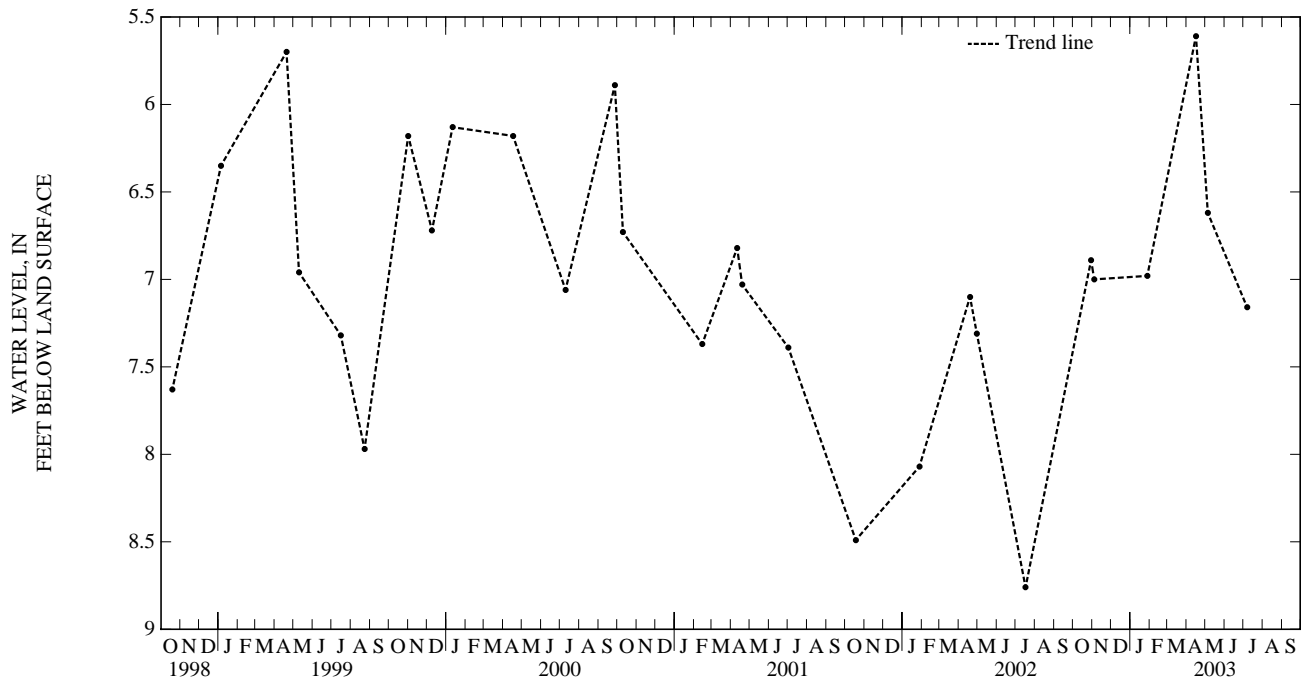
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--May 1984 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.89 ft below land-surface datum, Feb. 28, 1985; lowest measured, 8.76 ft below land-surface datum, July 17, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, 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	6.89	NOV 04	7.00	JAN 28	6.98	APR 16	5.61	MAY 05	6.62	JUL 07	7.16
WATER YEAR 2003		HIGHEST	5.61	APR 16, 2003	LOWEST	7.16	JUL 07, 2003				



## CITY OF VIRGINIA BEACH—Continued

364745076004304. Local number, 62C 12 SOW 172D

LOCATION.--Lat 36°47'47", long 76°00'43", NAD83, Hydrologic Unit 03010250, at end of Phantom Blvd, 0.3 mi south of intersection of Phantom Blvd and Harpers Road Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled water well, diameter 3 in., depth 75 ft, screened 60 to 70 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS and Virginia Department of Environmental Quality - Water Division personnel. Prior to August 1999, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

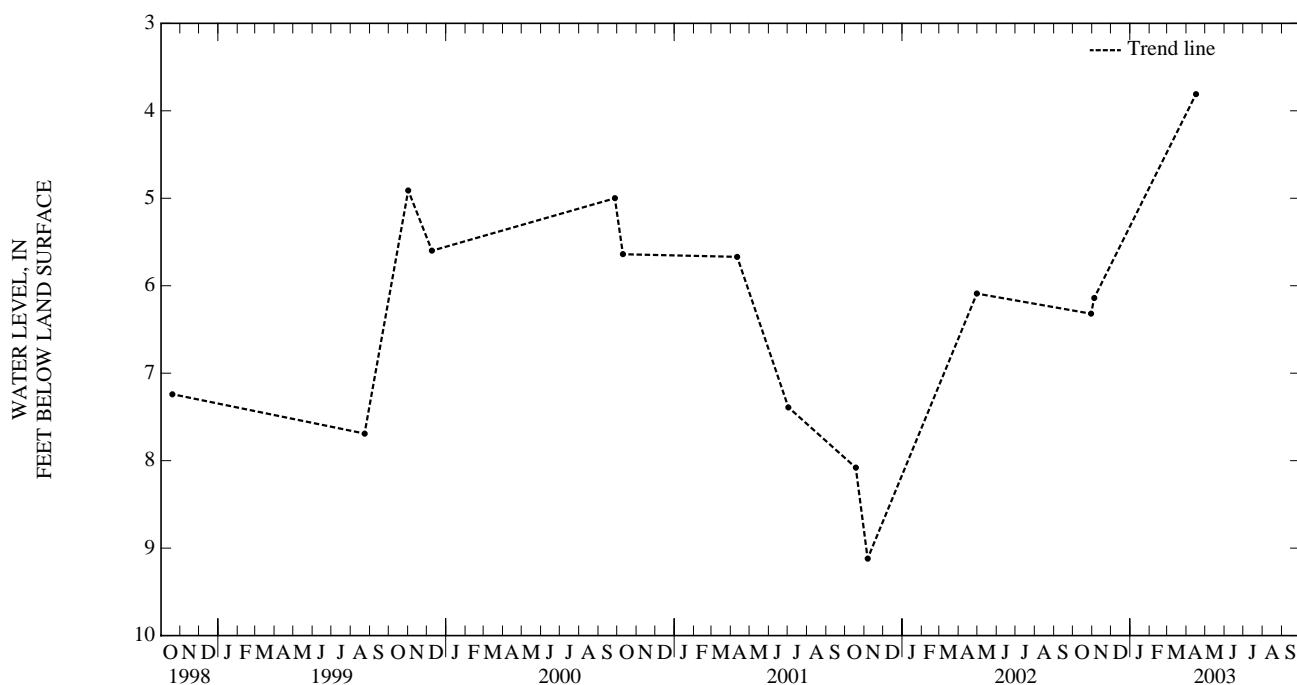
DATUM.--Elevation of land-surface datum is 17 ft above NGVD of 1929. Measuring point: Top of casing, 2.90 ft above land-surface datum.

PERIOD OF RECORD.--April 1984 to current year. Unpublished records available October 1995 to September 2002 and prior to October 1987 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.56 ft below land-surface datum, Apr. 25, 1984; lowest measured, 9.12 ft below land-surface datum, Nov. 6, 2001.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	6.32	NOV 04	6.14	APR 16	3.81
WATER YEAR 2003    HIGHEST    3.81    APR 16, 2003    LOWEST    6.32    OCT 30, 2002					



## CITY OF VIRGINIA BEACH—Continued

364708076024501. Local number, 62C 15

LOCATION.--Lat 36°47'08", long 76°02'46", NAD83, Hydrologic Unit 03010205, 500 ft north of Dam Neck Road, 0.3 mi east of intersection of London Bridge Road and Dam Neck Road in Virginia Beach Owner: Claude Brown.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 3 in., depth 195 ft, screened 180 to 190 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

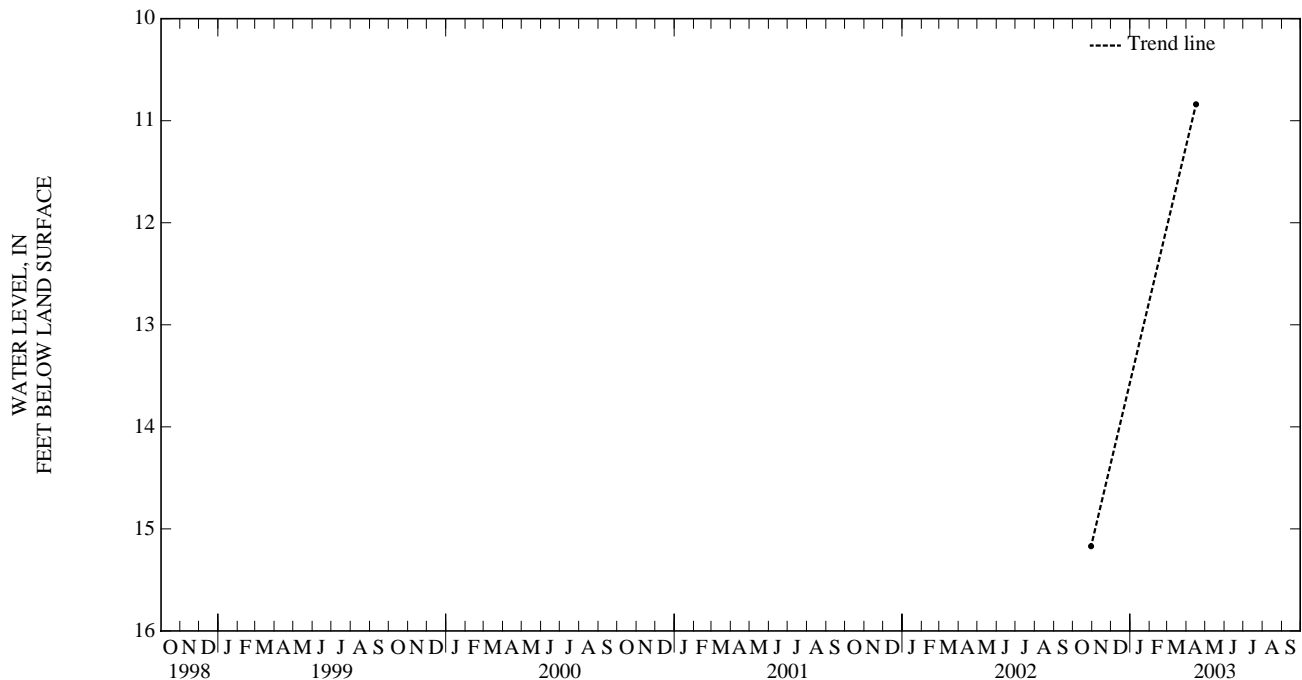
DATUM.--Elevation of land-surface datum is 15 ft above NGVD of 1929. Measuring point: Top of casing, 1.50 ft above land-surface datum.

PERIOD OF RECORD.--October 2002 to September 2003.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.84 ft below land-surface datum, Apr. 16, 2003; lowest measured, 15.17 ft below land-surface datum, Oct. 30, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	15.17	APR 16	10.84
WATER YEAR 2003 HIGHEST	10.84	APR 16, 2003 LOWEST	15.17
			OCT 30, 2002

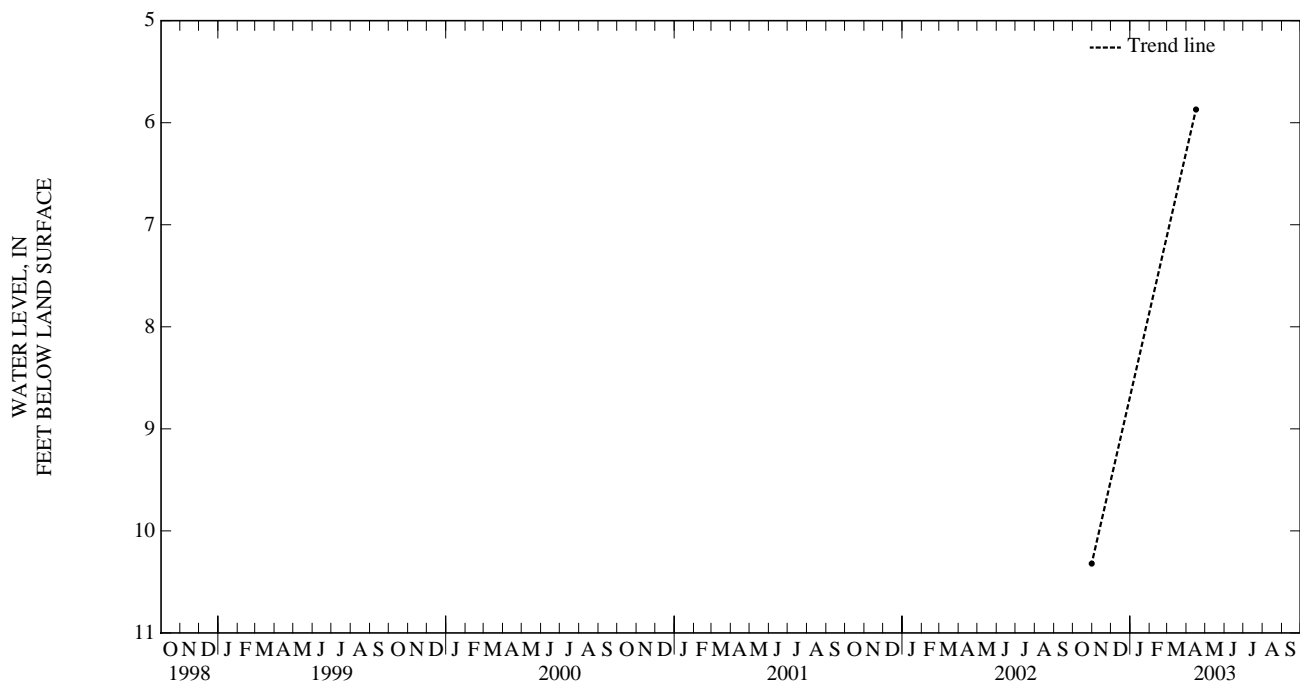




EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.87 ft below land-surface datum, Apr. 16, 2003; lowest measured, 10.32 ft below land-surface datum, Oct. 31, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	10.32	APR 16	5.87
WATER YEAR 2003	HIGHEST 5.87	APR 16, 2003	LOWEST 10.32
			OCT 31, 2002



## CITY OF VIRGINIA BEACH—Continued

365046076041601. Local number, 62C 32

LOCATION.--Lat 36°50'47", long 76°04'15", NAD83, Hydrologic Unit 02080108, at Lynnhaven Pump Station in Virginia Beach Owner: City of Virginia Beach.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 4 in., depth 168 ft, screened 138 to 148 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

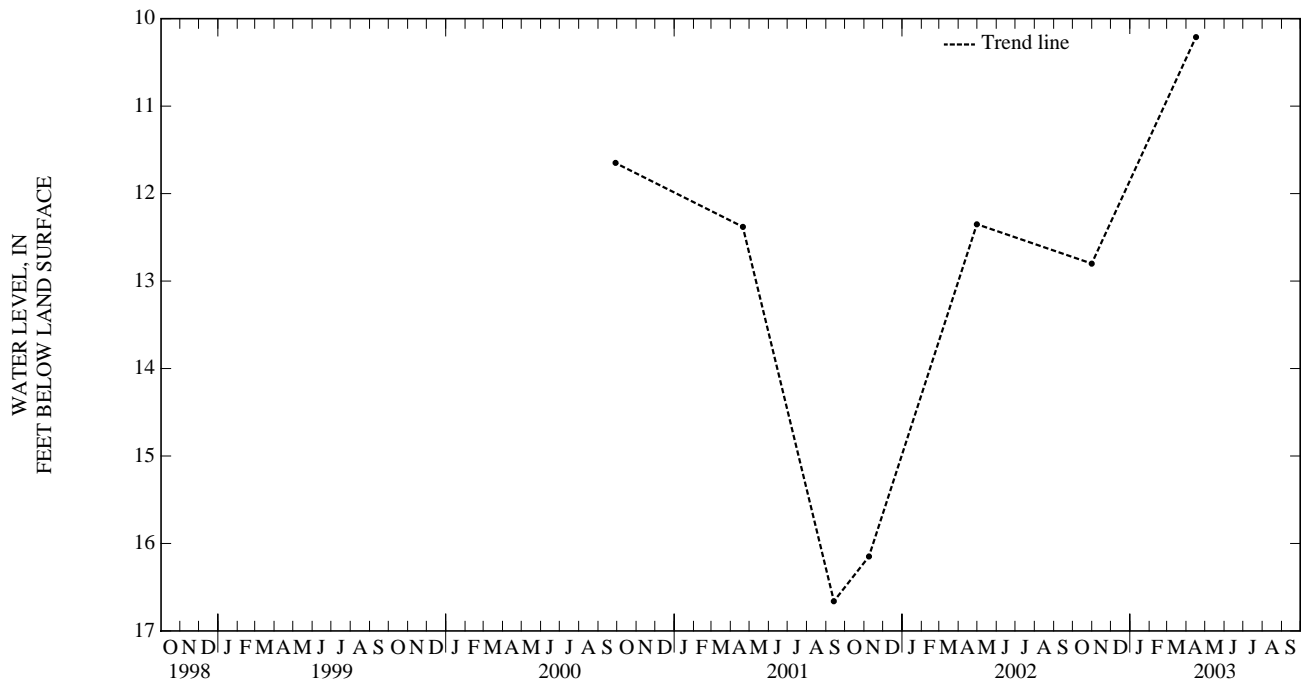
DATUM.--Elevation of land-surface datum is 12.69 ft above NGVD of 1929. Measuring point: Top of casing, 0.41 ft below land-surface datum.

PERIOD OF RECORD.--September 2000 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.21 ft below land-surface datum, Apr. 16, 2003; lowest measured, 16.66 ft below land-surface datum, Sept. 13, 2001.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	12.80	APR 16	10.21
WATER YEAR 2003 HIGHEST	10.21	APR 16, 2003 LOWEST	12.80
			OCT 31, 2002



## CITY OF VIRGINIA BEACH—Continued

365046076041602. Local number, 62C 33

LOCATION.--Lat 36°50'47", long 76°04'14", NAD83, Hydrologic Unit 02080108, at Lynnhaven Pump Station in Virginia Beach Owner: City of Virginia Beach.

AQUIFER.--Yorktown confining unit of Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 4 in., depth 85 ft, screened 70 to 80 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

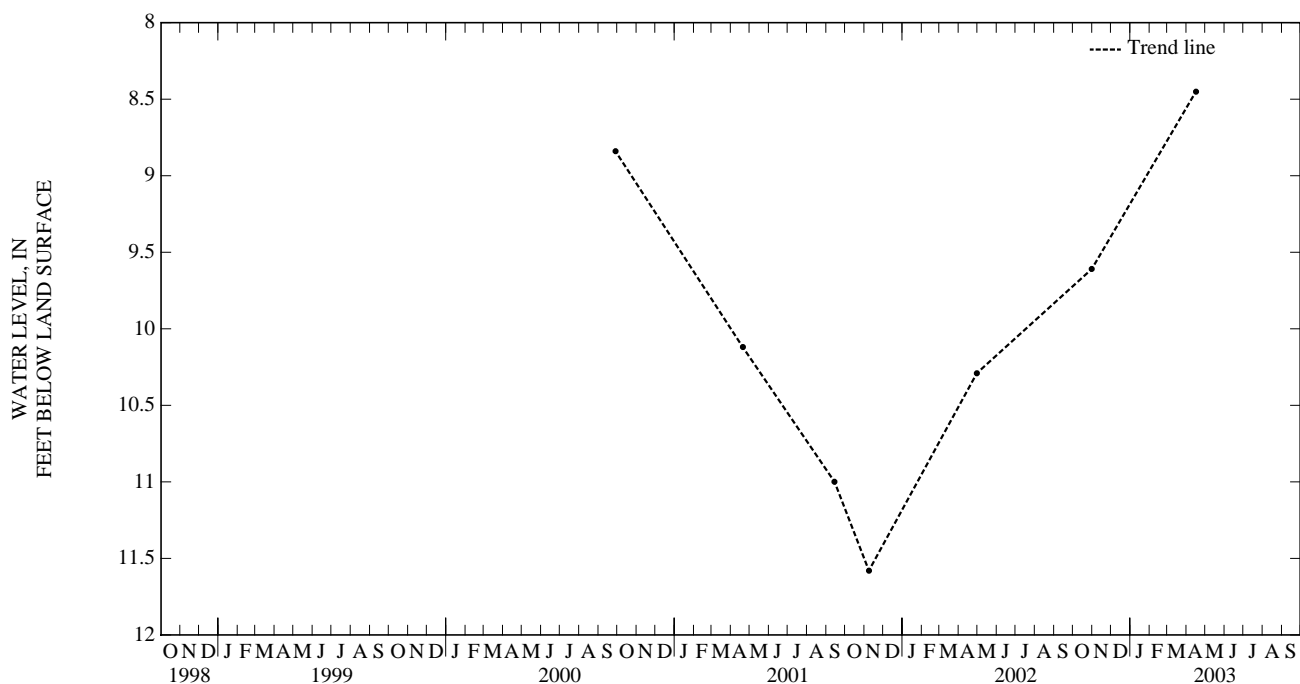
DATUM.--Elevation of land-surface datum is 12.74 ft above NGVD of 1929. Measuring point: Top of casing, 0.46 ft below land-surface datum.

PERIOD OF RECORD.--September 2000 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.45 ft below land-surface datum, Apr. 16, 2003; lowest recorded, 11.58 ft below land-surface datum, Nov. 8, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	9.61	APR 16	8.45
WATER YEAR 2003	HIGHEST 8.45	APR 16, 2003	LOWEST 9.61
			OCT 31, 2002



## CITY OF VIRGINIA BEACH—Continued

364909076051101. Local number, 62C 34

LOCATION.--Lat 36°49'21", long 76°05'19", NAD83, Hydrologic Unit 02080108, at Bow Creek Municipal Golf Course, near club house. Owner: City of Virginia Beach.

AQUIFER.--Columbia aquifer of Quarternary age.

WELL CHARACTERISTICS.--Drilled water well, diameter 3 in., depth 75 ft, screened 60 to 70 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

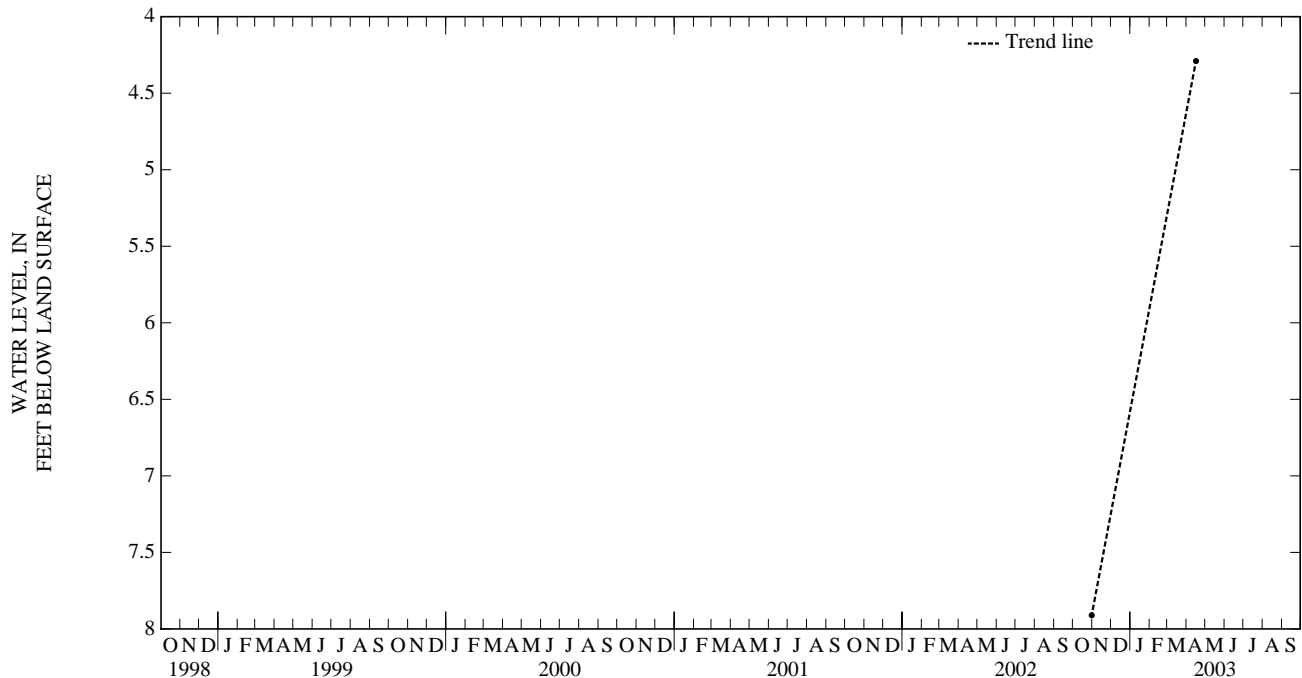
DATUM.--Elevation of land-surface datum is 10 ft above NGVD of 1929. Measuring point: Top of casing, 0.70 ft above land-surface datum.

PERIOD OF RECORD.--1981, October 2002 to September 2003.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.29 ft below land-surface datum, Apr. 16, 2003; lowest measured, 9.00 ft below land-surface datum, Jan. 19, 1981.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	7.91	APR 16	4.29
WATER YEAR 2003 HIGHEST	4.29	APR 16, 2003 LOWEST	7.91
			OCT 31, 2002



## CITY OF VIRGINIA BEACH—Continued

364613075583201. Local number, 63C 2 SOW 100B

LOCATION.--Lat 36°46'14", long 75°58'28", NAD83, Hydrologic Unit 03010205, at Hampton Roads Sanitation District Atlantic plant in Virginia Beach  
Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled water well, diameter 1 in., depth 54 ft, screened 49 to 54 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to September 1995, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

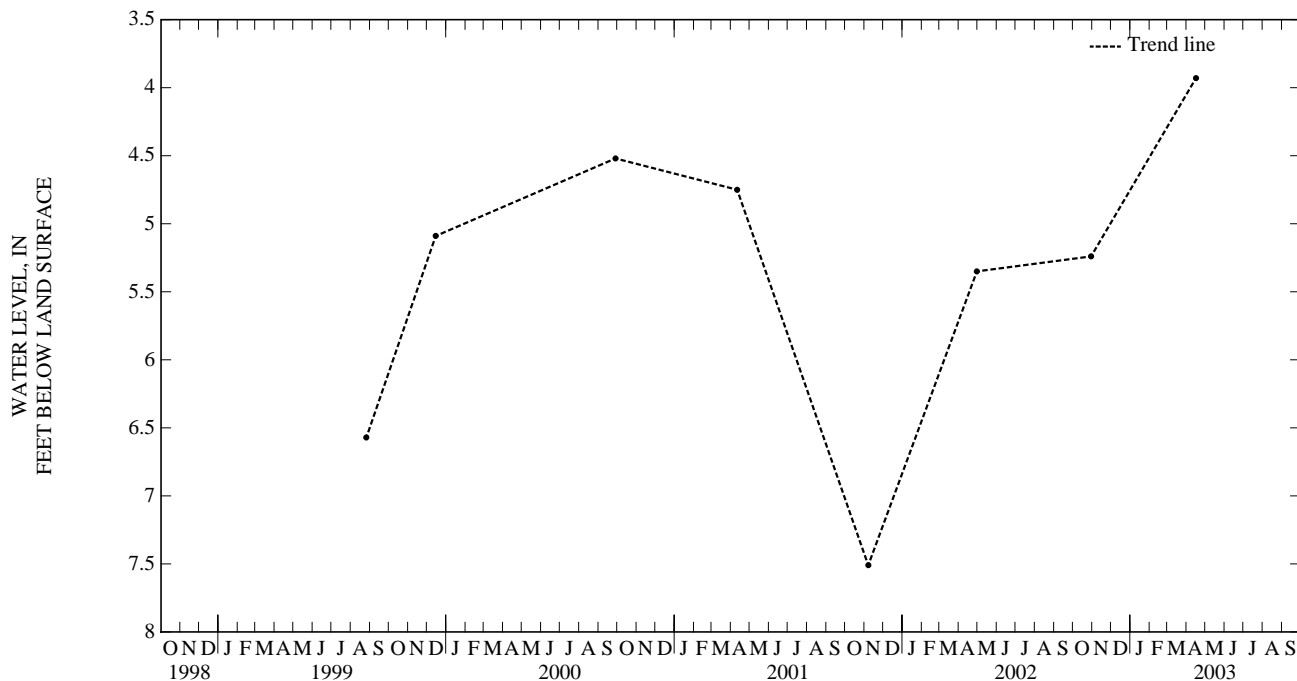
DATUM.--Elevation of land-surface datum is 7.93 ft above NGVD of 1929. Measuring point: Top of casing, 2.85 ft above land-surface datum prior to September 1995; 2.35 ft thereafter.

PERIOD OF RECORD.--March 1981 to September 1995, August 1999 to current year. Unpublished records available August 1999 to September 2002 and prior to October 1985 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.66 ft below land-surface datum, Nov. 10, 1992; lowest measured, 10.58 ft below land-surface datum, Mar. 20, 1981.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	5.24	APR 16	3.93
WATER YEAR 2003 HIGHEST	3.93	APR 16, 2003	LOWEST
		5.24	OCT 30, 2002



## CITY OF VIRGINIA BEACH—Continued

364613075583202. Local number, 63C 3 SOW 100C

LOCATION.--Lat 36°46'14", long 75°58'28", NAD83, Hydrologic Unit 03010205, at Hampton Roads Sanitation District Atlantic plant in Virginia Beach  
Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled water well, diameter 1 in., depth 35 ft, screened 30 to 35 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel. Prior to September 1995, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

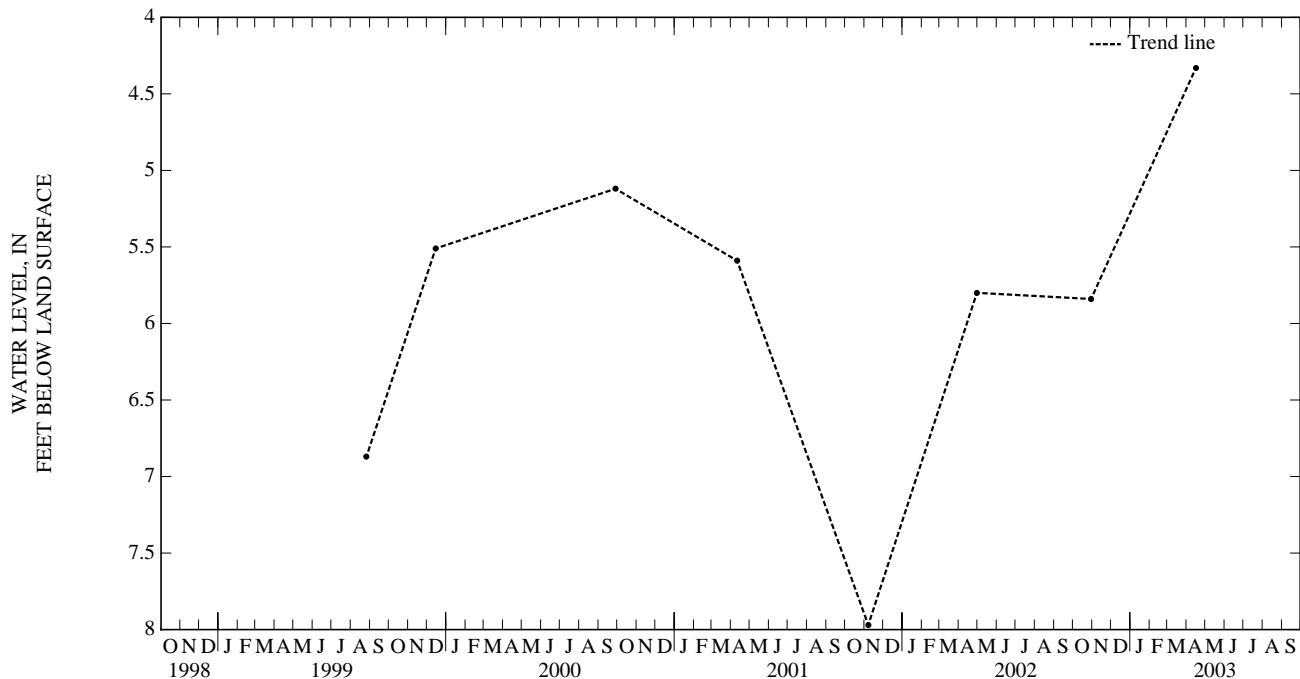
DATUM.--Elevation of land-surface datum is 8 ft above NGVD of 1929. Measuring point: Top of casing, 2.63 ft above land-surface datum.

PERIOD OF RECORD.--April 1981 to September 1995, August 1999 to current year. Unpublished records available August 1999 to September 2002 and prior to October 1985 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.63 ft below land-surface datum, Jan. 4, 1994; lowest measured, 12.35 ft below land-surface datum, Apr. 20, 1981.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	5.84	APR 16	4.33
WATER YEAR 2003    HIGHEST   4.33   APR 16, 2003    LOWEST   5.84   OCT 30, 2002			



## CITY OF VIRGINIA BEACH—Continued

364722075591801. Local number, 63C 4 SOW 173A.

LOCATION.--Lat 36°47'22", long 75°59'15", NAD83, Hydrologic Unit 02080108, at Redwing Park, 0.7 mi northeast of intersection of Oceana Boulevard and Dam Neck Road in Virginia Beach. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 3 in., depth 291 ft, screened 281 to 291 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division and USGS personnel. Oct. 10, 1985, to July 5, 1995, bimonthly measurement with chalked tape. Prior to Oct. 10, 1985, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 8 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.8 ft above land-surface datum prior to Nov. 16, 2001; 1.35 ft thereafter.

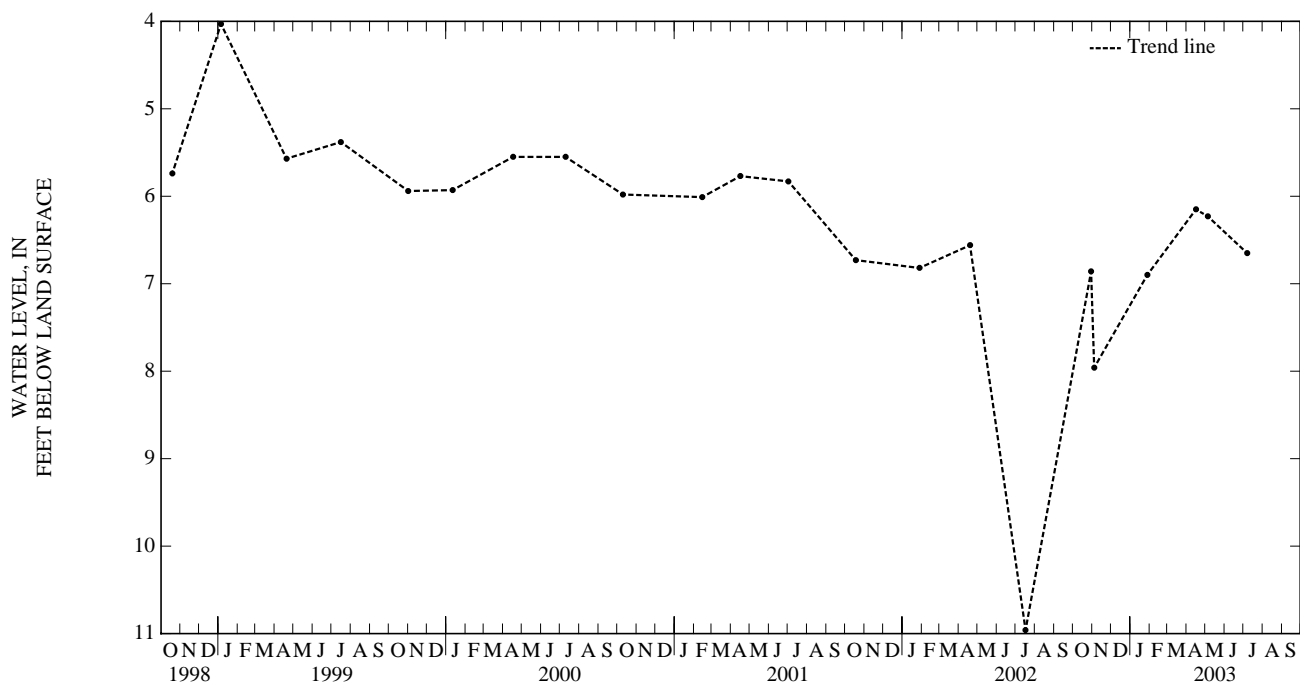
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level of July 17, 2002 result of well having been recently pumped.

PERIOD OF RECORD.--April 1984 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.10 ft below land-surface datum, June 21, 1989; lowest measured, 7.96 ft below land-surface datum, Nov. 4, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, 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	6.86	NOV 04	7.96	JAN 28	6.90	APR 16	6.15	MAY 05	6.23	JUL 07	6.65
WATER YEAR 2003		HIGHEST	6.15	APR 16, 2003	LOWEST	7.96	NOV 04, 2002				



## CITY OF VIRGINIA BEACH—Continued

364722075591802. Local number, 63C 5 SOW 173B

LOCATION.--Lat 36°47'23", long 75°59'17", NAD83, Hydrologic Unit 02080108, at Redwing Park, 0.7 mi northeast of intersection of Oceana Boulevard and Dam Neck Road in Virginia Beach Owner: City of Virginia Beach.

AQUIFER.--Yorktown confining unit of Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 3 in., depth 95 ft, screened 80 to 90 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS and Virginia Department of Environmental Quality - Water Division personnel. Prior to August 1999, occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel.

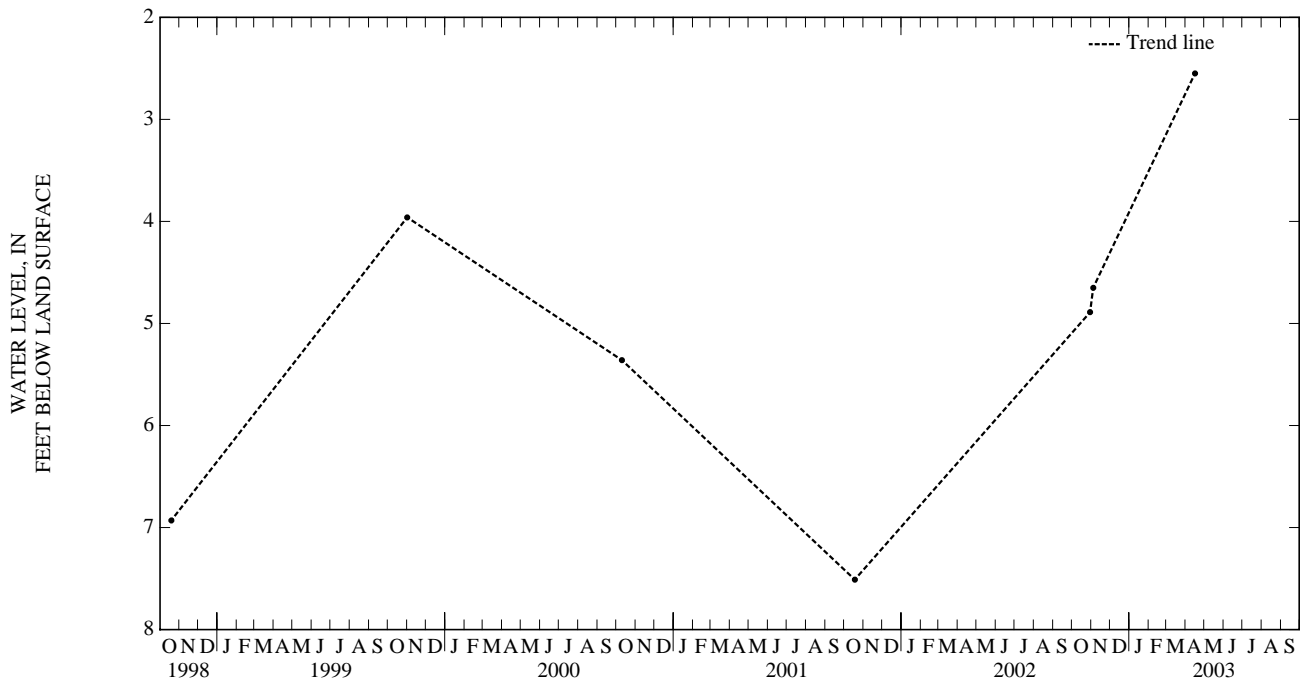
DATUM.--Elevation of land-surface datum is 9 ft above NGVD of 1929. Measuring point: Top of casing, 0.90 ft above land-surface datum.

PERIOD OF RECORD.--April 1984 to current year. Unpublished records available October 1995 to September 2002 and prior to October 1985 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.00 ft below land-surface datum, Mar. 20, 1989; lowest measured, 8.86 ft below land-surface datum, July 5, 1995.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	4.89	NOV 04	4.65	APR 16	2.55
WATER YEAR 2003    HIGHEST    2.55    APR 16, 2003    LOWEST    4.89    OCT 30, 2002					





## CITY OF VIRGINIA BEACH—Continued

364728075591401. Local number, 63C 11

LOCATION.--Lat 36°47'29", long 75°59'13", NAD83, Hydrologic Unit 03010205, at Redwing Park, 0.7 mi northeast of intersection of Oceana Boulevard and Dam Neck Road in Virginia Beach Owner: City of Virginia Beach.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled water well, diameter 3 in., depth 85 ft, screened 70 to 80 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

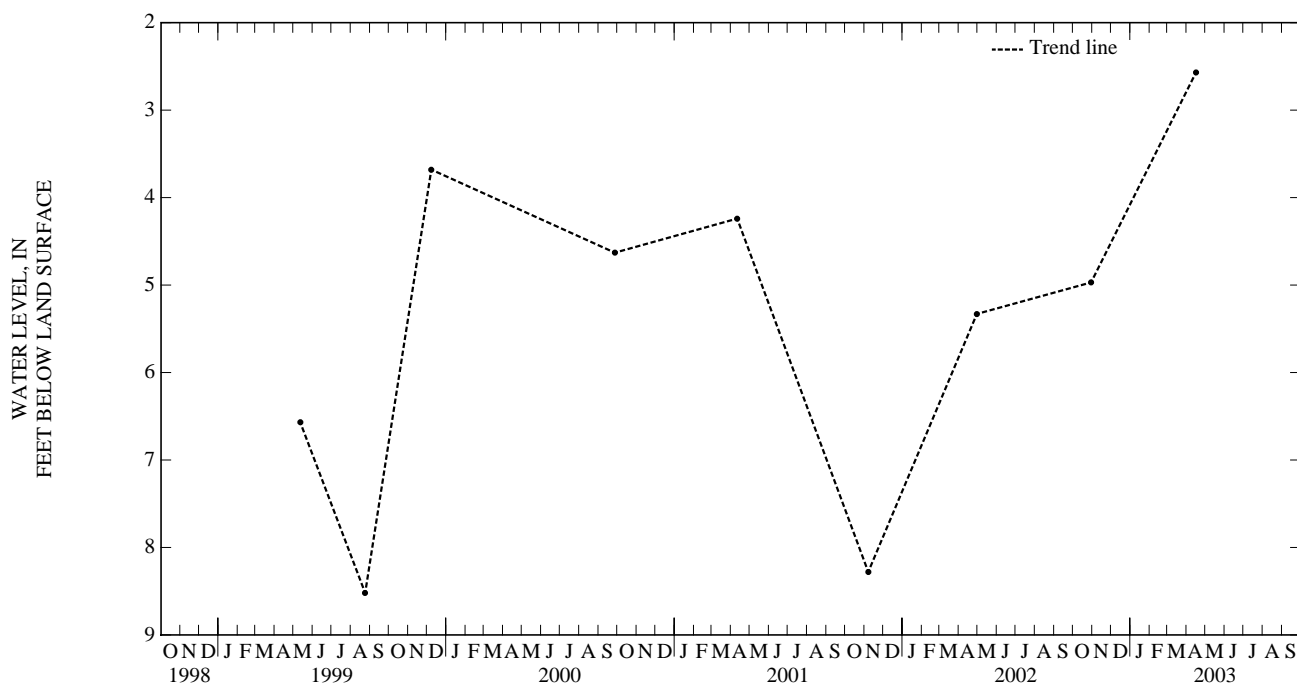
DATUM.--Elevation of land-surface datum is 9.1 ft above NGVD of 1929. Measuring point: Top of casing, 0.83 ft above land-surface datum.

PERIOD OF RECORD.--May 1999 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.57 ft below land-surface datum, Apr. 16, 2003; lowest measured, 8.52 ft below land-surface datum, Aug. 24, 1999.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	4.97	APR 16	2.57
WATER YEAR 2003 HIGHEST	2.57	APR 16, 2003 LOWEST	4.97
			OCT 30, 2002



## CITY OF VIRGINIA BEACH—Continued

364721075591601. Local number, 63C 13

LOCATION.--Lat 36°47'21", long 75°59'15", NAD83, Hydrologic Unit 03010205, at Redwing Park, 0.7 mi northeast of intersection of Oceana Boulevard and Dam Neck Road in Virginia Beach Owner: City of Virginia Beach.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled water well, diameter 3 in., depth 205, screened 190 to 200.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

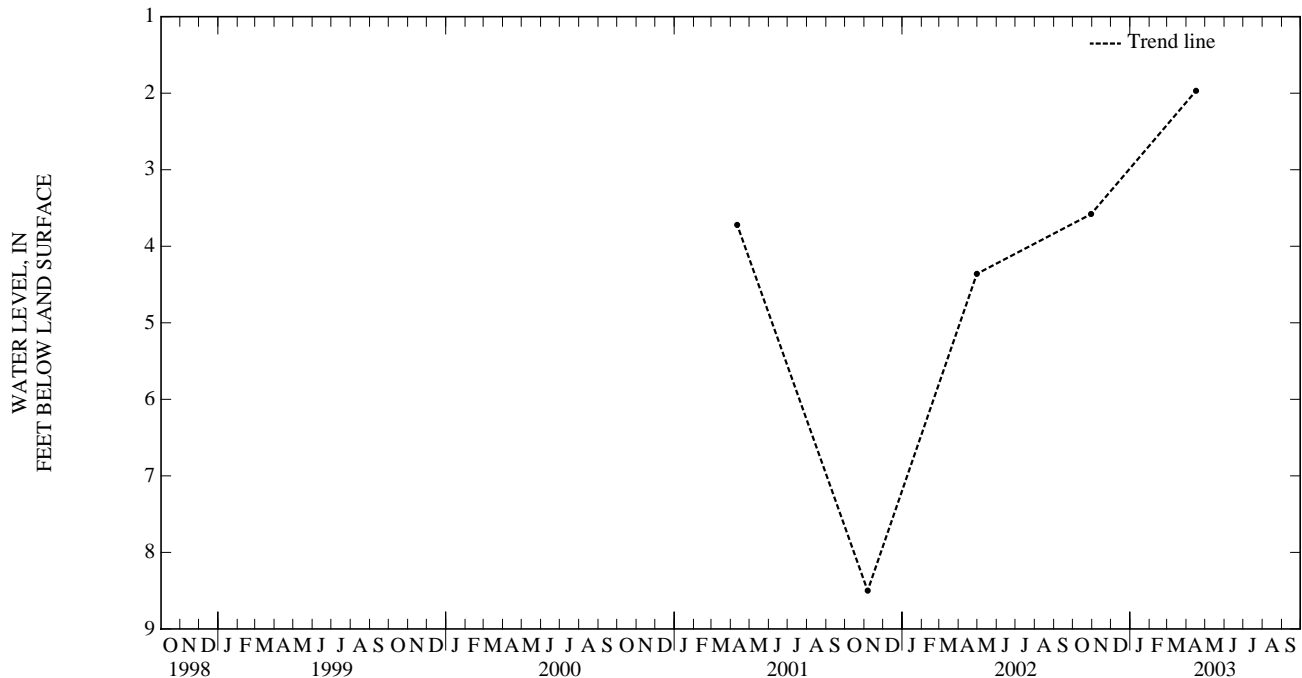
DATUM.--Elevation of land-surface datum is 7.5 ft NGVD of 1929. Measuring point: Top of casing, 0.85 ft above land-surface datum.

PERIOD OF RECORD.--April 2001 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.97 ft below land-surface datum, Apr. 16, 2003; lowest recorded, 8.50 ft below land-surface datum, Nov. 6, 2001.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	3.58	APR 16	1.97
WATER YEAR 2003 HIGHEST	1.97	APR 16, 2003 LOWEST	3.58
			OCT 30, 2002



GROUND-WATER LEVELS  
CITY OF VIRGINIA BEACH—Continued

364721075591701. Local number, 63C 19

LOCATION.--Lat 36°47'22", long 75°59'15", NAD83, Hydrologic Unit 03010205, at Redwing Park, 0.7 mi northeast of intersection of Oceana Boulevard and Dam Neck Road in Virginia Beach Owner: City of Virginia Beach.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled water well, diameter 3 in., depth 30, screened 25 to 30.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

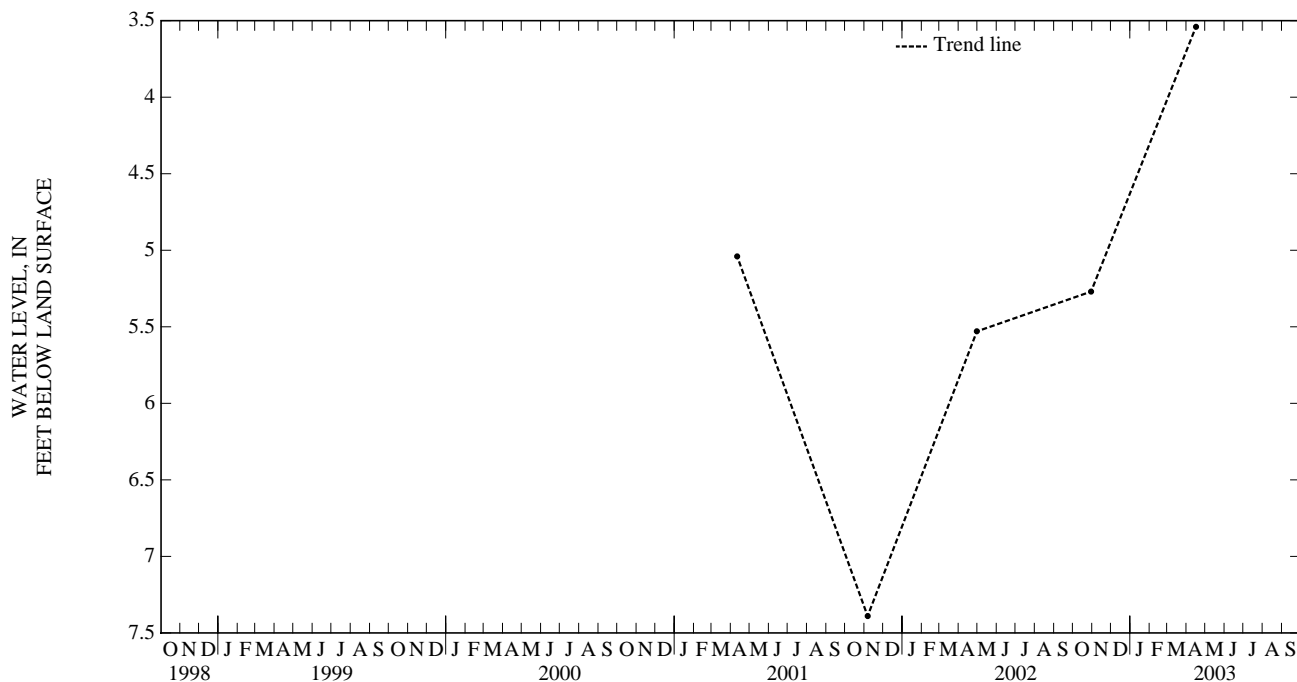
DATUM.--Elevation of land-surface datum is 9 ft NGVD of 1929. Measuring point: Top of casing, 0.67 ft above land-surface datum.

PERIOD OF RECORD.--1981, April 2001 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.54 ft below land-surface datum, Apr. 16, 2003; lowest measured, 7.39 ft below land-surface datum, Nov. 6, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	5.27	APR 16	3.54
WATER YEAR 2003	HIGHEST 3.54	APR 16, 2003	LOWEST 5.27
		OCT 30, 2002	



365045075585301. Local number, 63C 20

AQUIFER.--Columbia aquifer of Quaternary age..

WELL CHARACTERISTICS.--Drilled water well, diameter 1 in., depth 39 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

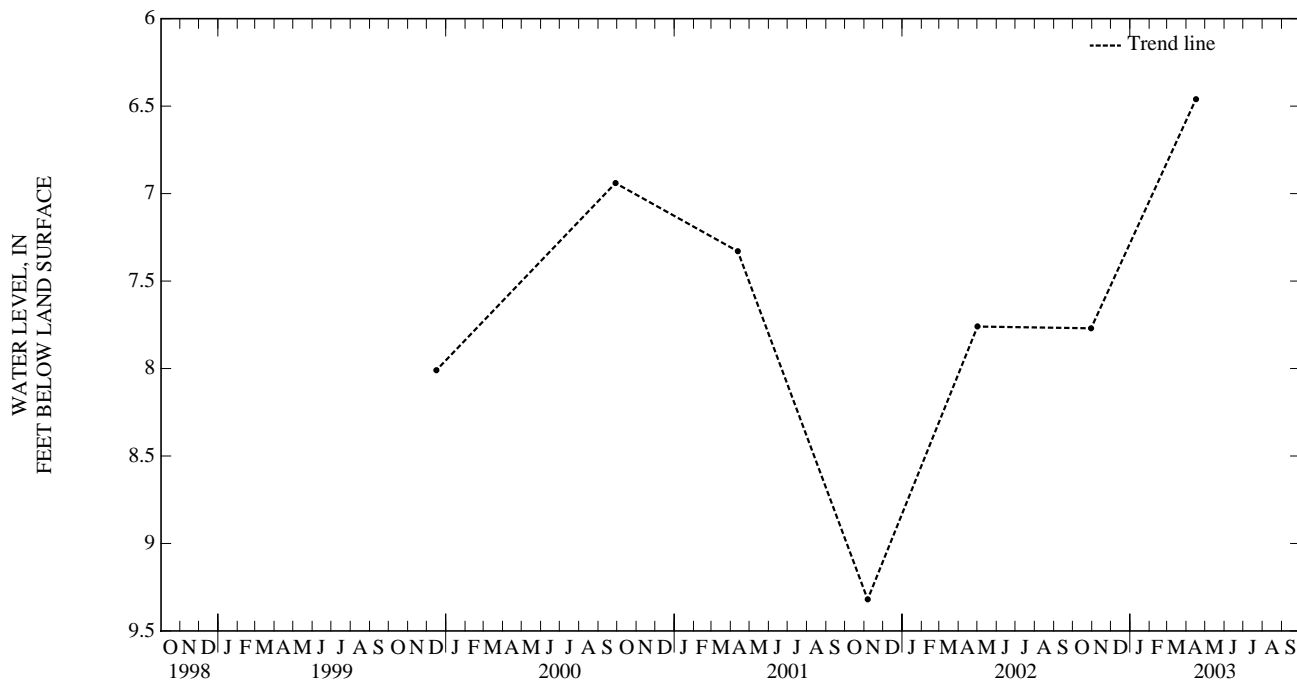
DATUM.--Elevation of land-surface datum is 5 ft above NGVD of 1929. Measuring point: Top of casing, 0.60 ft above land-surface datum.

PERIOD OF RECORD.--December 1999 to current year. Unpublished records available prior to October 2002 in files of the Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.46 ft below land-surface datum, Apr. 16, 2003; lowest measured, 9.32 ft below land-surface datum, Nov. 6, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	7.77	APR 16	6.46
WATER YEAR 2003	HIGHEST 6.46	APR 16, 2003	LOWEST 7.77
			OCT 30, 2002



GROUND-WATER LEVELS  
WESTMORELAND COUNTY

381110076550501. Local number, 55P 5.

LOCATION.--Lat 38°11'10", long 76°55'04", NAD83, Hydrologic Unit 02070011, behind craft shop at George Washington Birthplace National Monument, 3.8 mi southeast of Colonial Beach. Owner: National Park Service.

AQUIFER.--Middle Potomac aquifer of Cretaceous age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in., depth 471 ft, screened 451 to 466 ft.

INSTRUMENTATION.--Electronic data logger 60-minute record interval. Apr. 24, 1979 to Nov. 2, 1999, digital recorder 60-minute punch. Prior to Apr. 24, 1979, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 24 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder shelf, 3.0 ft above land-surface datum.

REMARKS.--Missing record due to recorder malfunction. Water level affected by local pumpage and regional drawdown.

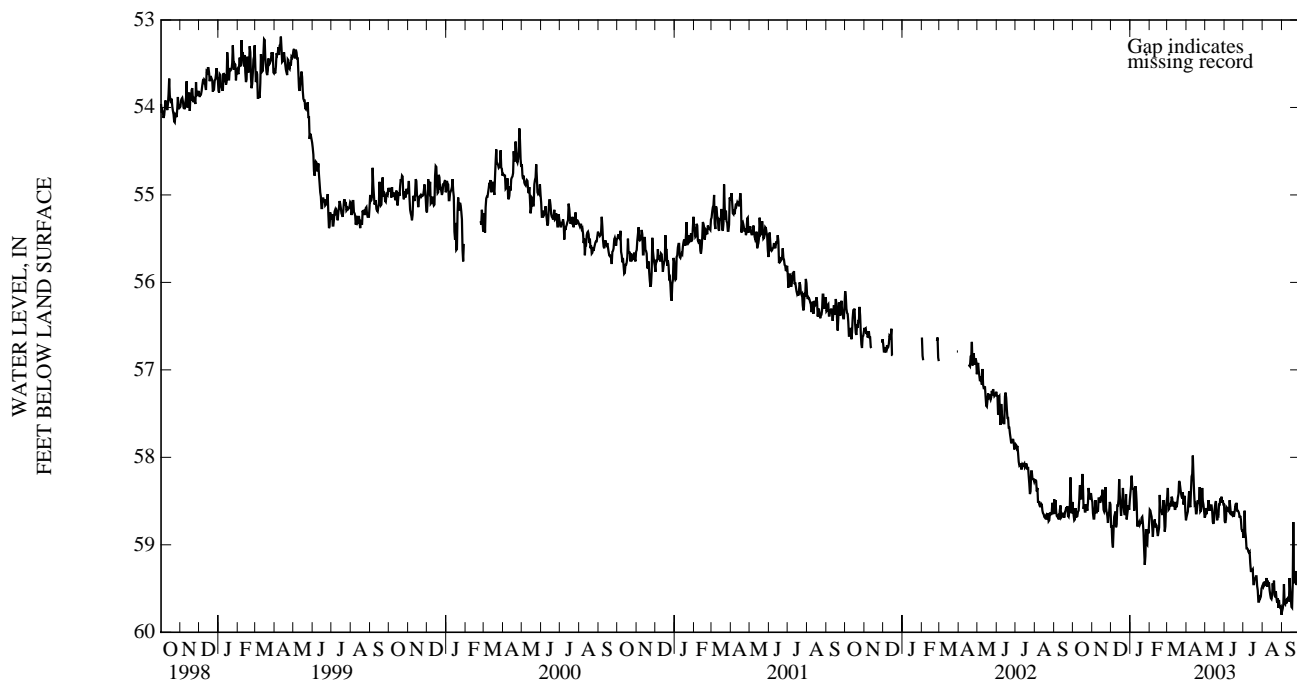
PERIOD OF RECORD.--June 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.05 ft below land-surface datum, June 24, 1974; lowest recorded, 59.80 ft below land-surface datum, Aug. 31, 2003.

EXTREMES FOR CURRENT YEAR.--Highest instantaneous water level, 57.53 ft below land-surface datum, Apr. 10; lowest instantaneous water level, 59.80 ft below land-surface datum, Aug. 31.

DEPTH TO WATER LEVEL, FEET BELOW LAND SURFACE  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	58.58	58.60	58.83	58.36	58.80	58.54	58.39	58.60	58.58	58.92	59.46	59.67
10	58.61	58.62	58.76	58.39	58.80	58.56	58.19	58.55	58.57	59.09	59.45	59.61
15	58.40	58.44	58.43	58.74	58.85	58.51	58.53	58.72	58.67	59.29	59.62	59.62
20	58.62	58.62	58.35	58.68	58.62	58.27	58.51	58.72	58.52	59.40	59.57	59.43
25	58.51	58.67	58.42	59.13	58.85	58.47	58.55	58.47	58.69	59.65	59.61	59.43
EOM	58.48	58.54	58.49	58.74	58.51	58.72	58.69	58.54	58.84	59.48	59.80	59.63



381132076551001. Local number, 55P 9.

**AQUIFER.**--Columbia aquifer of Quaternary age.

**WELL CHARACTERISTICS.**--Dug unused water well, diameter 36 in., depth 22.6 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

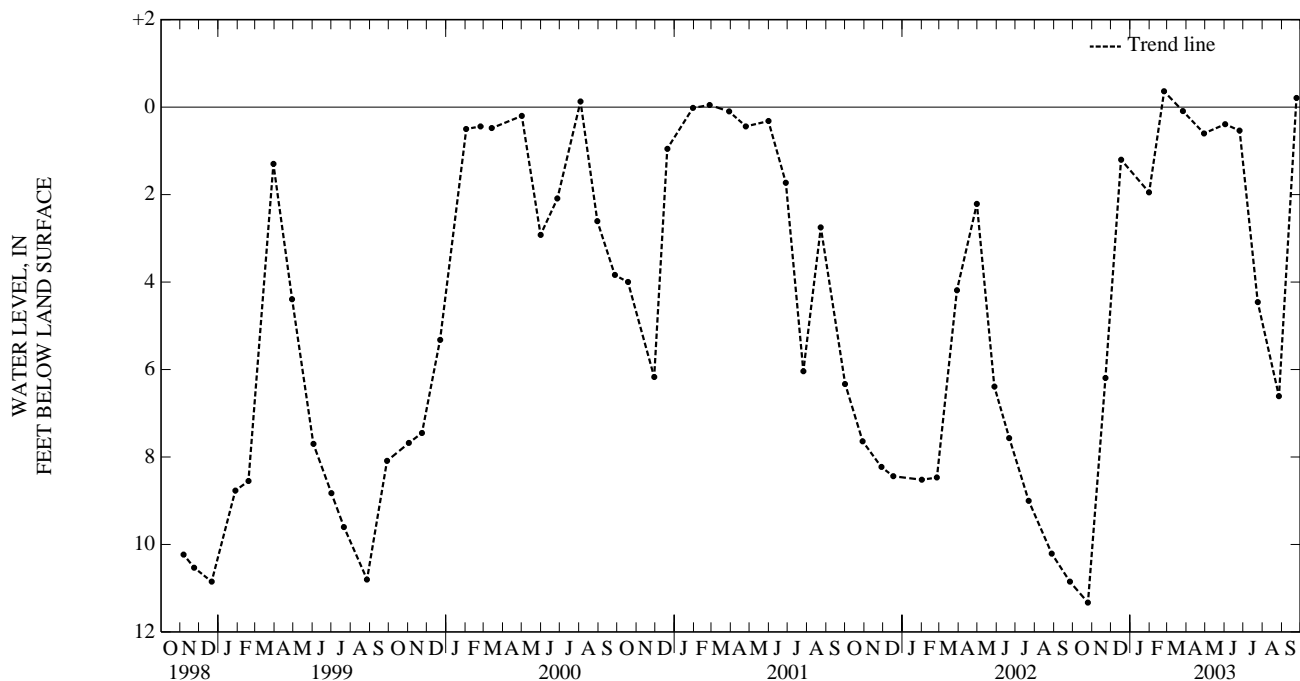
DATUM.--Elevation of land-surface datum is 17 ft above NGVD of 1929, from topographic map. Measuring point: Top of concrete hatch on well casing, 2.25 ft above land-surface datum. Prior to July 3, 1995, top of concrete lip on casing, 1.65 ft above land-surface datum.

PERIOD OF RECORD.--July 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.36 ft above land-surface datum, Feb. 24, 2003; lowest measured, 12.80 ft below land-surface datum, Dec. 27, 1988.

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	11.33	DEC 17	1.20	FEB 24	+36	APR 29	.60	JUN 25	.54	AUG 27	6.61
NOV 22	6.19	JAN 31	1.95	MAR 26	.09	JUN 02	.39	JUL 24	4.46	SEP 24	+21

WATER YEAR 2003    HIGHEST    +.36    FEB 24, 2003    LOWEST    11.33    OCT 25, 2002



## WESTMORELAND COUNTY—Continued

380538076490801. Local number, 56N 1 SOW 016.

LOCATION.--Lat 38°05'38", long 76°49'07", NAD83, Hydrologic Unit 02080104, at Washington and Lee School, 0.5 mi east of Montross. Owner: Westmoreland County Public Schools.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in. to 189 ft, diameter 2 in. from 189 to 641 ft, depth 641 ft, screened 608 to 628 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 3, 1985, to July 11, 1995, bimonthly measurement with chalked tape. Mar. 31, 1979, to Oct. 2, 1985, occasional measurement with chalked tape. Prior to Mar. 31, 1979, continuous strip-chart recorder.

DATUM.--Elevation of land-surface datum is 149 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.0 ft above land-surface datum.

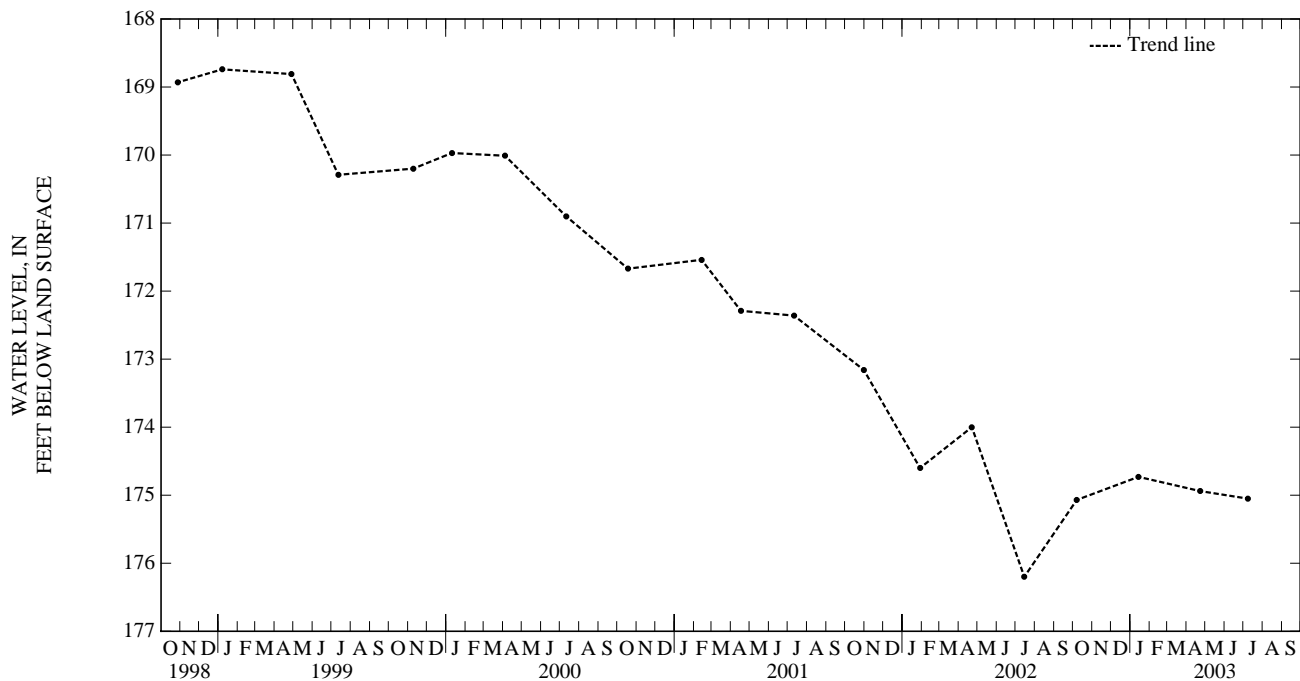
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water level affected by regional drawdown.

PERIOD OF RECORD.--August 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 133.47 ft below land-surface datum, Aug. 28, 1967; lowest measured, 176.20 ft below land-surface datum, July 15, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 07	175.07	JAN 14	174.73	APR 23	174.94	JUL 08	175.05
WATER YEAR 2003		HIGHEST	174.73	JAN 14, 2003	LOWEST	175.07	OCT 07, 2002



39113807811901. Local number, 45X 7.

AQUIFER.--Elbrook Formation of Middle to Upper Cambrian age.

WELL CHARACTERISTICS.--Drilled domestic water well, diameter 6 in., depth unknown, length of casing unknown.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

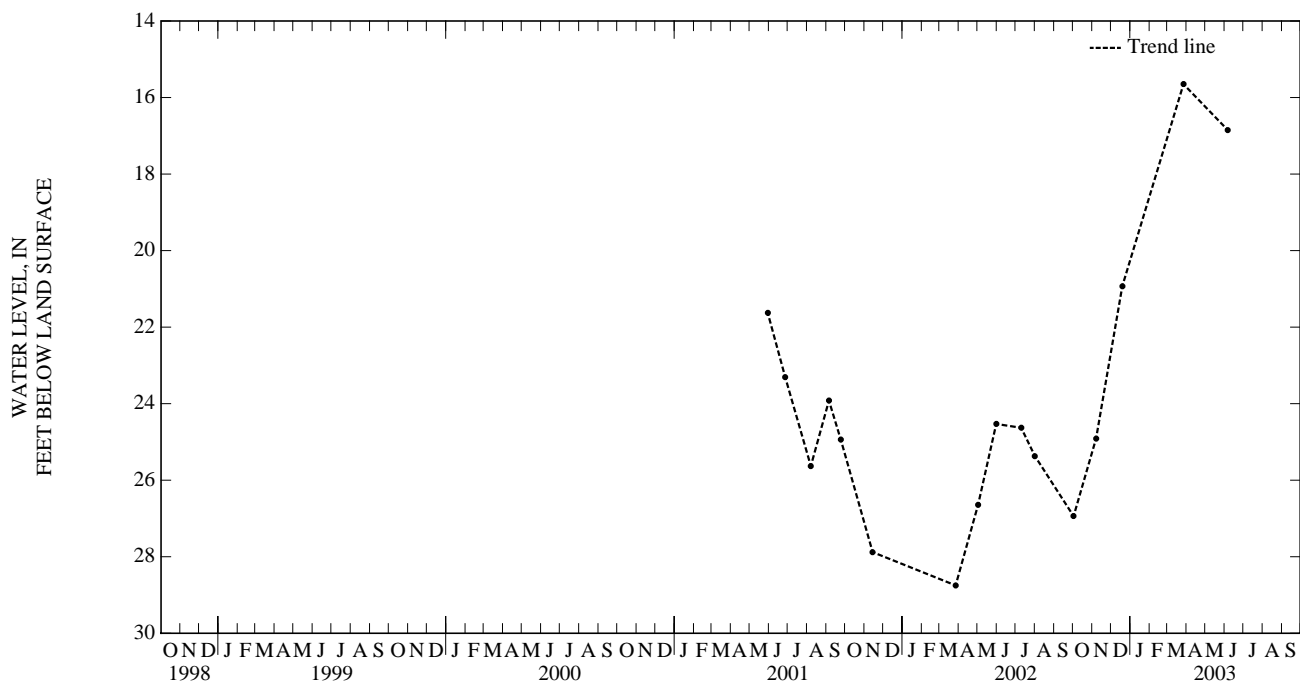
DATUM.--Elevation of land-surface datum is 800 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 3.15 ft below land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.65 ft below land-surface datum, Mar. 27, 2003; lowest measured, 28.75 ft below land-surface datum, Mar. 27, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	26.94	NOV 07	24.91	DEC 19	20.93	MAR 27	15.65	JUN 06	16.85
WATER YEAR 2003		HIGHEST	15.65	MAR 27, 2003	LOWEST	26.94	OCT 02, 2002		





GROUND-WATER LEVELS  
CITY OF WINCHESTER—Continued

391122078102401. Local number, 45X 8.

LOCATION.--Lat 39°11'22.20", long 78°10'24.22", NAD83, Hydrologic Unit 02070004, 980 ft north of the intersection of Selma Drive and U.S. Highway 50. Owner: John W. Truban.

AQUIFER.--Conococheague Limestone of Upper Cambrian to Lower Ordovician age.

WELL CHARACTERISTICS.--Drilled water well, diameter 6 in., depth 280 ft, cased to 23 ft, open hole 23 to 280 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by USGS personnel.

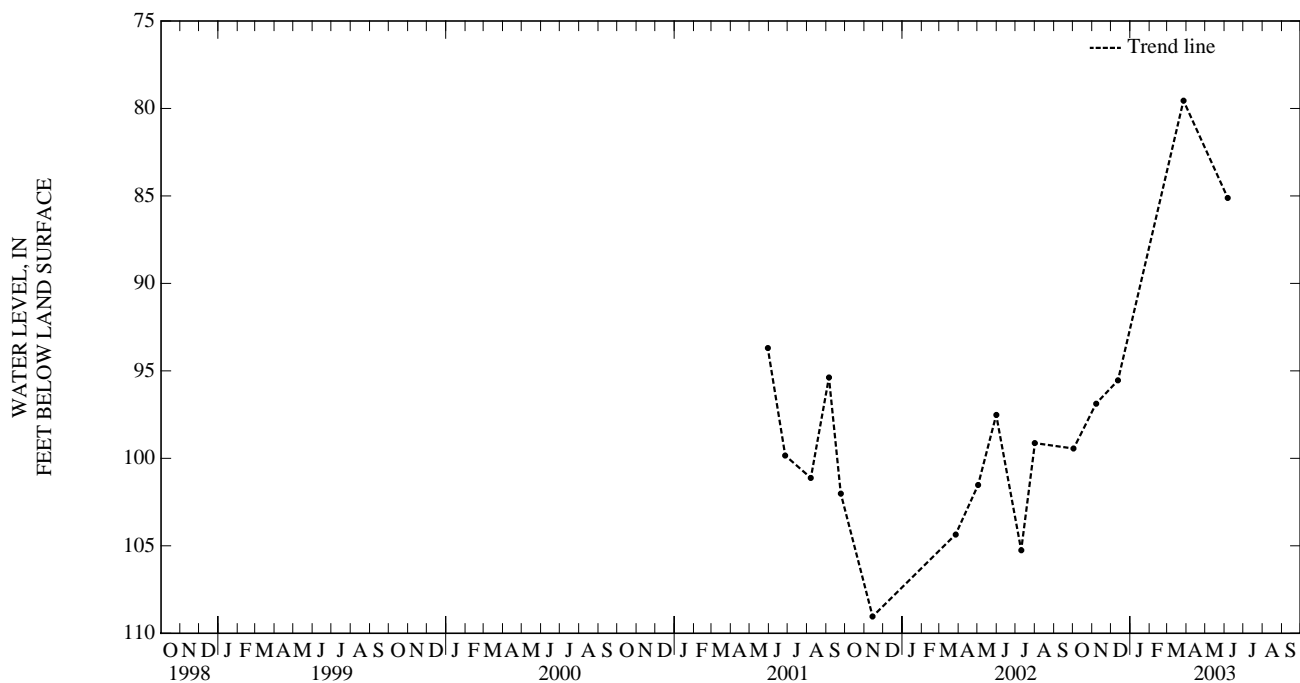
DATUM.--Elevation of land-surface datum is 825 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.7 ft above land-surface datum.

PERIOD OF RECORD.--May 2001 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 79.55 ft below land-surface datum, Mar. 27, 2003; lowest measured, 109.04 ft below land-surface datum, Nov. 14, 2001.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 02	99.44	NOV 07	96.87	DEC 12	95.55	MAR 27	79.55	JUN 06	85.12
WATER YEAR 2003    HIGHEST   79.55   MAR 27, 2003    LOWEST   99.44   OCT 02, 2002									



## YORK COUNTY

371654076401601. Local number, 57G 17 SOW 068.

LOCATION.--Lat 37°16'55", long 76°40'15", NAD83, Hydrologic Unit 02080107, 250 ft east of State Highway 716 at Parkway Estates, 0.5 mi east of Williamsburg. Owner: Sydnor Hydrodynamics.

AQUIFER.--Brightseat-upper Potomac aquifer of Cretaceous-Paleocene age and Aquia aquifer of Paleocene age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in., depth 452.3 ft, screened 411 to 426 ft, 442.2 to 452.3 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 1, 1985, to July 7, 1995, bimonthly measurement with chalked tape. Apr. 30, 1978, to Sept. 30, 1985, occasional measurement with chalked tape. Jan. 15, 1974, to Apr. 30, 1978, continuous strip-chart recorder. Prior to Jan. 15, 1974, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 60 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 0.85 ft above land-surface datum.

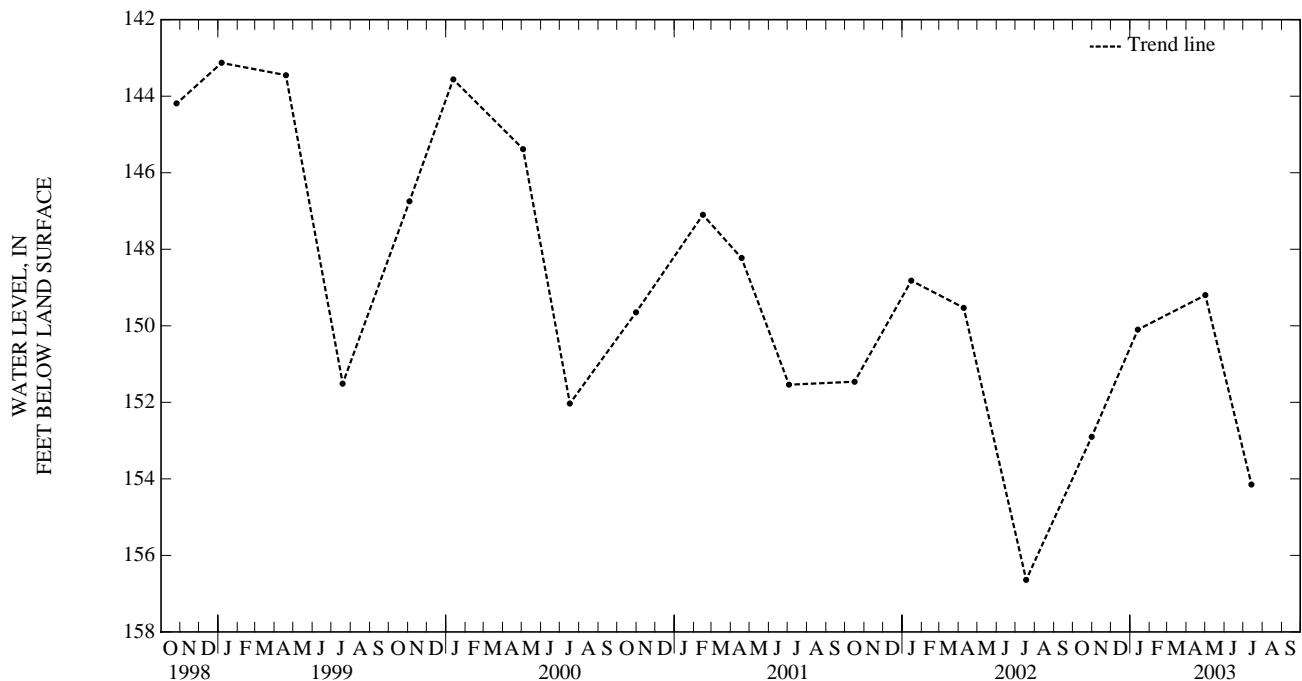
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L. Water level affected by regional drawdown.

PERIOD OF RECORD.--November 1972 to current year. Unpublished records available prior to October 1985 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 106.09 ft below land-surface datum, Nov. 22, 1972; lowest measured, 156.64 ft below land-surface datum, July 18, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	152.90	JAN 13	150.10	MAY 01	149.20	JUL 14	154.15
WATER YEAR 2003		HIGHEST	149.20	MAY 01, 2003	LOWEST	154.15	JUL 14, 2003



371045076310702. Local number, 58F 62 SOW 187A.

LOCATION.--Lat 37°10'46", long 76°31'06", NAD83, Hydrologic Unit 02080206, 300 ft north of State Highway 105, 1.8 mi east of intersection of State Highways 105 and 143, and 3.1 mi southeast of Lee Hall. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Eastover-Calvert confining unit of Miocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 140 ft, screened 120 to 140 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 4, 1991, to July 10, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to Sept. 4, 1991, occasional measurement with chalked tape by USGS and Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 55 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.5 ft above land-surface datum.

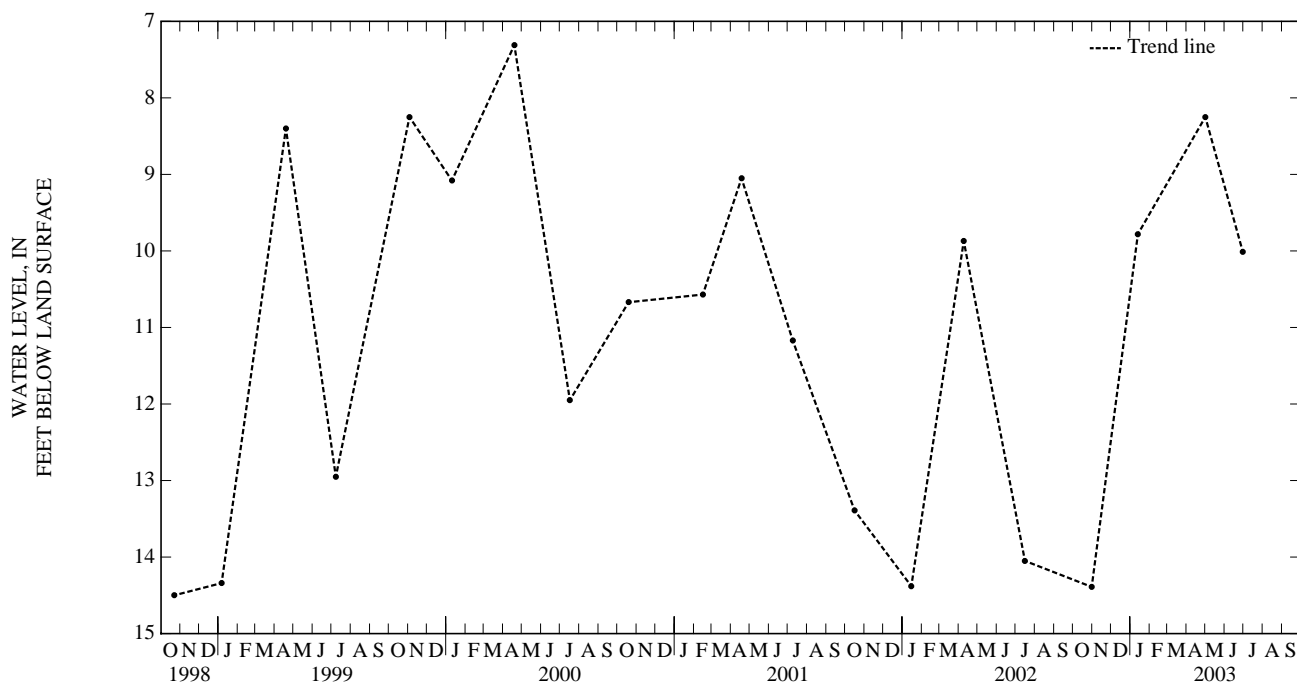
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--September 1990 to current year. Unpublished records available in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.08 ft below land-surface datum, Apr. 6, 1994; lowest measured, 14.83 ft below land-surface datum, Nov. 6, 1991.

#### WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	14.39	JAN 13	9.78	MAY 01	8.25	JUN 30	10.01
WATER YEAR 2003 HIGHEST		8.25	MAY 01, 2003 LOWEST		14.39	OCT 31, 2002	



## YORK COUNTY—Continued

371045076310703. Local number, 58F 63 SOW 187B.

LOCATION.--Lat 37°10'46", long 76°31'06", NAD83, Hydrologic Unit 02080206, 300 ft north of State Highway 105, 1.8 mi east of intersection of State Highways 105 and 143, and 3.1 mi southeast of Lee Hall. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Cornwallis Cave aquifer of Pliocene-Holocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 28 ft, screened 18 to 28 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 4, 1991, to July 10, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to Sept. 4, 1991, occasional measurement with chalked tape by USGS and Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 55 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.6 ft above land-surface datum.

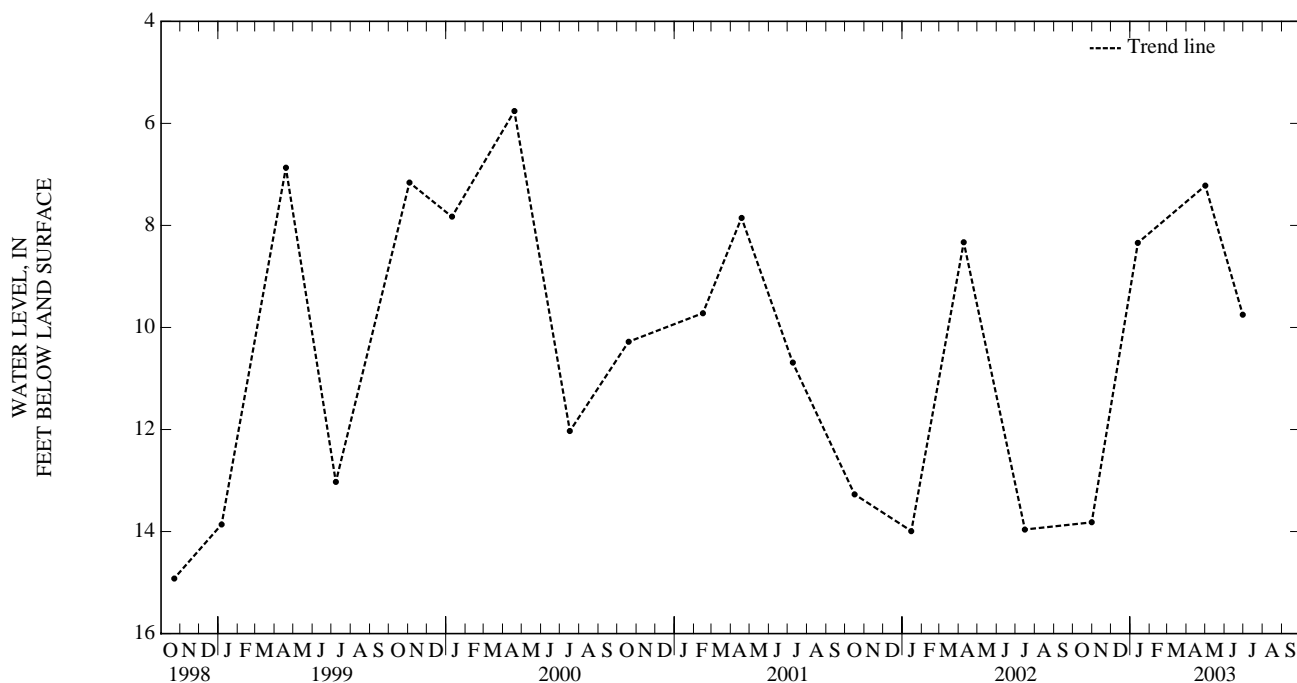
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--September 1990 to current year. Unpublished records available in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.76 ft below land-surface datum, Apr. 19, 2000; lowest measured, 14.95 ft below land-surface datum, Jan. 18, 1996.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	13.82	JAN 13	8.34	MAY 01	7.22	JUN 30	9.75
WATER YEAR 2003 HIGHEST		7.22	MAY 01, 2003 LOWEST		13.82	OCT 31, 2002	





371535076373501. Local number, 59F 1 SOW 027.

AQUIFER.--Chickahominy-Piney Point aquifer of Eocene-Oligocene age.

WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in., depth 446 ft, screened 421 to 446 ft.

**INSTRUMENTATION.**--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Oct. 11, 1985, to July 7, 1995, bimonthly measurement with chalked tape. Sept. 10, 1971, to Oct. 10, 1985, occasional measurement with chalked tape. Apr. 10, 1970, to Sept. 10, 1971, continuous strip-chart recorder. Prior to Apr. 10, 1970, occasional measurement with chalked tape.

DATUM.--Elevation of land-surface datum is 50 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 2.8 ft above land-surface datum prior to Jan. 15, 2002; 2.40 ft thereafter.

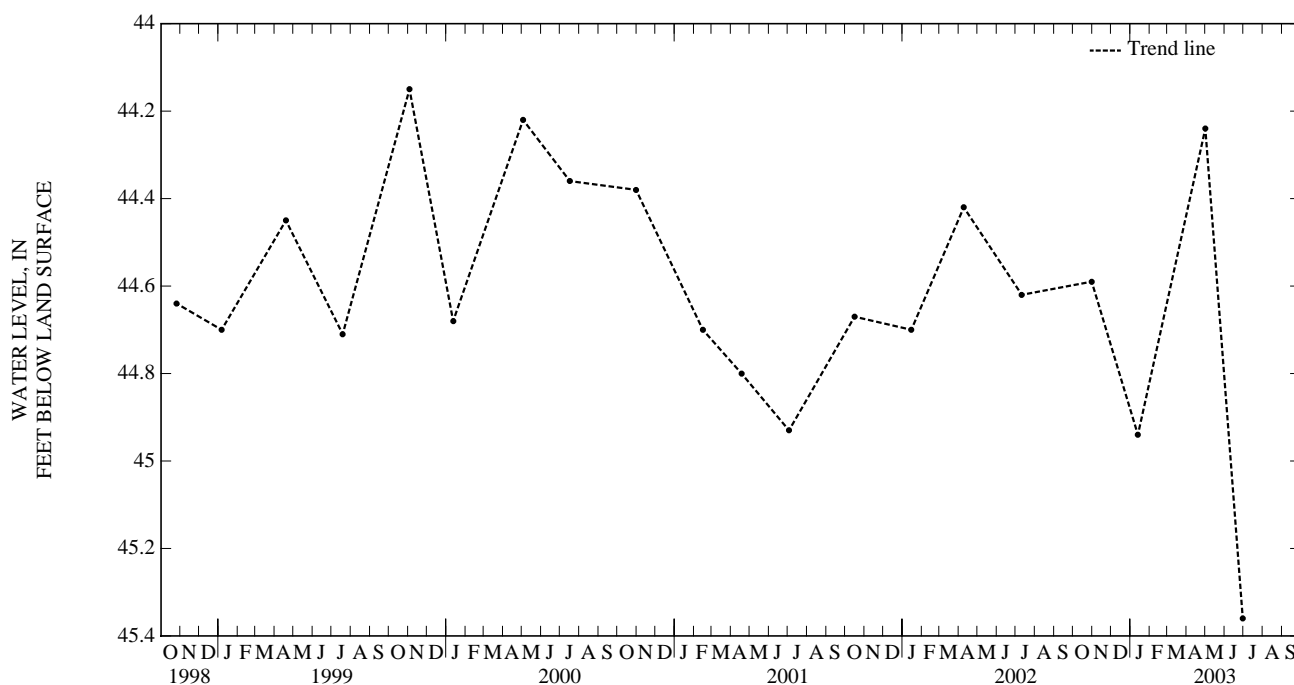
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--October 1969 to current year. Unpublished records available prior to October 1987 in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.00 ft below land-surface datum, Oct. 27, 1969; lowest measured, 45.36 ft below land-surface datum, June 30, 2003.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	44.59	JAN 13	44.94	MAY 01	44.24	JUN 30	45.36
WATER YEAR 2003		HIGHEST	44.24	MAY 01, 2003		LOWEST	45.36
						JUN 30, 2003	



370841076275202. Local number, 59F 72 SOW 184A

LOCATION.--Lat 37°08'42", long 76°27'51", NAD83, Hydrologic Unit 02080108, 800 ft south of State Highway 620, 0.4 mi southwest of intersection of State Highway 620 and U.S. Highway 17, and 2.2 mi southwest of Dare. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 98 ft, diameter 3.5 in. from 98 to 131 ft, depth 131 ft, screened 121 to 131 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 12, 1991, to July 7, 1995, bimonthly measurement with chalked tape. Prior to Sept. 12, 1991, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 42 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder shelf, 2.8 ft above land-surface datum prior to Nov. 6, 1991; top of casing, 1.80 ft thereafter.

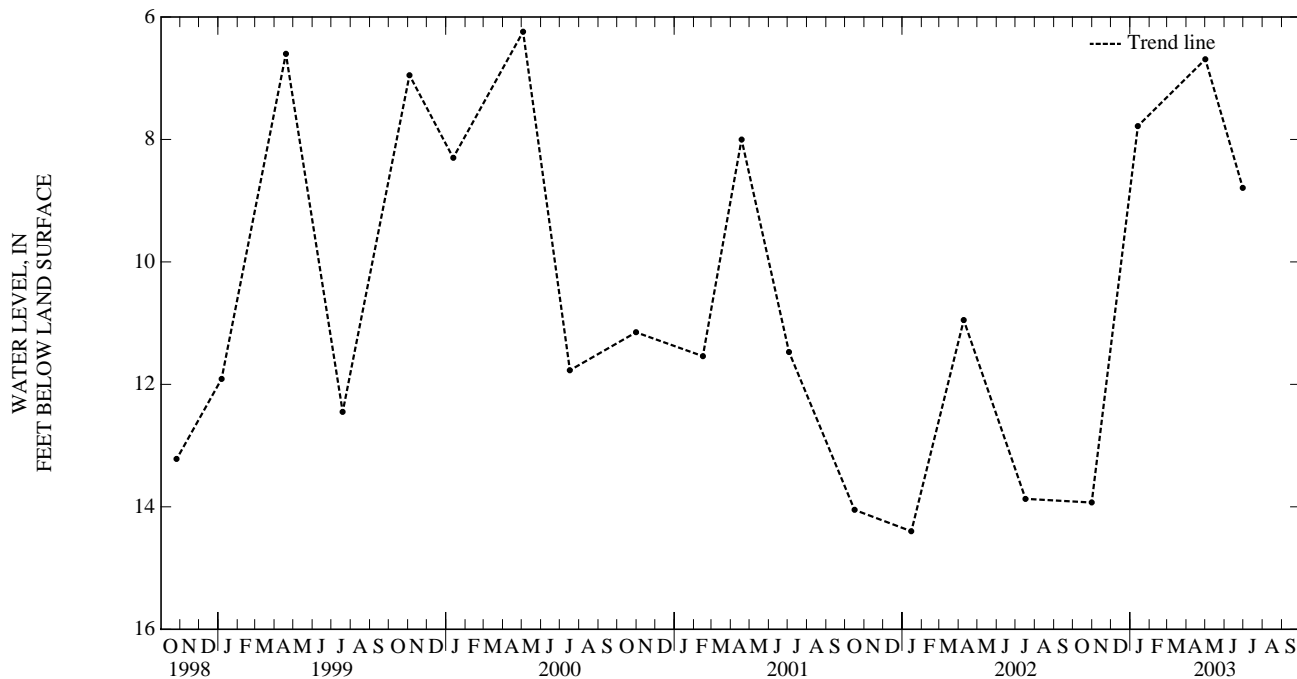
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--July 1990 to current year. Unpublished records available in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.46 ft below land-surface datum, Apr. 29, 1997; lowest recorded, 14.40 ft below land-surface datum, Jan. 15, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	13.93	JAN 13	7.78	MAY 01	6.69	JUN 30	8.79
WATER YEAR 2003 HIGHEST		6.69	MAY 01, 2003	LOWEST		13.93	OCT 31, 2002



## YORK COUNTY—Continued

370841076275203. Local number, 59F 73 SOW 184B.

LOCATION.--Lat 37°08'42", long 76°27'51", NAD83, Hydrologic Unit 02080108, 800 ft south of State Highway 620, 0.4 mi southwest of intersection of State Highway 620 and U.S. Highway 17, and 2.2 mi southwest of Dare. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Cornwallis Cave aquifer of Pliocene-Holocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in. to 39 ft, diameter 2.0 in. from 39 to 60 ft, depth 60 ft, screened 50 to 60 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 4, 1991, to July 7, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to Sept. 4, 1991, occasional measurement with chalked tape by USGS and Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 42 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.7 ft above land-surface datum.

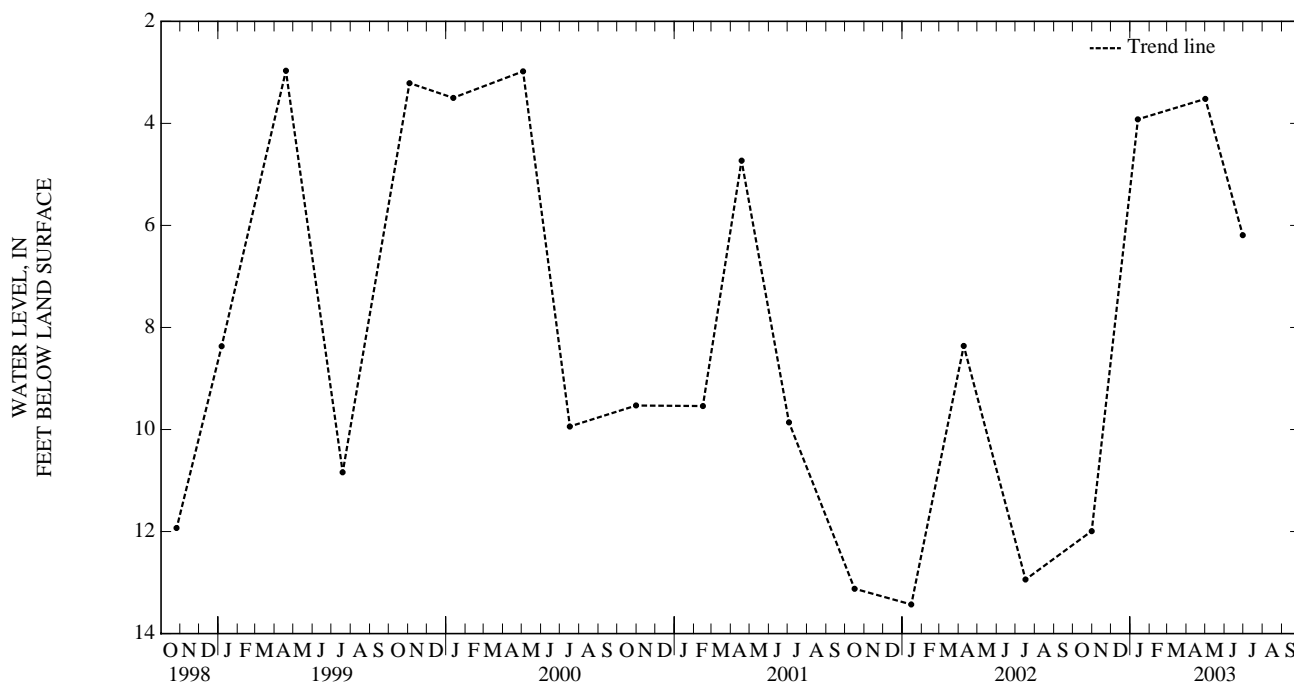
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--July 1990 to current year. Unpublished records available in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.03 ft below land-surface datum, Feb. 15, 1994; lowest measured, 13.43 ft below land-surface datum, Jan. 15, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	11.99	JAN 13	3.92	MAY 01	3.52	JUN 30	6.19
WATER YEAR 2003 HIGHEST		3.52	MAY 01, 2003 LOWEST		11.99	OCT 31, 2002	





## YORK COUNTY—Continued

370841076275204. Local number, 59F 74 SOW 184C.

LOCATION.--Lat 37°08'42", long 76°27'51", NAD83, Hydrologic Unit 02080108, 800 ft south of State Highway 620, 0.4 mi southwest of intersection of State Highway 620 and U.S. Highway 17, and 2.2 mi southwest of Dare. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 20 ft, screened 10 to 20 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 12, 1991, to July 7, 1995, bimonthly measurement with chalked tape. Prior to Sept. 12, 1991, digital recorder 60-minute punch.

DATUM.--Elevation of land-surface datum is 42 ft above NGVD of 1929, from topographic map. Measuring point: Top of recorder shelf, 2.8 ft above land-surface datum prior to Nov. 6, 1991; top of casing, 1.80 ft thereafter.

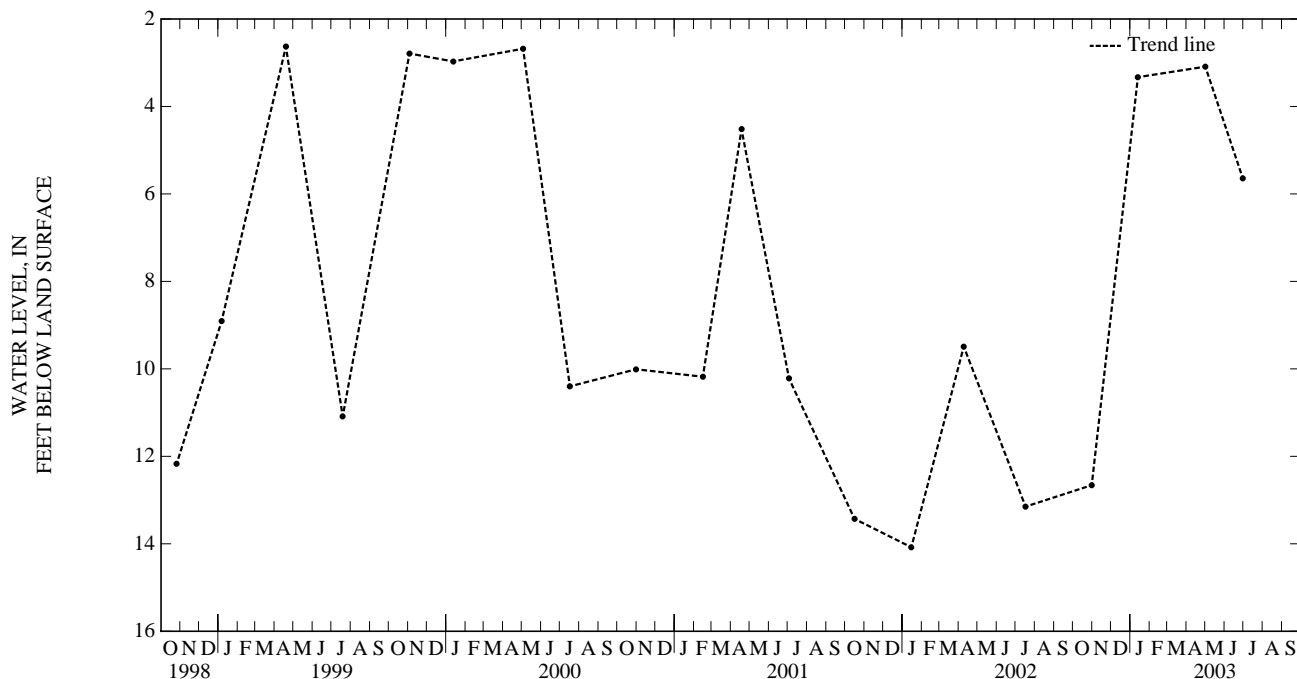
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--July 1990 to current year. Unpublished records available in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.19 ft below land-surface datum, Oct. 9, 1996; lowest recorded, 14.08 ft below land-surface datum, Jan. 15, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	12.66	JAN 13	3.33	MAY 01	3.09	JUN 30	5.64
WATER YEAR 2003 HIGHEST		3.09	MAY 01, 2003	LOWEST		12.66	OCT 31, 2002



## YORK COUNTY—Continued

370958076291502. Local number, 59F 81 SOW 186A.

LOCATION.--Lat 37°09'59", long 76°29'14", NAD83, Hydrologic Unit 02080108, 100 ft south of State Highway 173, 0.8 mi southwest of intersection of U.S. Highway 17 and State Highway 173, and 2.8 mi west of Dare. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 132 ft, screened 112 to 132 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 4, 1991, to July 7, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to Sept. 4, 1991, occasional measurement with chalked tape by USGS and Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 50.77 ft above NGVD of 1929. Measuring point: Top of casing, 1.6 ft above land-surface datum.

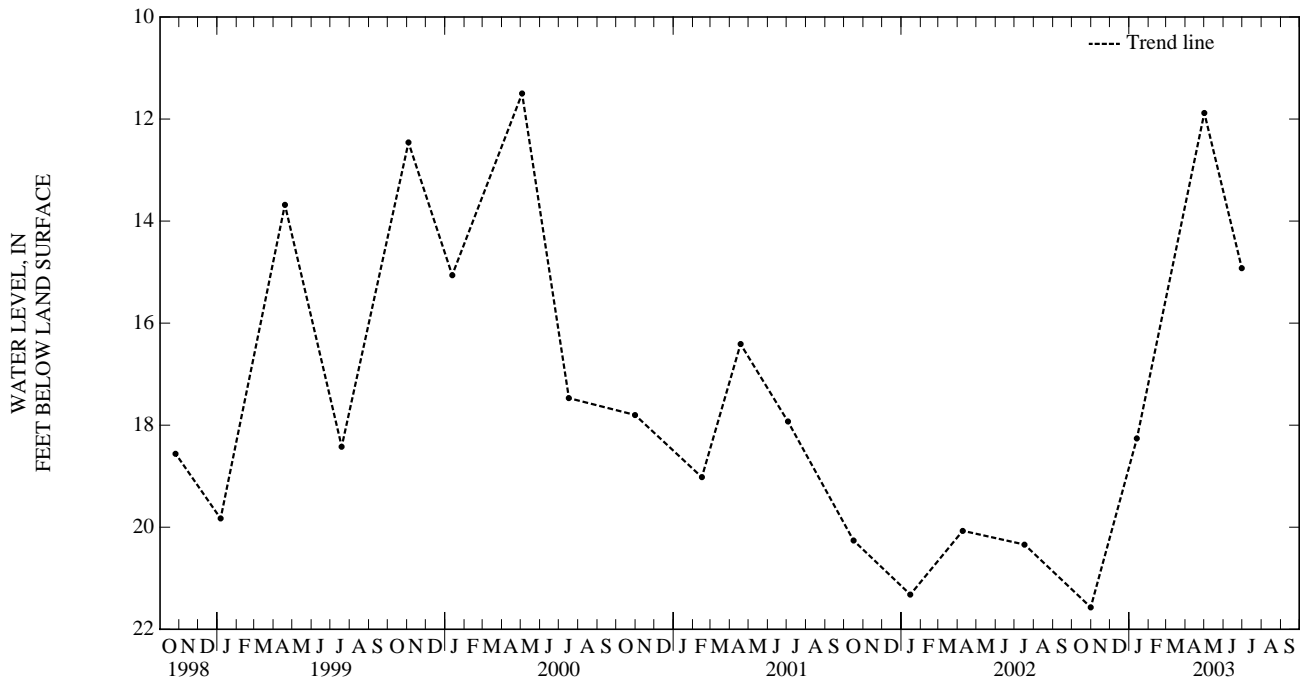
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--September 1990 to current year. Unpublished records available in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.73 ft below land-surface datum, Apr. 6, 1994; lowest measured, 21.57 ft below land-surface datum, Oct. 31, 2002.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	21.57	JAN 13	18.26	MAY 01	11.88	JUN 30	14.92
WATER YEAR 2003 HIGHEST		11.88	MAY 01, 2003	LOWEST		21.57	OCT 31, 2002



371207076265502. Local number, 59F 86 SOW 188A.

LOCATION.--Lat 37°12'08", long 76°26'54", NAD83, Hydrologic Unit 02080107, 200 ft north of State Highway 718, 0.3 mi east of intersection of State Highways 173 and 718, and 2.3 mi northwest of Dare. Owner: Virginia Department of Environmental Quality.

AQUIFER.--York County shallow aquifer system (undivided) of Miocene-Holocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 99 ft, screened 79 to 99 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 4, 1991, to July 7, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to Sept. 4, 1991, occasional measurement with chalked tape by USGS and Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 7 ft above NGVD of 1929, from topographic map. Measuring point: Top of casing, 1.6 ft above land-surface datum.

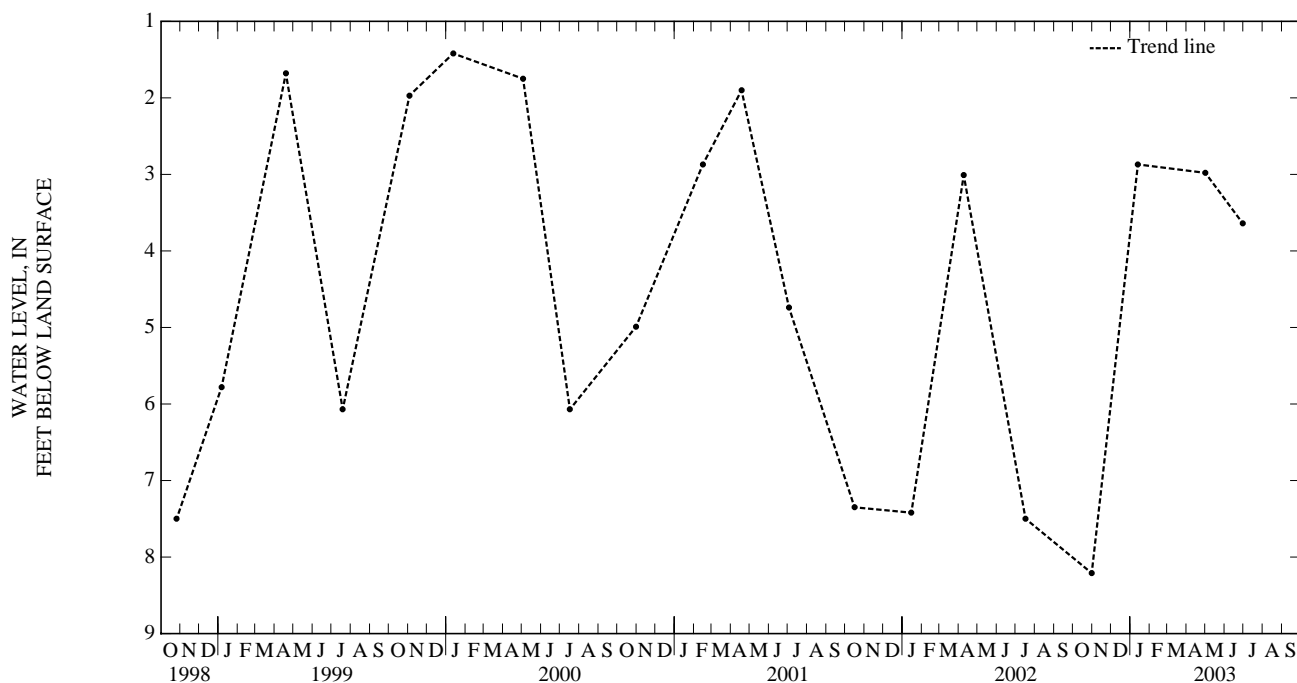
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--September 1990 to current year. Unpublished records available in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.37 ft below land-surface datum, Feb. 15, 1994; lowest measured, 8.21 ft below land-surface datum, Oct. 31, 2002.

#### WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	8.21	JAN 13	2.87	MAY 01	2.98	JUN 30	3.64
WATER YEAR 2003 HIGHEST		2.87	JAN 13, 2003 LOWEST		8.21	OCT 31, 2002	



## YORK COUNTY—Continued

371053076252202. Local number, 59F 89 SOW 189A.

LOCATION.--Lat 37°10'54", long 76°25'21", NAD83, Hydrologic Unit 02080108, 500 ft north of State Highway 617, 0.6 mi northeast of intersection of State Highways 620 and 617, and 1.3 mi northeast of Dare. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Yorktown-Eastover aquifer of Miocene-Pliocene age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 97 ft, screened 77 to 97 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 4, 1991, to July 7, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to Sept. 4, 1991, occasional measurement with chalked tape by USGS and Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 4.63 ft above NGVD of 1929. Measuring point: Top of casing, 1.5 ft above land-surface datum.

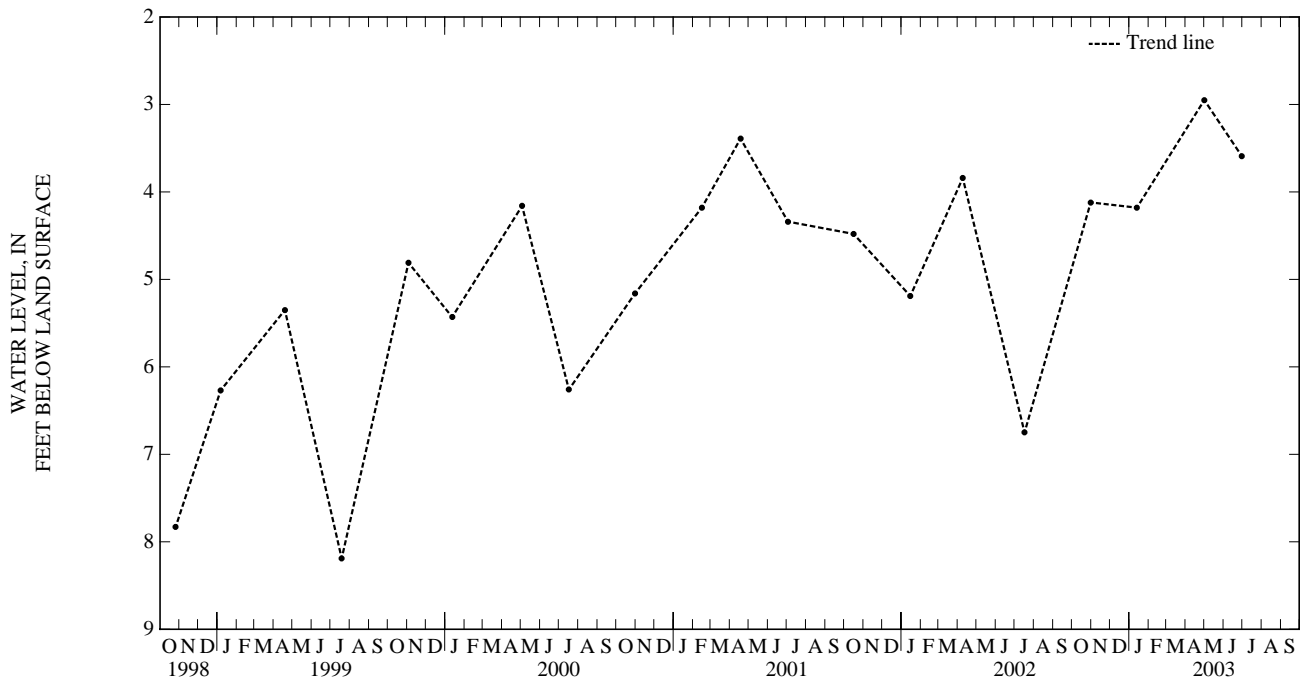
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--September 1990 to current year. Unpublished records available in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.95 ft below land-surface datum, May 1, 2003; lowest measured, 9.11 ft below land-surface datum, May 4, 1995.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	4.12	JAN 13	4.18	MAY 01	2.95	JUN 30	3.59
WATER YEAR 2003 HIGHEST		2.95	MAY 01, 2003 LOWEST		4.18	JAN 13, 2003	



371053076252203. Local number, 59F 96 SOW 189B.

LOCATION.--Lat 37°10'54", long 76°25'21", NAD83, Hydrologic Unit 02080108, 500 ft north of State Highway 617, 0.6 mi northeast of intersection of State Highways 620 and 617, and 1.3 mi northeast of Dare. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 15 ft, screened 5 to 15 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 4, 1991, to July 7, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to Sept. 4, 1991, occasional measurement with chalked tape by USGS and Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 4.77 ft above NGVD of 1929. Measuring point: Top of casing, 1.6 ft above land-surface datum.

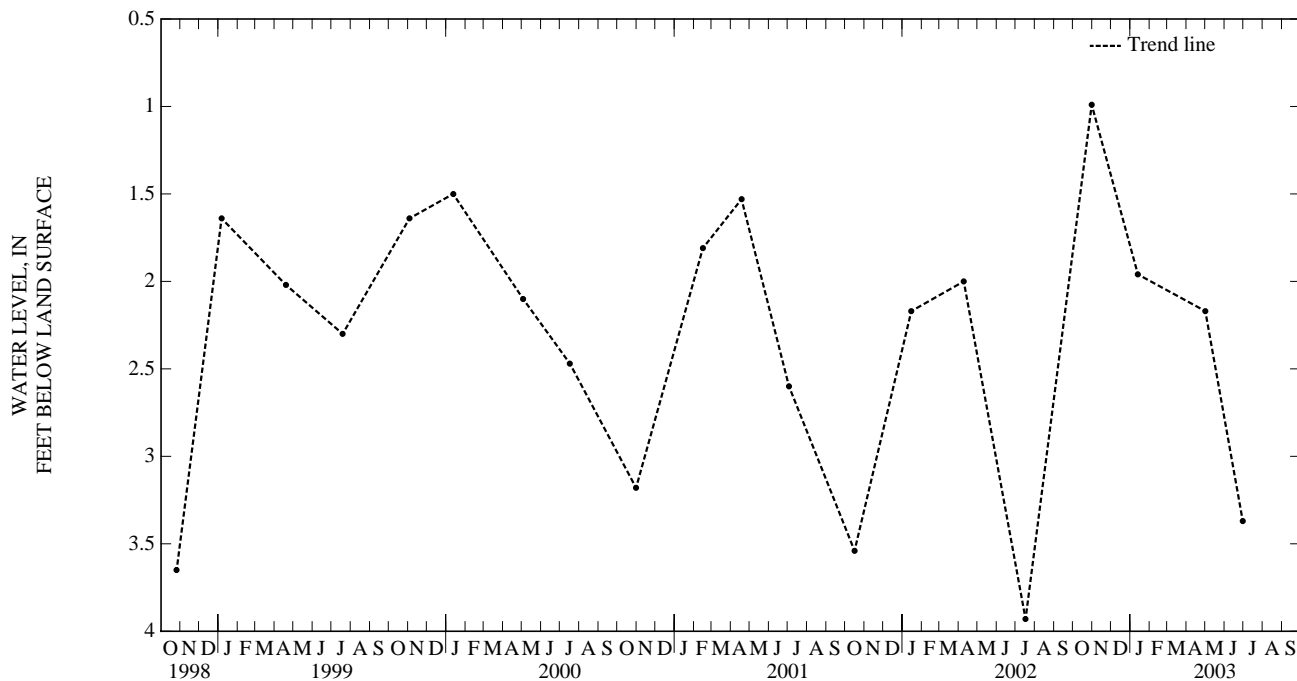
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division.

PERIOD OF RECORD.--September 1990 to current year. Unpublished records available in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.70 ft below land-surface datum, Apr. 29, 1997; lowest measured, 4.68 ft below land-surface datum, June 11, 1991.

#### WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	.99	JAN 13	1.96	MAY 01	2.17	JUN 30	3.37
WATER YEAR 2003 HIGHEST		.99	OCT 31, 2002	LOWEST	3.37	JUN 30, 2003	



## YORK COUNTY—Continued

371314076252203. Local number, 59F 99 SOW 190B.

LOCATION.--Lat 37°13'14", long 76°25'24", NAD83, Hydrologic Unit 02080107, 50 ft north of State Highway 629, 0.8 mi northeast of intersection of State Highways 173 and 629, and 1.8 mi north of Seaford. Owner: Virginia Department of Environmental Quality.

AQUIFER.--Columbia aquifer of Quaternary age.

WELL CHARACTERISTICS.--Drilled observation water well, diameter 4.5 in., depth 15 ft, screened 5 to 15 ft.

INSTRUMENTATION.--Occasional measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Sept. 4, 1991, to July 7, 1995, bimonthly measurement with chalked tape by Virginia Department of Environmental Quality - Water Division personnel. Prior to Sept. 4, 1991, occasional measurement with chalked tape by USGS and Virginia Department of Environmental Quality - Water Division personnel.

DATUM.--Elevation of land-surface datum is 3.49 ft above NGVD of 1929. Measuring point: Top of casing, 1.5 ft above land-surface datum.

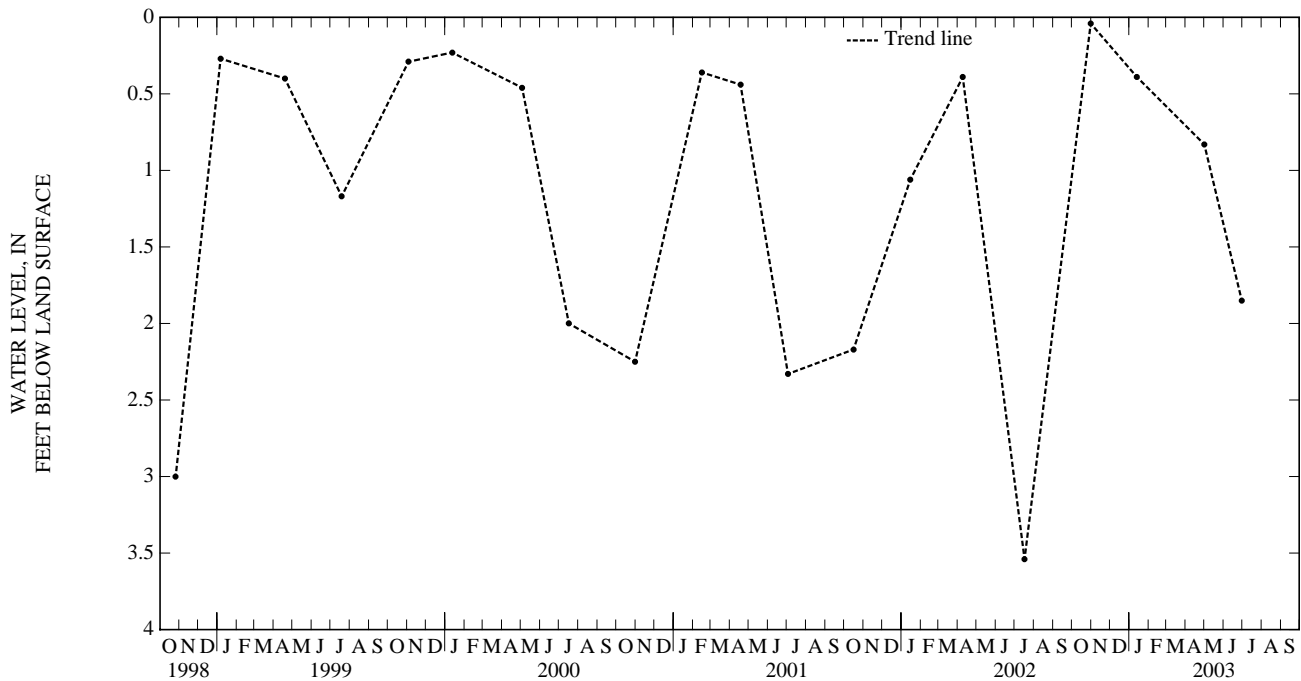
REMARKS.--Records provided by the Virginia Department of Environmental Quality - Water Division. Water from this well is known to contain concentrations of dissolved solids greater than 1,000 mg/L.

PERIOD OF RECORD.--September 1990 to current year. Unpublished records available in files of the Virginia Department of Environmental Quality - Water Division.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.04 ft below land-surface datum, Apr. 29, 1997, Feb. 15, 1994, Oct. 31, 2002; lowest measured, 3.62 ft below land-surface datum, June 11, 1991, Aug. 18, 1993.

## WATER LEVELS IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	.04	JAN 13	.39	MAY 01	.83	JUN 30	1.85
WATER YEAR 2003 HIGHEST		.04	OCT 31, 2002 LOWEST		1.85	JUN 30, 2003	



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## GROUND-WATER-QUALITY RECORDS

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

PRINTED OUTPUT	REMARK
E	Estimated value.
M	Constituent was detected but not quantified.
>	Actual value is known to be greater than the value shown.
<	Actual value is known to be less than the value shown.
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).
&	Biological organism estimated as dominant.
M	Constituent was detected but not quantified.

The following geologic unit codes or aquifer codes may appear with the water-quality data in this section:

CODE	GEOLOGIC UNIT/AQUIFER
000MMPS	METAMORPHOSED SEDIMENTARY ROCKS
000MPVS	METAMORPHOSED VOLCANIC AND SEDIMENTARY ROCKS
110QRNR	COLUMBIA AQUIFER
121CSPKU	YORKTOWN-EASTOVER AQUIFER
124EOCN	CHICKAHOMINY-PINEY POINT AQUIFER
125PLCN	AQUIA AQUIFER
211CRCSU	UPPER POTOMAC AQUIFER
217PPSC	MIDDLE POTOMAC AQUIFER
217PTXN	LOWER POTOMAC AQUIFER
231BLBF	BALLS BLUFF FORMATION
231MNSS	MANASSAS FORMATION
231VINT	VINTA FORMATION
231NWRK	NEWARK GROUP
324NRTN	NORTON FORMATION
324WISE	WISE FORMATION
327LEE	LEE FORMATION
330MSSP	MISSISSIPPIAN SYSTEM
331BLFD	BLUEFIELD FORMATION
340HRVL	HUNTERVILLE CHERT
341BRLR	BRALLIER FORMATION
341CMNG	CHEMUNG FORMATION
341MLBR	MILLBORO SHALE
347DVSL	DEVONIAN-SILURIAN SYSTEMS
361MRBG	MARTINSBURG SHALE
364EGLS	EGGLESTON FORMATION
364MCSN	MOCCASIN FORMATION
371ELBK	ELBROOK FORMATION
377ROME	ROME FORMATION
377SHDY	SHADY FORMATION
400GRGS	GRANITE GNEISS
400PCMB	PRECAMBRIAN ERATHEM



## QUALITY OF GROUND WATER

## DATA LISTED BY COUNTY

## MULTIPLE STATION ANALYSES

Local identifier	Station number	Geologic unit	Date	Time	Sample type	Depth of well, feet below LSD (72008)	Depth to bot sample intrval feet below LSD (72016)	Depth to top sample intrval feet below LSD (72015)	Depth to water level, feet below LSD (72019)
CAROLINE COUNTY									
51M 22	375729077254301	121CSPKU	04-21-03	1130	Environmental	13.4	13	11	5.01
51M 23	375729077254302	121CSPKU	04-21-03	1155	Environmental	11.5	11	9.2	4.83
51M 24	375729077254303	121CSPKU	04-21-03	1215	Environmental	7.5	7.5	2.7	4.74
50M 27	375806077322301	400PCMB	04-03-03	1030	Environmental	24.8	25	20	19.83
50M 26	375807077322101	400PCMB	04-03-03	1120	Environmental	9.1	8.9	6.9	2.79
50M 31	375807077322102	111SDMN	04-03-03	1135	Environmental	6.75	6.0	4.4	2.65
50M 32	375807077322103	111SDMN	04-03-03	1150	Environmental	4.30	3.5	1.9	1.98
50M 25	375808077322001	110QRNR	04-03-03	1245	Environmental	3.6	3.4	1.4	0.22
50M 21	375810077321901	400PCMB	04-03-03	1525	Environmental	10.1	9.9	7.9	4.74
50M 22	375810077321902	400PCMB	04-03-03	1540	Environmental	7.6	7.4	5.4	3.17
50M 14	375842077321301	400PCMB	04-16-03	1150	Environmental	47.5	47	42	4.89
		400PCMB	04-16-03	1155	Replicate	47.5	47	42	4.89
		400PCMB	04-16-03	1200	Replicate	47.5	47	42	4.89
50M 15	375842077321302	121CSPKU	04-16-03	1230	Environmental	27.0	27	25	4.79
51M28	375845077253701	121CSPKU	04-22-03	1000	Environmental	13.3	13	7.8	-0.11
		121CSPKU	04-22-03	1005	Replicate	13.3	13	7.8	-0.11
51M29	375845077253702	121CSPKU	04-22-03	1055	Environmental	4.4	3.9	2.3	0.43
51M30	375845077253703	121CSPKU	04-22-03	1030	Environmental	2.3	1.8	0.20	0.51
		121CSPKU	04-22-03	1035	Replicate	2.3	1.8	0.20	0.51
50M 13	375853077315903	121CSPKU	04-16-03	1010	Environmental	10.2	10	8.0	1.20
50M 9	375904077315401	400PCMB	04-15-03	1610	Environmental	10.35	10	9.2	2.89
50M 8	375908077314801	121CSPKU	04-15-03	1450	Environmental	8.5	8.3	6.0	-0.25
51M 21	385748077255801	121CSPKU	04-16-03	1420	Environmental	17.53	18	13	7.97
51M 20	385759077254501	121CSPKU	04-17-03	1000	Environmental	14.89	15	9.9	6.07
50M 7	385806077322501	400PCMB	04-03-03	0945	Environmental	46.28	46	41	23.73
50M 4	385812077321801	400PCMB	04-03-03	1400	Environmental	15.49	15	10	4.72
50M 18	385812077321802	400PCMB	04-03-03	1415	Environmental	14.7	14	12	4.59
50M 19	385812077321803	121CSPKU	04-03-03	1425	Environmental	11.5	11	9.3	4.34
50M 20	385812077321804	111SDMN	04-03-03	1455	Environmental	8.55	8.1	6.5	3.51
50M 2	385814077321401	400PCMB	04-15-03	1004	Environmental	39.94	40	35	9.45
50M 3	385814077321402	121CSPKU	04-15-03	1050	Environmental	25.14	25	20	6.30
50M 16	385814077321403	121CSPKU	04-15-03	1120	Environmental	16.2	16	11	3.43
50M 17	385814077321404	121CSPKU	04-15-03	1140	Environmental	10.5	10	4.7	3.23
51M 17	385819077254501	121CSPKU	04-21-03	1555	Environmental	13.98	14	9.0	6.45
51M 15	385832077253501	121CSPKU	04-21-03	1350	Environmental	25.29	25	20	13.16
CLARKE COUNTY									
46WS 1	390405078014201	371CCCG	08-13-03	0930	Environmental	--	--	--	--
46WS 22	390457078033801	367BKMN	08-13-03	1520	Environmental	--	--	--	--
46WS 3	390519078023701	371CCCG	08-13-03	1150	Environmental	--	--	--	--
46WS 2	390653078041401	367BKMN	08-20-03	1555	Environmental	--	--	--	--
46XS 8	391029078012701	367BKMN	08-13-03	1755	Environmental	--	--	--	--
FREDERICK COUNTY									
FAY SPRING	01616075	364EDBG	08-11-03	1450	Environmental	--	--	--	--
VAUCLUSE									
SPRING	01635070	367BKMN	08-12-03	1830	Environmental	--	--	--	--
44W 8	390226078170601	367BKMN	08-15-03	1045	Environmental	155	--	--	--
45Y 5	391757078095402	361MRBG	08-12-03	1415	Environmental	200	--	--	--
GLOUCESTER COUNTY									
57H 22	372621076404203	125PLCN	02-11-03	1040	Environmental	370	370	350	88.25
JAMES CITY COUNTY									
56GS 3	371524076480801	110QRNR	05-13-03	1345	Environmental	--	--	--	--
56H 40	372313076480602	211CRCSU	01-30-03	1615	Environmental	490	480	400	187.00
56H 28 SOW 177D	372506076511704	125PLCN	02-14-03	1040	Environmental	321	300	290	179.49

QUALITY OF GROUND WATER  
DATA LISTED BY COUNTY—Continued

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MULTIPLE STATION ANALYSES

Local identifier	Date	Altitude of land surface feet (72000)	Flow rate, instantaneous gal/min (00059)	Pump or flow period prior to sampling, minutes (72004)	Sampling depth, feet (00003)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfiltered uS/cm 25 degC (00095)	Temperature, air, deg C (00020)
CAROLINE COUNTY											
51M 22	04-21-03	110	--	--	--	755	3.9	38	5.0	218	--
51M 23	04-21-03	110	--	--	--	755	6.2	60	4.5	239	--
51M 24	04-21-03	110	--	--	--	754	5.2	51	5.4	328	--
50M 27	04-03-03	240	--	--	--	749	8.3	82	4.8	125	--
50M 26	04-03-03	215	--	--	--	749	5.7	51	4.8	76	--
50M 31	04-03-03	215	--	--	--	749	1.2	11	4.6	83	--
50M 32	04-03-03	215	--	--	--	749	7.3	65	6.2	51	--
50M 25	04-03-03	210	--	--	--	749	5.5	49	--	70	--
50M 21	04-03-03	220	--	--	--	749	4.1	36	--	45	--
50M 22	04-03-03	220	--	--	--	749	0.7	6	--	33	--
50M 14	04-16-03	265	--	--	--	--	7.3	--	5.5	36	--
	04-16-03	265	--	--	--	--	7.3	--	5.5	36	--
	04-16-03	265	--	--	--	--	7.3	--	5.5	36	--
50M 15	04-16-03	265	--	--	--	--	7.6	--	4.2	23	--
51M28	04-22-03	175	--	--	--	747	1.7	16	4.6	231	--
	04-22-03	175	--	--	--	747	1.7	16	4.6	231	--
51M29	04-22-03	175	--	--	--	746	1.7	17	5.5	224	--
51M30	04-22-03	175	--	--	--	747	3.9	42	6.2	234	--
	04-22-03	175	--	--	--	747	3.9	42	6.2	234	--
50M 13	04-16-03	240	--	--	--	--	5.4	--	5.6	18	--
50M 9	04-15-03	215	--	--	--	--	<0.3	--	5.4	324	--
50M 8	04-15-03	200	--	--	--	--	M	--	6.5	455	--
51M 21	04-16-03	185	--	--	--	--	3.9	--	4.8	75	--
51M 20	04-17-03	115	--	--	--	--	2.9	--	4.8	314	--
50M 7	04-03-03	240	--	--	--	749	0.5	5	6.3	66	--
50M 4	04-03-03	235	--	--	--	749	6.7	62	--	43	--
50M 18	04-03-03	235	--	--	--	749	6.0	55	--	63	--
50M 19	04-03-03	235	--	--	--	749	6.1	53	--	46	--
50M 20	04-03-03	235	--	--	--	749	3.0	26	--	70	--
50M 2	04-15-03	250	--	--	--	--	2.2	--	6.1	52	--
50M 3	04-15-03	250	--	--	--	--	3.9	--	5.2	52	--
50M 16	04-15-03	250	--	--	--	--	4.2	--	4.6	49	--
50M 17	04-15-03	250	--	--	--	--	4.0	--	4.0	46	--
51M 17	04-21-03	130	--	--	--	750	3.5	33	6.0	158	--
51M 15	04-21-03	190	--	--	--	--	5.4	--	4.3	73	--
CLARKE COUNTY											
46WS 1	08-13-03	470	--	--	--	--	7.8	--	6.8	569	--
46WS 22	08-13-03	535	--	--	--	--	2.6	--	6.8	604	--
46WS 3	08-13-03	510	--	--	--	--	6.2	--	6.7	563	--
46WS 2	08-20-03	608	--	--	--	--	0.9	--	6.3	533	--
46XS 8	08-13-03	580	--	--	--	--	5.2	--	6.7	659	--
FREDERICK COUNTY											
FAY SPRING	08-11-03	--	--	--	--	--	6.5	--	6.9	694	--
VAUCLUSE	08-12-03	--	--	--	--	--	6.5	--	6.8	546	--
SPRING	08-15-03	735	--	--	--	--	5.8	--	6.8	720	--
44W 8	08-12-03	770	--	--	--	--	0.3	--	7.0	840	--
45Y 5	08-12-03	770	--	--	--	--	0.3	--	7.0	840	--
GLOUCESTER COUNTY											
57H 22	02-11-03	6	2.9	105	110	757	1.0	10	8.8	821	4.1
JAMES CITY COUNTY											
56GS 3	05-13-03	45	--	--	--	765	1.5	15	6.9	348	--
56H 40	01-30-03	105	3.4	250	190	762	0.4	4	7.9	829	1.3
56H 28 SOW 177D	02-14-03	103	2.8	107	220	759	1.7	18	7.9	580	3.5

QUALITY OF GROUND WATER  
DATA LISTED BY COUNTY—Continued

MULTIPLE STATION ANALYSES

Local identifier	Date	Temperature, water, deg C (00010)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)	Bromide water, fltrd, mg/L (71870)	Chloride, water, fltrd, mg/L (00940)
CAROLINE COUNTY											
51M 22	04-21-03	13.7	--	--	--	--	--	--	--	--	--
51M 23	04-21-03	14.0	--	--	--	--	--	--	--	--	--
51M 24	04-21-03	14.4	--	--	--	--	--	--	--	--	--
50M 27	04-03-03	14.0	--	--	--	--	--	--	--	--	--
50M 26	04-03-03	9.9	--	--	--	--	--	--	--	--	--
50M 31	04-03-03	9.2	--	--	--	--	--	--	--	--	--
50M 32	04-03-03	9.3	--	--	--	--	--	--	--	--	--
50M 25	04-03-03	9.4	--	--	--	--	--	--	--	--	--
50M 21	04-03-03	9.3	--	--	--	--	--	--	--	--	--
50M 22	04-03-03	8.5	--	--	--	--	--	--	--	--	--
50M 14	04-16-03	17.5	--	--	--	--	--	--	--	--	--
	04-16-03	17.5	--	--	--	--	--	--	--	--	--
	04-16-03	17.5	--	--	--	--	--	--	--	--	--
50M 15	04-16-03	17.5	--	--	--	--	--	--	--	--	--
51M28	04-22-03	12.0	--	--	--	--	--	--	--	--	--
	04-22-03	12.0	--	--	--	--	--	--	--	--	--
51M29	04-22-03	13.2	--	--	--	--	--	--	--	--	--
51M30	04-22-03	17.5	--	--	--	--	--	--	--	--	--
	04-22-03	17.5	--	--	--	--	--	--	--	--	--
50M 13	04-16-03	14.6	--	--	--	--	--	--	--	--	--
50M 9	04-15-03	17.0	--	--	--	--	--	--	--	--	--
50M 8	04-15-03	15.6	--	--	--	--	--	--	--	--	--
51M 21	04-16-03	14.2	--	--	--	--	--	--	--	--	--
51M 20	04-17-03	12.5	--	--	--	--	--	--	--	--	--
50M 7	04-03-03	14.6	--	--	--	--	--	--	--	--	--
50M 4	04-03-03	11.1	--	--	--	--	--	--	--	--	--
50M 18	04-03-03	10.7	--	--	--	--	--	--	--	--	--
50M 19	04-03-03	8.8	--	--	--	--	--	--	--	--	--
50M 20	04-03-03	8.3	--	--	--	--	--	--	--	--	--
50M 2	04-15-03	15.5	--	--	--	--	--	--	--	--	--
50M 3	04-15-03	16.8	--	--	--	--	--	--	--	--	--
50M 16	04-15-03	13.0	--	--	--	--	--	--	--	--	--
50M 17	04-15-03	13.3	--	--	--	--	--	--	--	--	--
51M 17	04-21-03	12.0	--	--	--	--	--	--	--	--	--
51M 15	04-21-03	13.8	--	--	--	--	--	--	--	--	--
CLARKE COUNTY											
46WS 1	08-13-03	13.0	--	--	--	--	--	--	--	--	--
46WS 22	08-13-03	12.3	--	--	--	--	--	--	--	--	--
46WS 3	08-13-03	12.2	--	--	--	--	--	--	--	--	--
46WS 2	08-20-03	13.6	--	--	--	--	--	--	--	--	--
46XS 8	08-13-03	12.5	--	--	--	--	--	--	--	--	--
FREDERICK COUNTY											
FAY SPRING	08-11-03	13.0	--	--	--	--	--	--	--	--	--
VAUCLUSE	08-12-03	12.8	--	--	--	--	--	--	--	--	--
SPRING	08-15-03	14.6	--	--	--	--	--	--	--	--	--
44W 8	08-12-03	13.4	--	--	--	--	--	--	--	--	--
45Y 5											
GLOUCESTER COUNTY											
57H 22	02-11-03	18.1	1.63	0.530	7.04	206	515	607	10	0.03	6.71
JAMES CITY COUNTY											
56GS 3	05-13-03	14.9	68.0	1.06	0.94	3.55	162	198	<1	0.03	8.48
56H 40	01-30-03	18.7	3.74	1.24	7.83	202	384	465	1	0.19	46.2
56H 28 SOW 177D	02-14-03	18.4	9.37	3.00	10.2	118	314	381	<1	0.06	11.4

## DATA LISTED BY COUNTY—Continued

## MULTIPLE STATION ANALYSES

Local identifier	Date	Fluor- ide, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Sulfide water, unfltrd field, mg/L (99119)	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)	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)
CAROLINE COUNTY											
51M 22	04-21-03	--	--	--	--	--	E.09	<0.015	6.53	<0.002	<0.007
51M 23	04-21-03	--	--	--	--	--	E.09	<0.015	10.9	<0.002	<0.007
51M 24	04-21-03	--	--	--	--	--	0.12	<0.015	17.1	<0.002	<0.007
50M 27	04-03-03	--	--	--	--	--	<0.10	<0.015	7.51	<0.002	0.009
50M 26	04-03-03	--	--	--	--	--	<0.10	<0.015	3.80	<0.002	<0.007
50M 31	04-03-03	--	--	--	--	--	E.09	<0.015	2.45	<0.002	<0.007
50M 32	04-03-03	--	--	--	--	--	0.22	0.038	E.015	<0.002	<0.007
50M 25	04-03-03	--	--	--	--	--	E.06	E.013	2.45	<0.002	<0.007
50M 21	04-03-03	--	--	--	--	--	E.09	E.009	<0.022	<0.002	<0.007
50M 22	04-03-03	--	--	--	--	--	E.09	E.011	<0.022	<0.002	<0.007
50M 14	04-16-03	--	--	--	--	--	<0.10	<0.015	0.295	<0.002	<0.007
	04-16-03	--	--	--	--	--	<0.10	<0.015	0.288	<0.002	<0.007
	04-16-03	--	--	--	--	--	<0.10	<0.015	0.30	<0.002	<0.007
50M 15	04-16-03	--	--	--	--	--	<0.10	<0.015	0.672	<0.002	<0.007
51M28	04-22-03	--	--	--	--	--	E.08	<0.015	16.8	<0.002	<0.007
	04-22-03	--	--	--	--	--	E.09	<0.015	17.0	<0.002	<0.007
51M29	04-22-03	--	--	--	--	--	0.22	E.009	16.4	E.002	<0.007
51M30	04-22-03	--	--	--	--	--	0.23	E.010	16.0	<0.002	<0.007
	04-22-03	--	--	--	--	--	0.19	E.008	15.1	<0.002	<0.007
50M 13	04-16-03	--	--	--	--	--	<0.10	<0.015	0.090	<0.002	<0.007
50M 9	04-15-03	--	--	--	--	--	1.3	1.29	E.015	<0.002	<0.007
50M 8	04-15-03	--	--	--	--	--	9.9	8.17	E.019	<0.002	<0.007
51M 21	04-16-03	--	--	--	--	--	E.06	<0.015	<0.022	<0.002	<0.007
51M 20	04-17-03	--	--	--	--	--	0.14	0.021	7.00	0.006	<0.007
50M 7	04-03-03	--	--	--	--	--	E.06	E.008	0.096	<0.002	0.036
50M 4	04-03-03	--	--	--	--	--	<0.10	<0.015	3.40	<0.002	<0.007
50M 18	04-03-03	--	--	--	--	--	<0.10	<0.015	2.29	<0.002	<0.007
50M 19	04-03-03	--	--	--	--	--	<0.10	<0.015	2.85	<0.002	<0.007
50M 20	04-03-03	--	--	--	--	--	0.17	0.034	<0.06	<0.002	<0.007
50M 2	04-15-03	--	--	--	--	--	E.06	<0.015	0.317	<0.002	<0.007
50M 3	04-15-03	--	--	--	--	--	<0.10	<0.015	2.82	<0.002	<0.007
50M 16	04-15-03	--	--	--	--	--	<0.10	<0.015	3.24	<0.002	<0.007
50M 17	04-15-03	--	--	--	--	--	<0.10	<0.015	2.88	<0.002	<0.007
51M 17	04-21-03	--	--	--	--	--	0.17	E.009	8.83	<0.002	<0.007
51M 15	04-21-03	--	--	--	--	--	<0.10	<0.015	2.62	<0.002	<0.007
CLARKE COUNTY											
46WS 1	08-13-03	--	--	--	--	--	--	--	--	--	--
46WS 22	08-13-03	--	--	--	--	--	--	--	--	--	--
46WS 3	08-13-03	--	--	--	--	--	--	--	--	--	--
46WS 2	08-20-03	--	--	--	--	--	--	--	--	--	--
46XS 8	08-13-03	--	--	--	--	--	--	--	--	--	--
FREDERICK COUNTY											
FAY SPRING	08-11-03	--	--	--	--	--	--	--	--	--	--
VAUCLUSE	08-12-03	--	--	--	--	--	--	--	--	--	--
SPRING	08-15-03	--	--	--	--	--	--	--	--	--	--
44W 8	08-12-03	--	--	--	--	--	--	--	--	--	--
45Y 5	08-12-03	--	--	--	--	--	--	--	--	--	--
GLOUCESTER COUNTY											
57H 22	02-11-03	2.90	15.6	6.5	0.020	543	--	--	--	--	--
JAMES CITY COUNTY											
56GS 3	05-13-03	<0.17	13.0	9.3	--	211	<0.10	E.011	1.23	E.002	0.200
56H 40	01-30-03	2.13	26.7	27.3	0.010	532	--	--	--	--	--
56H 28 SOW 177D	02-14-03	1.62	21.1	10.1	<0.005	371	--	--	--	--	--

QUALITY OF GROUND WATER  
DATA LISTED BY COUNTY—Continued

MULTIPLE STATION ANALYSES

Local identifier	Date	Phos- phorus, water, fltrd, mg/L (00666)	Iron, water, fltrd, ug/L (01046)	Mangan- ese, water, fltrd, ug/L (01056)	Tritium 2-sigma water unfltrd pCi/L (75985)	Tritium water unfltrd pCi/L (07000)
CAROLINE COUNTY						
51M 22	04-21-03	E.003	--	--	--	--
51M 23	04-21-03	E.003	--	--	--	--
51M 24	04-21-03	0.006	--	--	--	--
50M 27	04-03-03	0.010	--	--	--	--
50M 26	04-03-03	<0.004	--	--	--	--
50M 31	04-03-03	<0.004	--	--	--	--
50M 32	04-03-03	E.003	--	--	--	--
50M 25	04-03-03	<0.004	--	--	--	--
50M 21	04-03-03	E.003	--	--	--	--
50M 22	04-03-03	<0.004	--	--	--	--
50M 14	04-16-03	E.004	--	--	--	--
	04-16-03	E.003	--	--	--	--
	04-16-03	E.004	--	--	--	--
50M 15	04-16-03	<0.004	--	--	--	--
51M28	04-22-03	<0.004	--	--	--	--
	04-22-03	<0.004	--	--	--	--
51M29	04-22-03	E.004	--	--	--	--
51M30	04-22-03	E.003	--	--	--	--
	04-22-03	E.003	--	--	--	--
50M 13	04-16-03	<0.004	--	--	--	--
50M 9	04-15-03	<0.004	--	--	--	--
50M 8	04-15-03	0.025	--	--	--	--
51M 21	04-16-03	E.003	--	--	--	--
51M 20	04-17-03	E.002	--	--	--	--
50M 7	04-03-03	0.037	--	--	--	--
50M 4	04-03-03	<0.004	--	--	--	--
50M 18	04-03-03	<0.004	--	--	--	--
50M 19	04-03-03	<0.004	--	--	--	--
50M 20	04-03-03	<0.004	--	--	--	--
50M 2	04-15-03	0.006	--	--	--	--
50M 3	04-15-03	E.002	--	--	--	--
50M 16	04-15-03	E.002	--	--	--	--
50M 17	04-15-03	<0.004	--	--	--	--
51M 17	04-21-03	E.003	--	--	--	--
51M 15	04-21-03	<0.004	--	--	--	--
CLARKE COUNTY						
46WS 1	08-13-03	--	--	--	1.6	24
46WS 22	08-13-03	--	--	--	1.3	23
46WS 3	08-13-03	--	--	--	1.6	26
46WS 2	08-20-03	--	--	--	1.6	26
46XS 8	08-13-03	--	--	--	1.6	24
FREDERICK COUNTY						
FAY SPRING	08-11-03	--	--	--	1.6	25
VAUCLUSE						
SPRING	08-12-03	--	--	--	1.6	24
44W 8	08-15-03	--	--	--	1.6	28
45Y 5	08-12-03	--	--	--	1.9	29
GLOUCESTER COUNTY						
57H 22	02-11-03	--	39	2.4	--	--
JAMES CITY COUNTY						
56GS 3	05-13-03	0.20	<10	<2.0	--	--
56H 40	01-30-03	--	34	8.5	--	--
56H 28 SOW 177D	02-14-03	--	25	12.4	--	--

## DATA LISTED BY COUNTY—Continued

## MULTIPLE STATION ANALYSES

Local identifier	Station number	Geologic unit	Date	Time	Sample type	Depth of well, feet below LSD (72008)	Depth to bot sample intrval feet below LSD (72016)	Depth to top sample intrval feet below LSD (72015)	Depth to water level, feet below LSD (72019)
KING WILLIAM COUNTY									
56J 13	373317076490401	217PTXN	02-13-03	1130	Environmental	1,280	1,280	938	--
55J 17	373523076523403	211CRCSU	03-05-03	0915	Environmental	495	490	470	217.10
WARREN COUNTY									
46VS 1	385338078063901	400CTCN	08-14-03	1440	Environmental	--	--	--	--
46V 1	385341078063301	400CTCN	08-14-03	1700	Environmental	--	--	--	--
45VS 2	385843078110701	364LCLR	08-21-03	1140	Environmental	--	--	--	--
45VS 1	385937078082901	367BKMN	08-14-03	1030	Environmental	--	--	--	--
CITY OF CHESAPEAKE									
61B 2 SOW 091A	364227076074701	121CSPKU	08-20-03	1620	Environmental	97.0	97	92	8.60
61B 7 SOW 091D	364227076074704	110QRNR	08-20-03	1515	Environmental	22.0	22	17	2.72
CITY OF NEWPORT NEWS									
58F 7	370908076343501	211CRCSU	05-02-03	1130	Environmental	543	543	493	115.00
CITY OF SUFFOLK									
57C 22 SOW 099B	364703076383702	217PPSC	08-27-03	1145	Environmental	694	694	684	171.13
57C 23 SOW 099C	364703076383703	211CRCSU	06-11-03	1520	Environmental	478	478	468	171.20
CITY OF VIRGINIA BEACH									
62B 18	364126076013401	121CSPKU	08-26-03	1250	Environmental	135	130	120	6.13
62B 22	364325076011501	121CSPKU	08-25-03	1505	Environmental	135	130	120	10.71
		121CSPKU	08-25-03	1520	Replicate	135	130	120	10.71
62C 2 SOW 092A	364713076030701	121CSPKU	08-21-03	1330	Environmental	102	102	97	13.46
62C 3 SOW 092B	364715076030801	121CSPKU	08-21-03	1500	Environmental	58	58	53	7.60
62C 9 SOW 172A	364745076004301	121CSPKU	08-19-03	1040	Environmental	170	165	155	10.32
62C 10 SOW 172B	364745076004302	121CSPKU	08-19-03	1250	Environmental	280	280	270	13.80
62C 11 SOW 172C	364745076004303	--	08-20-03	0920	Blank	--	--	--	--
		110QRNR	08-20-03	0925	Environmental	--	30	20	21.40
62C 22	364746076004301	121CSPKU	08-19-03	1510	Environmental	145	140	130	12.45
CITY OF WINCHESTER									
OLD TOWN SPRING	01615515	371CCCG	08-12-03	1000	Environmental	--	--	--	--

QUALITY OF GROUND WATER  
DATA LISTED BY COUNTY—Continued

MULTIPLE STATION ANALYSES

Local identifier	Date	Altitude of land surface feet (72000)	Flow rate, instantaneous gal/min (00059)	Pump or flow period prior to sampling, minutes (72004)	Sampling depth, feet (00003)	Turbidity, water, unfltrd field, NTU (61028)	Barometric pressure, mm Hg (00025)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf uS/cm 25 degC (00095)
KING WILLIAM COUNTY											
56J 13	02-13-03	27	1,500	--	--	--	759	0.3	3	7.9	1,440
55J 17	03-05-03	90	34.0	43	--	--	752	--	--	8.1	440
WARREN COUNTY											
46VS 1	08-14-03	1,790	--	--	--	--	--	10.0	--	5.6	60
46V 1	08-14-03	1,790	--	--	--	--	--	11.0	--	7.1	120
45VS 2	08-21-03	500	--	--	--	--	--	5.0	--	6.3	560
45VS 1	08-14-03	550	--	--	--	--	--	4.3	--	6.8	450
CITY OF CHESAPEAKE											
61B 2 SOW 091A	08-20-03	15	4.1	45	50.0	--	--	2.1	23	7.4	1,690
61B 7 SOW 091D	08-20-03	15	2.7	40	19.0	--	--	0.5	5	5.9	325
CITY OF NEWPORT NEWS											
58F 7	05-02-03	31	480	1,640	210	--	755	0.3	3	7.8	2,100
CITY OF SUFFOLK											
57C 22 SOW 099B	08-27-03	72	3.5	329	175	--	759	1.8	20	8.1	730
57C 23 SOW 099C	06-11-03	72	4.5	140	190	--	759	0.1	1	8.0	640
CITY OF VIRGINIA BEACH											
62B 18	08-26-03	10	0.80	--	48.0	--	762	1.9	21	8.2	946
62B 22	08-25-03	10	4.1	50	48.0	--	763	0.5	6	7.9	355
	08-25-03	10	4.1	50	48.0	--	763	0.5	6	7.9	355
62C 2 SOW 092A	08-21-03	14	4.0	80	49.0	--	--	0.8	8	7.3	690
62C 3 SOW 092B	08-21-03	14	2.7	73	47.0	35	--	0.2	2	6.4	225
62C 9 SOW 172A	08-19-03	17	5.4	55	50.0	--	766	0.5	6	7.8	427
62C 10 SOW 172B	08-19-03	17	3.7	70	60.0	--	766	5.8	62	7.6	5,190
62C 11 SOW 172C	08-20-03	19	--	--	--	--	--	--	--	--	--
	08-20-03	19	2.6	35	28.0	--	--	0.2	2	6.8	252
62C 22	08-19-03	17	4.1	43	50.0	--	766	0.2	3	7.6	428
CITY OF WINCHESTER											
OLD TOWN SPRING	08-12-03	--	--	--	--	--	--	6.2	--	6.8	690

DATA LISTED BY COUNTY—Continued

MULTIPLE STATION ANALYSES

Local identifier	Date	Temper- ature, air, deg C (00020)	Temper- ature, water, deg C (00010)	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)	Alka- linity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicar- bonate, wat flt incrm. titr., field, mg/L (00453)	Carbon- ate, wat flt incrm. titr., field, mg/L (00452)	Bromide water, fltrd, mg/L (71870)
KING WILLIAM COUNTY											
56J 13	02-13-03	7.4	24.8	2.48	0.510	3.55	324	591	712	4	0.46
55J 17	03-05-03	14.1	18.9	0.62	0.169	3.09	114	252	304	2	0.03
WARREN COUNTY											
46VS 1	08-14-03	--	10.4	--	--	--	--	--	--	--	--
46V 1	08-14-03	--	11.2	--	--	--	--	--	--	--	--
45VS 2	08-21-03	--	13.3	--	--	--	--	--	--	--	--
45VS 1	08-14-03	--	13.7	--	--	--	--	--	--	--	--
CITY OF CHESAPEAKE											
61B 2 SOW 091A	08-20-03	--	18.2	57.4	26.3	22.8	210	271	331	<1	1.14
61B 7 SOW 091D	08-20-03	--	18.7	11.5	10.4	1.38	17.9	74	90	<1	0.15
CITY OF NEWPORT NEWS											
58F 7	05-02-03	24.0	20.6	3.82	1.80	12.4	431	373	448	3	1.58
CITY OF SUFFOLK											
57C 22 SOW 099B	08-27-03	33.3	21.0	2.72	1.64	8.15	167	379	462	<1	0.06
57C 23 SOW 099C	06-11-03	32.0	19.6	1.06	0.310	5.88	150	338	405	4	0.04
CITY OF VIRGINIA BEACH											
62B 18	08-26-03	--	19.7	12.0	8.86	19.1	163	278	339	<1	0.43
62B 22	08-25-03	--	17.5	47.4	5.06	1.03	12.9	97	E119	<1	0.11
	08-25-03	--	17.5	47.1	5.02	0.97	12.7	97	E119	<1	0.11
62C 2 SOW 092A	08-21-03	--	17.6	81.0	15.9	9.26	33.6	284	347	<1	0.14
62C 3 SOW 092B	08-21-03	--	17.3	6.74	4.93	1.09	23.0	59	E71	<1	0.25
62C 9 SOW 172A	08-19-03	--	17.4	55.3	6.81	5.49	17.9	178	217	<1	0.05
62C 10 SOW 172B	08-19-03	--	17.8	44.5	63.2	37.5	892	349	426	<1	4.80
62C 11 SOW 172C	08-20-03	--	--	1.30	0.126	E.13	0.39	--	--	--	0.06
	08-20-03	--	17.2	26.9	4.47	1.36	13.3	102	124	<1	0.19
62C 22	08-19-03	--	17.5	58.0	5.44	4.73	16.7	183	223	<1	0.04
CITY OF WINCHESTER											
OLD TOWN SPRING	08-12-03	--	13.4	--	--	--	--	--	--	--	--



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[illegible]

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# CONVERSION FACTORS

Multiply	By	To obtain
<b>Length</b>		
inch (in.)	$2.54 \times 10^1$	millimeter
	$2.54 \times 10^{-2}$	meter
foot (ft)	$3.048 \times 10^{-1}$	meter
mile (mi)	$1.609 \times 10^0$	kilometer
<b>Area</b>		
acre	$4.047 \times 10^3$	square meter
	$4.047 \times 10^{-1}$	square hectometer
	$4.047 \times 10^{-3}$	square kilometer
square mile (mi <sup>2</sup> )	$2.590 \times 10^0$	square kilometer
<b>Volume</b>		
gallon (gal)	$3.785 \times 10^0$	liter
	$3.785 \times 10^0$	cubic decimeter
	$3.785 \times 10^{-3}$	cubic meter
million gallons (Mgal)	$3.785 \times 10^3$	cubic meter
	$3.785 \times 10^{-3}$	cubic hectometer
cubic foot (ft <sup>3</sup> )	$2.832 \times 10^1$	cubic decimeter
	$2.832 \times 10^{-2}$	cubic meter
cubic-foot-per-second day [(ft <sup>3</sup> /s) d]	$2.447 \times 10^3$	cubic meter
	$2.447 \times 10^{-3}$	cubic hectometer
acre-foot (acre-ft)	$1.233 \times 10^3$	cubic meter
	$1.233 \times 10^{-3}$	cubic hectometer
	$1.233 \times 10^{-6}$	cubic kilometer
<b>Flow</b>		
cubic foot per second (ft <sup>3</sup> /s)	$2.832 \times 10^1$	liter per second
	$2.832 \times 10^1$	cubic decimeter per second
	$2.832 \times 10^{-2}$	cubic meter per second
gallon per minute (gal/min)	$6.309 \times 10^{-2}$	liter per second
	$6.309 \times 10^{-2}$	cubic decimeter per second
	$6.309 \times 10^{-5}$	cubic meter per second
million gallons per day (Mgal/d)	$4.381 \times 10^1$	cubic decimeter per second
	$4.381 \times 10^{-2}$	cubic meter per second
<b>Mass</b>		
ton (short)	$9.072 \times 10^{-1}$	megagram or metric ton

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$^{\circ}\text{F} = (1.8 \times ^{\circ}\text{C}) + 32$$