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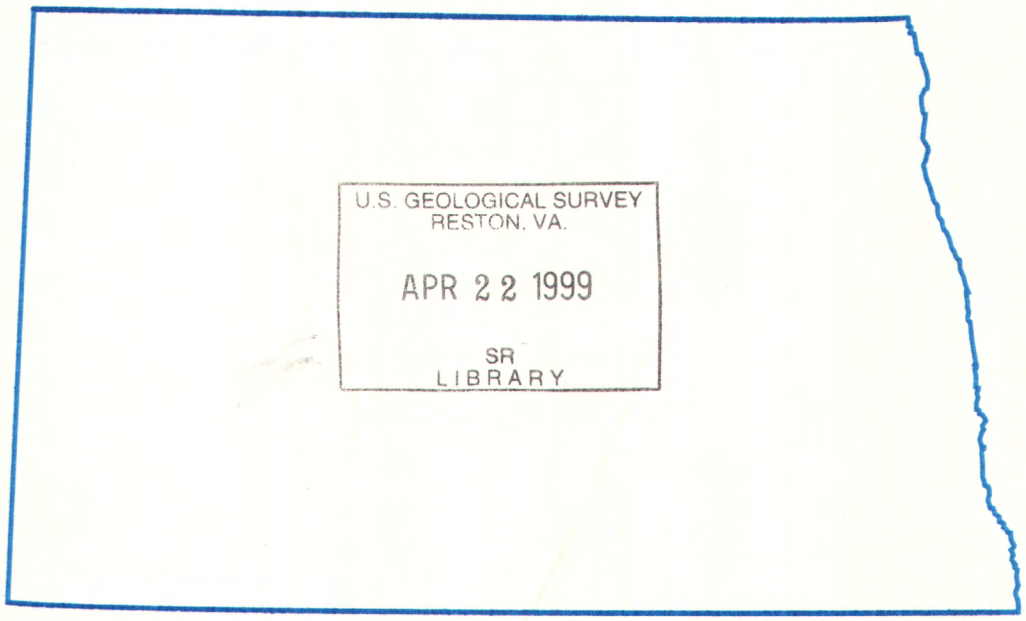
Water Resources Data North Dakota Water Year 1998

Volume 2. Ground Water

Water-Data Report ND-98-2



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

Prepared in cooperation with the
State of North Dakota
and with other agencies

CALENDAR FOR WATER YEAR 1998

1997

OCTOBER

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1998

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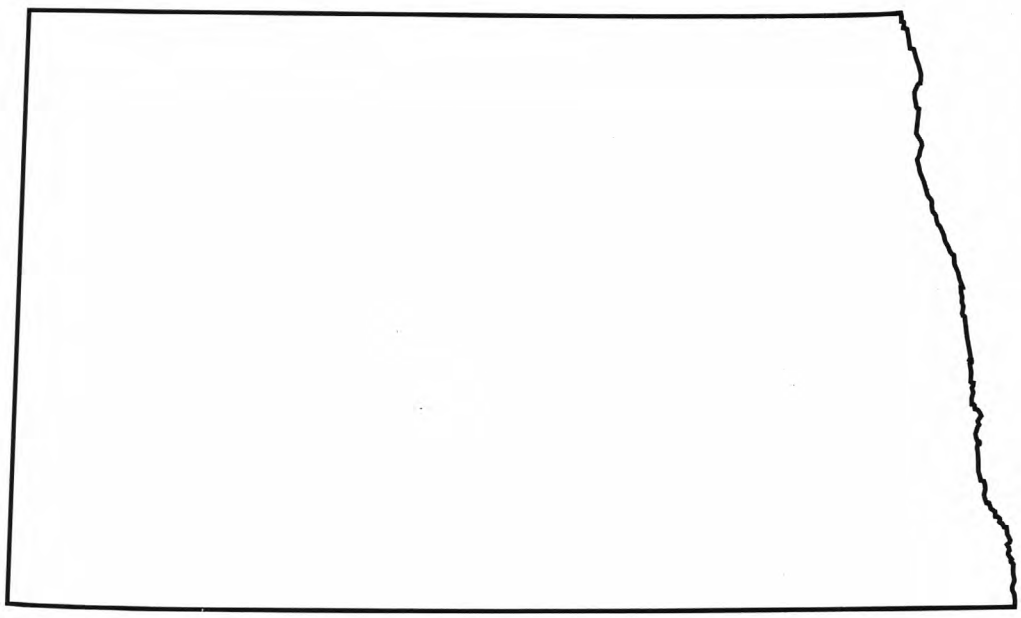
U.S. Department of the Interior
U.S. Geological Survey

Water Resources Data North Dakota Water Year 1998

Volume 2. Ground Water

By R.E. Harkness and J.D. Wald

Water-Data Report ND-98-2



Prepared in cooperation with the
State of North Dakota and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY

CHARLES G. GROAT, Director

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Bismarck, North Dakota 58501-1199

1999

PREFACE

This edition of the annual hydrologic data report of North Dakota is one of a series of annual reports that document hydrologic data collected from the U.S. Geological Survey's collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by Federal, State, local agencies, and the private sector for developing and managing land and water resources in North Dakota. The records are contained in 2 volumes:

Volume 1. Surface-Water Data

Volume 2. Ground-Water Data

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

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This report was prepared in cooperation with the State of North Dakota and with other agencies under the supervision of Gregg J. Wiche, District Chief, North Dakota.

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Water-resources data for the 1998 water year for North Dakota consists of records of discharge, stage, and water quality for streams; contents, stage, and water quality for lakes and reservoirs; and water levels and water quality for ground-water wells. Volume 2 contains water-level records for 134 ground-water wells and water-quality records for 28 monitoring wells. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating Federal, State, and local agencies in North Dakota.

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INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with many other agencies, obtains a large amount of data pertaining to the water resources of North Dakota 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 U.S. Geological Survey, the data will be published annually in this report series entitled "Water Resources Data - North Dakota."

This report includes records on ground water in North Dakota. Specifically, it contains water-level records for 134 wells and water-quality records for 28 wells. Locations of the ground-water wells are shown in figure 1. Additional ground-water information for North Dakota is contained in the files, data bases, and other published reports of the U.S. Geological Survey.

This series of annual reports for North Dakota began with the 1961 water year 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. For the 1975-95 water years, 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 1996 water year, ground-water levels and ground-water quality data will be published in a separate volume for North Dakota.

Prior to introduction of this series and for several water years concurrent with it, water resources data for North Dakota were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 5 and 6." For the 1961-70 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941-70 water years were published annually under the title "Quality of Surface Waters of the United States," and ground-water levels for the 1935-74 water years were published under the title "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers are in libraries of the principal cities of the United States and may be purchased from U.S. Geological Survey, Branch of Information Services, Box 25286, Denver, CO 80225-0286.

Publications similar to this report are published annually by the U.S. Geological Survey for all States. These official U.S. Geological 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 ND-98-2." For archiving and general distribution, the reports for the 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or may be purchased on microfiche from the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including the current prices, for ordering specific reports may be obtained from the District Chief at the address given on the back of the title page or by telephoning (701) 250-7406.

COOPERATION

Organizations that assisted in the collection of ground-water data in this report through joint funding agreements with the U.S. Geological Survey are:

North Dakota State Water Commission

Spirit Lake Sioux Nation

SUMMARY OF HYDROLOGIC CONDITIONS

The geography and geology of North Dakota are sufficiently complex that a summary of ground-water conditions over the entire State is difficult. Descriptions of conditions in specific aquifers apply only to that geographic area and cannot be considered to be the same for other geographic areas.

Ground-water levels fluctuate in response to a variety of stresses and changes in stress. Short- and long-term climatic conditions can lead to changes in natural recharge and discharge. Superimposed on the natural fluctuations in water levels are changes caused by increasing or decreasing ground-water withdrawals and, in some areas, changes caused by recharge from surface irrigation. A persistent climatologic pattern that has caused above-average precipitation generally has prevailed in North Dakota since the winter of 1992-93.

EXPLANATION OF THE RECORDS

The ground-water records published in this report are for the 1998 water year that began October 1, 1997, and ended September 30, 1998. 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 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.

Well Identification Numbers

Each well in this report is assigned a unique identification number. This number applies specifically to a given well and to no other. The number usually is assigned when a well is first established 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.

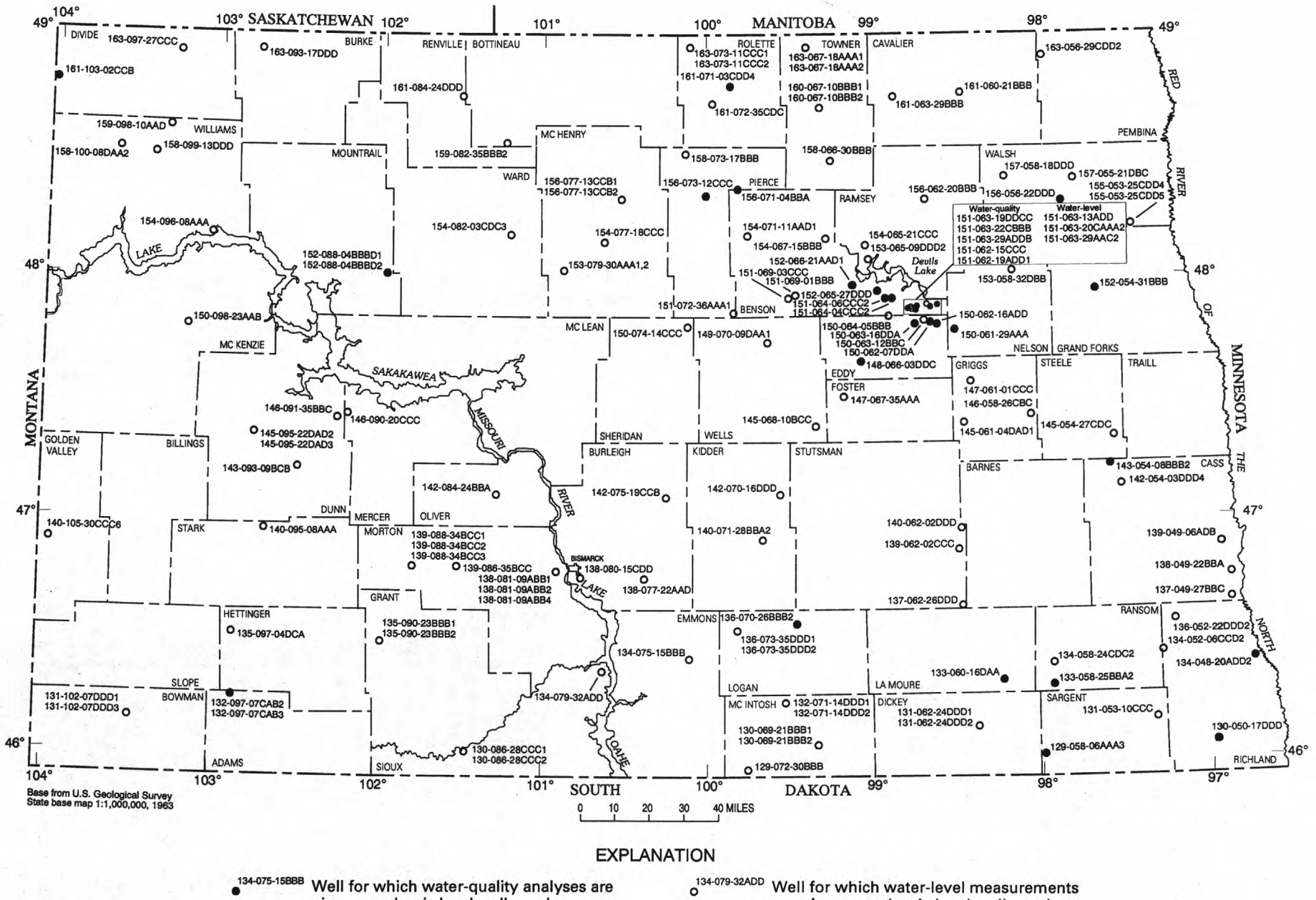


Figure 1. Location of ground-water observation wells.

Latitude-Longitude System

The identification numbers for wells are assigned according to the grid system of latitude and longitude (fig. 2). 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 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.

Local Well Numbers

In order to compare data for wells in other publications in North Dakota, such as the county ground-water studies, the wells in this report also are numbered according to a system based on the location in the public-land classification of the U.S. Bureau of Land Management. The system is illustrated in figure 3. The first number denotes the township north of a base line, the second number denotes the range west of the fifth principal meridian, and the third numeral denotes the section in which the well is located. The letters A, B, C, and D designate, respectively, the northeast, northwest, southwest, and southeast quarter section, quarter-quarter section, and quarter-quarter-quarter section (10-acre tract). For example, well 139-049-15ADC is in the $SW^1/_4SE^1/_4NE^1/_4$ sec.15, T.139 N., R.049 W. Consecutive terminal numbers are added if more than one well is recorded within a 10-acre tract.

Records of Ground-Water Levels

Water-level data from a network of observation wells are given in this report. These data are intended to provide a representation of the sampling and historical record of water-level changes in some of the important aquifers. Locations of the observation wells in this network in North Dakota are shown in figure 1.

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.

Water-level records are obtained from direct measurements with a steel tape or from the punched tape or the shaft encoder of a water-stage recorder. The water-level measurements in this report are given in feet with reference to land-surface datum. Land-surface datum is a datum plane that is approximately at land surface at each well. The elevation of the land-surface datum is given in the well description. The height of the measuring point 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).

Data Presentation

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.

Records of water-level data are published in the sections "Ground-Water Levels" and "Miscellaneous Ground-Water Levels". Data for ground-water levels are listed alphabetically by county in each section. The prime identification number for a given well is the 15-digit number derived from the latitude-longitude location. The secondary identification number is the local well number, an alphanumeric number, derived from the township-range location of the well.

Availability of Data

All water-level measurements and recorder data are stored in computer files as well as office files and are available in a tabular listing similar to those published in this report. Data in this report are for the 12-month water year ending September 30. Information about reports and other data on ground-water levels in North Dakota may be obtained from the District office at the address given on the back of the title page.

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. Changes in quality of ground water ordinarily occur slowly; therefore, for 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.

Onsite Measurements and Sample Collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, specific conductance, and pH need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ

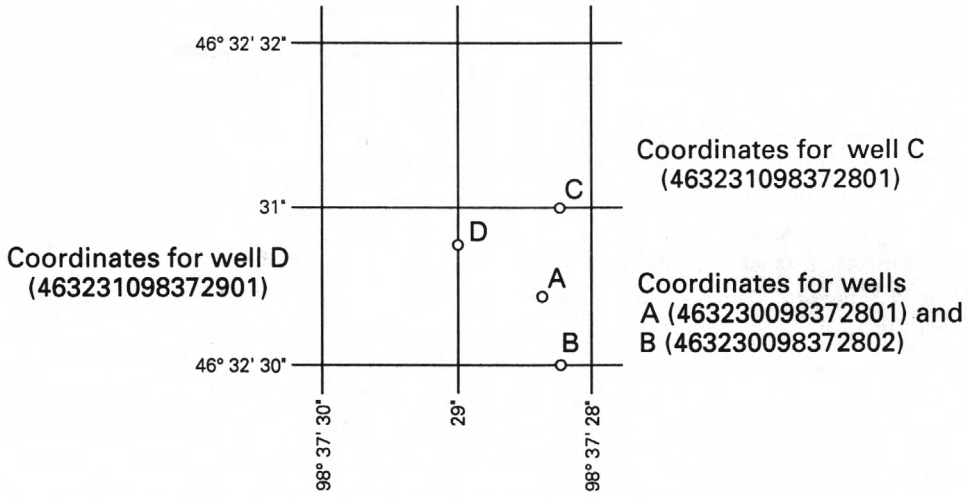


Figure 2. System for numbering wells (latitude and longitude).

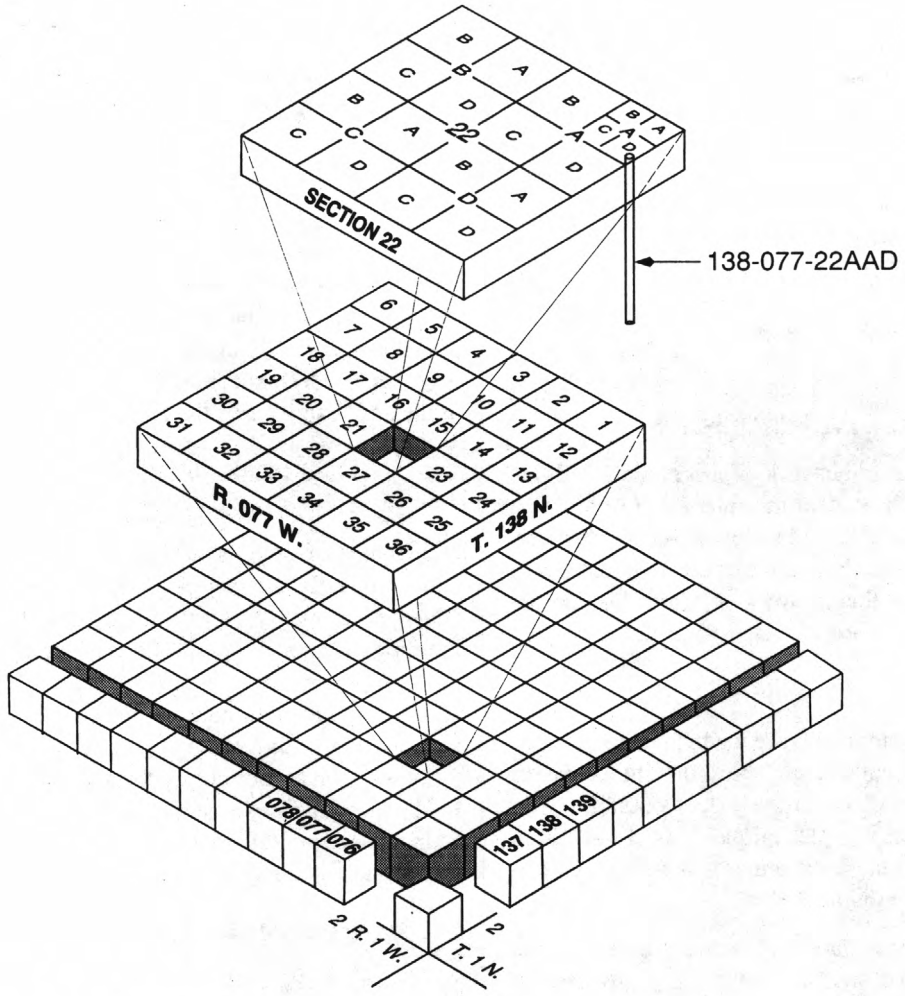


Figure 3. System for numbering wells (township and range).

water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are detailed in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4. These references are listed in the "Publications on Techniques of Water-Resources Investigations" section of this report. These methods are consistent with ASTM standards and generally follow ISO standards.

Chemical-quality data published in this report are considered to be the most representative values available for the wells listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

Data Collection and Computation

Ground-water quality data published in this report were obtained by analysis of samples collected when routine maintenance was performed on wells in specific areas. Routine well maintenance is scheduled for about one third of the well network each year and a smaller subset of wells is sampled. Consequently, a number of chemical analyses are presented for some counties but none are presented for others. Ground-water quality data for special projects also may be included in this report. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality statewide. Such a view can be attained only by considering records for this year in context with similar records obtained for these and other counties in earlier years.

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey TWRI publications referred to in the "Onsite Measurements and Sample Collection" section 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 casing.

Data Presentation

Records of ground-water quality are published in the section "Ground-Water Quality". Data for ground-water quality are listed alphabetically by county. The prime identification number for a given well is the 15-digit number derived from the latitude-longitude location. The secondary identification number is the local well number, an alphanumeric number, derived from the township-range location of the well. No descriptive statements are given for ground-water-quality records; however, the well number, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water.

Availability of Data

All ground-water quality data are stored in computer files as well as office files and are available in a tabular listing similar to those published in this report. Data in this report are for the 12-month water year ending September 30. Information about reports and other data on ground-water quality in North Dakota may be obtained from the District office at the address given on the back of the title page.

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://www.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

Terms related to water-quality, and other hydrologic data, as used in this report, are defined below. See also table for converting English units to International System (SI) Units on the inside of the back cover.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Dissolved refers to that material in a representative water sample which passes through a 0.45 micrometer membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determination of

"dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water 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 of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.493 to reflect the change.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations and is expressed as the equivalent concentration of calcium carbonate ($CaCO_3$).

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

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Microsiemens per centimeter at 25 degrees Celsius (US/CM, µS/cm) is a unit for reporting specific electrical conductance.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L and is based on the mass of dry sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD of 1929) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Parameter Code is a 5-digit number used in the U.S. Geological Survey's data system, National Water Information System (NWIS), to uniquely identify a specific constituent. The codes used in NWIS are the same as those used in the U.S. Environmental Protection Agency's data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

pH indicates the degree of acidity or alkalinity of water and is expressed in pH units. The pH value of a solution is the negative logarithm of the concentration of hydrogen ions, in moles per liter. A pH of 7.0 indicates that the water is neither acid nor alkaline. pH readings progressively less than 7.0 denote increasing acidity and those progressively greater than 7.0 denote increasingly alkalinity. The pH of most natural surface waters ranges between 6 and 8.

Sea level refers to the National Geodetic Vertical Datum of 1929--a geodetic datum derived from a general adjustment of the first-order level nets of the United States and Canada, formerly called Sea Level Datum of 1929.

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. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 degrees Celsius. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in microsiemens). This relation is not constant from well to well, and it may vary in the same source with changes in the composition of the water.

Total is the total amount of a given constituent in a representative water-suspended sediment 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 all of the constituent in the sample.)

Water year in Geological Survey reports dealing with surface- ground-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, 1998, is called "water year 1998."

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S. Geological Survey publishes a series of manuals 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.

The reports listed below are for sale by the U.S. Geological Survey, Branch of Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

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, Chapter D1. 1975. 65 pages.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.

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, Chapter D1. 1974. 116 pages.

2-D2. *Application of seismic-refraction techniques to hydrologic studies,* by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.

2-E1. *Application of borehole geophysics to water-resources investigations,* by W. S. Keys and L.M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.

2-E2. *Borehole geophysics applied to ground-water investigations,* by W. S. Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 pages.

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, Chapter F1. 1989. 97 pages.

3-A1. *General field and office procedures for indirect discharge measurements,* by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.

3-A2. *Measurement of peak discharge by the slope-area method,* by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. *Measurement of peak discharge at culverts by indirect methods,* by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. *Measurement of peak discharge at width contractions by indirect methods,* by H. F. Matthai: USGS-TWRI Book 3, Chapter A4. 1967. 44 pages.

3-A5. *Measurement of peak discharge at dams by indirect methods,* by Harry Hulsing: USGS--TWRI Book 3. Chapter A5. 1967. 29 pages.

3-A6. *General procedure for gaging streams,* by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.

3-A7. *Stage measurement at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.

3-A8. *Discharge measurements at gaging stations,* by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

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, Chapter A9. 1989. 27 pages.

3-A10. *Discharge ratings at gaging stations,* by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.

3-A11. *Measurement of discharge by the moving-boat method,* by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.

3-A12. *Fluorometric procedures for dye tracing*, Revised, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS- -TWRI Book 3, Chapter A12. 1986. 34 pages.

3-A13. *Computation of continuous records of streamflow,* by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.

3-A14. *Use of flumes in measuring discharge,* by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.

3-A15. *Computation of water-surface profiles in open channels,* by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.

3-A16. *Measurement of discharge using tracers*, by F. A. Kilpatrick and E. D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 pages.

3-A17. *Acoustic velocity meter systems,* by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 pages.

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, Chapter A18. 1989. 52 pages.

3-A19. *Levels at streamflow gaging stations*, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 31 pages.

3-A20. *Simulation of soluable waste transport and buildup in surface waters using tracers*, by F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A20. 1993. 38 pages.

3-A21 *Stream-gaging cableways,* by C. Russell Wagner: USGS--TWRI Book 3, Chapter A21. 1995. 56 pages.

3-B1. *Aquifer-test design, observation, and data analysis,* by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction,* by G. D. Bennett: USGS-- TWRI Book 3, Chapter B2. 1976. 172 pages.

3-B3. *Type curves for selected problems of flow to wells in confined aquifers,* by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.

3-B4. *Regression modeling of ground-water flow,* by R. L. Cooley and R. L. Naff: USGS--TWRI Book 3, Chapter B4. 1990. 232 pages.

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, Chapter B4. 1993. 8 pages.

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, Chapter B5. 1987. 15 pages.

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, Chapter B6. 1987. 28 pages.

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, Chapter B7. 1992. 190 pages.

3-C1. *Fluvial sediment concepts,* by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

3-C2. *Field methods for measurement of fluvial sediment,* by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.

3-C3. *Computation of fluvial-sediment discharge,* by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.

4-A1. *Some statistical tools in hydrology,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

4-A2. *Frequency curves,* by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.

4-B1. *Low-flow investigations,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. *Storage analyses for water supply,* by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. *Regional analyses of streamflow characteristics,* by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.

4-D1. *Computation of rate and volume of stream depletion by wells,* by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.

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, Chapter A1. 1989. 545 pages.

5-A2. *Determination of minor elements in water by emission spectroscopy,* by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.

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, Chapter A3. 1987. 80 pages.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples,* by L. J. Britton and P. E. Greeson, editors: USGS--TWRI Book 5, Chapter A4. 1989. 363 pages.

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, Chapter A5. 1977. 95 pages.

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, Chapter A6. 1982. 181 pages.

5-C1. *Laboratory theory and methods for sediment analysis,* by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.

6-A1. *A modular three-dimensional finite-difference ground-water flow model,* by M. G. McDonald and A. W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 pages.

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, Chapter A2. 1991. 68 pages.

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, Chapter A3. 1993. 136 pages.

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, Chapter A4. 1992. 108 pages.

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, Chapter 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. 1995. 125 pages.

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, Chapter C1. 1976. 116 pages.

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, Chapter C2. 1978. 90 pages.

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, Chapter C3. 1981. 110 pages.

8-A1. *Methods of measuring water levels in deep wells,* by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.

8-A2. *Installation and service manual for U.S. Geological Survey manometers,* by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.

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

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, Chapter A7. 1997. 49 pages.

GROUND-WATER LEVELS

ADAMS COUNTY

461614102515202. Local number, 132-097-07CAB2.

LOCATION.--Lat 46°16'14", long 102°51'52", Hydrologic Unit 10130205. Owner: North Dakota State Water Commission.

AQUIFER.--Ludlow-Hell Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 590 ft, cased with 578 ft of 2-in diameter steel pipe.

INSTRUMENTATION.--Measured using a steel tape.

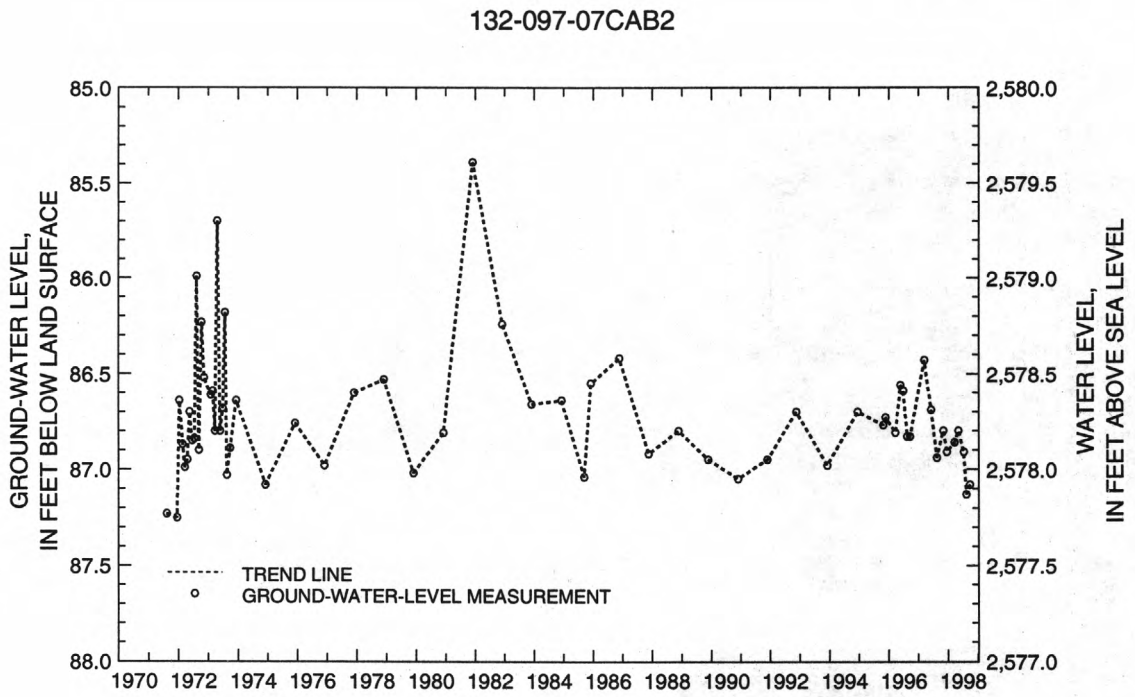
DATUM.--Altitude of land-surface datum is 2,665 ft. Measuring point: Top of casing 3.60 ft above land-surface datum.

PERIOD OF RECORD.--August 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 85.39 ft below land-surface datum, October 1, 1981; lowest water level measured, 87.25 ft below land-surface datum, December 14, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 31	86.80	Mar. 18	86.86	July 8	86.91	Sept. 23	87.08
Dec. 16	86.91	May 6	86.80	Aug. 12	87.13		



GROUND-WATER LEVELS

ADAMS COUNTY

461614102515203. Local number, 132-097-07CAB3.

LOCATION.--Lat 46°16'14", long 102°51'52", Hydrologic Unit 10130205. Owner: North Dakota State Water Commission.

AQUIFER.--Ludlow.

WELL CHARACTERISTICS.--Drilled observation well, depth 229 ft, cased with 217 ft of 1.25-in diameter plastic pipe.

INSTRUMENTATION.--Measured using a steel tape.

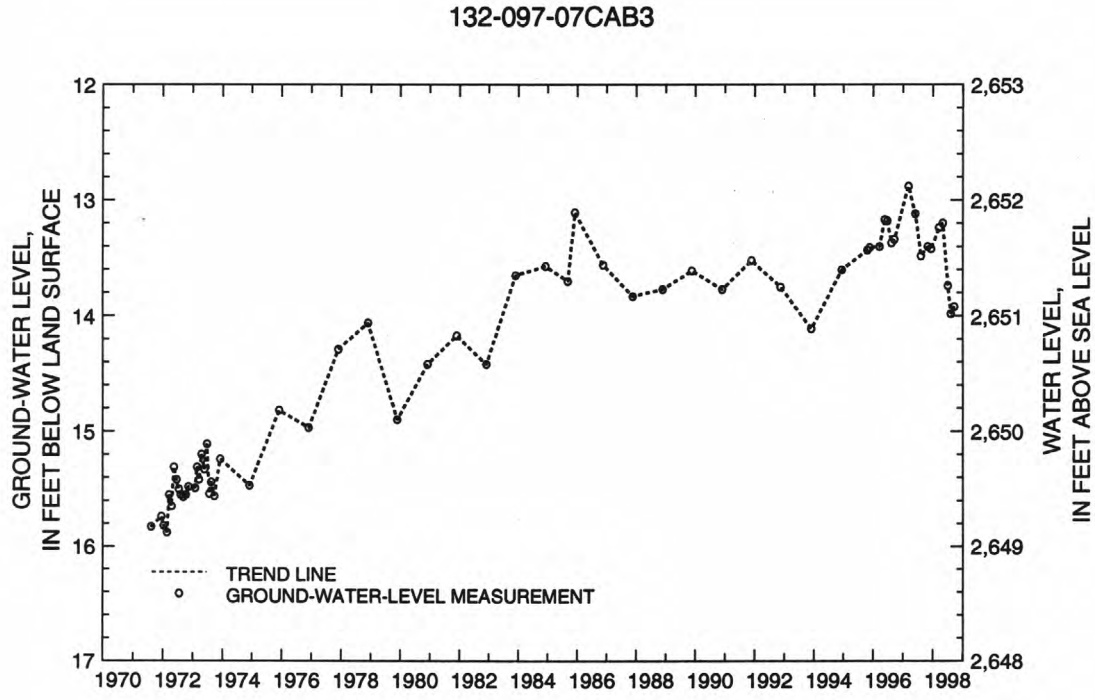
DATUM.--Altitude of land-surface datum is 2,665 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--August 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.88 ft below land-surface datum, March 11, 1997; lowest water level measured, 15.88 ft below land-surface datum, February 22, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 31	13.40	Mar. 18	13.24	July 8	13.74	Sept. 23	13.92
Dec. 16	13.42	May 6	13.20	Aug. 12	13.98		



GROUND-WATER LEVELS

BENSON COUNTY

475224098443202. Local number, 151-063-29AAC2.

LOCATION.--Lat 47°52'24", long 98°44'32", Hydrologic Unit 09020201. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 67 ft, cased with 67 ft of 6-in diameter steel pipe, slotted 57 to 67 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder August 1951 to current year. Only intermittent low and EOM water levels obtained from strip chart recorders are available from the District office for August 1951 to June 1974. From June 1974 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,479.6 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

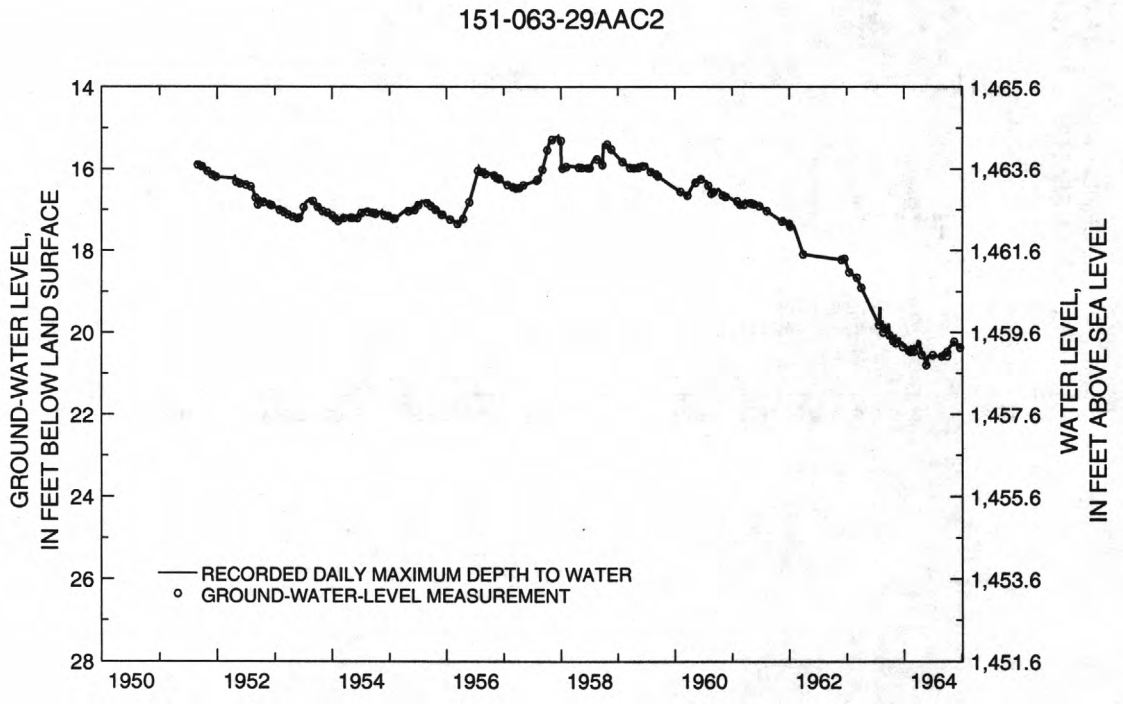
PERIOD OF RECORD.--August 1951 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 15.29 ft below land-surface datum, November 5, 1957; lowest daily water level, 27.03 ft below land-surface datum, November 11, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	22.66	22.72	---	---	---	---	---	---	23.80	23.87	24.57	---
10	22.71	22.73	---	---	---	---	---	---	24.00	24.03	24.67	---
15	22.67	22.71	---	---	---	---	---	---	23.84	24.12	24.82	---
20	22.68	---	---	---	---	---	---	---	23.83	24.19	---	---
25	22.69	---	---	---	---	---	---	---	23.81	24.31	---	---
EOM	22.62	---	---	---	---	---	---	---	23.84	24.44	---	---
MAX	22.87	---	---	---	---	---	---	---	---	24.44	---	---

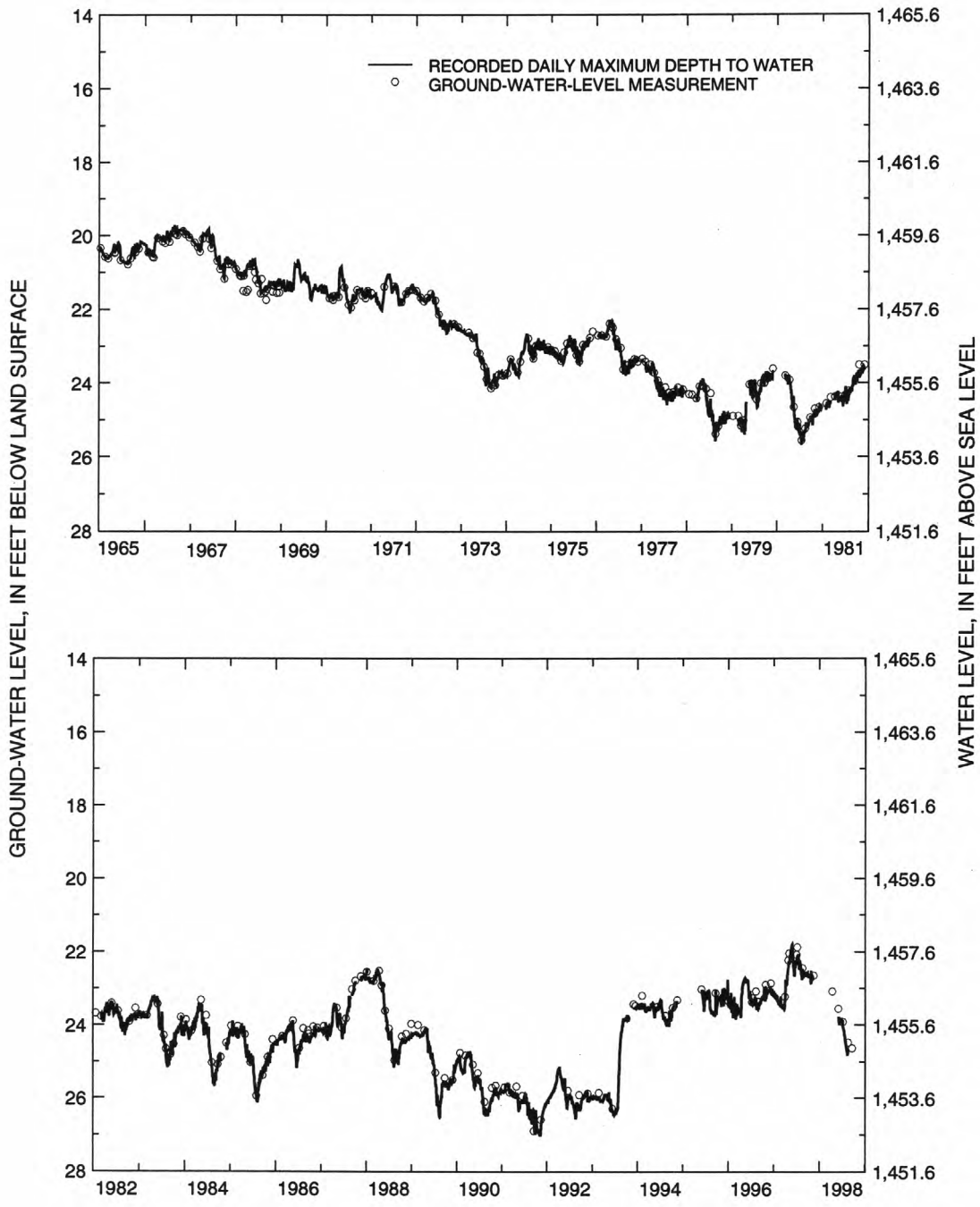
WATER YEAR 1998 HIGHEST WATER LEVEL 22.35 OCTOBER 30 LOWEST WATER LEVEL 24.82 AUGUST 15



GROUND-WATER LEVELS

BENSON COUNTY

151-063-29AAC2--Continued



GROUND-WATER LEVELS

BENSON COUNTY

475601099264701. Local number, 151-069-01BBB.

LOCATION.--Lat 47°56'01", long 99°26'47", Hydrologic Unit 09020202. Owner: North Dakota State Water Commission.

AQUIFER.--Maddock.

WELL CHARACTERISTICS.--Drilled observation well, depth 180 ft, cased with 97 ft of 1.25-in diameter plastic pipe, screen set 97 to 103 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

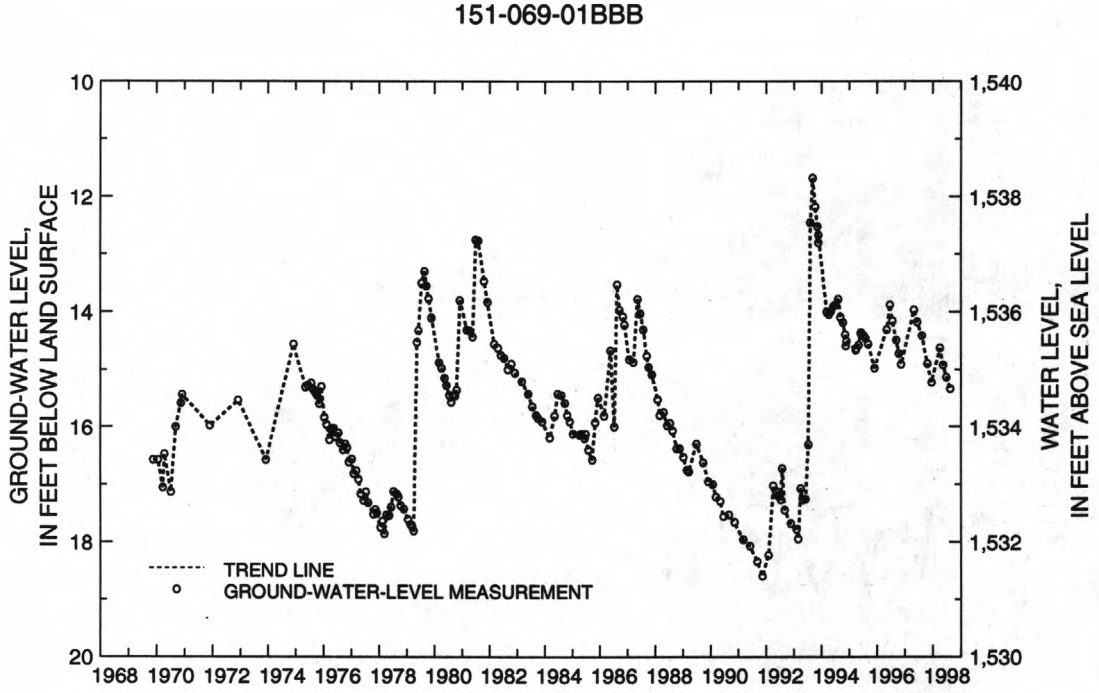
DATUM.--Altitude of land-surface datum is 1,550 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--November 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.68 ft below land-surface datum, September 6, 1993; lowest water level measured, 18.60 ft below land-surface datum, November 15, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 23	14.90	Apr. 6	14.63	June 30	15.14	Aug. 18	15.34
Dec. 16	15.23	May 19	14.92				



GROUND-WATER LEVELS

BENSON COUNTY

475515099292101. Local number, 151-069-03CCC.

LOCATION.--Lat 47°55'15", long 99°29'21", Hydrologic Unit 09020202. Owner: North Dakota State Water Commission.

AQUIFER.--Maddock.

WELL CHARACTERISTICS.--Drilled observation well, depth 180 ft, cased with 137 ft of 1.25-in diameter plastic pipe, screen set 137 to 143 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

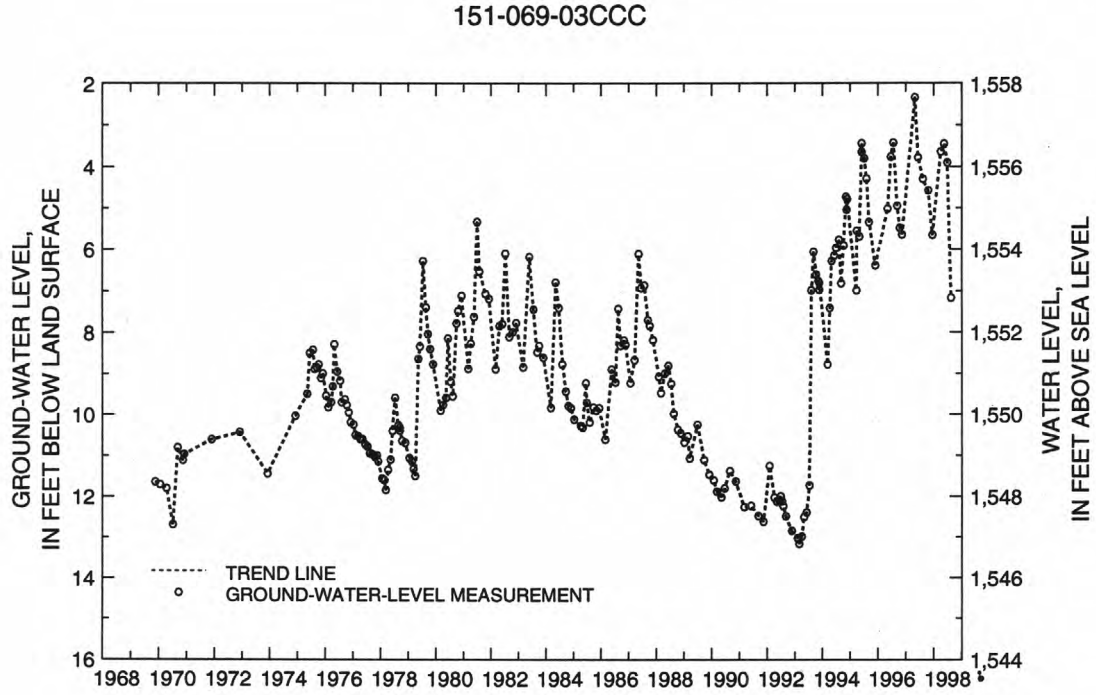
DATUM.--Altitude of land-surface datum is 1,560 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--November 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.33 ft below land-surface datum, May 1, 1997; lowest water level measured, 13.16 ft below land-surface datum, March 1, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 23	4.58	Apr. 6	3.63	June 30	3.90	Aug. 18	7.17
Dec. 16	5.65	May 19	3.45				



GROUND-WATER LEVELS

BENSON COUNTY

480958099154801. Local number, 154-067-15BBB.

LOCATION.--Lat 48°09'58", long 99°15'48", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 180 ft, cased with 147 ft of 1.25-in diameter plastic pipe, screen set 147 to 153 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

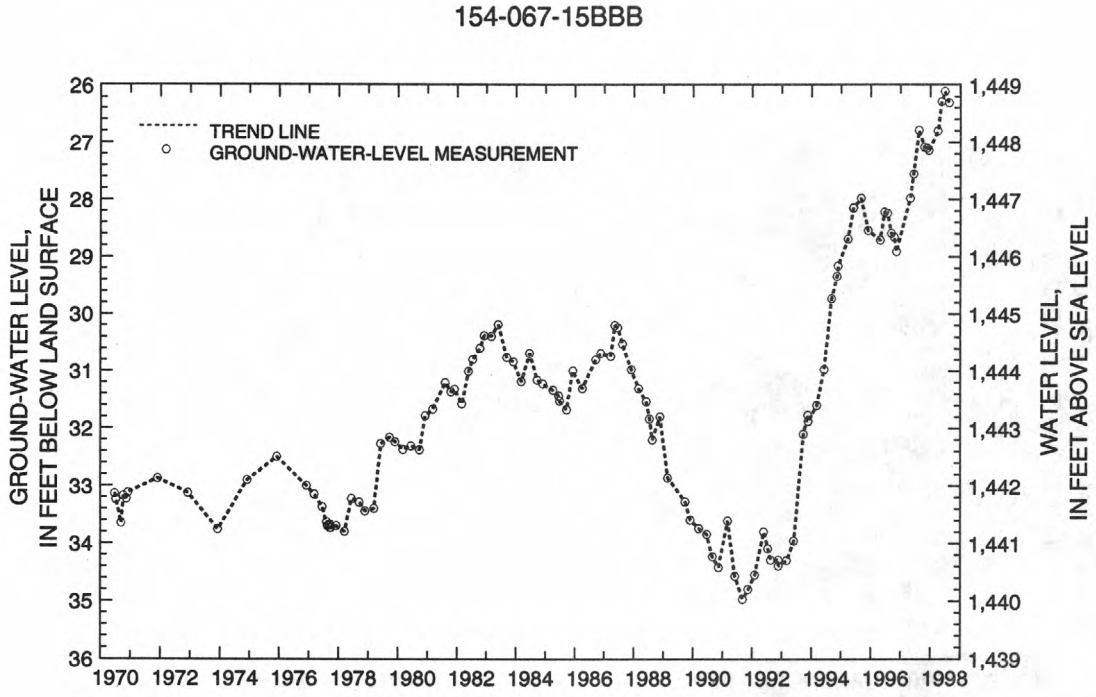
DATUM.--Altitude of land-surface datum is 1,475 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--June 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.11 ft below land-surface datum, June 29, 1998; lowest water level measured, 34.97 ft below land-surface datum, September 10, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 23	27.08	Dec. 16	27.14	May 20	26.29	Aug. 19	26.31
Nov. 19	27.10	Apr. 6	26.80	June 29	26.11		



GROUND-WATER LEVELS

BENSON COUNTY

481041099442701. Local number, 154-071-11AAD1.

LOCATION.--Lat 48°10'41", long 99°44'27", Hydrologic Unit 09020202. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 100 ft, cased with 42 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 42 to 45 ft below land-surface datum.

INSTRUMENTATION.--Measured quarterly using a steel tape.

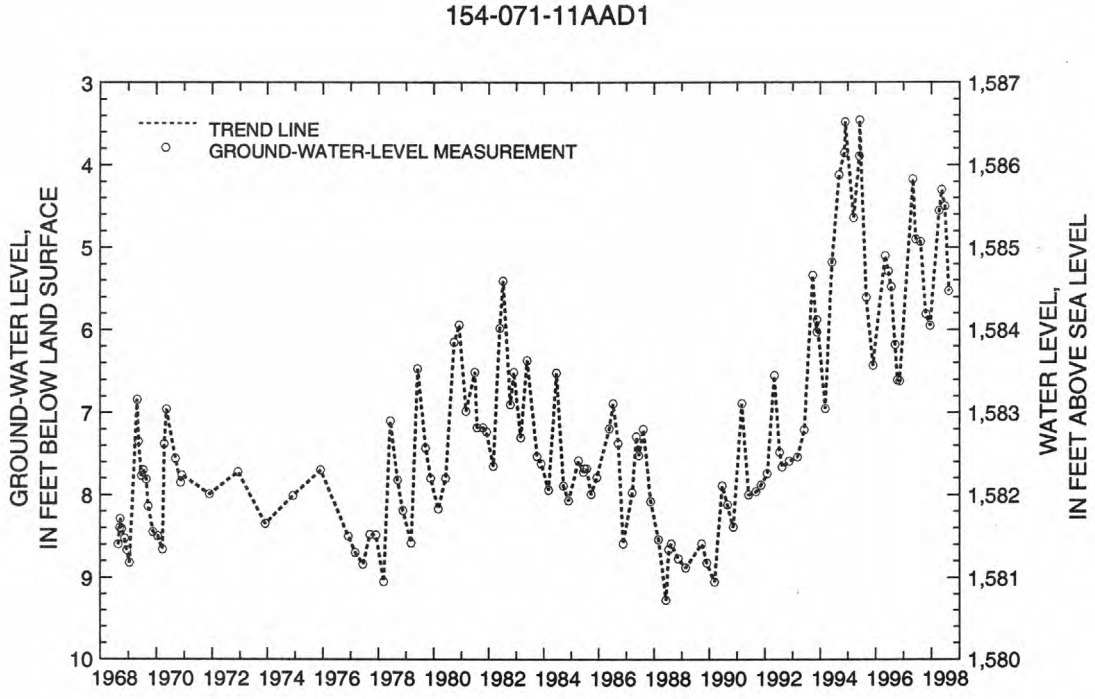
DATUM.--Altitude of land-surface datum is 1,590 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--August 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.46 ft below land-surface datum, June 4, 1995; lowest water level measured, 9.27 ft below land-surface datum, June 8, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 22	5.81	Apr. 15	4.55	June 30	4.50	Aug. 19	5.53
Dec. 17	5.95	May 19	4.30				



GROUND-WATER LEVELS

BENSON COUNTY

482212099475801. Local number, 156-071-04BBA.

LOCATION.--Lat 48°22'12", long 99°47'58", Hydrologic Unit 09010004. Owner: North Dakota State Water Commission.

AQUIFER.--Pleasant Lake.

WELL CHARACTERISTICS.--Drilled observation well, depth 140 ft, cased with 58 ft of 4-in diameter plastic pipe, slotted 18 to 58 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder September 1968 to current year. Only intermittent low and EOM water levels obtained from strip chart recorders are available from the District office for September 1968 to January 1975. From January 1975 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,604 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.--September 1968 to current year.

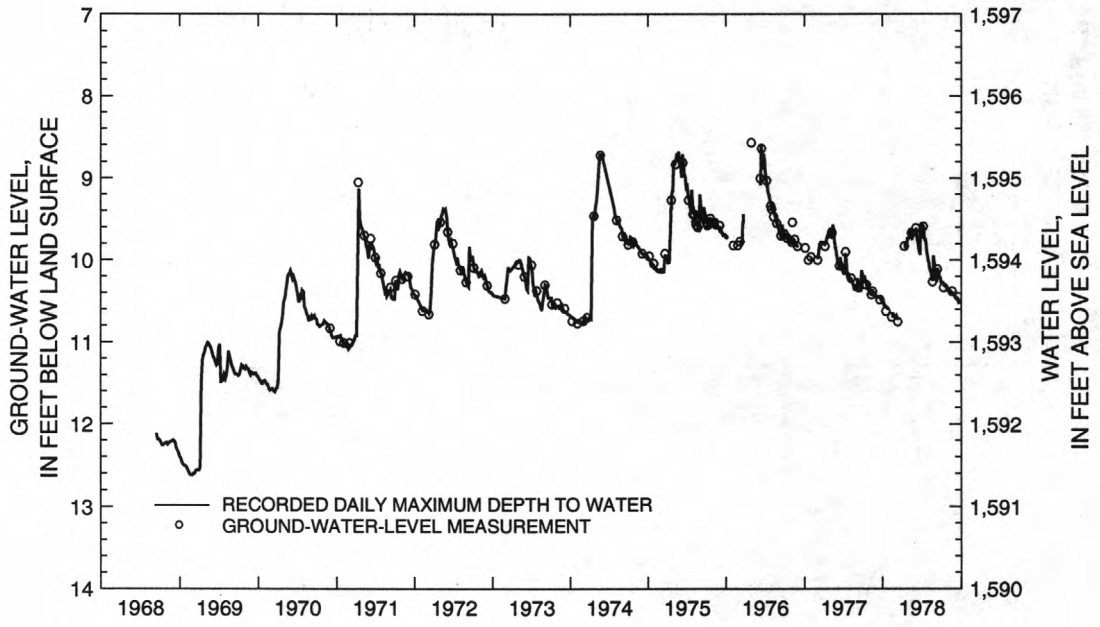
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 7.95 ft below land-surface datum, July 15-16, 1997; lowest daily water level, 13.39 ft below land-surface datum, March 9, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.04	8.98	9.06	9.15	9.23	8.93	7.71	8.17	8.51	8.54	8.67	9.05
10	8.93	8.98	9.07	9.18	9.25	9.02	7.93	8.18	8.55	8.18	8.79	9.09
15	8.83	9.02	9.05	9.20	9.22	9.03	---	8.07	8.43	8.42	8.84	9.05
20	8.90	9.02	9.09	9.22	9.23	9.06	7.96	8.20	8.21	8.52	8.90	9.09
25	8.92	9.01	9.11	9.23	9.06	8.99	8.04	8.32	8.23	8.61	8.92	9.11
EOM	8.88	9.04	9.13	9.21	8.92	7.74	8.13	8.43	8.42	8.74	8.98	9.14
MAX	9.05	9.04	9.13	9.23	9.25	9.06	---	8.43	8.58	8.74	8.98	9.14

WATER YEAR 1998 HIGHEST WATER LEVEL 7.62 APRIL 1-3 LOWEST WATER LEVEL 9.25 FEBRUARY 10-11

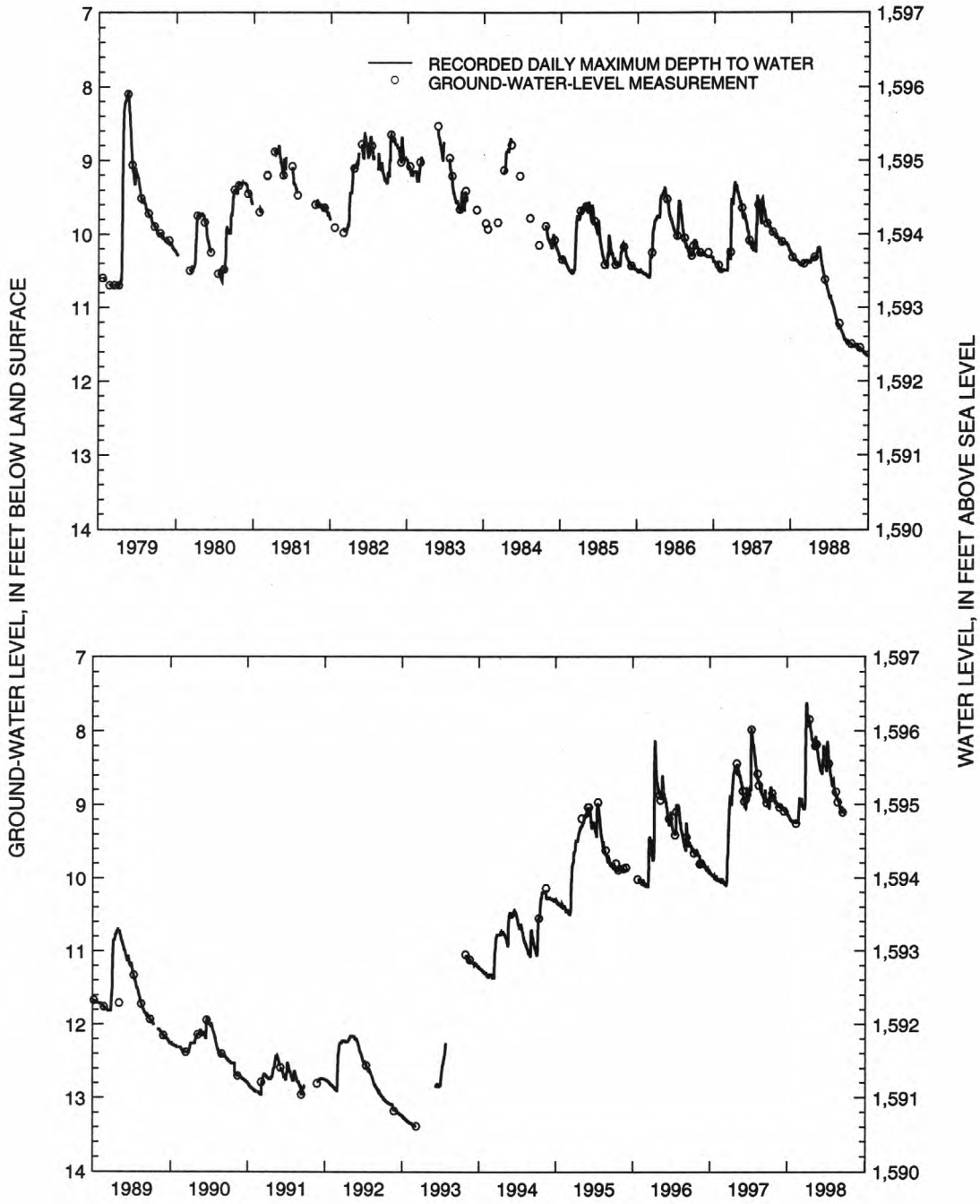
156-071-04BBA



GROUND-WATER LEVELS

BENSON COUNTY

156-071-04BBA--Continued



GROUND-WATER LEVELS

BOTTINEAU COUNTY

483333101135402. Local number, 159-082-35BBB2.

LOCATION.--Lat 48°33'33", long 101°13'54", Hydrologic Unit 09010005. Owner: North Dakota State Water Commission.

AQUIFER.--Glenburn.

WELL CHARACTERISTICS.--Drilled observation well, depth 181 ft, cased with 178 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 178 to 181 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

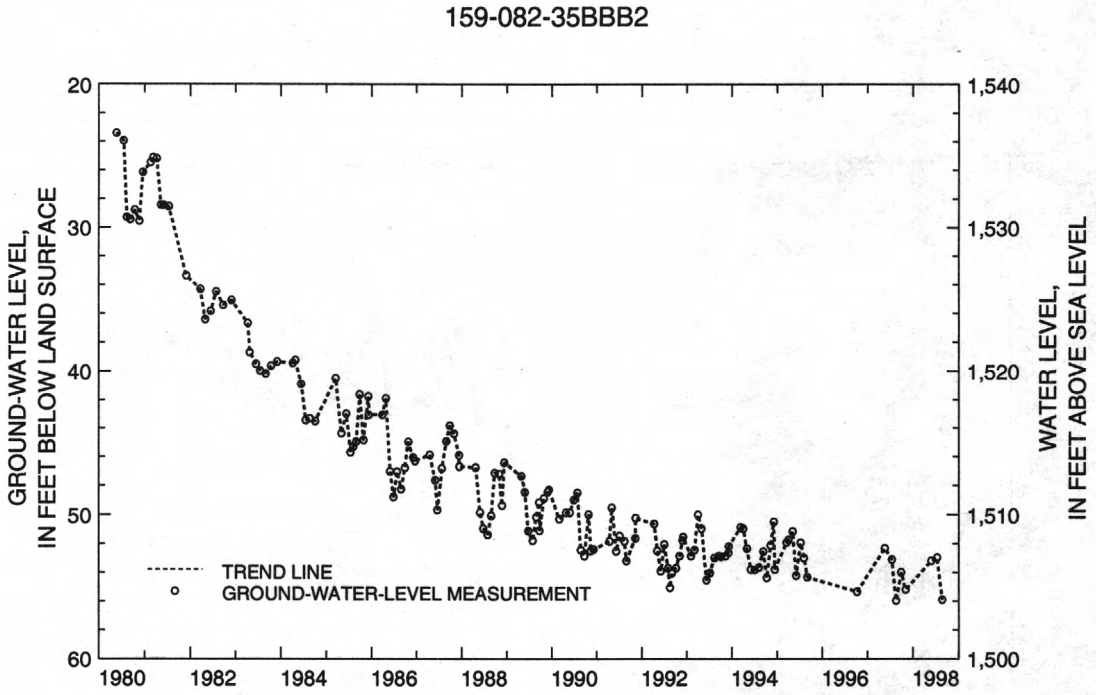
DATUM.--Altitude of land-surface datum is 1,560 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--May 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.39 ft below land-surface datum, May 21, 1980; lowest water level measured, 55.96 ft below land-surface datum, Aug. 19, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 4	55.20	May 28	53.20	July 14	52.96	Aug. 25	55.90



GROUND-WATER LEVELS

BOWMAN COUNTY

461039103282801. Local number, 131-102-07DDD1.

LOCATION.--Lat 46°10'39", long 103°28'28", Hydrologic Unit 10130301. Owner: North Dakota State Water Commission.

AQUIFER.--Hell Creek-Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 963 ft, cased with 951 ft of 2-in diameter steel pipe.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,945 ft. Measuring point: Top of casing 3.20 ft above land-surface datum.

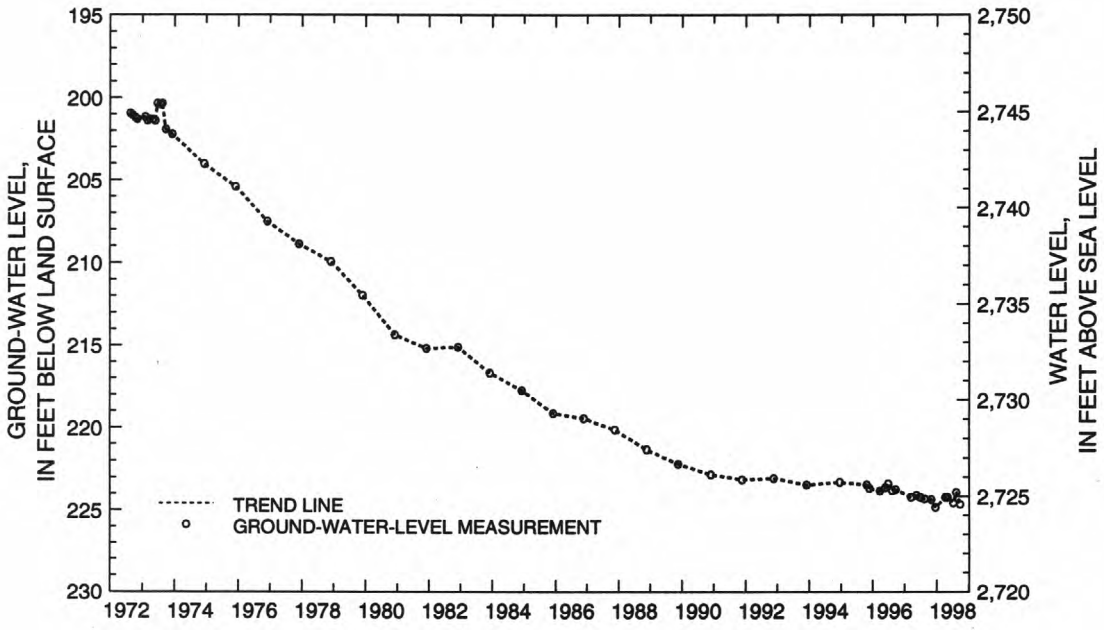
PERIOD OF RECORD.--August 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 200.35 ft below land-surface datum, June 21, 1973 and August 13, 1973; lowest water level measured, 224.85 ft below land-surface datum, December 16, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 30	224.36	Apr. 7	224.23	July 7	224.57	Sept. 23	224.67
Dec. 16	224.85	May 5	224.23	Aug. 13	223.93		

131-102-07DDD1



GROUND-WATER LEVELS

BOWMAN COUNTY

461039103282803. Local number, 131-102-07DDD3.

LOCATION.--Lat 46°10'39", long 103°28'28", Hydrologic Unit 10130301. Owner: North Dakota State Water Commission.

AQUIFER.--Tongue River-Ludlow.

WELL CHARACTERISTICS.--Drilled observation well, depth 138 ft, cased with 132 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 132 to 138 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

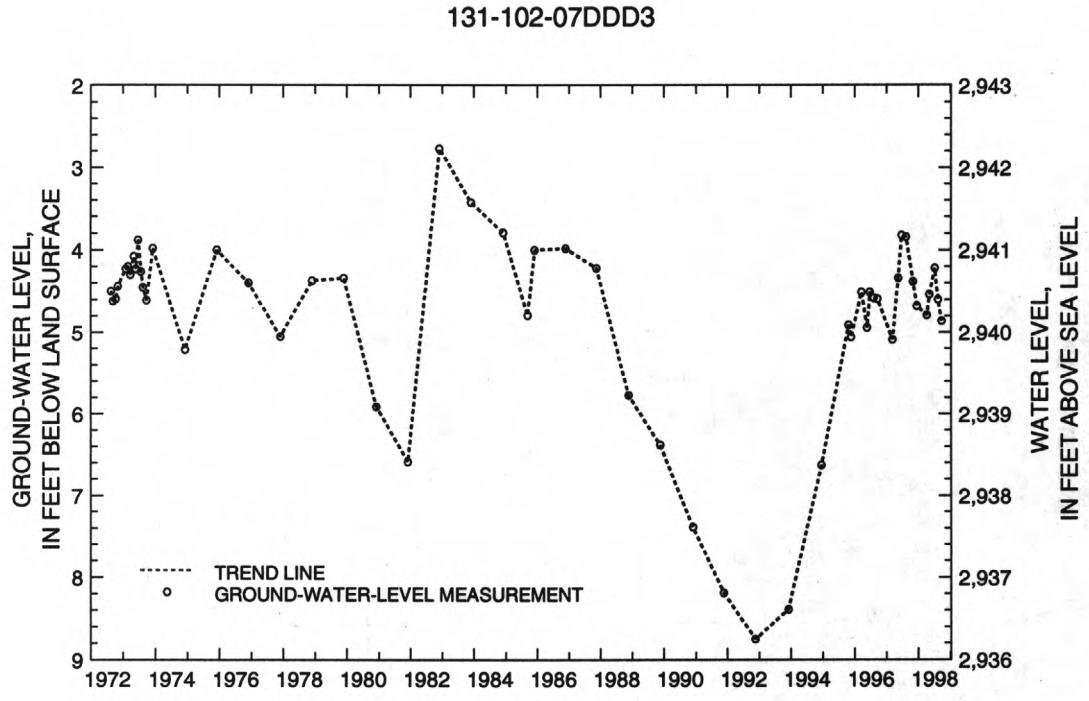
DATUM.--Altitude of land-surface datum is 2,945 ft. Measuring point: Top of casing 2.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.77 ft below land-surface datum, December 1, 1982; lowest water level measured, 8.75 ft below land-surface datum, November 17, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 30	4.38	Apr. 7	4.79	July 7	4.22	Sept. 23	4.86
Dec. 16	4.68	May 5	4.54	Aug. 13	4.60		



GROUND-WATER LEVELS

BURKE COUNTY

485618102455401. Local number, 163-093-17DDD.

LOCATION.--Lat 48°56'18", long 102°45'54", Hydrologic Unit 09010001. Owner: North Dakota State Water Commission.

AQUIFER.--Columbus.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 76 ft of 1.25-in diameter plastic pipe, slotted 56 to 76 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

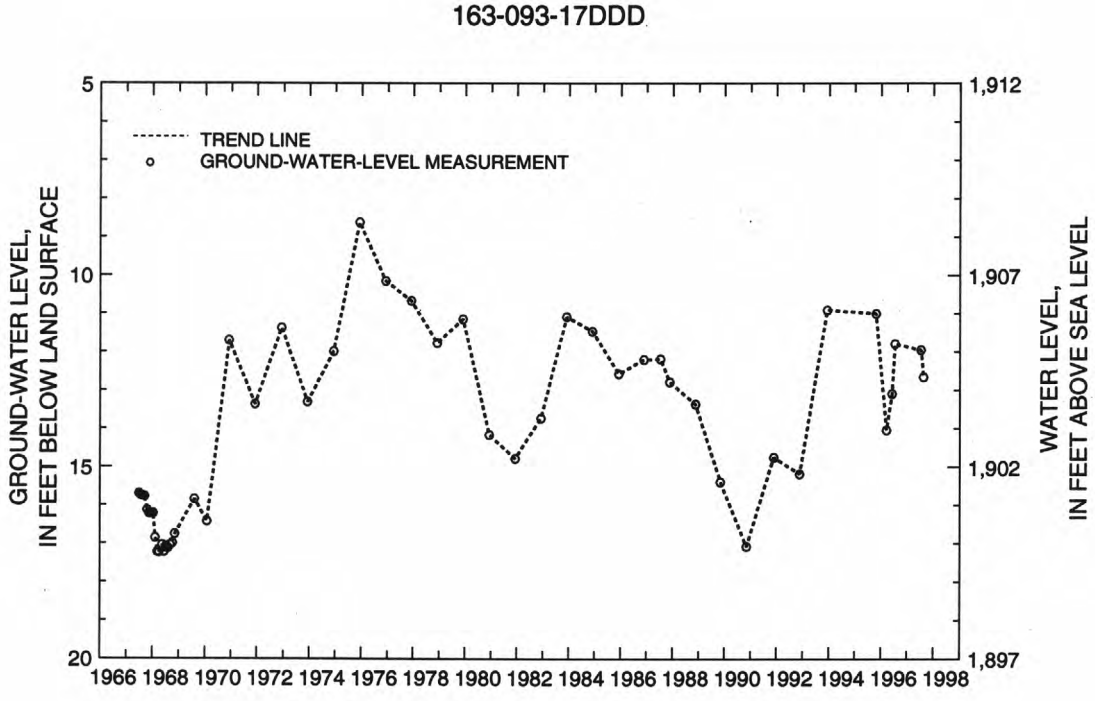
DATUM.--Altitude of land-surface datum is 1,917 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.62 ft below land-surface datum, December 3, 1975; lowest water level measured, 17.24 ft below land-surface datum, April 1, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL



GROUND-WATER LEVELS

BURLEIGH COUNTY

464540100222101. Local number, 138-077-22AAD.

LOCATION.--Lat 46°45'40", long 100°22'21", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--McKenzie.

WELL CHARACTERISTICS.--Drilled observation well, depth 126 ft, cased with 116 ft of 4.5-in diameter steel pipe, slotted 86 to 116 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder September 1961 to current year. Only intermittent low and EOM water levels obtained from strip chart recorders are available from the District office for September 1961 to October 1973. From October 1973 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,720 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

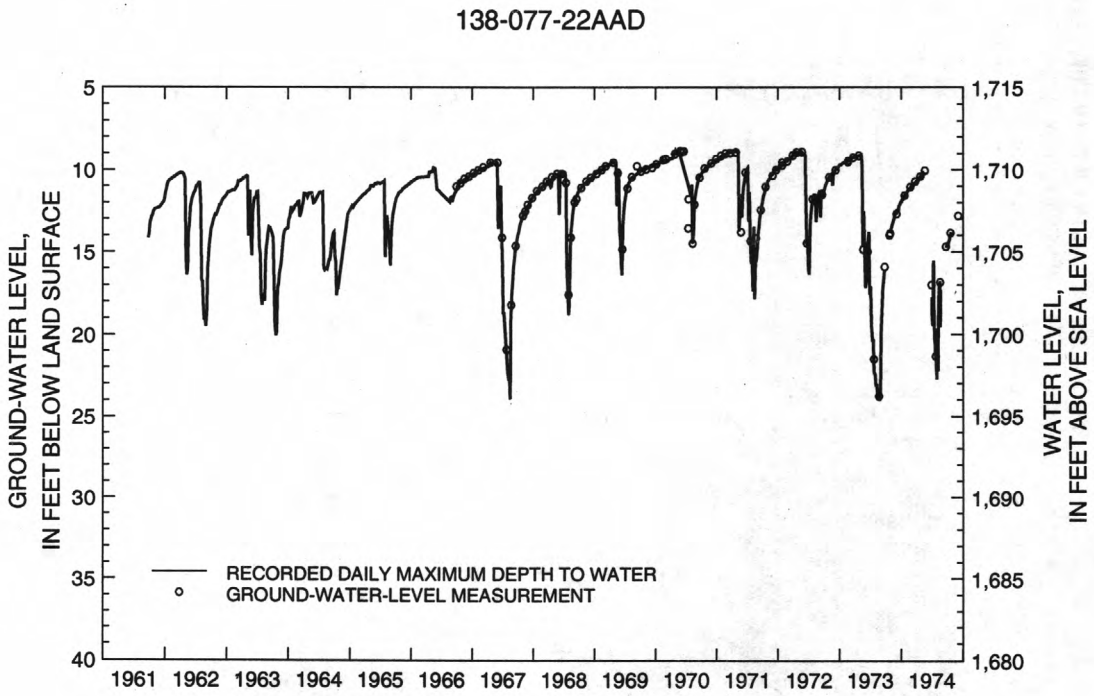
PERIOD OF RECORD.--October 1961 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 5.96 ft below land-surface datum, May 19-21, 1997; lowest daily water level, 32.88 ft below land-surface datum, August 22-23, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	8.94	8.22	7.69	7.35	7.10	6.83	---	---	---	---	---	---
10	8.88	8.14	7.62	7.31	7.05	6.83	---	---	---	---	---	7.73
15	8.94	8.00	7.55	7.28	7.01	6.82	---	---	---	---	---	7.72
20	8.74	7.92	7.49	7.24	6.97	6.78	---	---	---	---	---	7.57
25	8.54	7.81	7.45	7.17	6.92	6.74	---	---	---	---	---	7.50
EOM	8.31	7.74	7.37	7.12	6.82	6.71	---	---	---	---	---	7.47
MAX	9.13	8.26	7.74	7.37	7.12	6.83	---	---	---	---	---	---

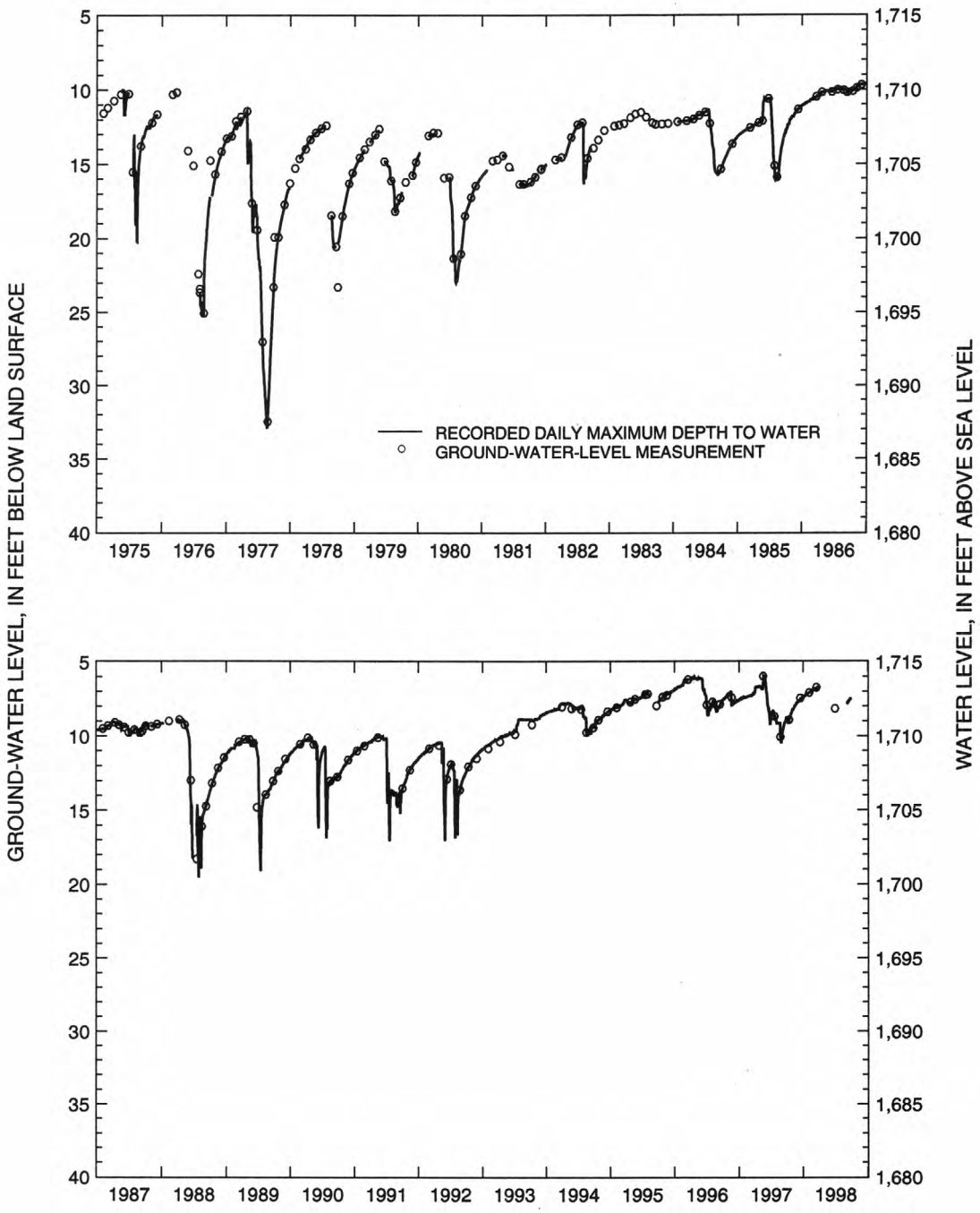
WATER YEAR 1998 HIGHEST WATER LEVEL 6.71 MARCH 29-APRIL 2
LOWEST WATER LEVEL 9.13 OCTOBER 11-12



GROUND-WATER LEVELS

BURLEIGH COUNTY

138-077-22AAD--Continued



GROUND-WATER LEVELS

BURLEIGH COUNTY

464556100454901. Local number, 138-080-15CDD.

LOCATION.--Lat 46°45'56", long 100°45'49", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--Bismarck.

WELL CHARACTERISTICS.--Drilled observation well, depth 168 ft, cased with 140 ft of 4-in diameter steel pipe, slotted 110 to 140 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder October 1961 to current year. Only intermittent low and EOM water levels obtained from strip chart recorders are available from the District office for October 1961 to October 1973. From October 1973 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,658.4 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

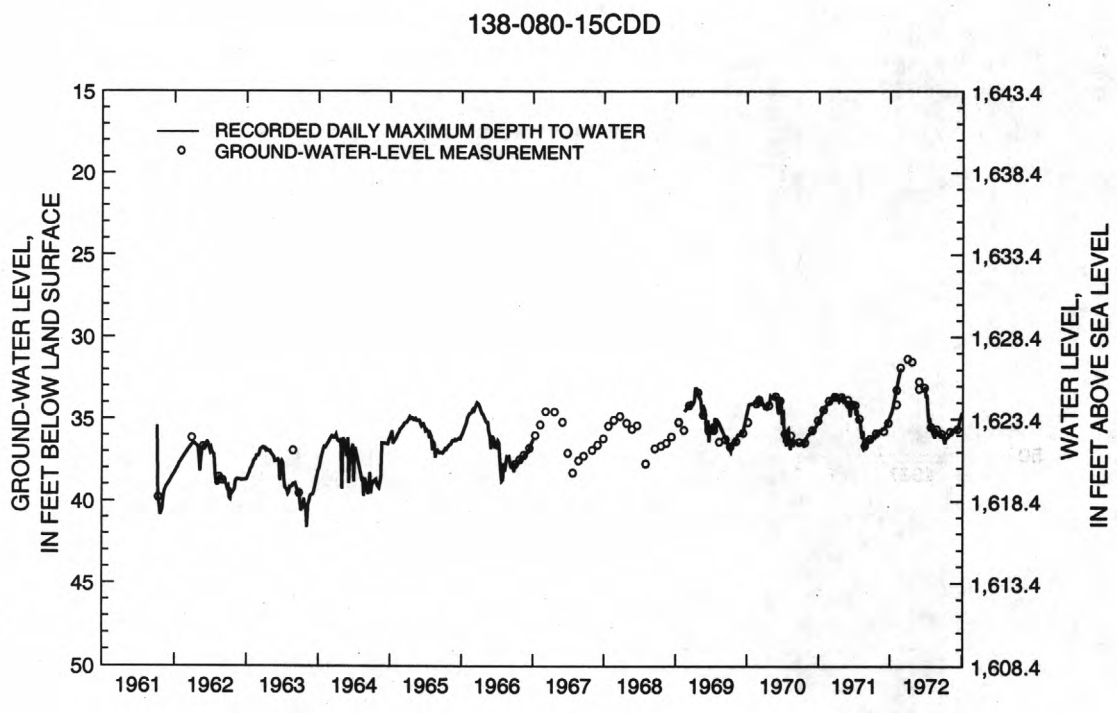
PERIOD OF RECORD.--October 1961 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 18.38 ft below land-surface datum, April 4 and 8, 1988; lowest daily water level, 42.52 ft below land-surface datum, August 5, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	32.59	31.82	23.35	31.98	32.06	---	---	33.02	33.83	34.10	34.64	33.57
10	32.52	31.77	24.34	32.27	---	---	32.12	33.12	33.79	34.16	34.78	33.74
15	32.15	29.96	25.62	32.35	---	---	32.36	33.20	33.76	34.24	34.89	33.82
20	32.07	25.35	26.86	32.36	---	31.99	32.52	33.45	33.78	34.28	34.76	33.97
25	31.96	25.72	28.44	32.22	---	31.99	32.75	33.45	33.87	34.59	33.62	33.98
EOM	31.84	24.55	30.92	32.06	---	31.95	32.97	33.64	34.00	34.65	33.31	34.15
MAX	---	31.82	30.92	32.40	---	---	---	33.64	34.00	34.65	34.89	34.15

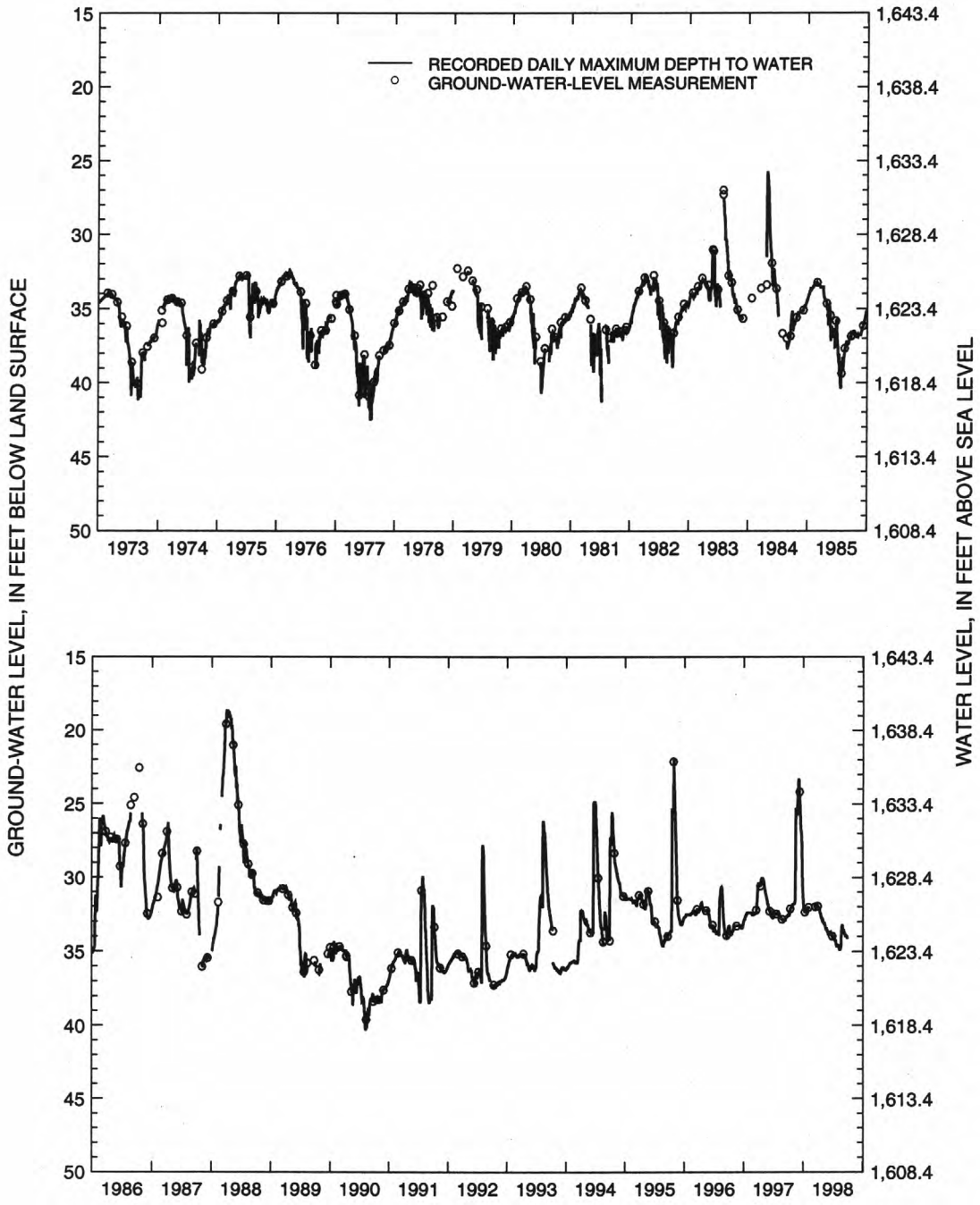
WATER YEAR 1998 HIGHEST WATER LEVEL 23.35 DECEMBER 4-6 LOWEST WATER LEVEL 34.89 AUGUST 13-15



GROUND-WATER LEVELS

BURLEIGH COUNTY

138-080-15CDD--Continued



GROUND-WATER LEVELS

BURLEIGH COUNTY

470556100142501. Local number, 142-075-19CCB.

LOCATION.--Lat 47°05'56", long 100°14'25", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--Wing Channel.

WELL CHARACTERISTICS.--Drilled observation well, depth 210 ft, cased with 197 ft of 1.25-in diameter plastic pipe, slotted 190 to 197 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,890.1 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

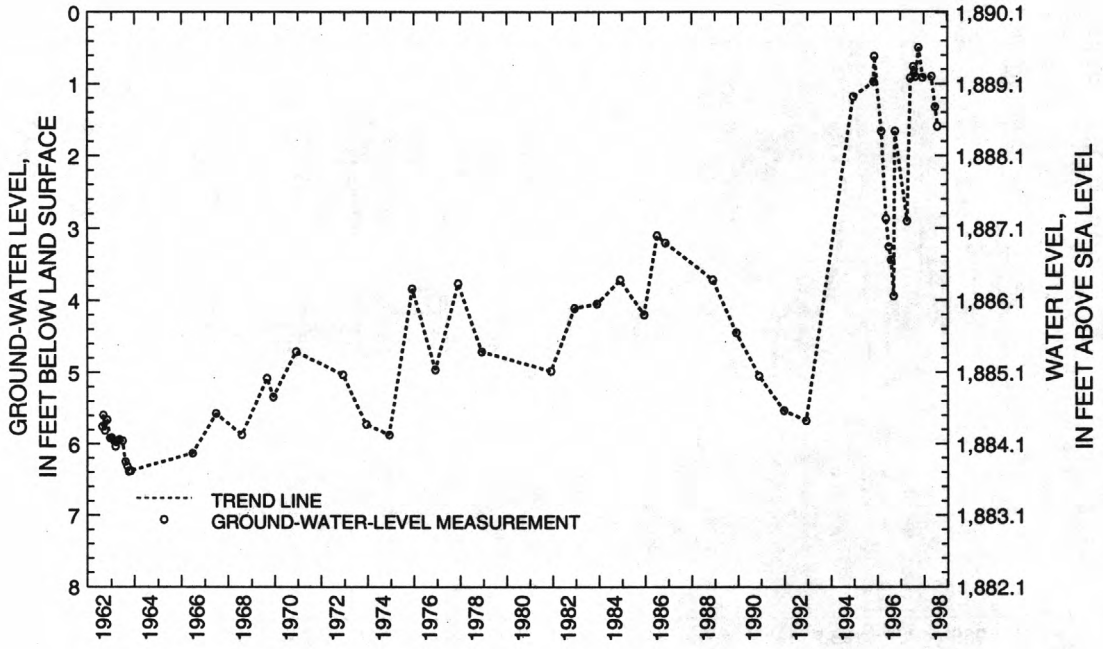
PERIOD OF RECORD.--August 1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.49 ft below land-surface datum, October 14, 1997; lowest water level measured, 6.39 ft below land-surface datum, October 2, 1963.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 14	0.49	May 4	0.90	June 30	1.32	Aug. 6	1.59
Dec. 17	.91						

142-075-19CCB



GROUND-WATER LEVELS

CASS COUNTY

463926096513801. Local number, 137-049-27BBC.

LOCATION.--Lat 46°39'26", long 96°51'38", Hydrologic Unit 09020105. Owner: North Dakota State Water Commission.

AQUIFER.--West Fargo.

WELL CHARACTERISTICS.--Drilled observation well, depth 378 ft, cased with 249 ft of 12-in diameter steel pipe, screen set 249 to 300 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From October 1979 to current year, daily minimum recorded water levels also are available.

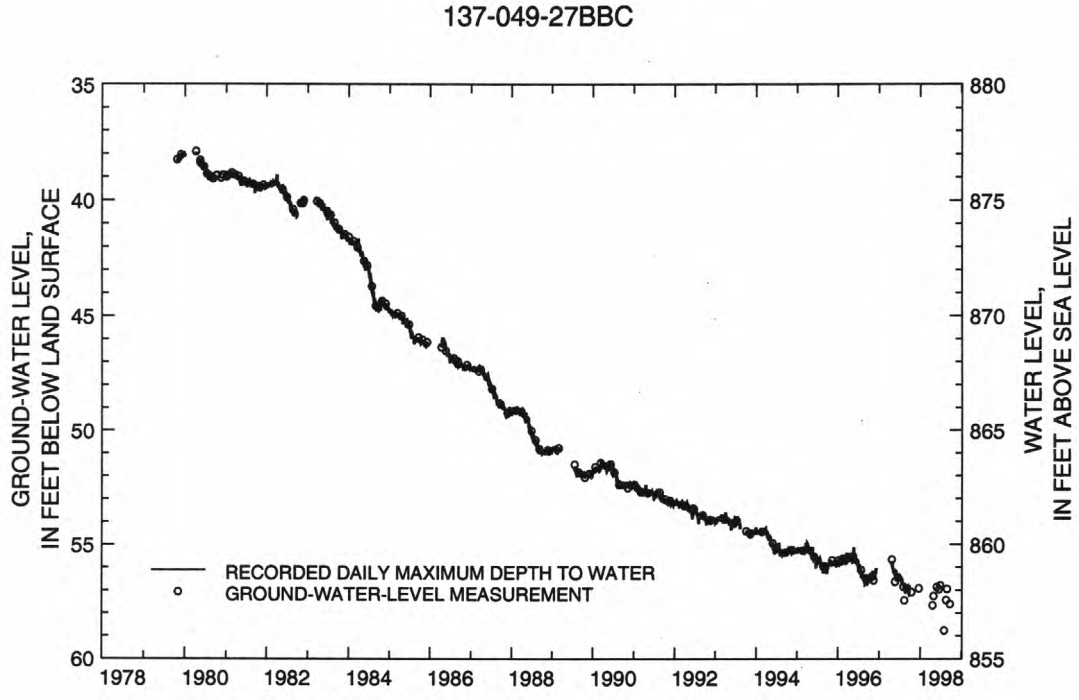
DATUM.--Altitude of land-surface datum is 915 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 37.82 ft below land-surface datum, December 6, 1979; lowest daily water level, 58.78 ft below land-surface datum, August 1, 1998.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 16	57.08	Apr. 28	57.24	June 30	56.78	Aug. 27	56.94
Dec. 18	56.92	May 27	56.85	Aug. 1	58.78	Sept. 23	57.60
Apr. 21	57.67	June 17	56.95	Aug. 19	57.43		



GROUND-WATER LEVELS

CASS COUNTY

464537096512901. Local number, 138-049-22BBA.

LOCATION.--Lat 46°45'37", long 96°51'29", Hydrologic Unit 09020104. Owner: North Dakota State Water Commission.

AQUIFER.--West Fargo.

WELL CHARACTERISTICS.--Drilled observation well, depth 310 ft, cased with 245 ft of 6-in diameter plastic pipe, No. 18 slot screen set 245 to 250 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From March 1983 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 910 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

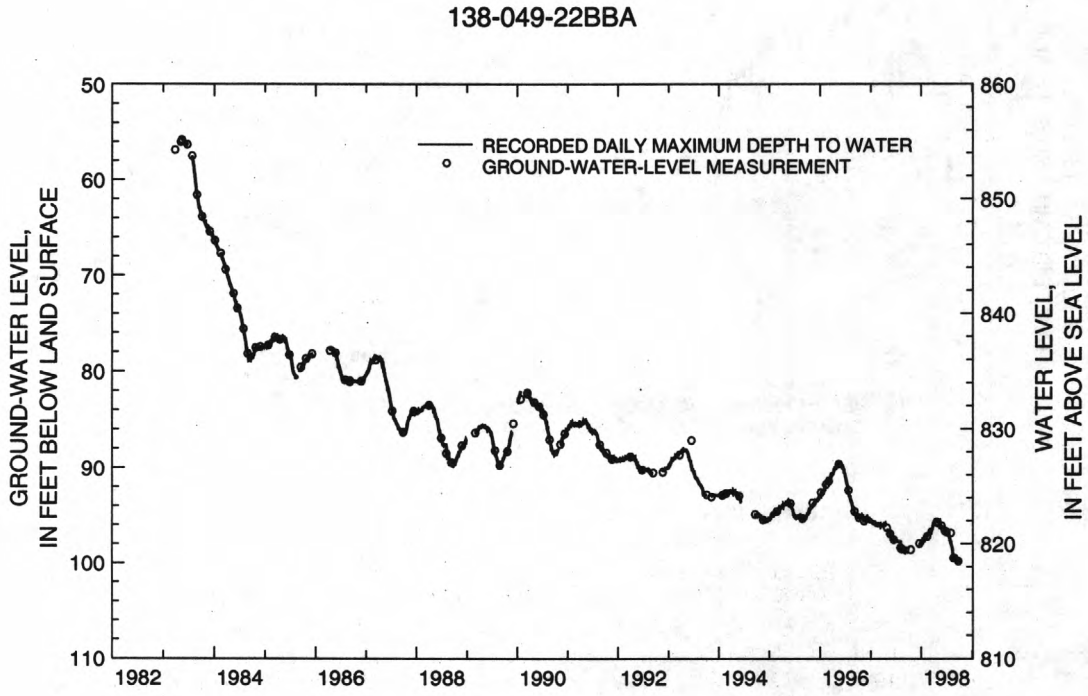
PERIOD OF RECORD.--March 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 55.67 ft below land-surface datum, May 12, 1983; lowest daily water level, 99.97 ft below land-surface datum, September 22-23, 1998.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	97.92	97.44	96.75	95.99	95.69	96.53	96.98	98.17	99.69
10	---	---	---	97.79	97.25	96.94	95.85	95.89	96.64	97.06	98.43	99.71
15	---	---	---	97.77	97.11	96.69	95.64	95.73	96.51	97.15	99.11	99.77
20	---	---	98.18	97.70	97.04	96.48	95.64	96.03	96.55	97.13	99.67	99.78
25	---	---	97.97	97.51	96.89	96.22	95.45	96.24	96.74	97.62	99.49	99.85
EOM	---	---	97.95	97.34	96.62	95.90	95.75	96.24	96.81	97.98	99.59	99.92
MAX	---	---	---	97.97	97.48	96.97	---	96.36	96.81	97.98	99.67	99.97

WATER YEAR 1998 HIGHEST WATER LEVEL 95.38 APRIL 13 LOWEST WATER LEVEL 99.97 SEPTEMBER 22-23



GROUND-WATER LEVELS

CASS COUNTY

465312096543301. Local number, 139-049-06ADB.

LOCATION.--Lat 46°53'12", long 96°54'33", Hydrologic Unit 09020204. Owner: North Dakota State Water Commission.

AQUIFER.--West Fargo.

WELL CHARACTERISTICS.--Drilled observation well, depth 230 ft, cased with 220 ft of 8-in diameter steel pipe, screen set 220 to 230 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder January 1938 to current year. Only intermittent low and EOM water levels obtained from strip chart recorders are available from the District office.

DATUM.--Altitude of land-surface datum is 891 ft. Measuring point: Top of casing 0.40 ft above land-surface datum.

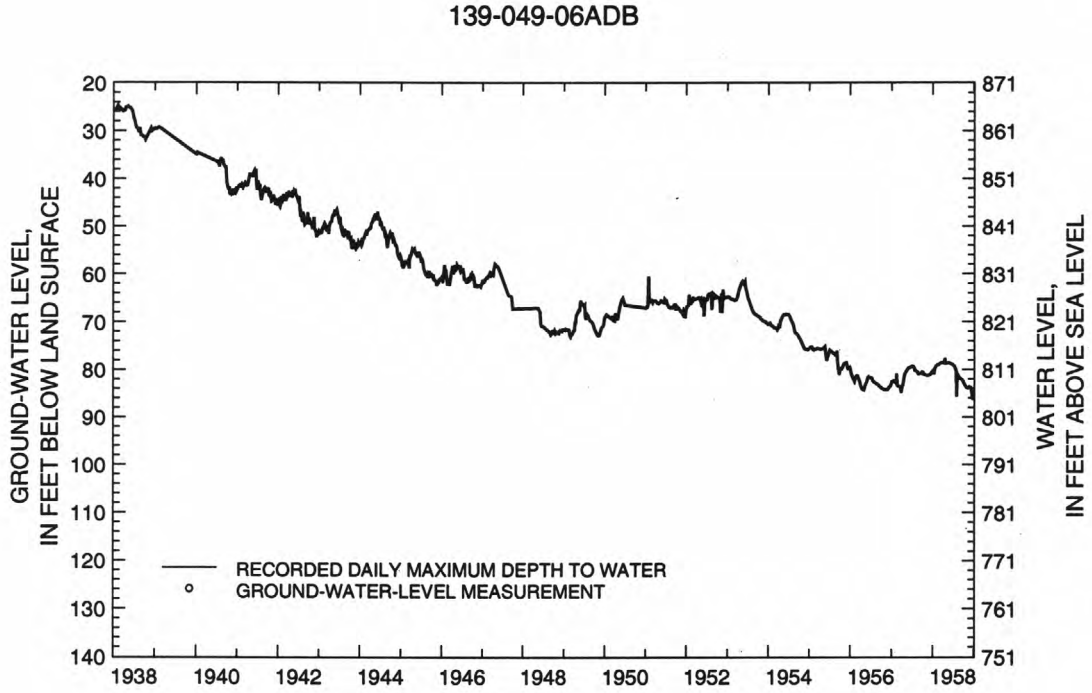
PERIOD OF RECORD.--December 1937 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 24.77 ft below land-surface datum, February 5, 1938; lowest daily water level, 129.22 ft below land-surface datum, September 9-10, 1998.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	---	---	---	---	128.76	128.77	128.82	129.09	129.20
10	---	---	---	---	---	---	---	128.76	128.85	128.87	129.11	129.22
15	---	---	---	---	---	---	---	128.76	128.78	128.88	129.17	129.20
20	---	---	---	---	---	---	---	128.74	128.70	128.91	129.17	129.16
25	---	---	---	---	---	---	---	128.78	128.71	128.94	129.17	129.18
EOM	---	---	---	---	---	---	128.76	128.81	128.76	129.01	129.16	129.18
MAX	---	---	---	---	---	---	---	128.81	128.85	129.01	129.20	129.22

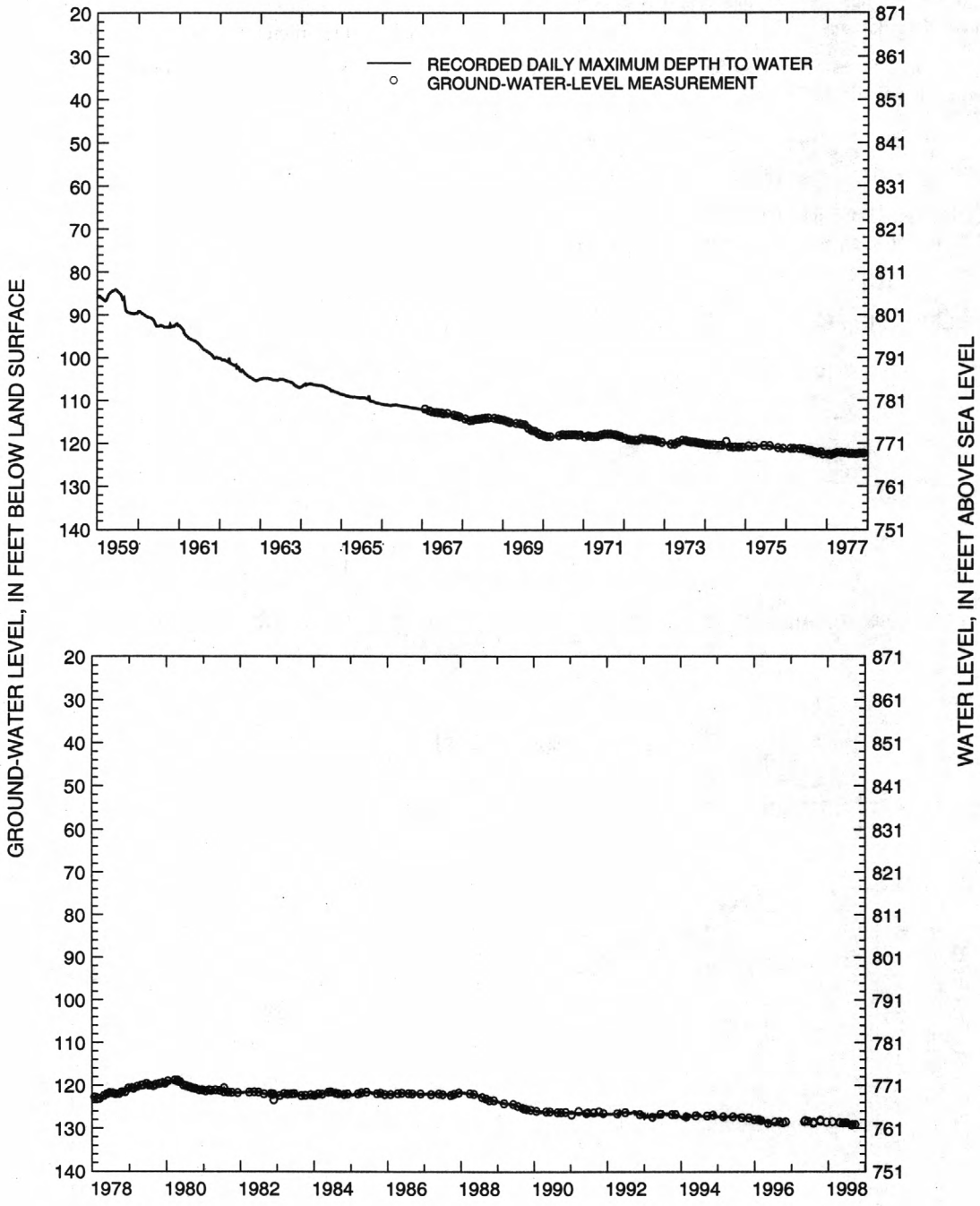
WATER YEAR 1998 HIGHEST WATER LEVEL 128.69 MAY 15-19 LOWEST WATER LEVEL 129.22 SEPTEMBER 9-10



GROUND-WATER LEVELS

CASS COUNTY

139-049-06ADB--Continued



GROUND-WATER LEVELS

CASS COUNTY

470818097294104. Local number, 142-054-03DDD4.

LOCATION.--Lat 47°08'18", long 97°29'41", Hydrologic Unit 09020107. Owner: North Dakota State Water Commission.

AQUIFER.--Page.

WELL CHARACTERISTICS.--Drilled observation well, depth 182 ft, cased with 158 ft of 6-in diameter plastic pipe, No. 12 slot screen set 158 to 168 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From October 1982 to current year, daily minimum recorded water levels also are available.

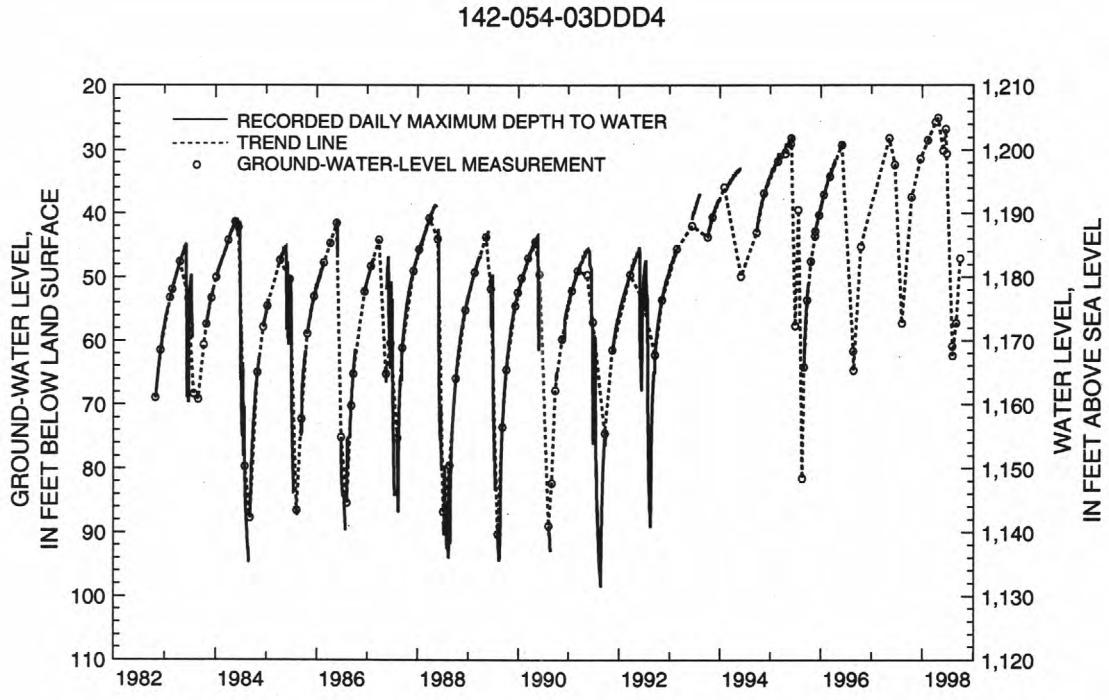
DATUM.--Altitude of land-surface datum is 1,230 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 24.97 ft below land-surface datum, April 25, 1998; lowest daily water level, 98.52 ft below land-surface datum, August 23, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 16	37.45	Apr. 7	25.68	June 17	26.77	Aug. 5	62.37
Dec. 18	31.39	Apr. 25	24.97	June 24	30.61	Sept. 1	57.25
Feb.10	28.44	May 30	30.10	Aug. 4	60.92	Sept. 30	47.10



GROUND-WATER LEVELS

CASS COUNTY

471326097332902. Local number, 143-054-08BBB2.

LOCATION.--Lat 47°13'26", long 97°33'29", Hydrologic Unit 09020107. Owner: North Dakota State Water Commission.

AQUIFER.--Page.

WELL CHARACTERISTICS.--Drilled observation well, depth 92 ft, cased with 81 ft of 5-in diameter plastic pipe, No. 15 slot screen set 81 to 86 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From September 1982 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,168 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

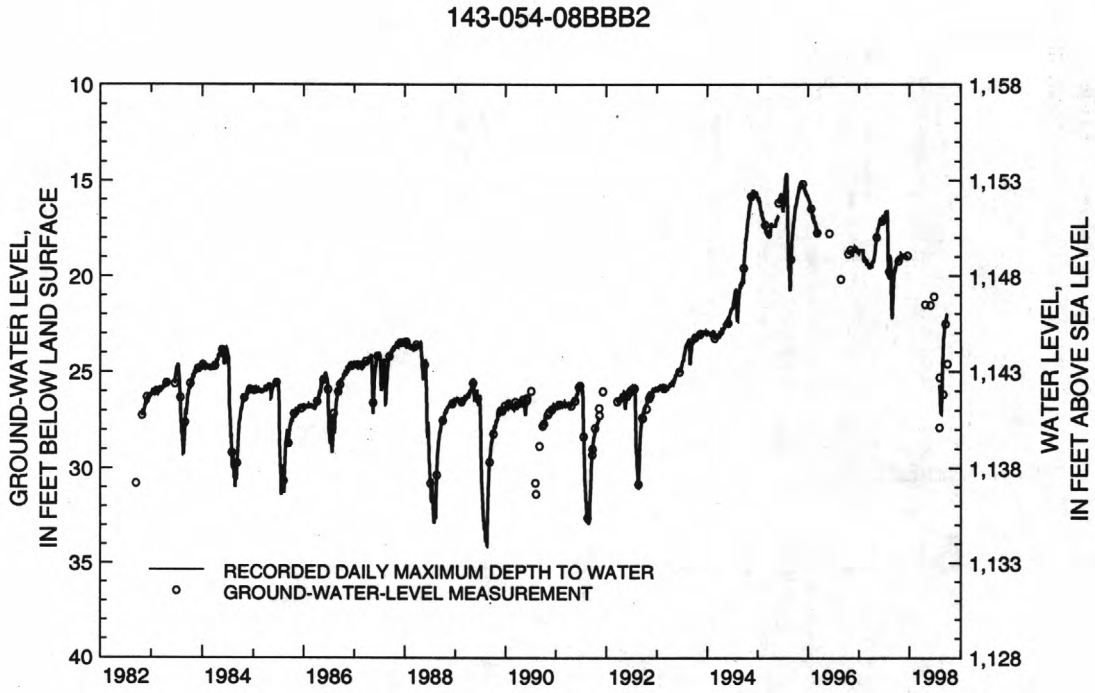
PERIOD OF RECORD.--September 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 14.61 ft below land-surface datum, July 27-28, 1995; lowest daily water level, 34.08 ft below land-surface datum, August 18, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	19.16	19.02	18.99	---	---	---	---	---	---	---	---	23.10
10	19.16	19.05	19.00	---	---	---	---	---	---	---	26.66	22.77
15	19.16	18.96	19.00	---	---	---	---	---	---	---	27.17	22.53
20	19.15	18.94	---	---	---	---	---	---	---	---	26.82	22.19
25	19.12	18.95	---	---	---	---	---	---	---	---	25.02	22.05
EOM	18.93	18.94	---	---	---	---	---	---	---	---	23.81	22.00
MAX	19.26	19.06	---	---	---	---	---	---	---	---	---	---

WATER YEAR 1998 HIGHEST WATER LEVEL 18.83 NOVEMBER 1 LOWEST WATER LEVEL 27.17 AUGUST 15



GROUND-WATER LEVELS

CAVALIER COUNTY

484534098254401. Local number, 161-060-21BBB.

LOCATION.--Lat 48°45'34", long 98°25'44", Hydrologic Unit 09020313. Owner: North Dakota State Water Commission.

AQUIFER.--Pierre Shale.

WELL CHARACTERISTICS.--Drilled observation well, depth 40 ft, cased with 10 ft of 4-in diameter steel pipe, open ended.

INSTRUMENTATION.--Measured using a steel tape.

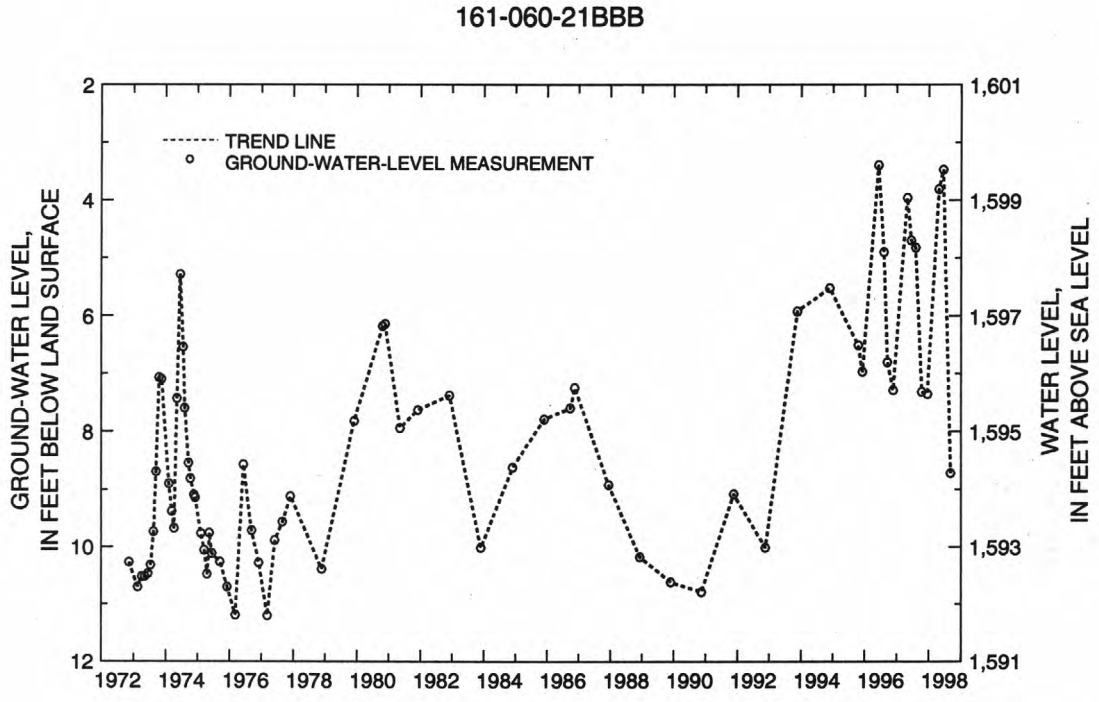
DATUM.--Altitude of land-surface datum is 1,603 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--November 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.39 ft below land-surface datum, June 6, 1996; lowest water level measured, 11.20 ft below land-surface datum, March 9, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	7.32	Apr. 27	3.81	June 16	3.47	Sept. 10	8.72
Dec. 17	7.36						



GROUND-WATER LEVELS

CAVALIER COUNTY

484444098504301. Local number, 161-063-29BBB.

LOCATION.--Lat 48°44'44", long 98°50'43", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Munich.

WELL CHARACTERISTICS.--Drilled observation well, depth 160 ft, cased with 133 ft of 1.25-in diameter plastic pipe, slotted 113 to 133 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

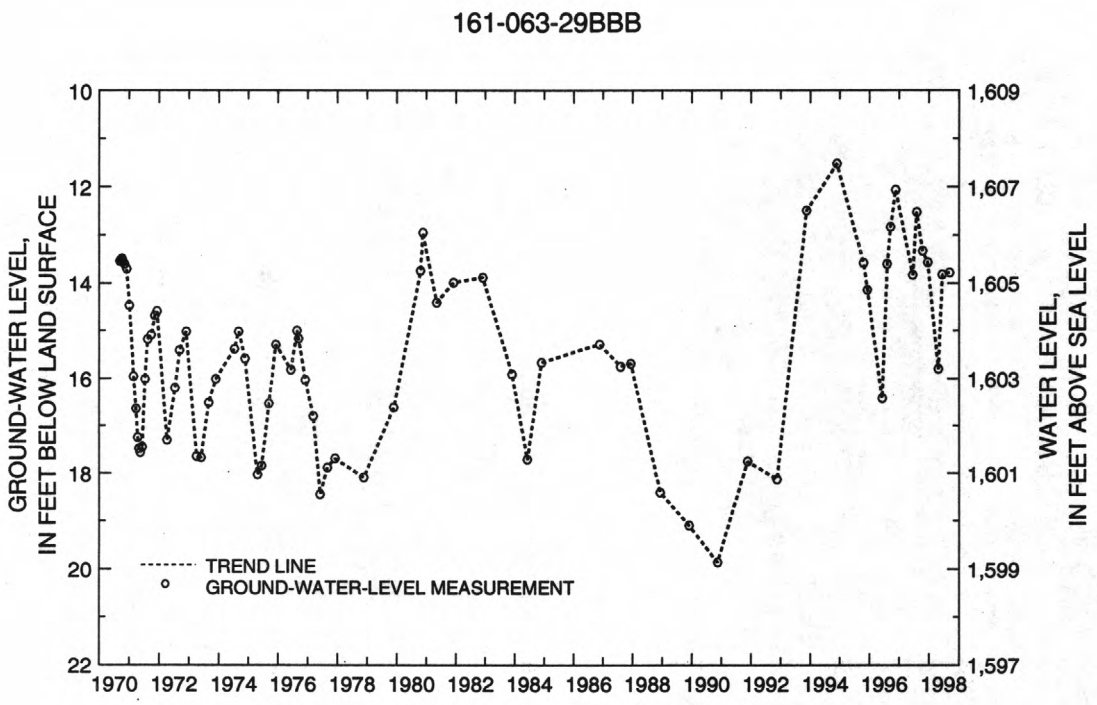
DATUM.--Altitude of land-surface datum is 1,619 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--September 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.52 ft below land-surface datum, November 28, 1994; lowest water level measured, 19.86 ft below land-surface datum, November 15, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	13.33	Apr. 27	15.80	June 16	13.82	Sept. 10	13.78
Dec. 17	13.57						



GROUND-WATER LEVELS

DICKEY COUNTY

460830098224701. Local number, 131-062-24DDD1.

LOCATION.--Lat 46°08'30", long 98°22'47", Hydrologic Unit 10160004. Owner: North Dakota State Water Commission.

AQUIFER.--Nortonville.

WELL CHARACTERISTICS.--Drilled observation well, depth 300 ft, cased with 190 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 190 to 196 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

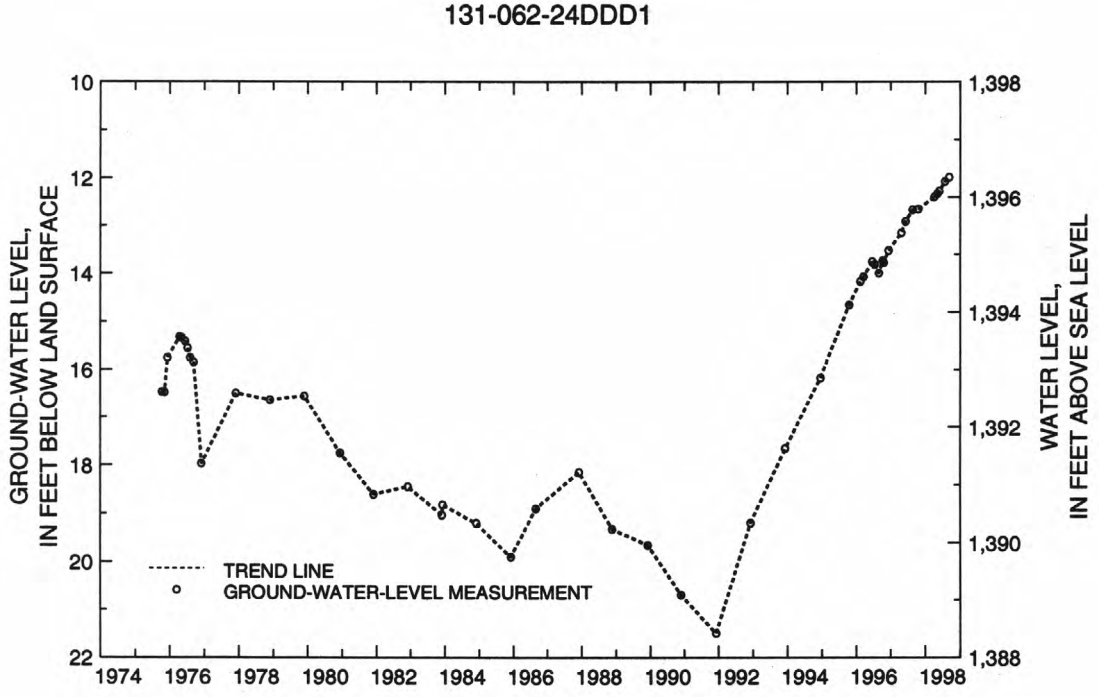
DATUM.--Altitude of land-surface datum is 1,410 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.98 ft below land-surface datum, September 10, 1998; lowest water level measured, 21.50 ft below land-surface datum, December 3, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 21	12.65	May 7	12.32	July 28	12.07	Sept. 10	11.98
Apr. 9	12.39	May 28	12.27				



GROUND-WATER LEVELS

DICKEY COUNTY

460830098224702. Local number, 131-062-24DDD2.

LOCATION.--Lat 46°08'30", long 98°22'47", Hydrologic Unit 10160004. Owner: North Dakota State Water Commission.

AQUIFER.--Ellendale.

WELL CHARACTERISTICS.--Drilled observation well, depth 100 ft, cased with 78 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 78 to 81 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

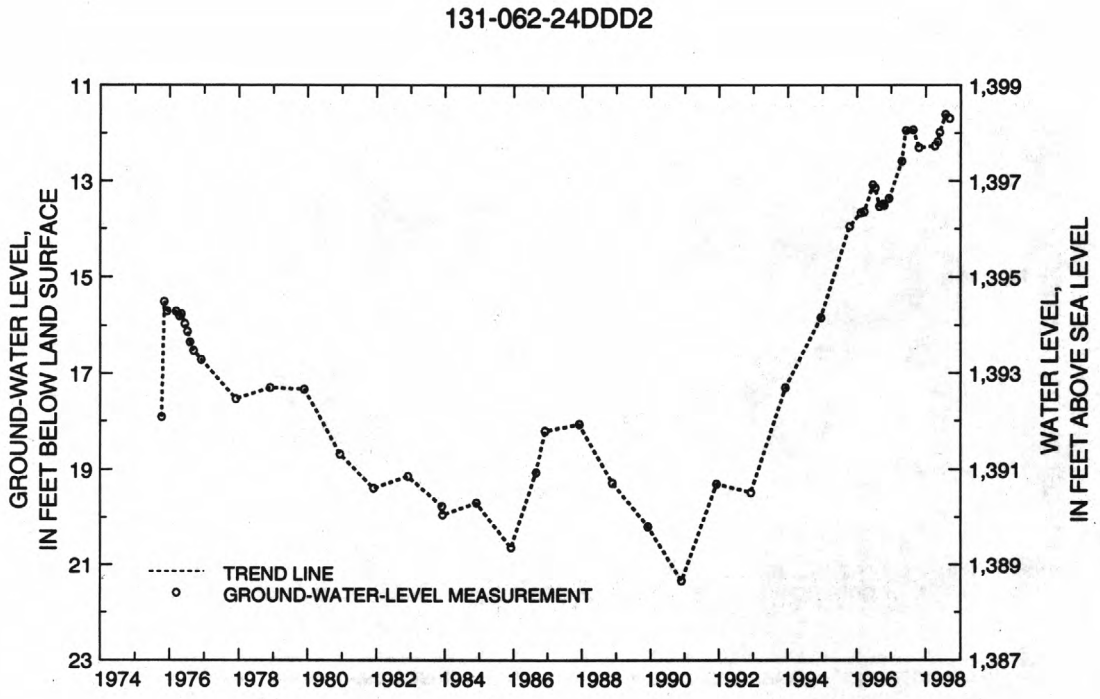
DATUM.--Altitude of land-surface datum is 1,410 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.61 ft below land-surface datum, July 28, 1998; lowest water level measured, 21.34 ft below land-surface datum, November 27, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 21	12.30	May 7	12.18	July 28	11.61	Sept. 10	11.69
Apr. 9	12.27	May 28	11.98				



GROUND-WATER LEVELS

DIVIDE COUNTY

484746104015901. Local number, 161-103-02CCB.

LOCATION.--Lat 48°47'46", long 104°01'59", Hydrologic Unit 10060007. Owner: North Dakota State Water Commission.

AQUIFER.--Skjermo Lake.

WELL CHARACTERISTICS.--Drilled observation well, depth 200 ft, cased with 91 ft of 5-in diameter steel pipe, No. 18 slot screen set 91 to 96 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder from June 1982 to September 1997, daily minimum recorded water levels also are available. Measured using a steel tape from October 1997 to present.

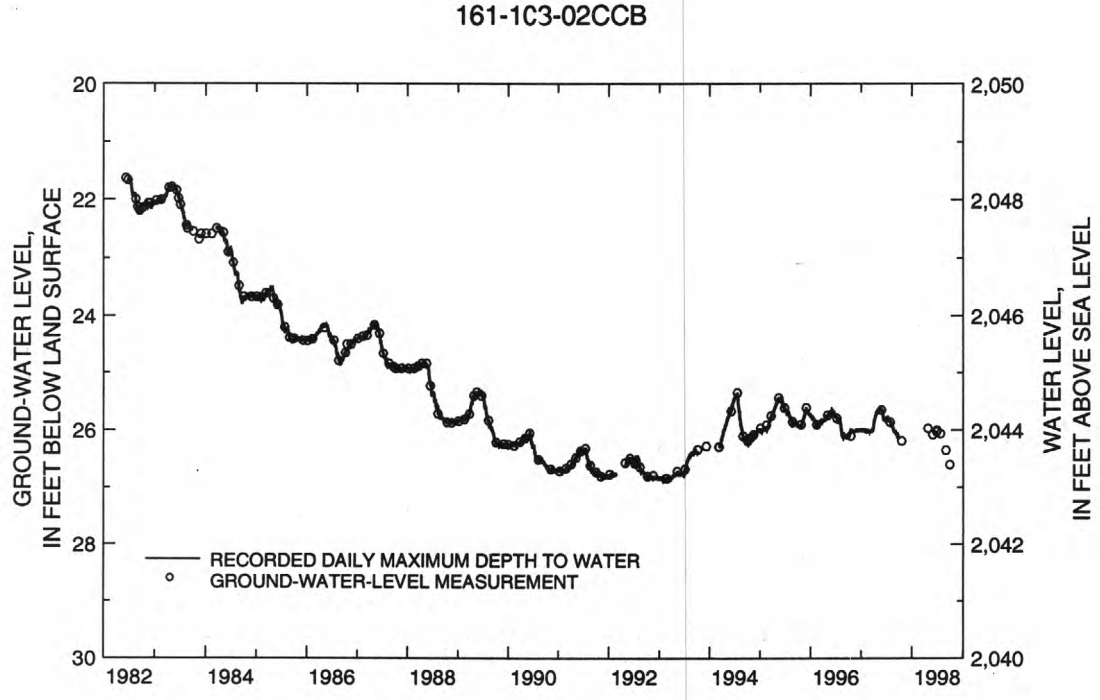
DATUM.--Altitude of land-surface datum is 2,070 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--June 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 21.61 ft below land-surface datum, July 2 and 5, 1982; lowest daily water level, 26.87 ft below land-surface datum, March 3-6, 9-12, and 16-17, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 20	26.19	May 30	26.08	June 30	26.00	Sept. 3	26.35
Apr. 28	25.97	June 28	26.03	July 25	26.06	Sept. 29	26.60



GROUND-WATER LEVELS

DIVIDE COUNTY

485439103155701. Local number, 163-097-27CCC.

LOCATION.--Lat 48°54'39", long 103°15'57", Hydrologic Unit 09010001. Owner: North Dakota State Water Commission.

AQUIFER.--Yellowstone.

WELL CHARACTERISTICS.--Drilled observation well, depth 500 ft, cased with 257 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 257 to 263 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

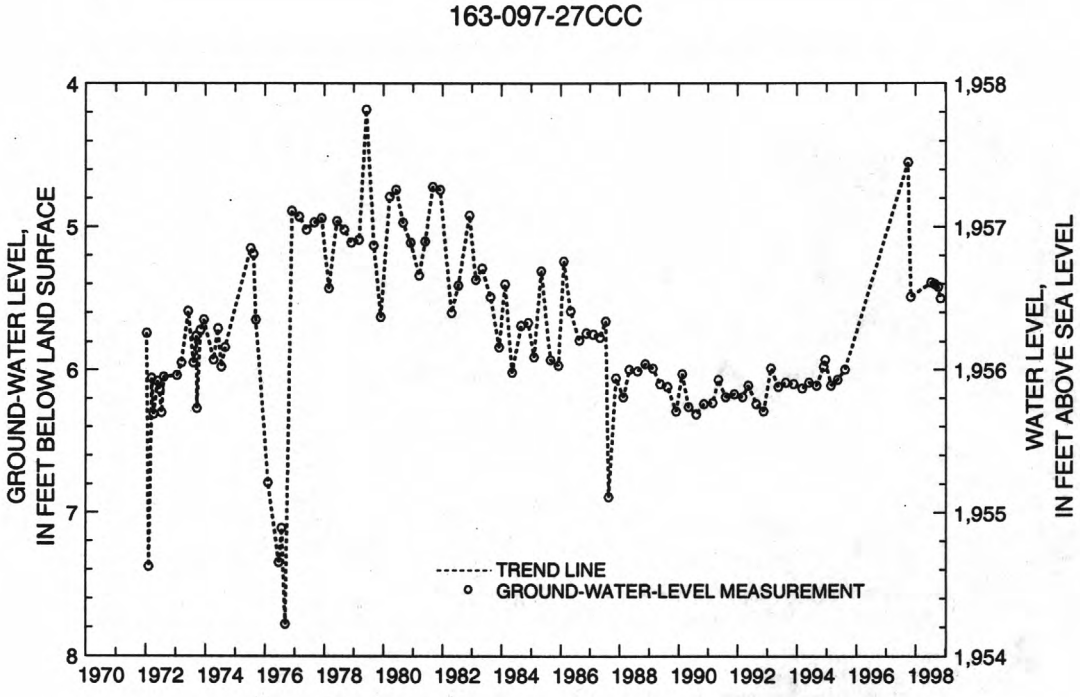
DATUM.--Altitude of land-surface datum is 1,962 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--January 1972 to August 1995 and September 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.18 ft below land-surface datum, June 5, 1979; lowest water level measured, 7.78 ft below land-surface datum, September 9, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 4	5.49	July 14	5.39	Aug. 25	5.40



GROUND-WATER LEVELS

DUNN COUNTY

471323102290101. Local number, 143-093-09BCB.

LOCATION.--Lat 47°13'23", long 102°29'01", Hydrologic Unit 10130201. Owner: North Dakota State Water Commission.

AQUIFER.--Sentinel Butte.

WELL CHARACTERISTICS.--Drilled observation well, depth 965 ft, cased with 378 ft of 2-in diameter steel pipe, No. 12 slot screen set 378 to 396 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

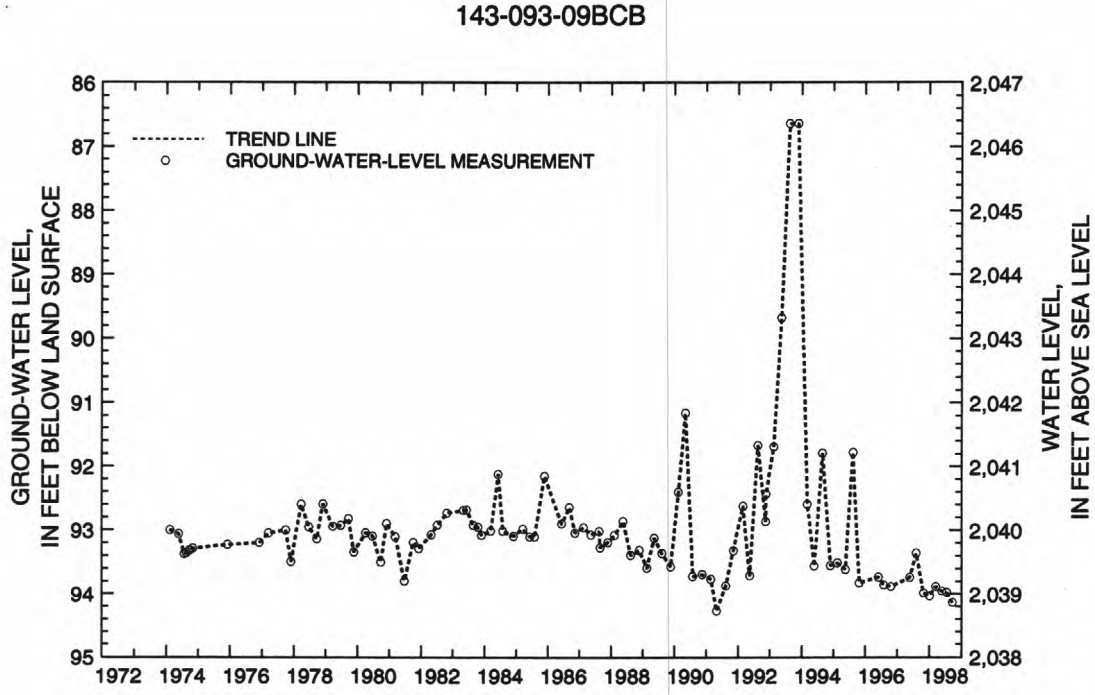
DATUM.--Altitude of land-surface datum is 2,133 ft. Measuring point: Top of casing 2.10 ft above land-surface datum.

PERIOD OF RECORD.--February 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 86.64 ft below land-surface datum, August 14, 1993 and November 19, 1993; lowest water level measured, 94.27 ft below land-surface datum, April 30, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 28	93.99	Mar. 16	93.88	July 20	93.98	Sept. 22	94.14
Jan. 6	94.03	May 25	93.96				



GROUND-WATER LEVELS

DUNN COUNTY

472144102453402. Local number, 145-095-22DAD2.

LOCATION.--Lat 47°21'44", long 102°45'34", Hydrologic Unit 10130201. Owner: North Dakota State Water Commission.

AQUIFER.--Killdeer.

WELL CHARACTERISTICS.--Drilled observation well, depth 160 ft, cased with 157 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 157 to 160 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

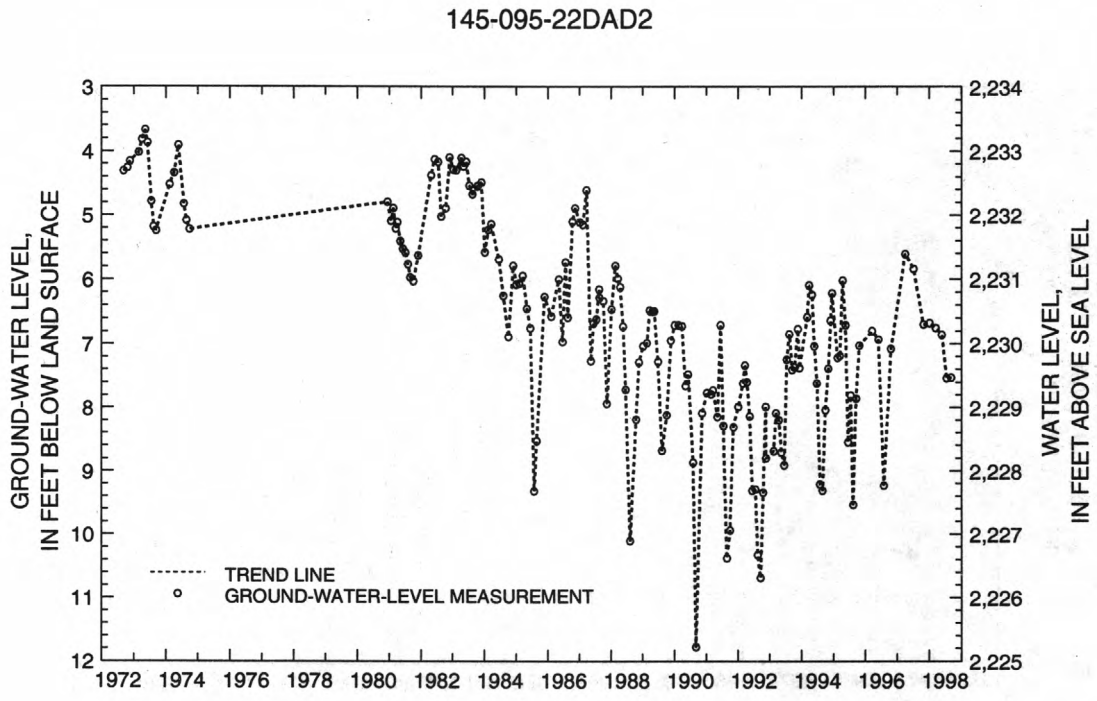
DATUM.--Altitude of land-surface datum is 2,237 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--September 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.67 ft below land-surface datum, May 9, 1973; lowest water level measured, 11.78 ft below land-surface datum, September 4, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 28	6.70	Mar. 17	6.75	July 21	7.54	Sept. 10	7.53
Jan. 6	6.68	May 26	6.86				



GROUND-WATER LEVELS

DUNN COUNTY

472144102453403. Local number, 145-095-22DAD3.

LOCATION.--Lat 47°21'44", long 102°45'34", Hydrologic Unit 10130201. Owner: North Dakota State Water Commission.

AQUIFER.--Killdeer.

WELL CHARACTERISTICS.--Drilled observation well, depth 54 ft, cased with 49 ft of 4-in diameter plastic pipe, No. 18 slot screen set 49 to 54 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

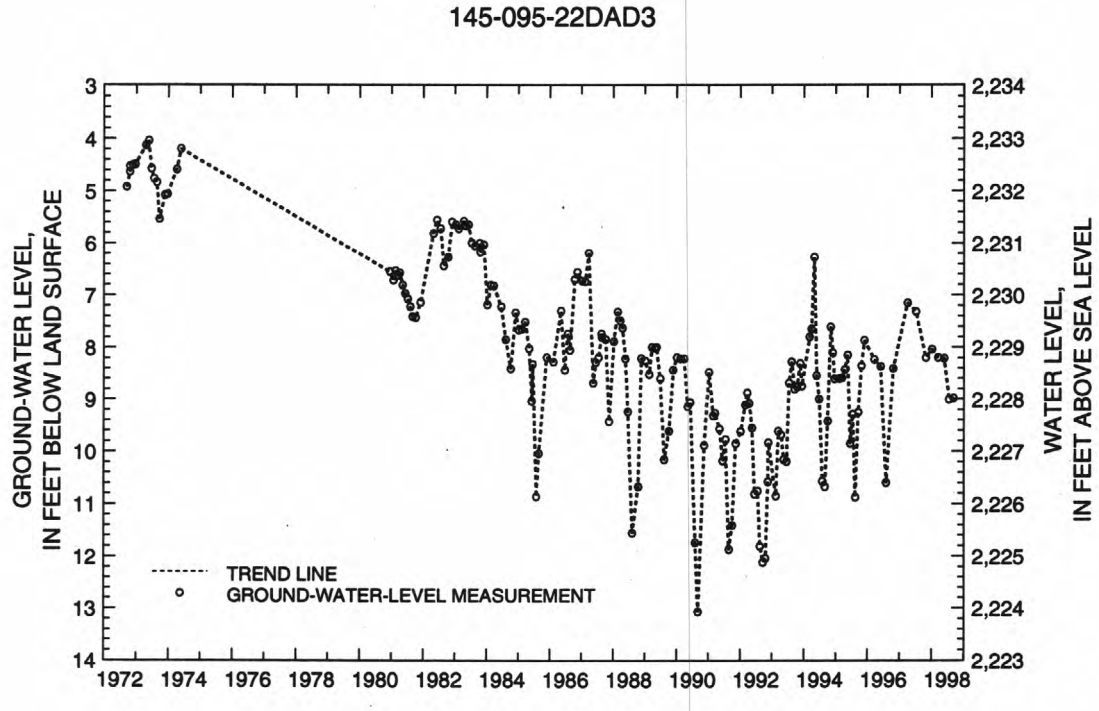
DATUM.--Altitude of land-surface datum is 2,237 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

PERIOD OF RECORD.--September 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.04 ft below land-surface datum, May 20, 1973; lowest water level measured, 13.07 ft below land-surface datum, September 4, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 28	8.20	Mar. 17	8.20	July 21	9.01	Sept. 10	8.98
Jan. 6	8.04	May 26	8.21				



GROUND-WATER LEVELS

DUNN COUNTY

472537102144801. Local number, 146-091-35BBC.

LOCATION.--Lat 47°25'37", long 102°14'48", Hydrologic Unit 10110205. Owner: North Dakota State Water Commission.

AQUIFER.--Goodman Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 320 ft, cased with 218 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 218 to 221 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

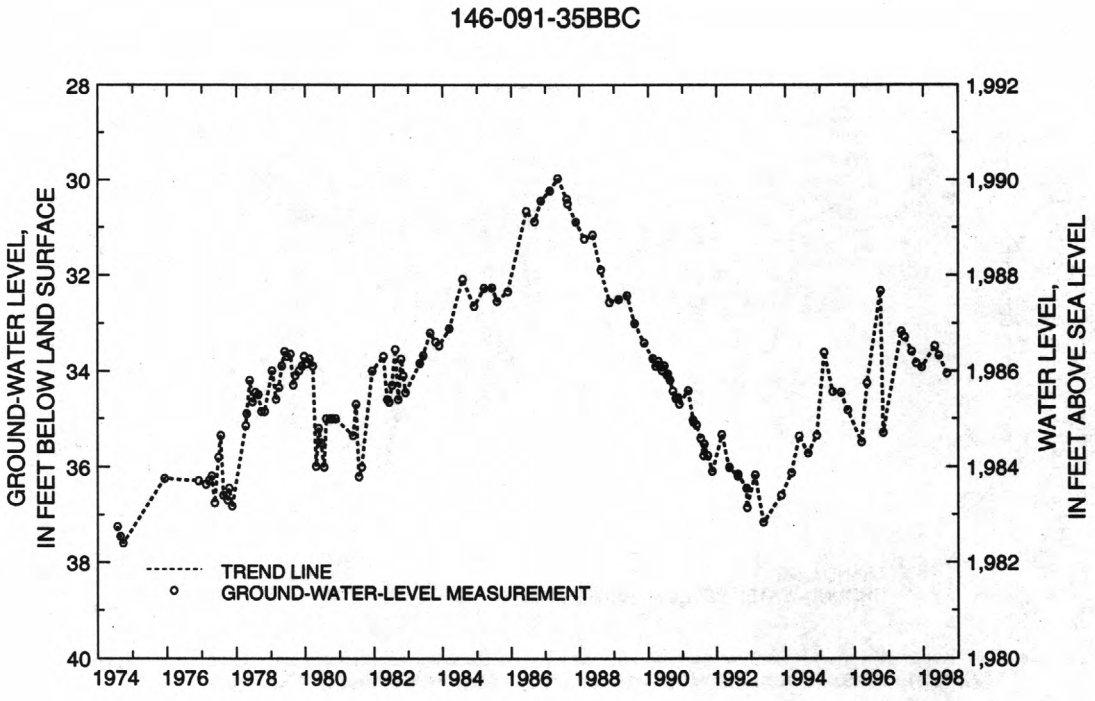
DATUM.--Altitude of land-surface datum is 2,020 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--July 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.97 ft below land-surface datum, May 14, 1987; lowest water level measured, 37.60 ft below land-surface datum, September 24, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 20	33.83	May 5	33.48	June 16	33.68	Sept. 10	34.05
Dec. 16	33.92						



GROUND-WATER LEVELS

EDDY COUNTY

473934099032301. Local number, 148-066-03DDC.

LOCATION.--Lat 47°39'34", long 99°03'23", Hydrologic Unit 10160001. Owner: North Dakota State Water Commission.

AQUIFER.--New Rockford.

WELL CHARACTERISTICS.--Drilled observation well, depth 252 ft, cased with 218 ft of 1.25-in diameter plastic pipe, slotted 210 to 218 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,493 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

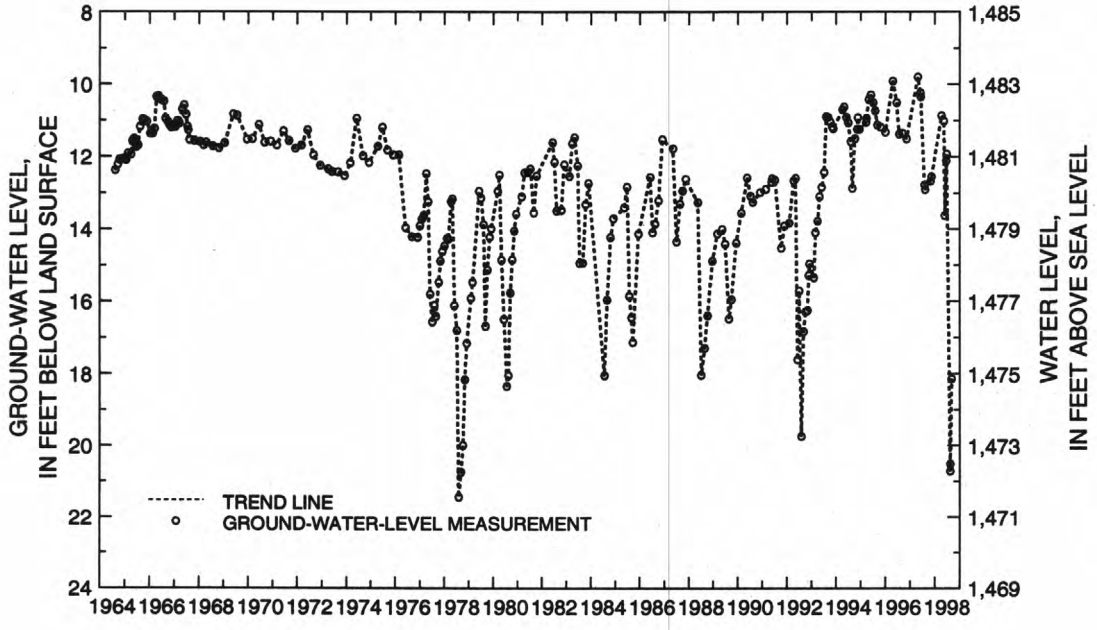
PERIOD OF RECORD.--August 1964 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.80 ft below land-surface datum, April 30, 1997; lowest water level measured, 21.44 ft below land-surface datum, August 1, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 3	12.67	May 19	11.01	June 29	11.92	Sept. 9	18.14
Nov. 18	12.55	June 3	13.62	Aug. 18	20.52		
Apr. 15	10.86	June 23	12.11	Aug. 20	20.72		

148-066-03DDC



GROUND-WATER LEVELS

EMMONS COUNTY

462539100061101. Local number, 134-075-15BBB.

LOCATION.--Lat 46°25'39", long 100°06'11", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 280 ft, cased with 97 ft of 1.25-in diameter plastic pipe, screen set 97 to 103 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

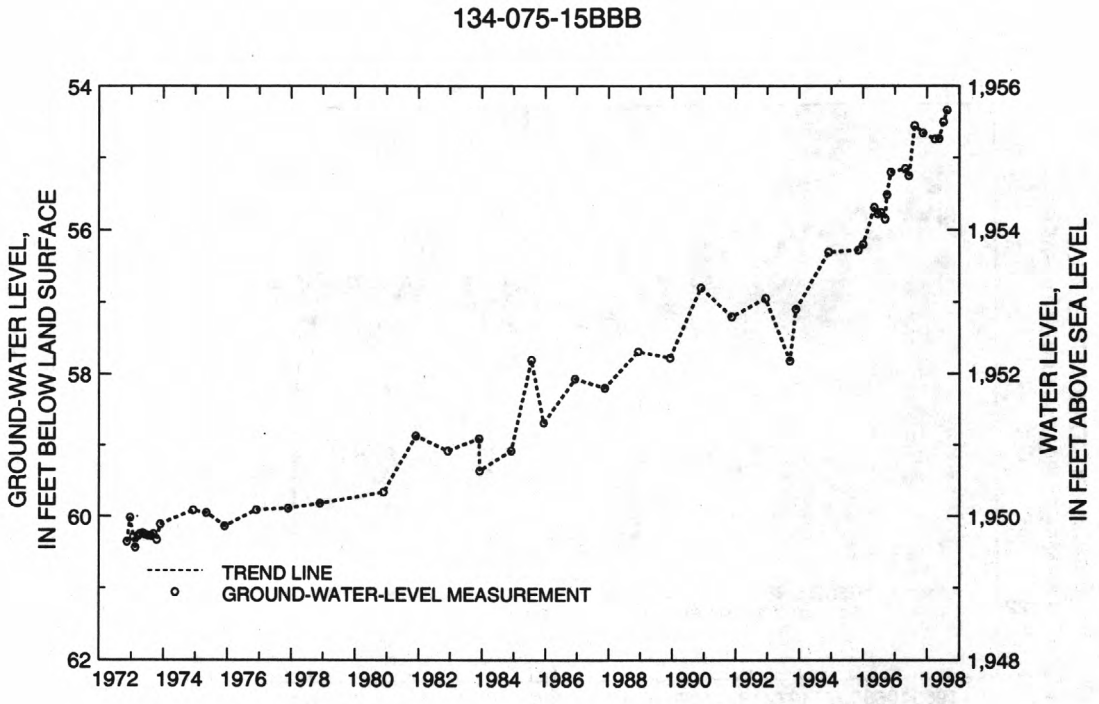
DATUM.--Altitude of land-surface datum is 2,010 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--November 1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.33 ft below land-surface datum, August 18, 1998; lowest water level measured, 60.44 ft below land-surface datum, February 15, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 17	54.65	May 19	54.73	July 8	54.50	Aug. 18	54.33
Apr. 2	54.74						



GROUND-WATER LEVELS

FOSTER COUNTY

473051099093601. Local number, 147-067-35AAA.

LOCATION.--Lat 47°30'51", long 99°09'36", Hydrologic Unit 10160001. Owner: North Dakota State Water Commission.

AQUIFER.--Carrington.

WELL CHARACTERISTICS.--Drilled observation well, depth 100 ft, cased with 77.7 ft of 8-in diameter plastic pipe, No. 18 slot screen set 77.7 to 87.7 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From July 1991 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,567.03 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--July 1991 to current year.

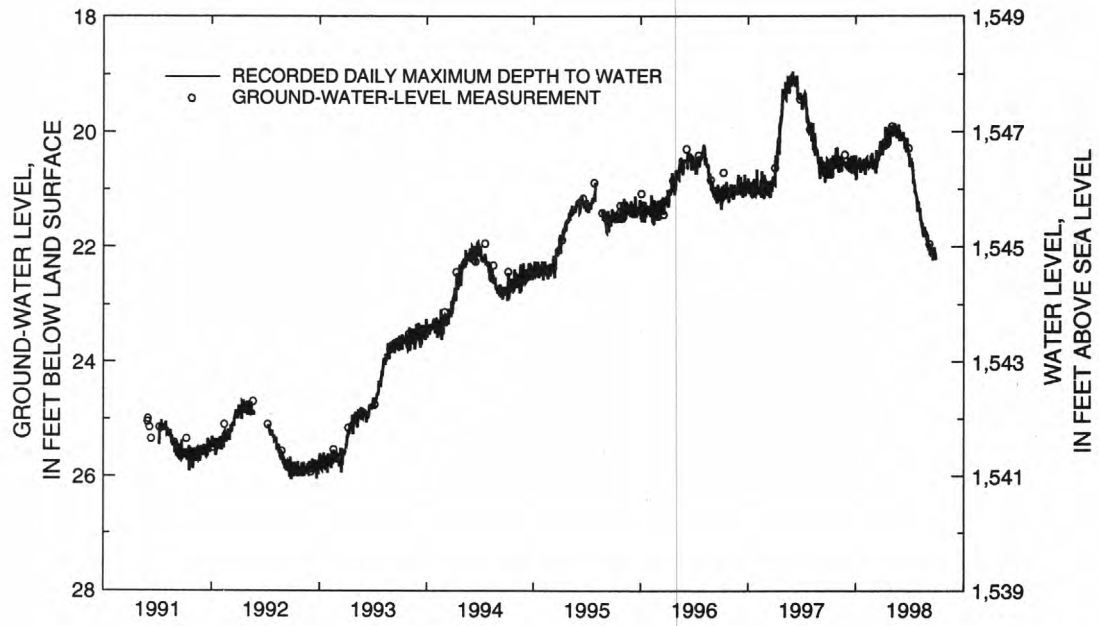
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 18.80 ft below land-surface datum, May 17, 1997; lowest daily water level, 26.06 ft below land-surface datum, September 27, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	20.68	20.70	20.61	20.53	20.60	20.53	20.13	19.96	20.14	20.51	21.38	22.03
10	20.79	20.57	20.62	20.63	20.61	20.70	20.16	20.01	20.05	20.56	21.53	22.06
15	20.79	20.67	20.48	20.45	20.55	20.52	---	19.89	20.12	20.88	21.59	22.16
20	20.61	20.53	20.66	20.67	20.57	20.42	20.17	20.06	20.17	20.94	21.83	22.21
25	20.63	20.52	20.57	20.63	20.47	20.17	19.98	20.02	20.19	21.09	21.76	22.04
EOM	20.38	20.62	20.73	20.54	20.61	20.27	19.90	20.10	20.42	21.33	21.88	22.22
MAX	20.79	20.70	20.73	20.83	20.74	20.70	---	20.16	20.42	21.34	21.88	22.22

WATER YEAR 1998 HIGHEST WATER LEVEL 19.71 MAY 4 LOWEST WATER LEVEL 22.22 SEPTEMBER 30

147-067-35AAA



GROUND-WATER LEVELS

GOLDEN VALLEY COUNTY

465421103590706. Local number, 140-105-30CCC6.

LOCATION.--Lat 46°54'21", long 103°59'07", Hydrologic Unit 10110204. Owner: North Dakota State Water Commission.

AQUIFER.--Hell Creek-Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 1,140 ft, cased with 1,050 ft of 4-in diameter steel pipe, screen set 1,050 to 1,130 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

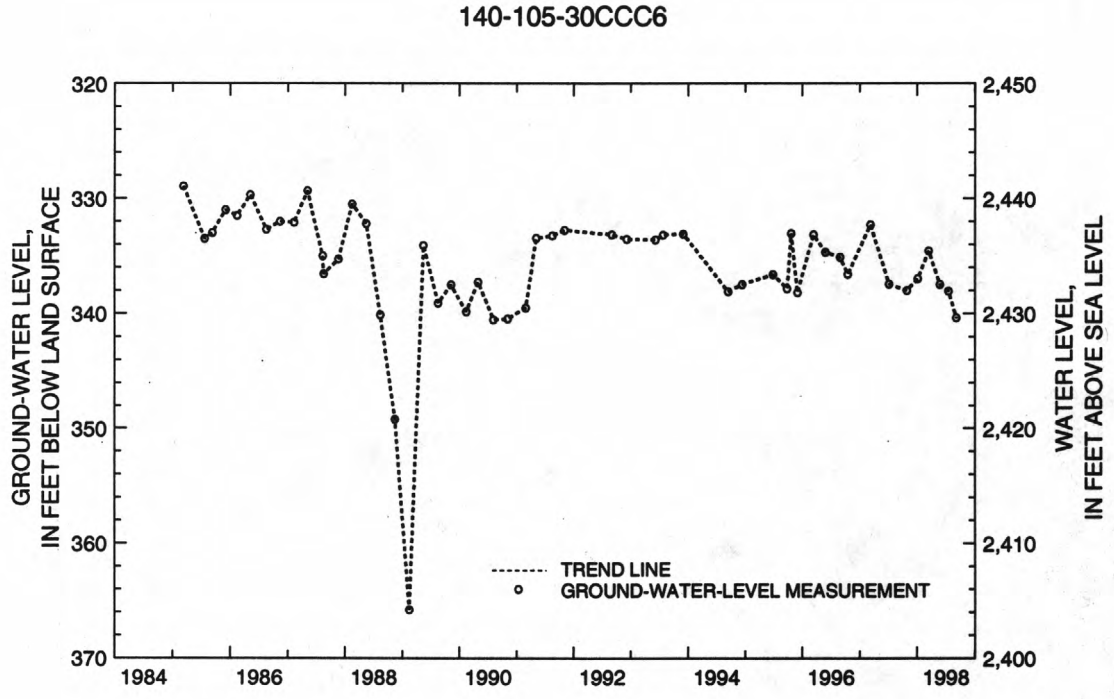
DATUM.--Altitude of land-surface datum is 2,770 ft. Measuring point: Top of casing 1.50 ft above land-surface datum.

PERIOD OF RECORD.--March 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 328.95 ft below land-surface datum, March 11, 1985; lowest water level measured, 365.80 ft below land-surface datum, February 13, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 27	338.01	Mar. 16	334.57	July 20	338.07	Sept. 8	340.38
Jan. 6	336.99	May 27	337.49				



GROUND-WATER LEVELS

GRAND FORKS COUNTY

475646097372201. Local number, 152-054-31BBB.

LOCATION.--Lat 47°56'46", long 97°37'22", Hydrologic Unit 09020307. Owner: North Dakota State Water Commission.

AQUIFER.--Elk Valley.

WELL CHARACTERISTICS.--Drilled observation well, depth 84 ft, cased with 60 ft of 4-in diameter plastic pipe, slotted 50 to 60 ft below land-surface datum.

INSTRUMENTATION.--Water-level data September 1965 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for June 1968 to September 1973. From October 1973 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,127 ft. Measuring point: Top of casing 1.70 ft above land-surface datum.

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

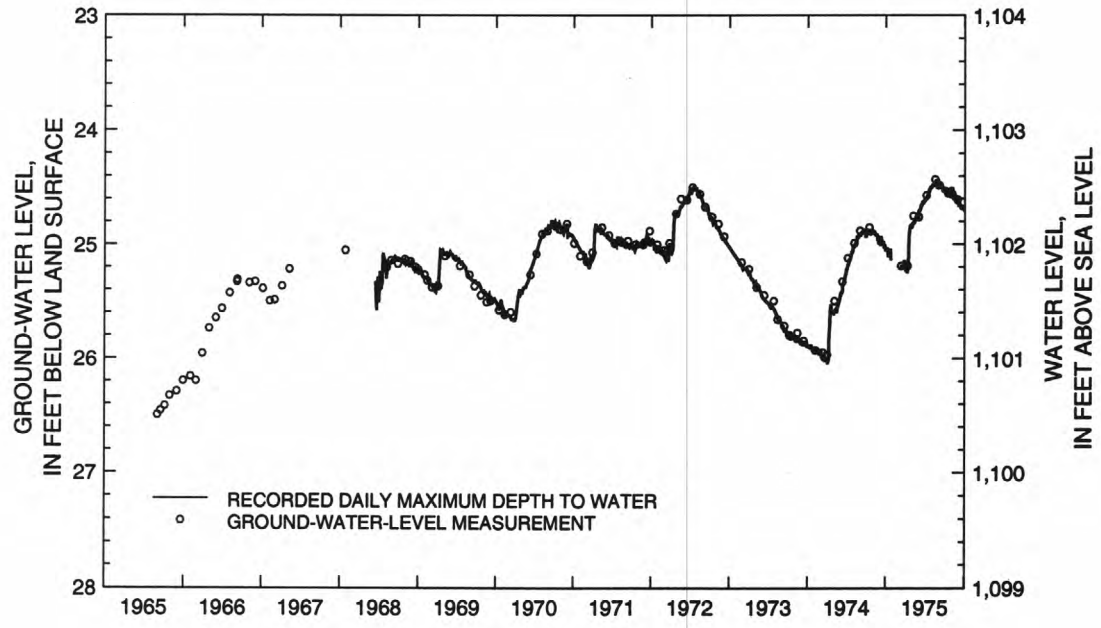
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 23.58 ft below land-surface datum, October 1, 4, and 5, 1987; lowest daily water level, 27.30 ft below land-surface datum, May 15-30, 1991 and June 2-10, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	25.54	25.05	24.95	24.89	24.85	24.75	24.67	24.58	24.99	25.58	26.03	26.60
10	25.46	25.03	24.94	24.86	24.85	24.81	24.66	24.58	25.17	25.43	26.17	26.63
15	25.40	25.01	24.93	24.85	24.83	24.80	24.66	24.56	25.39	25.42	26.25	---
20	25.15	24.99	24.94	24.85	24.85	24.79	24.64	24.56	25.51	25.51	26.41	---
25	25.12	24.96	24.91	24.84	24.83	24.75	24.60	24.55	25.56	25.64	26.42	---
EOM	25.06	24.96	24.91	24.83	24.75	24.69	24.60	24.75	25.58	25.82	26.42	---
MAX	25.61	25.05	---	24.91	24.85	24.81	---	24.75	25.58	25.82	26.42	---

WATER YEAR 1998 HIGHEST WATER LEVEL 24.55 MAY 15-16, 22-28
LOWEST WATER LEVEL 26.73 SEPTEMBER 14

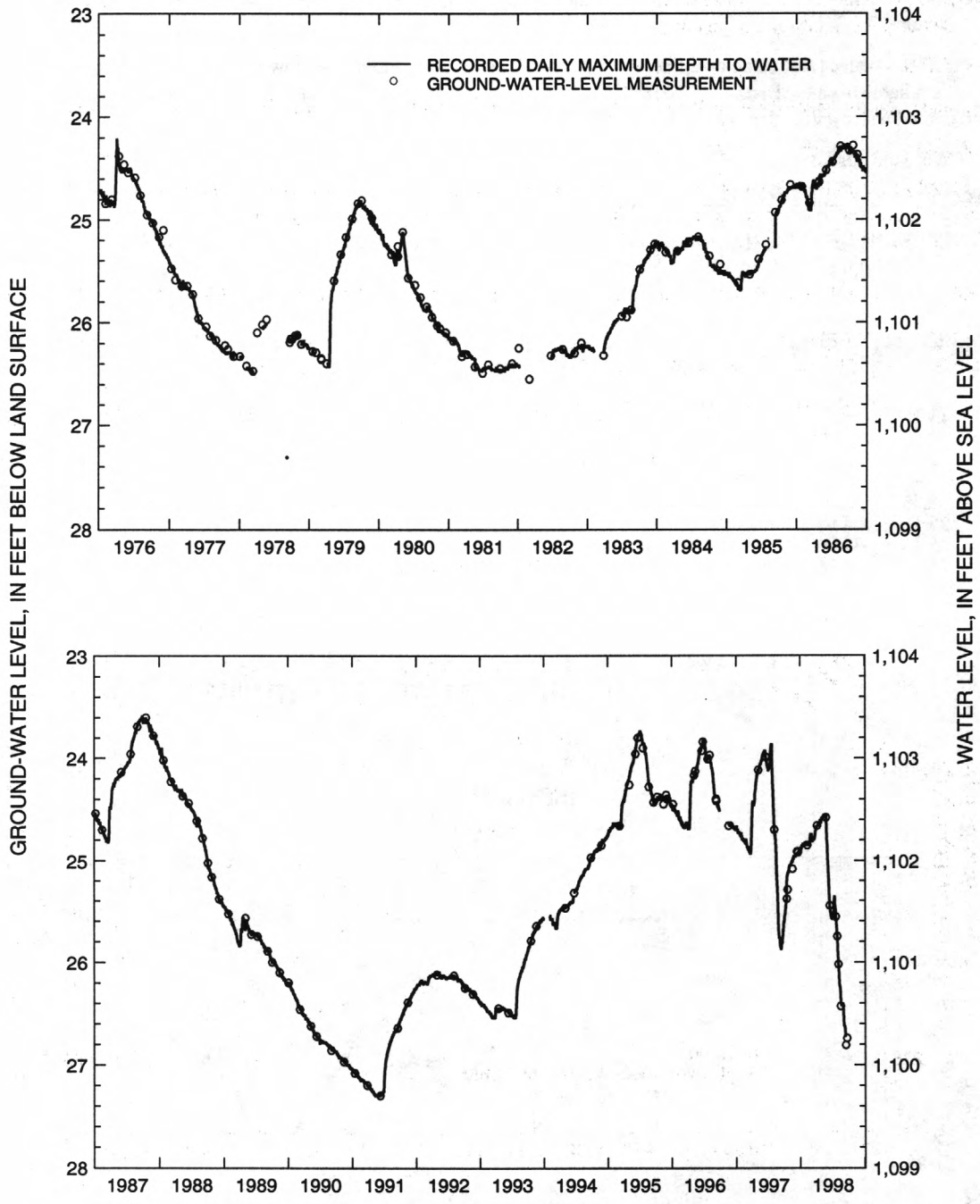
152-054-31BBB



GROUND-WATER LEVELS

GRAND FORKS COUNTY

152-054-31BBB--Continued



GROUND-WATER LEVELS

GRANT COUNTY

463000101575101. Local number, 135-090-23BBB1.

LOCATION.--Lat 46°30'00", long 101°57'51", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 1,080 ft, cased with 1,029 ft of 2-in diameter steel pipe, No. 12 slot screen set 1,029 to 1,047 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

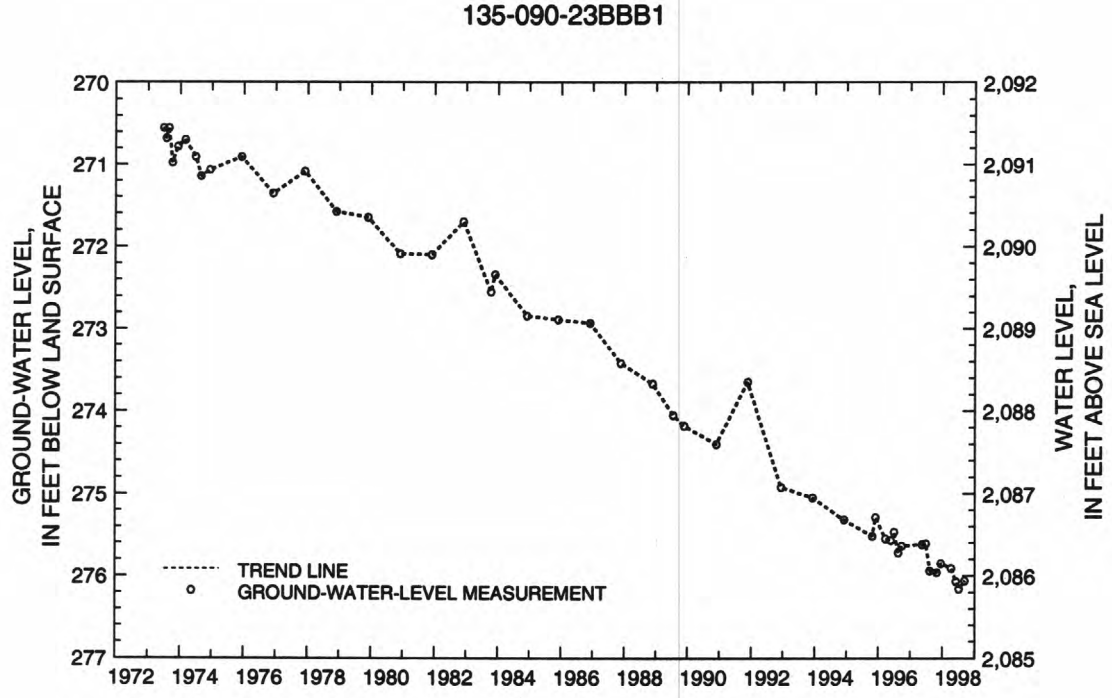
DATUM.--Altitude of land-surface datum is 2,362 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

PERIOD OF RECORD.--June 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 270.55 ft below land-surface datum, June 27, 1973, and August 24, 1973; lowest water level measured, 276.16 ft below land-surface datum, July 9, 1998.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 28	275.96	Apr. 14	275.91	July 9	276.16	Sept. 14	276.06
Dec. 15	275.85	June 4	276.07				



GROUND-WATER LEVELS

GRANT COUNTY

463000101575102. Local number, 135-090-23BBB2.

LOCATION.--Lat 46°30'00", long 101°57'51", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Tongue River.

WELL CHARACTERISTICS.--Drilled observation well, depth 300 ft, cased with 277 ft of 1.25-in diameter plastic pipe, screen set 277 to 283 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

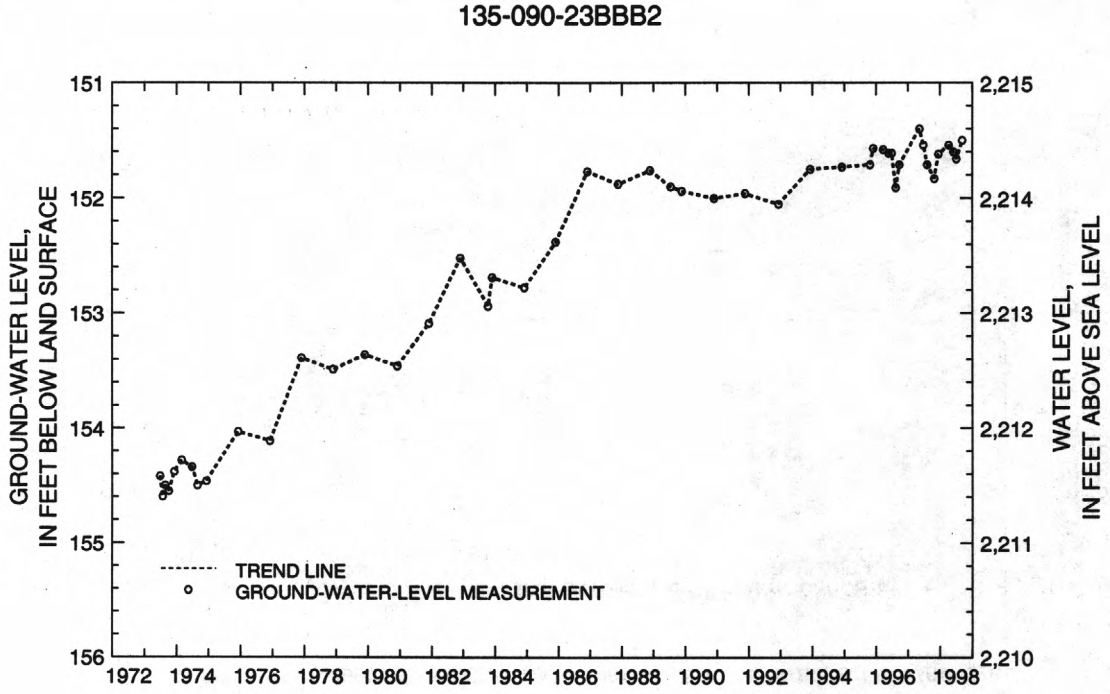
DATUM.--Altitude of land-surface datum is 2,366 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--June 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 151.40 ft below land-surface datum, May 12, 1997; lowest water level measured, 154.60 ft below land-surface datum, July 25, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 28	151.83	Apr. 14	151.54	July 9	151.66	Sept. 14	151.50
Dec. 15	151.62	June 4	151.60				



GROUND-WATER LEVELS

GRIGGS COUNTY

472412098261201. Local number, 145-061-04DAD1.

LOCATION.--Lat 47°24'12", long 98°26'12", Hydrologic Unit 09020203. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 160 ft, cased with 102 ft of 6-in diameter plastic pipe, No. 30 slot screen set 102 to 107 ft below land-surface datum.

INSTRUMENTATION.--Water-level data December 1970 to current year. From March 1974 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,470 ft. Measuring point: Top of casing 1.60 ft above land-surface datum.

PERIOD OF RECORD.--December 1970 to current year.

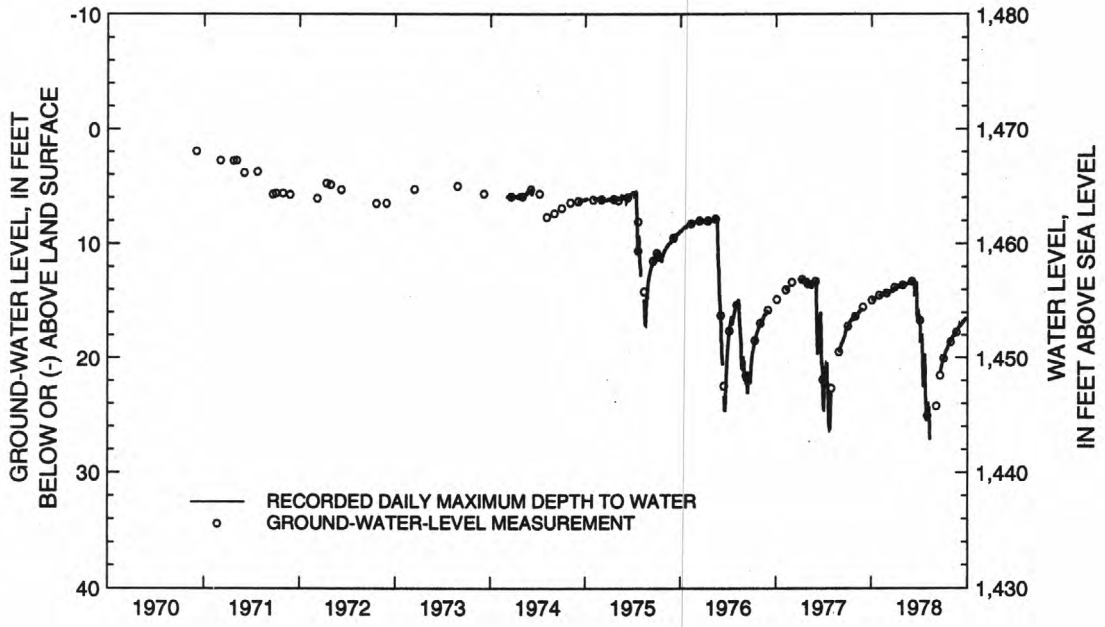
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, -0.73 ft below land-surface datum, December 4, 1995; lowest daily water level, 33.90 ft below land-surface datum, August 14, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	1.37	---	---	---	---	---	1.33	1.64	1.99	11.19	8.21
10	---	1.36	---	---	---	---	---	1.31	1.59	1.90	11.18	7.95
15	---	1.31	---	---	---	---	---	1.15	2.95	4.84	10.95	7.60
20	1.50	---	---	---	---	---	---	1.19	2.52	6.24	10.48	7.50
25	1.49	---	---	---	---	---	---	1.22	2.13	9.00	8.58	7.48
EOM	1.33	---	---	---	---	---	1.41	1.78	2.00	9.04	8.26	7.47
MAX	---	---	---	---	---	---	---	1.95	3.29	9.20	11.19	8.24

WATER YEAR 1998 HIGHEST WATER LEVEL 1.13 MAY 15-16 LOWEST WATER LEVEL 11.19 AUGUST 4-7

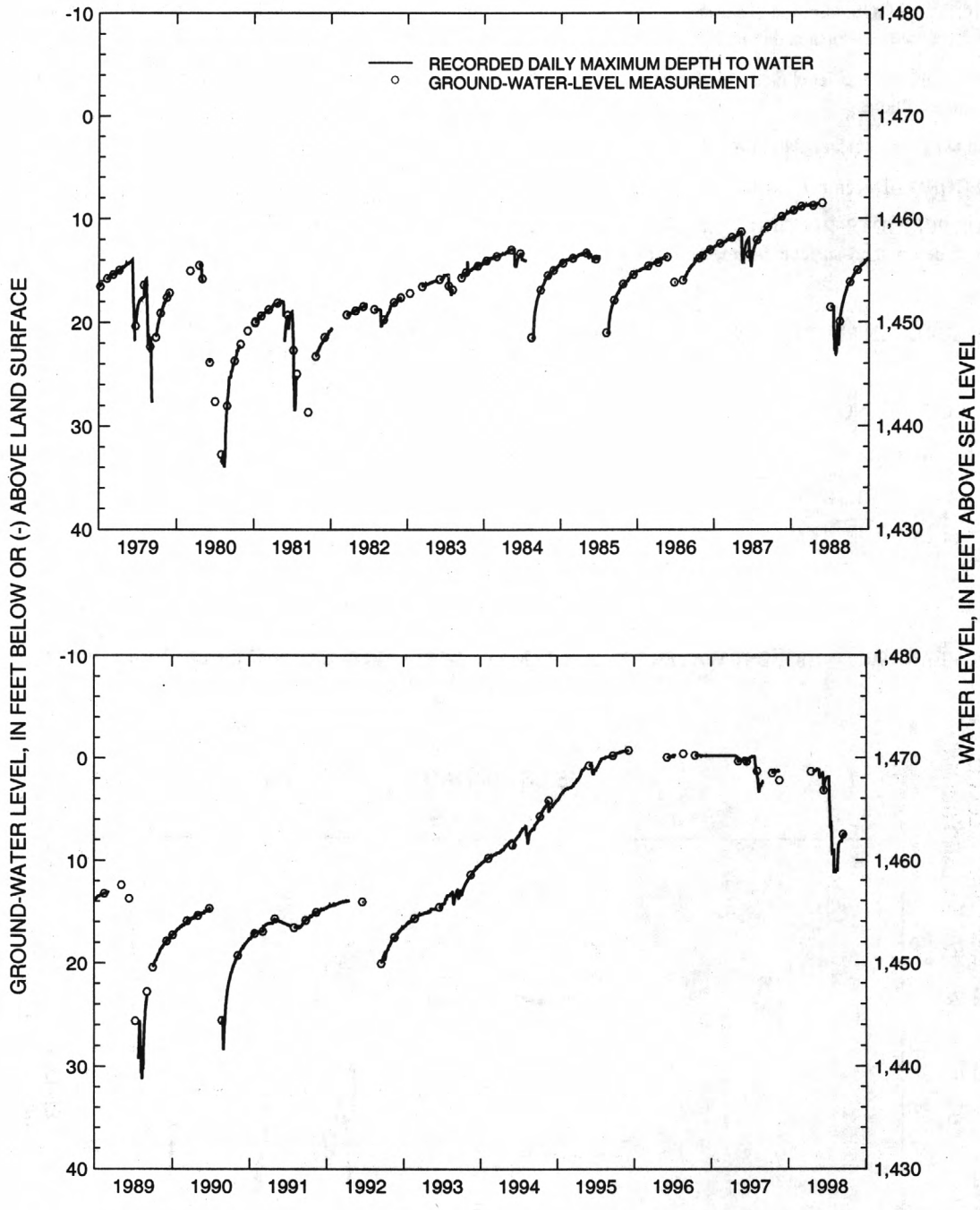
145-061-04DAD1



GROUND-WATER LEVELS

GRIGGS COUNTY

145-061-04DAD1--Continued



GROUND-WATER LEVELS

GRIGGS COUNTY

472555098013501. Local number, 146-058-26CBC.

LOCATION.--Lat 47°25'55", long 98°01'35", Hydrologic Unit 09020203. Owner: North Dakota State Water Commission.

AQUIFER.--McVille.

WELL CHARACTERISTICS.--Drilled observation well, depth 160 ft, cased from 0 to 38 ft with 6-in diameter plastic pipe and from 38 to 138 ft with 4-in diameter plastic pipe, screen set 138 to 143 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

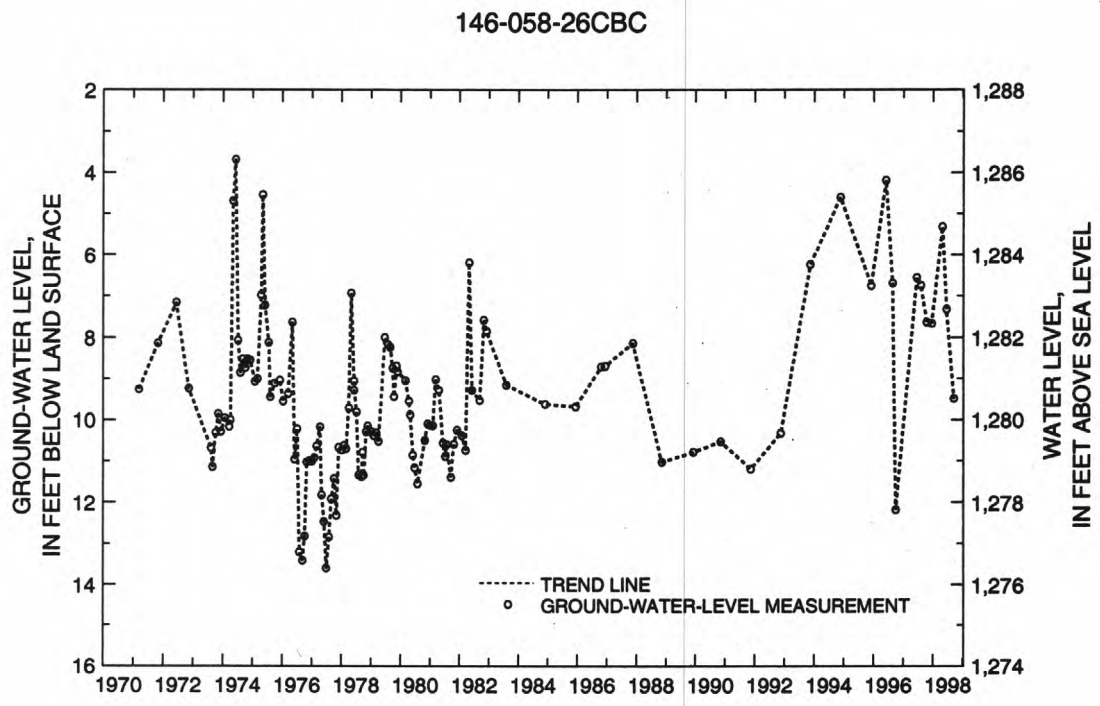
DATUM.--Altitude of land-surface datum is 1,290 ft. Measuring point: Top of casing 3.60 ft above land-surface datum.

PERIOD OF RECORD.--March 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.68 ft below land-surface datum, June 6, 1974; lowest water level measured, 13.6 ft below land-surface datum, June 29, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 199

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	7.63	Apr. 27	5.32	June 16	7.32	Sept. 14	9.49
Dec. 17	7.66						



GROUND-WATER LEVELS

GRIGGS COUNTY

473425098232901. Local number, 147-061-01CCC.

LOCATION.--Lat 47°34'25", long 98°23'29", Hydrologic Unit 09020203. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 340 ft, cased with 237 ft of 1.25-in diameter plastic pipe, No. 25 slot screen set 237 to 240 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,525 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

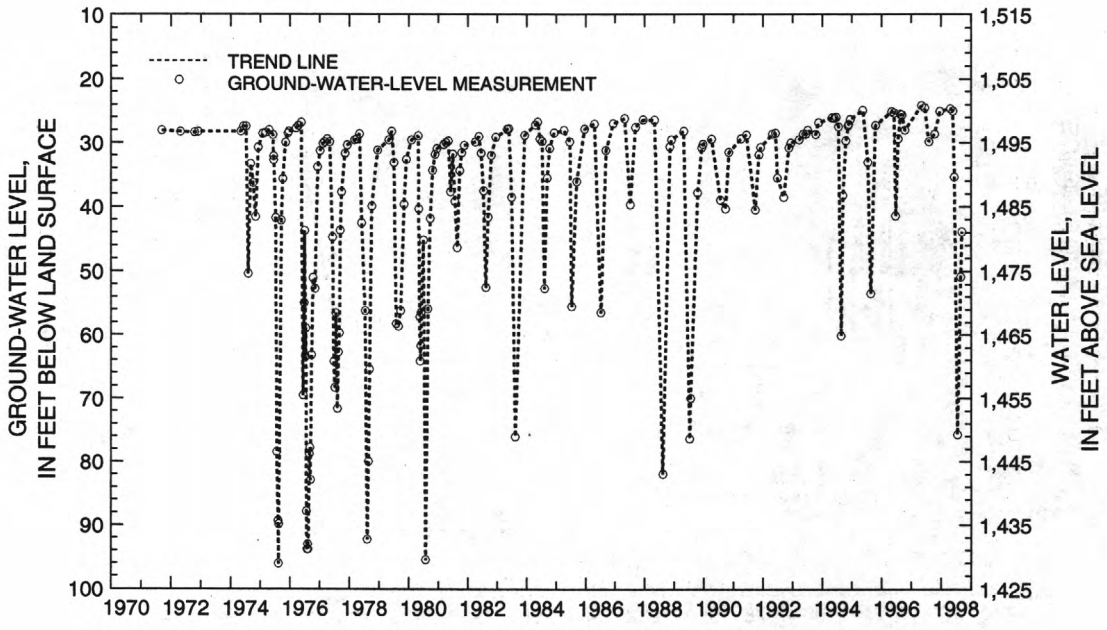
PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.17 ft below land-surface datum, May 8, 1997; lowest water level measured, 96.10 ft below land-surface datum, August 12, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	28.58	Apr. 27	24.64	June 16	35.38	Sept. 1	50.86
Dec. 17	25.09	May 27	24.97	July 22	75.71	Sept. 15	43.87

147-061-01CCC



GROUND-WATER LEVELS

HETTINGER COUNTY

463153102521001. Local number, 135-097-04DCA.

LOCATION.--Lat 46°31'53", long 102°52'10", Hydrologic Unit 10130204. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 1,360 ft, cased with 1,320 ft of 4-in diameter steel pipe, open ended.

INSTRUMENTATION.--Measured using a steel tape.

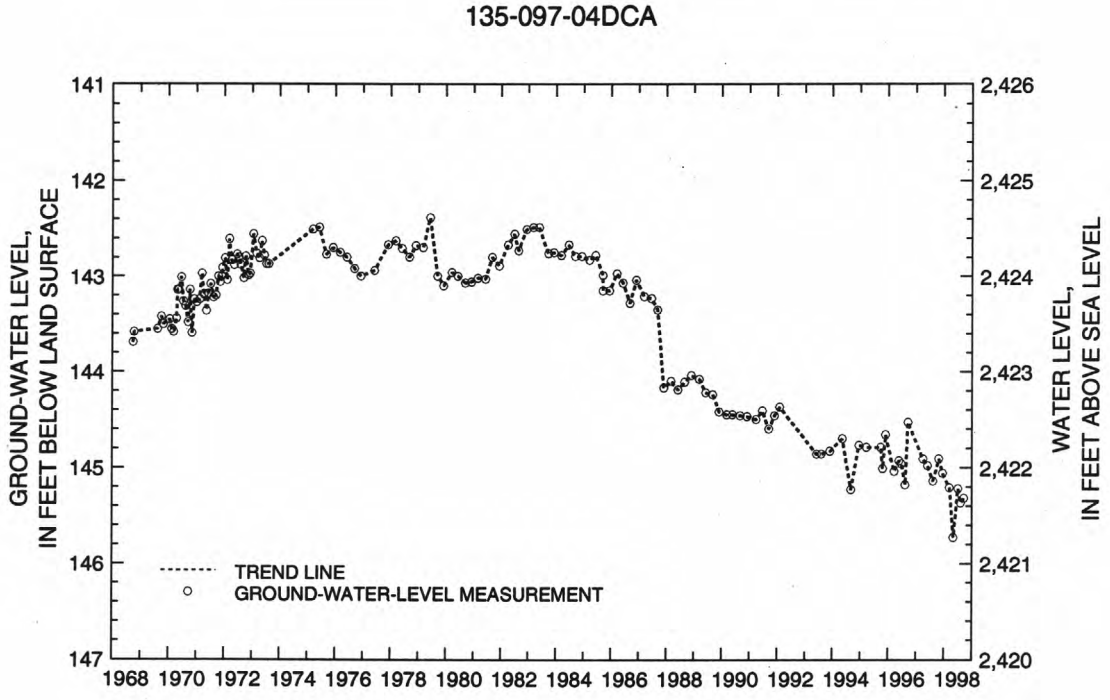
DATUM.--Altitude of land-surface datum is 2,567 ft. Measuring point: Top of casing 0.80 ft above land-surface datum.

PERIOD OF RECORD.--September 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 142.39 ft below land-surface datum, June 4, 1979; lowest water level measured, 145.73 ft below land-surface datum, May 6, 1998.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 31	144.91	Mar. 18	145.21	July 8	145.22	Sept. 23	145.32
Dec. 17	145.06	May 6	145.73	Aug. 12	145.37		



GROUND-WATER LEVELS

KIDDER COUNTY

465518099391602. Local number, 140-071-28BBA2.

LOCATION.--Lat 46°55'18", long 99°39'16", Hydrologic Unit 10130103. Owner: U.S. Geological Survey.

AQUIFER.--Long Lake.

WELL CHARACTERISTICS.--Drilled observation well, depth 90 ft, cased with 90 ft of 8-in diameter steel pipe, slotted 60 to 90 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From May 5, 1997, to current, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,760 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

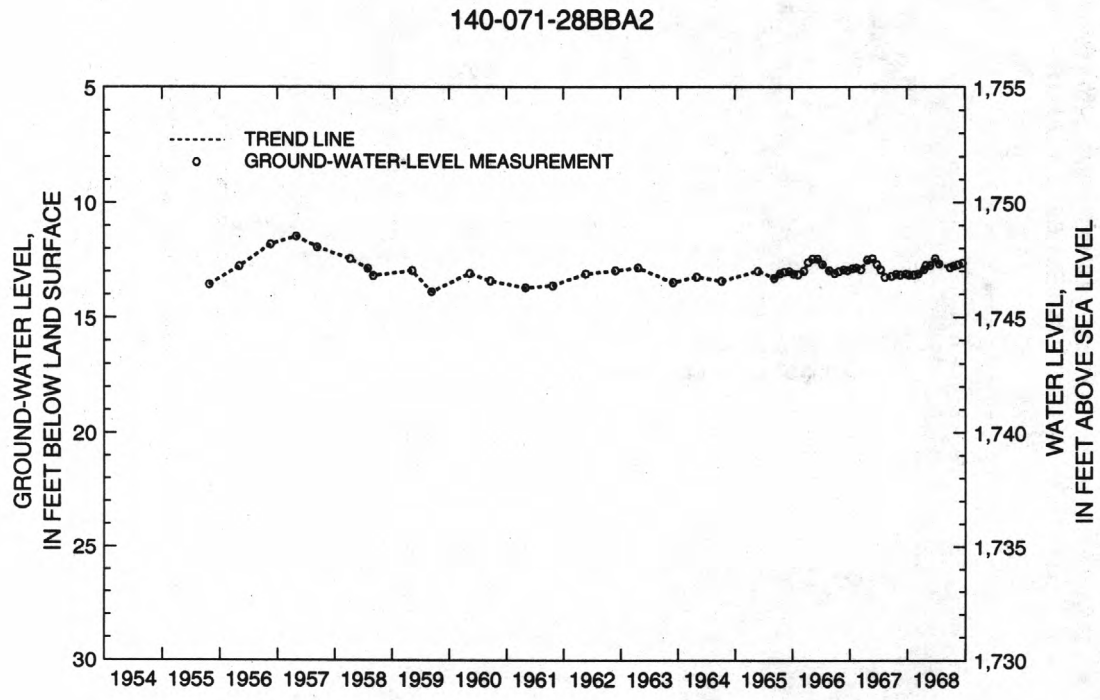
PERIOD OF RECORD.--October 1955 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.59 ft below land-surface datum, May 6, 1997; lowest water level measured, 28.38 ft below land-surface datum, July 29, 1998.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.48	11.19	11.16	---	---	---	---	10.27	12.14	13.86	17.04	17.79
10	11.42	11.18	11.17	---	---	---	---	10.30	11.80	13.58	18.86	13.99
15	11.36	11.18	---	---	---	---	---	10.22	11.55	14.64	26.52	13.11
20	11.29	11.16	---	---	---	---	10.42	10.44	11.41	24.65	15.70	12.36
25	11.25	11.16	---	---	---	---	10.31	10.67	11.67	26.11	13.56	12.06
EOM	11.14	11.16	---	---	---	---	10.33	11.25	13.03	27.59	18.24	12.30
MAX	11.57	11.19	---	---	---	---	---	11.25	13.49	28.38	26.85	17.79

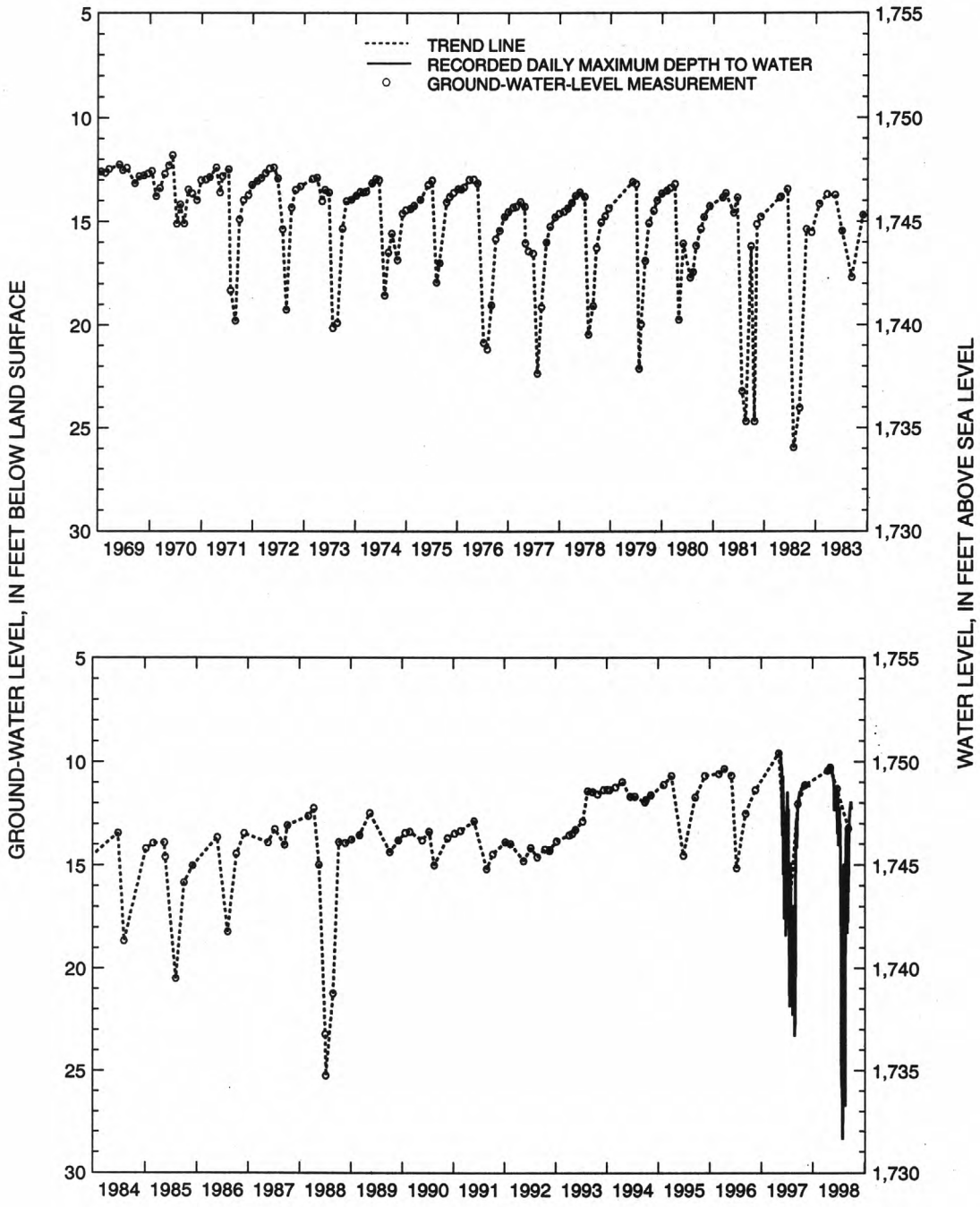
WATER YEAR 1998 HIGHEST WATER LEVEL 10.22 MAY 14-16 LOWEST WATER LEVEL 28.38 JULY 29



GROUND-WATER LEVELS

KIDDER COUNTY

140-071-28BBA2--Continued



GROUND-WATER LEVELS

KIDDER COUNTY

470638099324301. Local number, 142-070-16DDD.

LOCATION.--Lat 47°06'38", long 99°32'43", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--Long Lake.

WELL CHARACTERISTICS.--Drilled observation well, depth 84 ft, cased with 70 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 70 to 73 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

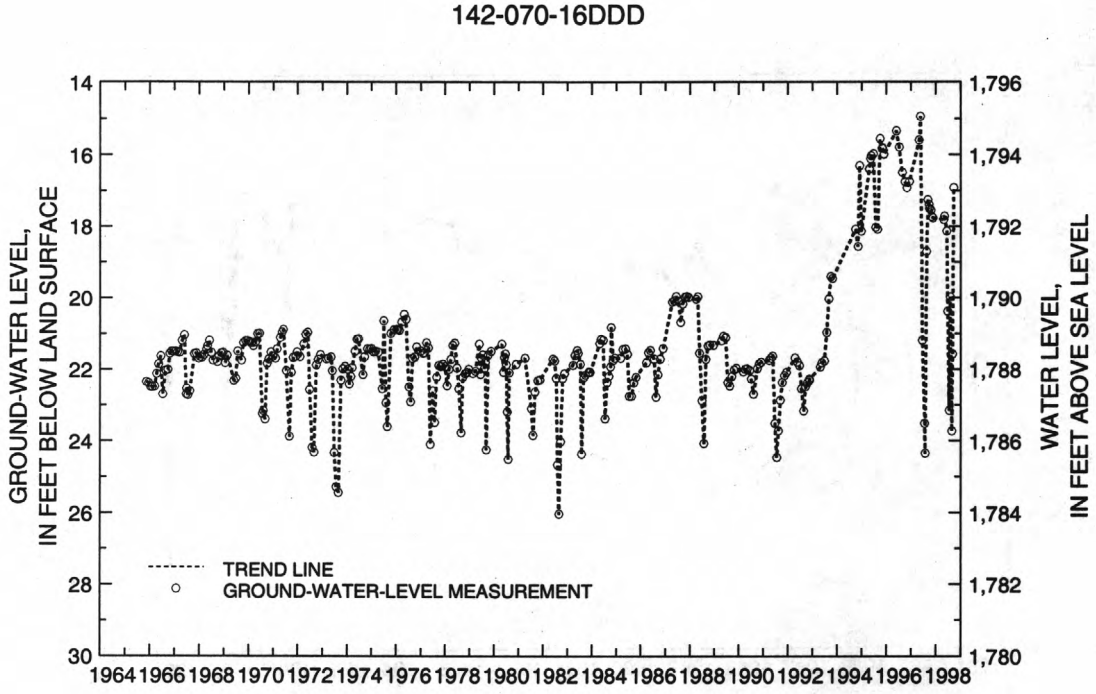
DATUM.--Altitude of land-surface datum is 1,810 ft. Measuring point: Top of casing 1.90 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.94 ft below land-surface datum, May 23, 1997; lowest water level measured, 26.03 ft below land-surface datum, August 27, 1982.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 27	17.55	May 11	17.72	Aug. 5	19.98	Oct. 6	19.47
Nov. 7	17.73	June 16	18.13	Aug. 29	23.73	Nov. 19	19.52
Nov. 24	17.77	June 30	20.39	Sept. 8	21.58		
May 5	17.81	July 21	23.15	Sept. 26	16.92		



GROUND-WATER LEVELS

LaMOURE COUNTY

461958098132901. Local number, 133-060-16DAA.

LOCATION.--Lat 46°19'58", long 98°13'29", Hydrologic Unit 10160003. Owner: North Dakota State Water Commission.

AQUIFER.--LaMoure.

WELL CHARACTERISTICS.--Drilled observation well, depth 110 ft, cased with 58 ft of 6-in diameter plastic pipe, No. 25 slot screen set 58 to 63 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From November 1975 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,320 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

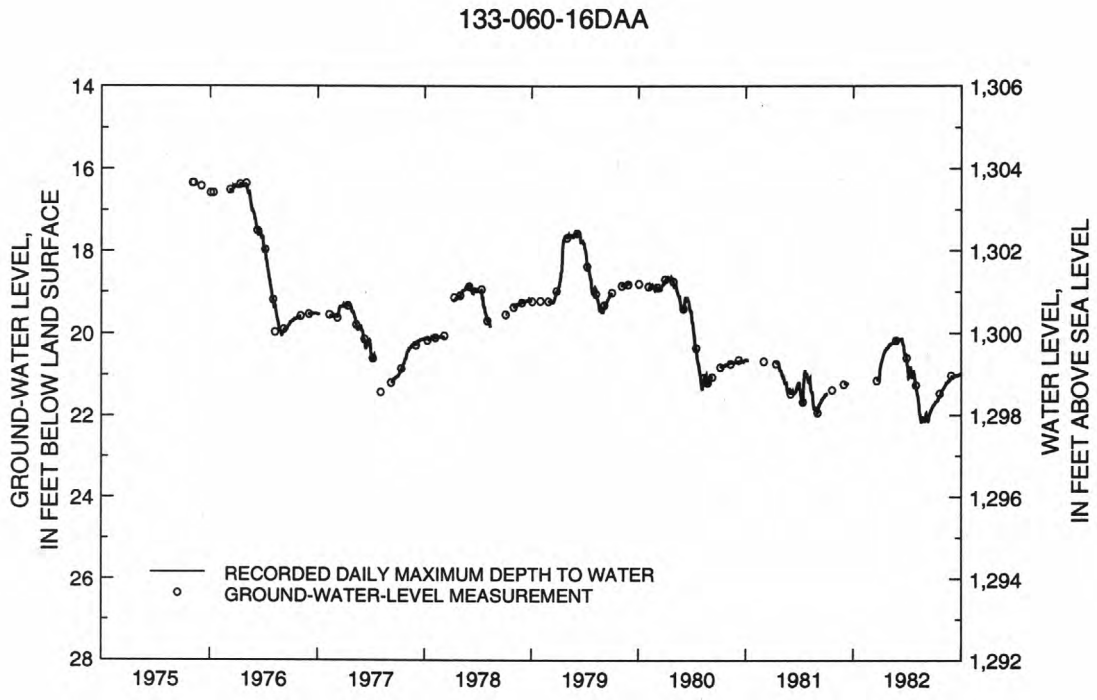
PERIOD OF RECORD.--November 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 15.18 ft below land-surface datum, May 17-18, 1997; lowest daily water level, 26.84 ft below land-surface datum, August 20, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	17.24	17.10	17.00	16.98	17.02	16.72	16.36	16.01	15.92	14.93	15.99	16.55
10	17.25	17.05	16.99	16.99	17.02	16.77	16.25	15.99	15.93	14.78	15.89	16.54
15	17.24	17.06	16.92	16.98	17.00	16.76	16.26	15.89	15.67	14.97	16.25	16.50
20	17.16	16.98	17.00	17.00	17.03	16.72	16.25	15.86	15.53	15.23	16.43	16.36
25	17.15	16.96	16.93	17.00	16.94	16.57	16.16	15.79	15.48	15.67	16.29	16.28
EOM	17.03	17.01	17.00	16.98	16.71	16.47	16.11	15.78	15.01	16.08	16.34	16.26
MAX	17.31	17.10	17.02	17.02	17.05	16.77	---	16.06	15.98	16.08	16.43	16.63

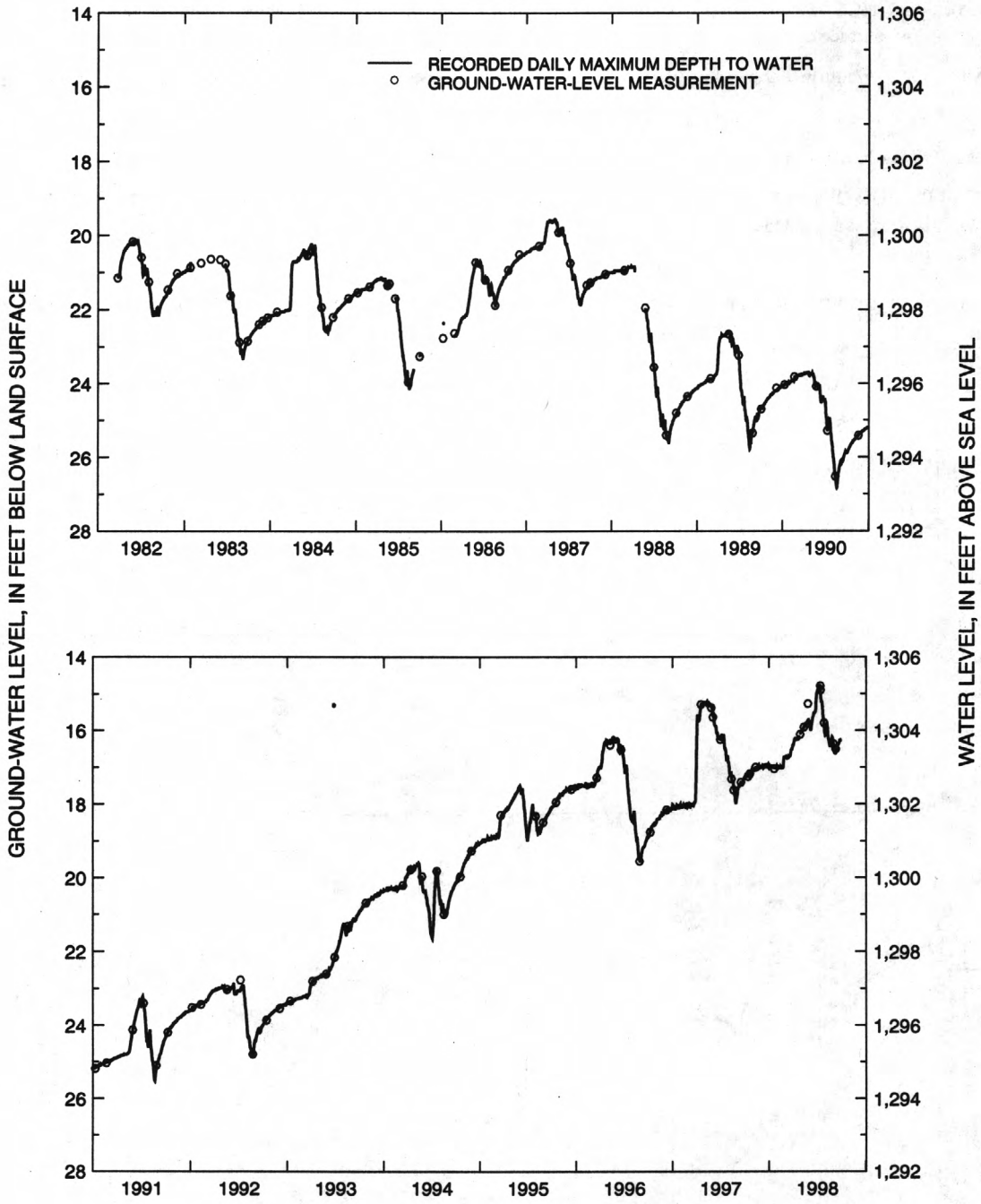
WATER YEAR 1998 HIGHEST WATER LEVEL 14.75 JULY 10-11 LOWEST WATER LEVEL 17.31 OCTOBER 1



GROUND-WATER LEVELS

LaMOURE COUNTY

133-060-16DAA--Continued



GROUND-WATER LEVELS

LOGAN COUNTY

463417099271002. Local number, 136-070-26BBB2.

LOCATION.--Lat 46°34'17", long 99°27'10", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--Streeter.

WELL CHARACTERISTICS.--Drilled observation well, depth 62 ft, cased with 39 ft of 6-in diameter plastic pipe, No. 25 slot screen set 39 to 44 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From November 1978 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,909.8 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

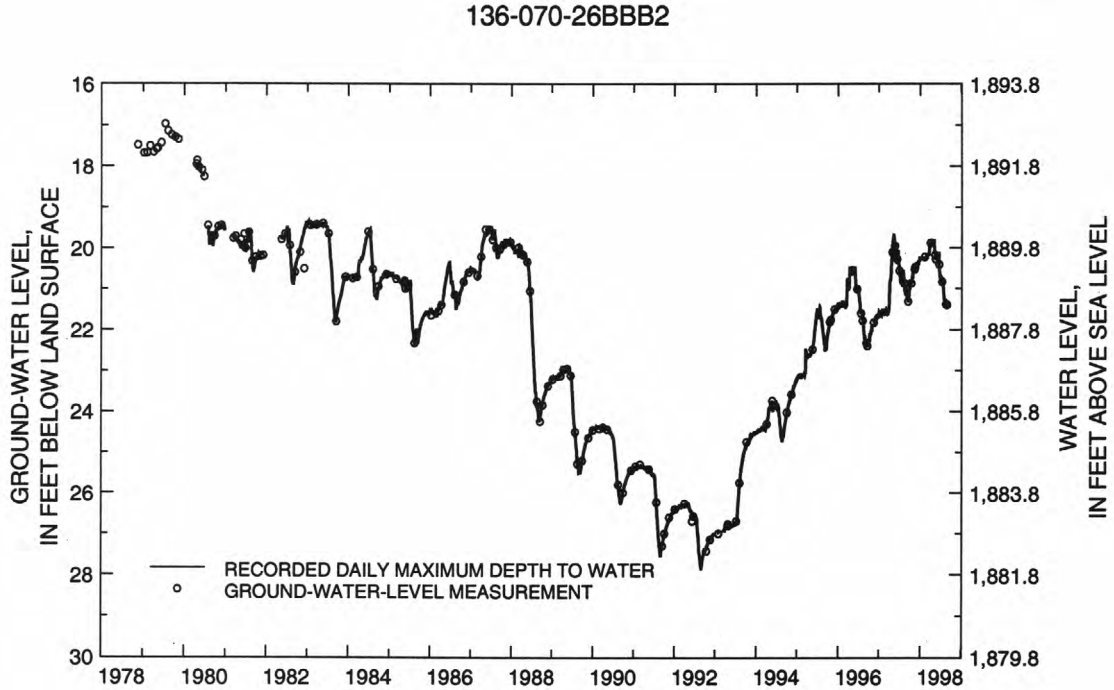
PERIOD OF RECORD.--November 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 16.97 ft below land-surface datum, July 15, 1979; lowest daily water level, 27.85 ft below land-surface datum, August 29-31, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	20.91	20.62	20.42	20.25	20.25	20.17	---	19.80	20.26	20.83	21.28	---
10	20.90	20.55	20.41	20.25	20.25	20.17	19.85	20.10	20.37	20.80	21.33	---
15	20.86	20.54	20.33	20.25	20.25	20.17	19.90	20.13	20.14	20.79	21.35	---
20	20.77	20.47	20.39	20.25	20.25	20.13	19.91	20.26	20.53	20.76	21.42	---
25	20.73	20.43	20.30	20.25	20.21	20.02	19.80	20.21	20.71	20.98	21.33	---
EOM	20.59	20.47	20.24	20.25	20.17	19.90	19.83	20.30	20.74	21.19	---	---
MAX	21.00	20.62	20.43	20.26	20.25	20.17	---	20.31	20.74	21.19	---	---

WATER YEAR 1998 HIGHEST WATER LEVEL 19.74 APRIL 12 LOWEST WATER LEVEL 21.42 AUGUST 20



GROUND-WATER LEVELS

LOGAN COUNTY

463240099483801. Local number, 136-073-35DDD1.

LOCATION.--Lat 46°32'40", long 99°48'38", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--Napoleon.

WELL CHARACTERISTICS.--Drilled observation well, depth 282 ft, cased with 168 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 168 to 171 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

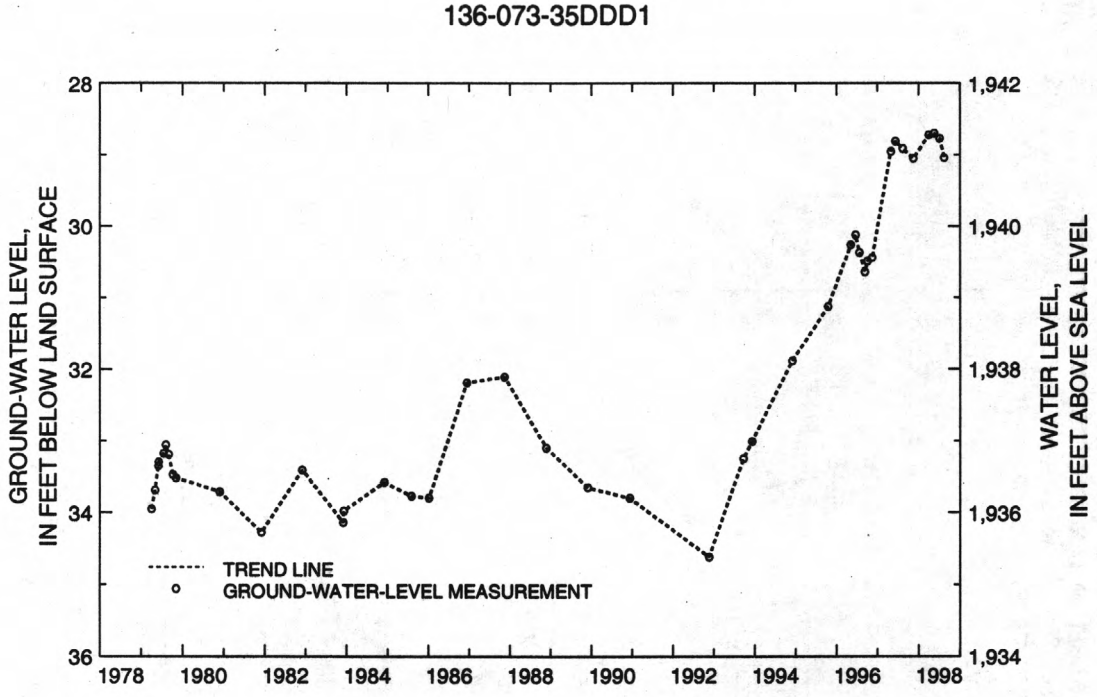
DATUM.--Altitude of land-surface datum is 1,970 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

PERIOD OF RECORD.--April 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.70 ft below land-surface datum, May 19, 1998; lowest water level measured, 34.62 ft below land-surface datum, November 18, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 17	29.05	May 19	28.70	July 8	28.77	Aug. 18	29.04
Apr. 2	28.72						



GROUND-WATER LEVELS

LOGAN COUNTY

463240099483802. Local number, 136-073-35DDD2.

LOCATION.--Lat 46°32'40", long 99°48'38", Hydrologic Unit 10130103. Owner: North Dakota State Water Commission.

AQUIFER.--Napoleon.

WELL CHARACTERISTICS.--Drilled observation well, depth 131 ft, cased with 118 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 118 to 121 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

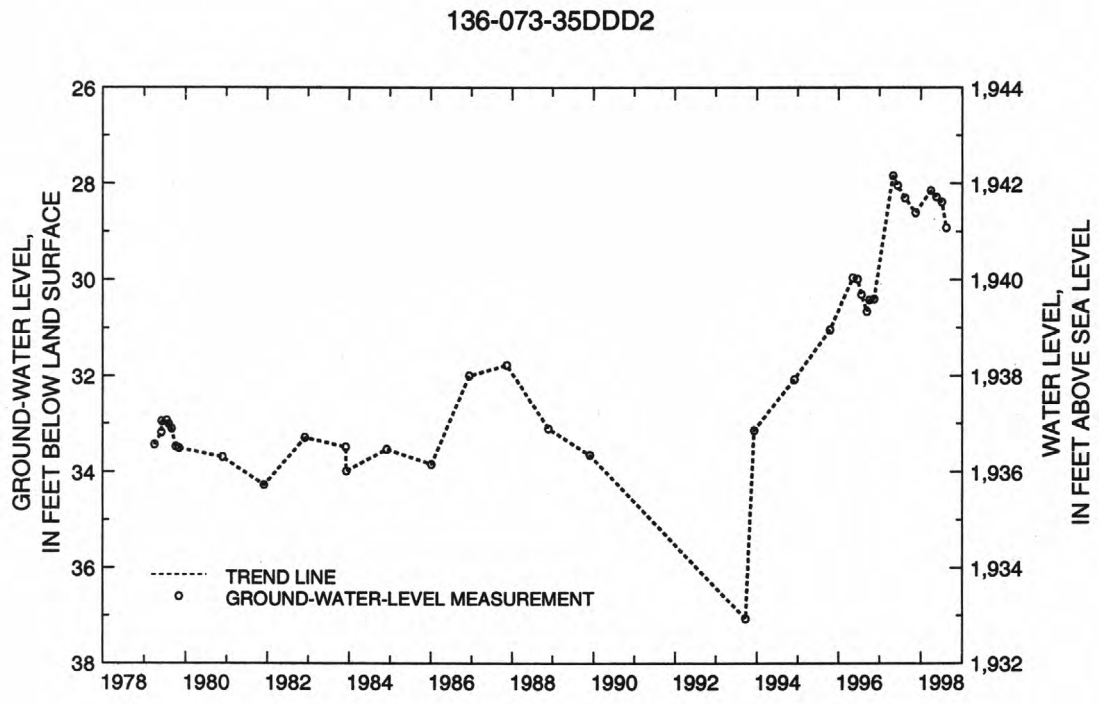
DATUM.--Altitude of land-surface datum is 1,970 ft. Measuring point: Top of casing 1.90 ft above land-surface datum.

PERIOD OF RECORD.--April 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.84 ft below land-surface datum, April 29, 1997; lowest water level measured, 37.07 ft below land-surface datum, September 23, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 17	28.61	May 19	28.28	July 8	28.39	Aug. 18	28.92
Apr. 2	28.15						



GROUND-WATER LEVELS

McHENRY COUNTY

480302100515201. Local number, 153-079-30AAA1.

LOCATION.--Lat 48°03'02", long 100°51'52", Hydrologic Unit 09010003. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 720 ft, cased with 456 ft of 2-in diameter steel pipe, No. 12 slot screen set 456 to 467 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,595 ft. Measuring point: Top of casing 3.40 ft above land-surface datum.

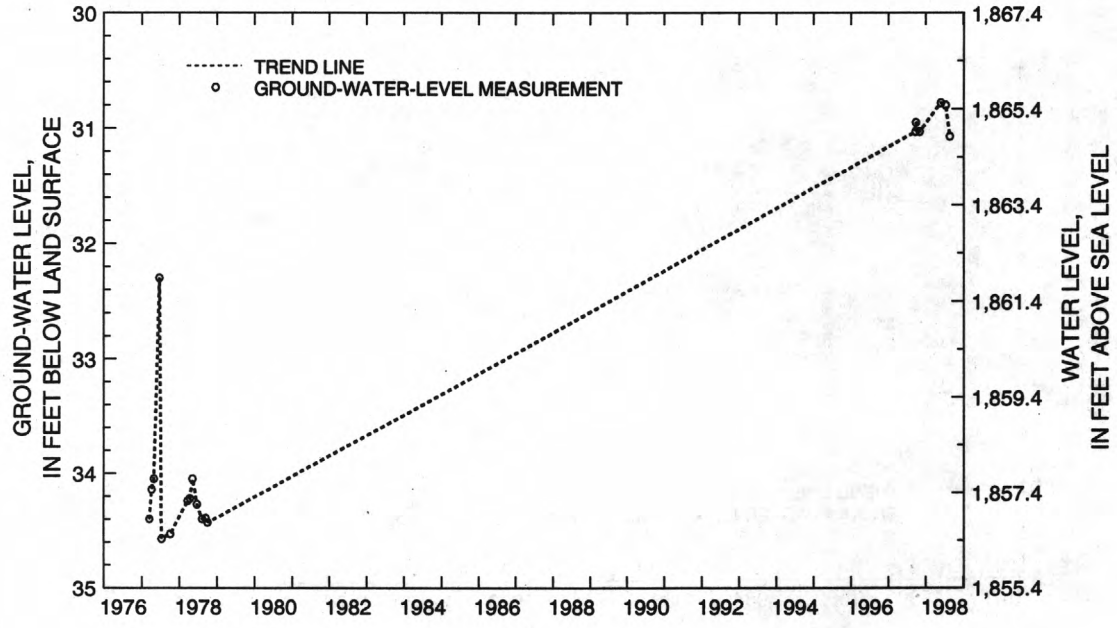
PERIOD OF RECORD.--March 1977 to October 1978 and September 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.78 ft below land-surface datum, May 27, 1998; lowest water level measured, 34.57 ft below land-surface datum, July 11, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Sept. 24	31.03	Nov. 3	31.03	July 13	30.80	Aug. 24	31.07
Sept. 29	30.95	May 27	30.78				

153-079-30AAA1



GROUND-WATER LEVELS

McHENRY COUNTY

480302100515202. Local number, 153-079-30AAA2.

LOCATION.--Lat 48°03'02", long 100°51'52", Hydrologic Unit 09010003. Owner: North Dakota State Water Commission.

AQUIFER.--Hell Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 410 ft, cased with 404 ft of 2-in diameter steel pipe, No. 12 slot screen set 404 to 410 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,595 ft. Measuring point: Top of casing 2.75 ft above land-surface datum.

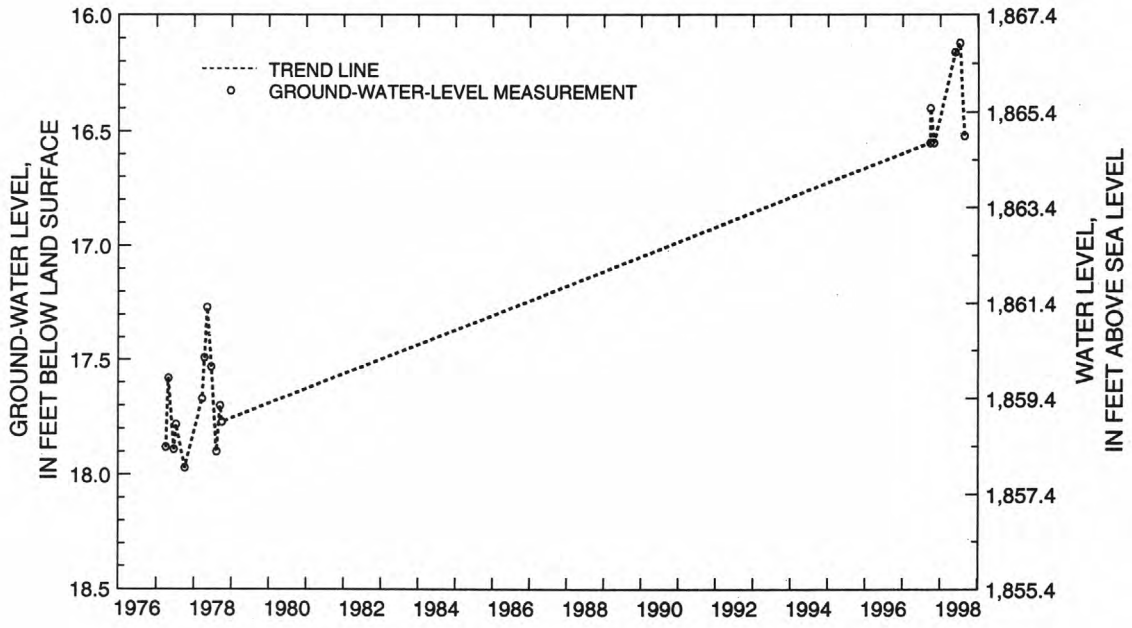
PERIOD OF RECORD.--April 1977 to October 1978 and September 1997 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.12 ft below land-surface datum, July 13, 1998; lowest water level measured, 17.97 ft below land-surface datum, October 5, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Sept. 24	16.55	Nov. 3	16.55	July 13	16.12	Aug. 24	16.52
Sept. 29	16.40	May 27	16.16t				

153-079-30AAA2



GROUND-WATER LEVELS

McHENRY COUNTY

480913100372501. Local number, 154-077-18CCC.

LOCATION.--Lat 48°09'13", long 100°37'25", Hydrologic Unit 09010003. Owner: North Dakota State Water Commission.

AQUIFER.--New Rockford.

WELL CHARACTERISTICS.--Drilled observation well, depth 260 ft, cased with 173 ft of 4-in diameter plastic pipe, No. 18 slot screen set 173 to 178 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From May 1976 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,577.49 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

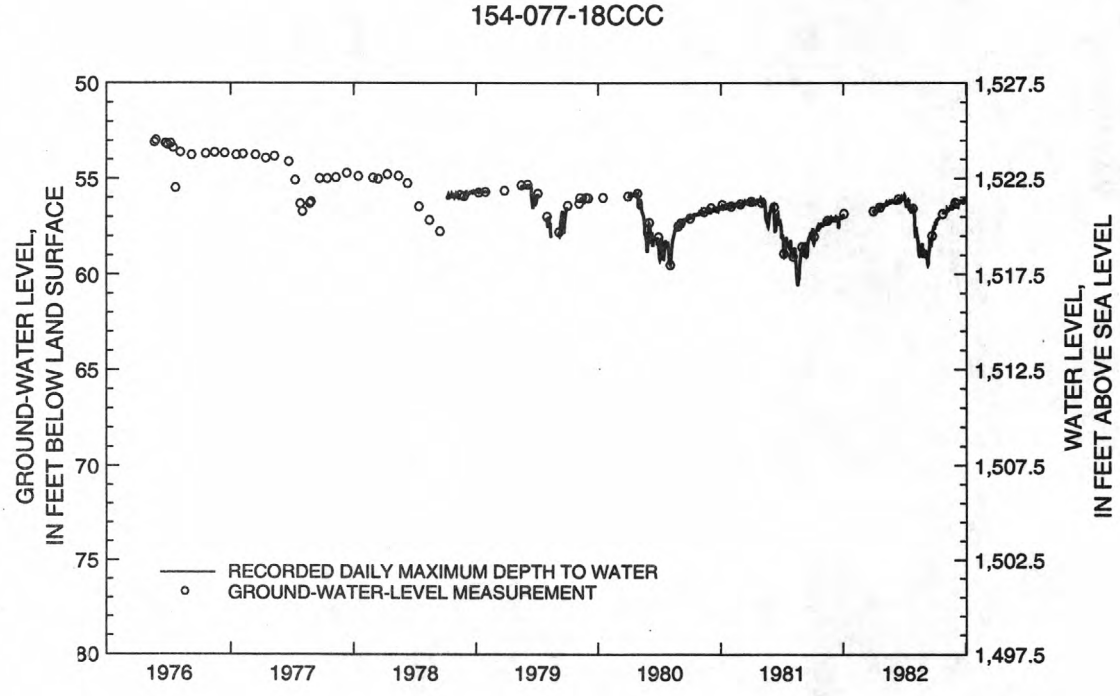
PERIOD OF RECORD.--May 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 52.96 ft below land-surface datum, May 25, 1976; lowest daily water level, 75.43 ft below land-surface datum, August 1, 1994.

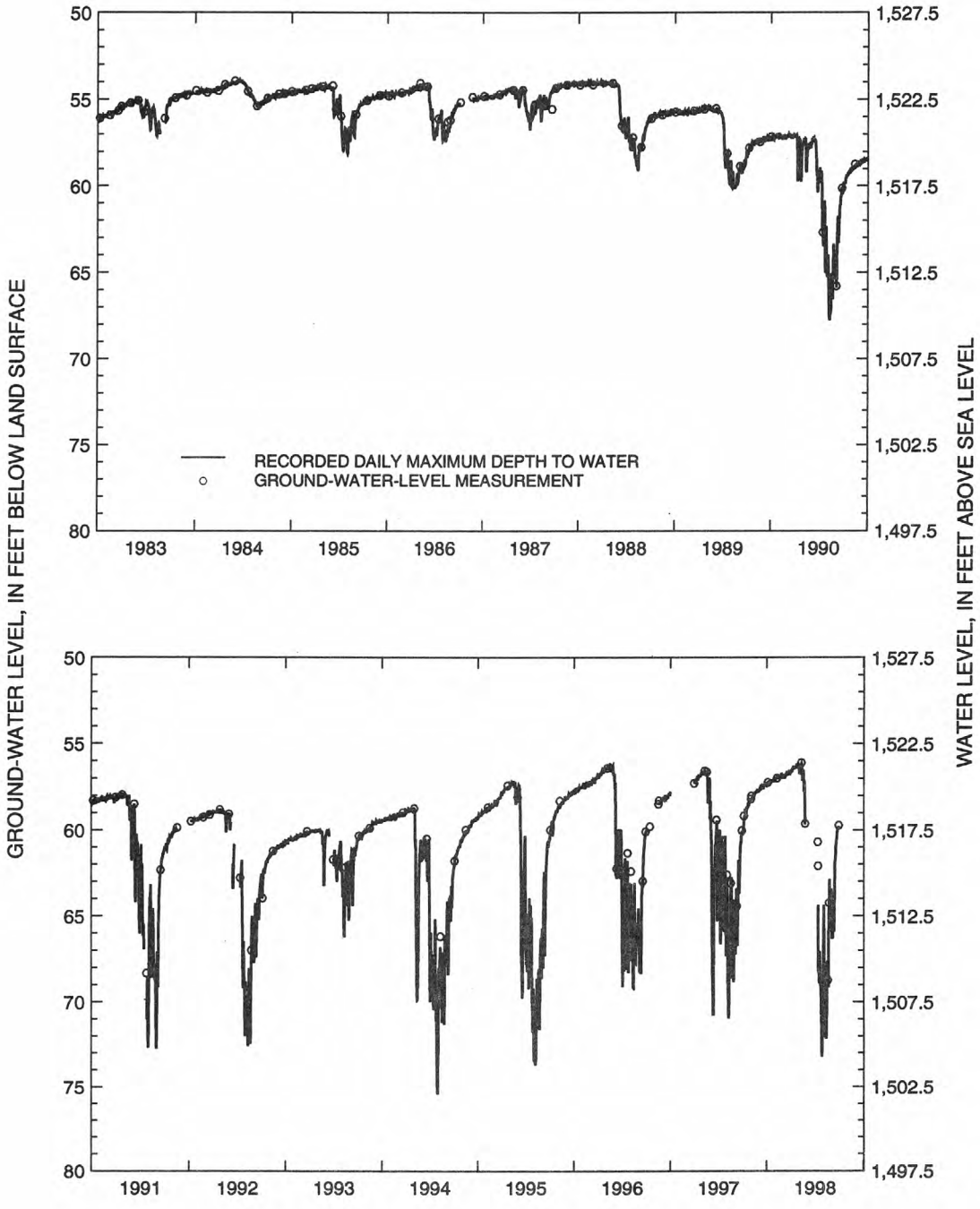
WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	59.79	58.22	57.69	57.35	57.02	56.84	56.57	56.76	---	---	64.42	66.27
10	59.24	58.14	57.62	57.25	57.01	56.96	56.46	56.36	---	---	72.03	64.17
15	58.96	58.03	57.43	57.16	56.95	56.83	56.44	56.34	---	68.09	71.83	62.53
20	58.73	57.82	57.57	57.17	56.95	56.79	56.37	56.71	---	67.06	68.83	60.73
25	58.55	57.74	57.41	57.13	56.94	56.62	56.18	57.85	---	70.12	63.89	59.99
EOM	58.17	57.77	57.42	57.02	56.85	56.65	56.23	---	---	69.59	64.73	59.81
MAX	60.24	58.25	57.75	57.44	57.16	56.96	56.65	---	---	---	72.15	66.27

WATER YEAR 1998 HIGHEST WATER LEVEL 56.10 MAY 4 LOWEST WATER LEVEL 73.23 JULY 29



154-077-18CCC--Continued



GROUND-WATER LEVELS

McHENRY COUNTY

481948100305901. Local number, 156-077-13CCB1.

LOCATION.--Lat 48°19'48", long 100°30'59", Hydrologic Unit 09010003. Owner: North Dakota State Water Commission.

AQUIFER.--Denbigh.

WELL CHARACTERISTICS.--Drilled observation well, depth 160 ft, cased with 123 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 123 to 126 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

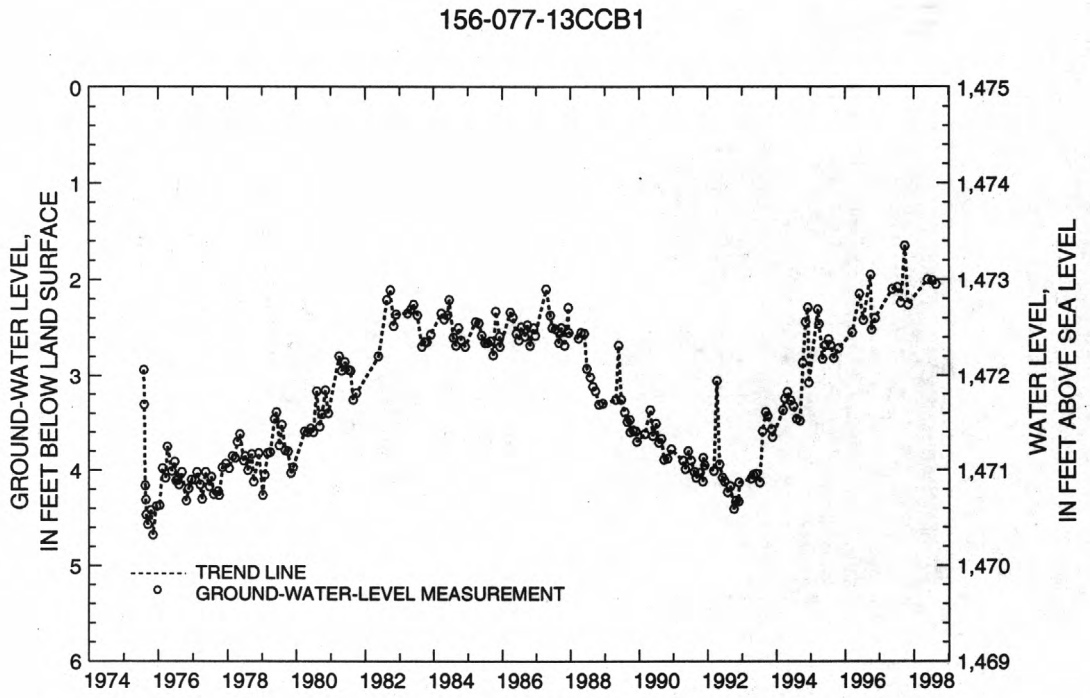
DATUM.--Altitude of land-surface datum is 1,475 ft. Measuring point: Top of casing 1.70 ft above land-surface datum.

PERIOD OF RECORD.--July 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.65 ft below land-surface datum, September 29, 1997; lowest water level measured, 4.68 ft below land-surface datum, November 4, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 3	2.26	May 27	2.00	July 13	2.01	Aug. 24	2.05



GROUND-WATER LEVELS

McHENRY COUNTY

481948100305902. Local number, 156-077-13CCB2.

LOCATION.--Lat 48°19'48", long 100°30'59", Hydrologic Unit 09010003. Owner: North Dakota State Water Commission.

AQUIFER.--Denbigh.

WELL CHARACTERISTICS.--Drilled observation well, depth 60 ft, cased with 53 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 53 to 56 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

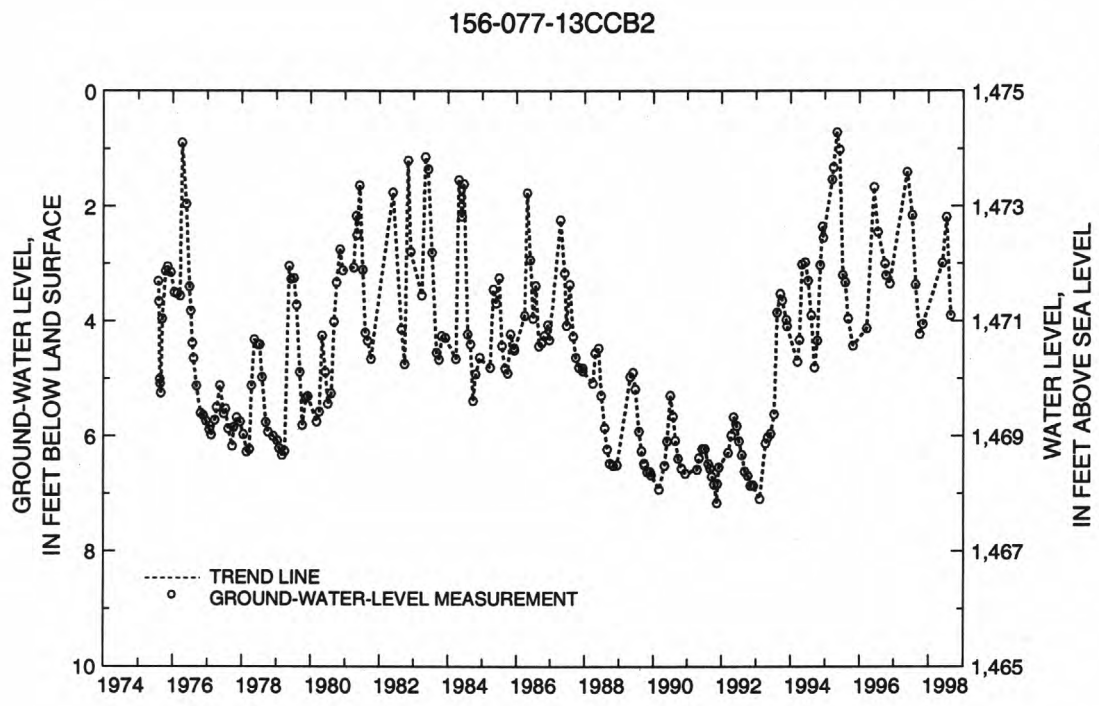
DATUM.--Altitude of land-surface datum is 1,475 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

PERIOD OF RECORD.--July 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.71 ft below land-surface datum, May 7, 1995; lowest water level measured, 7.16 ft below land-surface datum, November 10, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 3	4.05	May 27	2.99	July 13	2.19	Aug. 24	3.90



GROUND-WATER LEVELS

McINTOSH COUNTY

455807099450701. Local number, 129-072-30BBB.

LOCATION.--Lat 45°58'07", long 99°45'07", Hydrologic Unit 10130102. Owner: North Dakota State Water Commission.

AQUIFER.--Zeeland.

WELL CHARACTERISTICS.--Drilled observation well, depth 160 ft, cased with 123 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 123 to 126 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

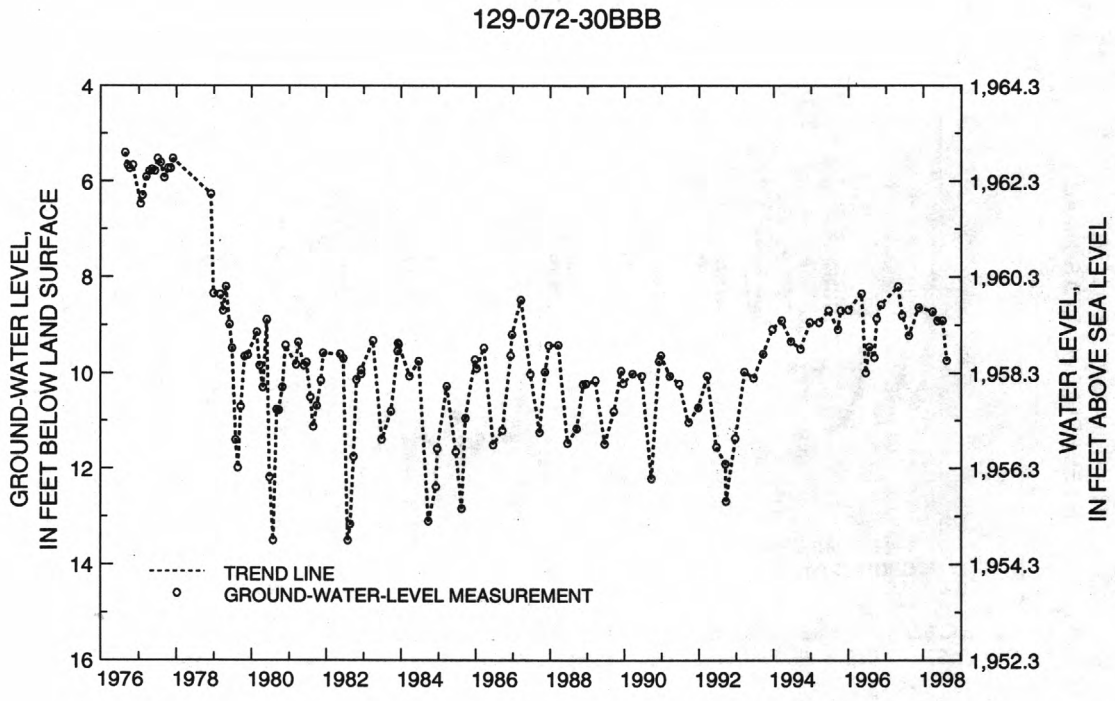
DATUM.--Altitude of land-surface datum is 1,968.3 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--August 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.41 ft below land-surface datum, August 20, 1976; lowest water level measured, 13.50 ft below land-surface datum, July 29, 1980 and July 27, 1982.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 17	8.64	May 19	8.91	July 8	8.91	Aug. 18	9.74
Apr. 2	8.73						



GROUND-WATER LEVELS

McINTOSH COUNTY

460411099200701. Local number, 130-069-21BBB1.

LOCATION.--Lat 46°04'11", long 99°20'07", Hydrologic Unit 10130106. Owner: North Dakota State Water Commission.

AQUIFER.--Spring Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 222 ft, cased with 177 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 177 to 180 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

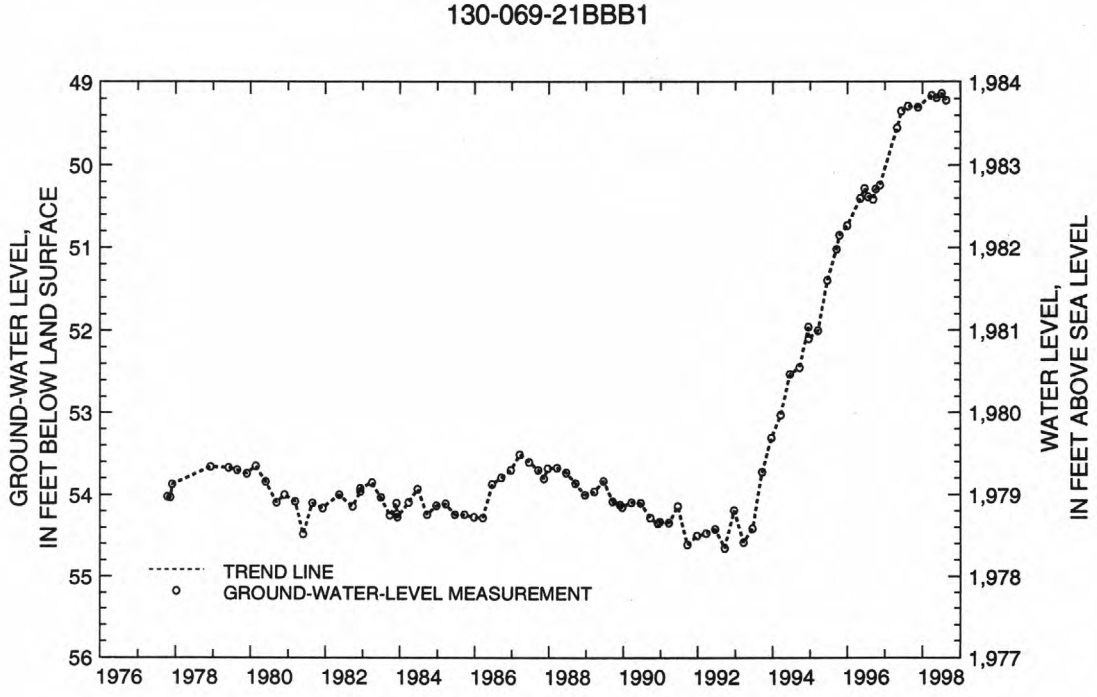
DATUM.--Altitude of land-surface datum is 2,033 ft. Measuring point: Top of casing 2.20 ft above land-surface datum.

PERIOD OF RECORD.--October 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.14 ft below land-surface datum, July 8, 1998; lowest water level measured, 54.65 ft below land-surface datum, September 20, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 17	49.30	May 19	49.19	July 8	49.14	Aug. 18	49.22
Apr. 2	49.16						



GROUND-WATER LEVELS

McINTOSH COUNTY

460411099200702. Local number, 130-069-21BBB2.

LOCATION.--Lat 46°04'11", long 99°20'07", Hydrologic Unit 10130106. Owner: North Dakota State Water Commission.

AQUIFER.--Spring Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 102 ft, cased with 97 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 97 to 100 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

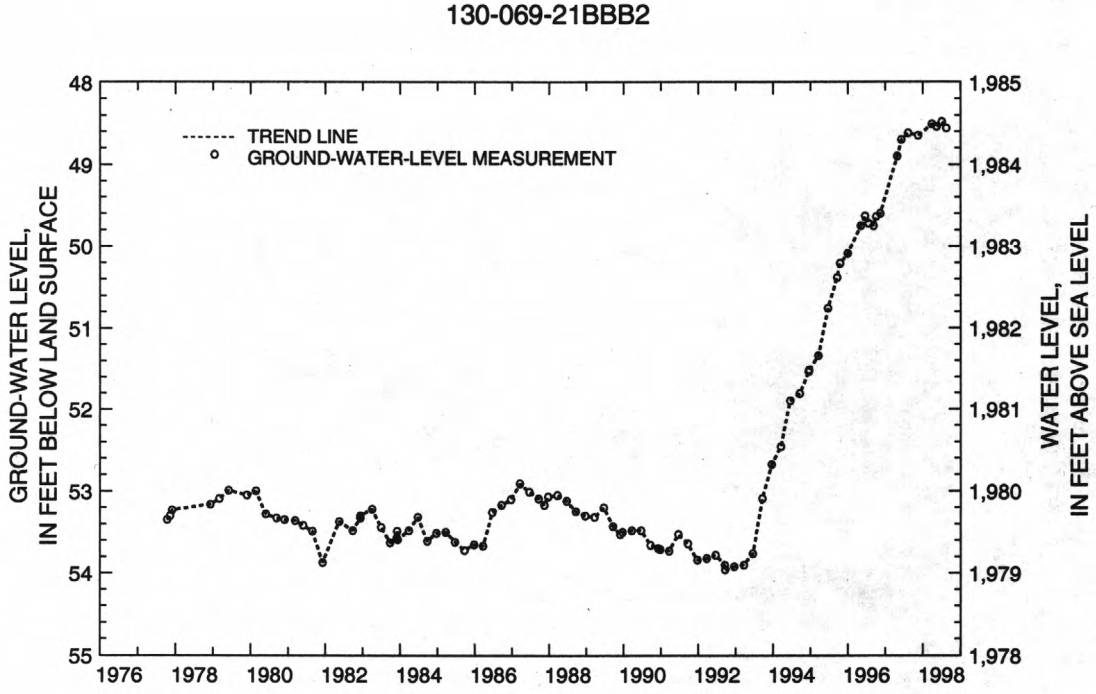
DATUM.--Altitude of land-surface datum is 2,033 ft. Measuring point: Top of casing 2.40 ft above land-surface datum.

PERIOD OF RECORD.--October 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.48 ft below land-surface datum, July 8, 1998; lowest water level measured, 53.96 ft below land-surface datum, September 20, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 17	48.65	May 19	48.54	July 8	48.48	Aug. 18	48.56
Apr. 2	48.51						



GROUND-WATER LEVELS

McINTOSH COUNTY

461446099312801. Local number, 132-071-14DDD1.

LOCATION.--Lat 46°14'46", long 99°31'28", Hydrologic Unit 10130104. Owner: North Dakota State Water Commission.

AQUIFER.--Wishek.

WELL CHARACTERISTICS.--Drilled observation well, depth 182 ft, cased with 118 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 118 to 121 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

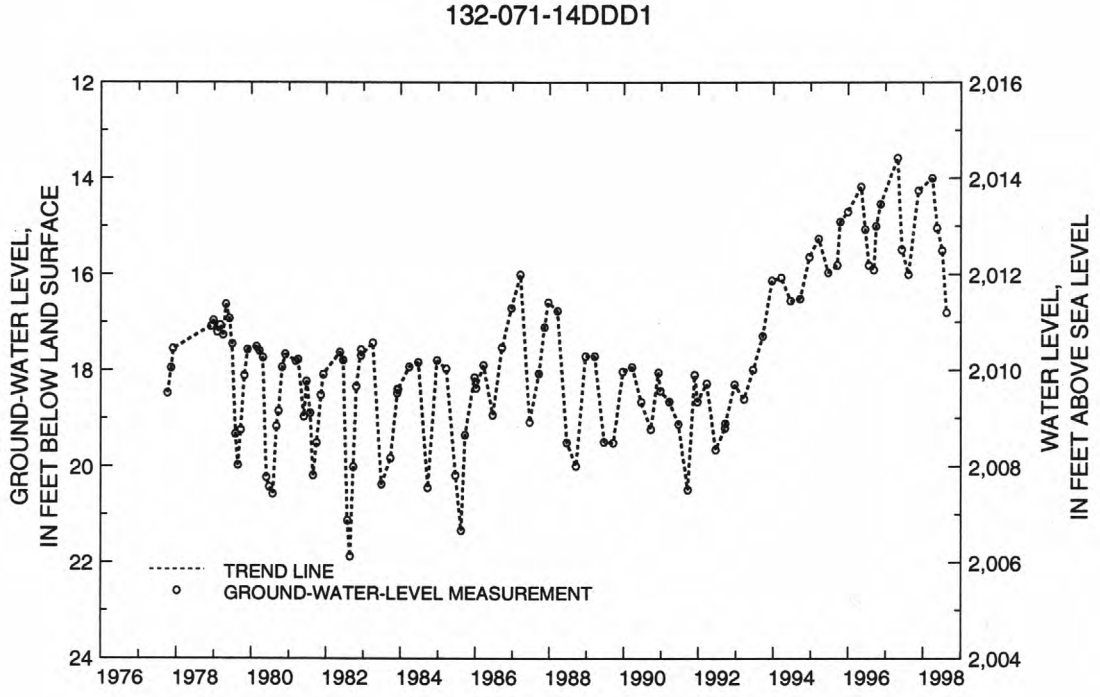
DATUM.--Altitude of land-surface datum is 2,028 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.58 ft below land-surface datum, April 29, 1997; lowest water level measured, 21.88 ft below land-surface datum, August 22, 1982.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 17	14.26	May 19	15.04	July 8	15.51	Aug. 18	16.80
Apr. 2	14.00						



GROUND-WATER LEVELS

McINTOSH COUNTY

461446099312802. Local number, 132-071-14DDD2.

LOCATION.--Lat 46°14'46", long 99°31'28", Hydrologic Unit 10130104. Owner: North Dakota State Water Commission.

AQUIFER.--Wishek.

WELL CHARACTERISTICS.--Drilled observation well, depth 50 ft, cased with 38 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 38 to 41 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

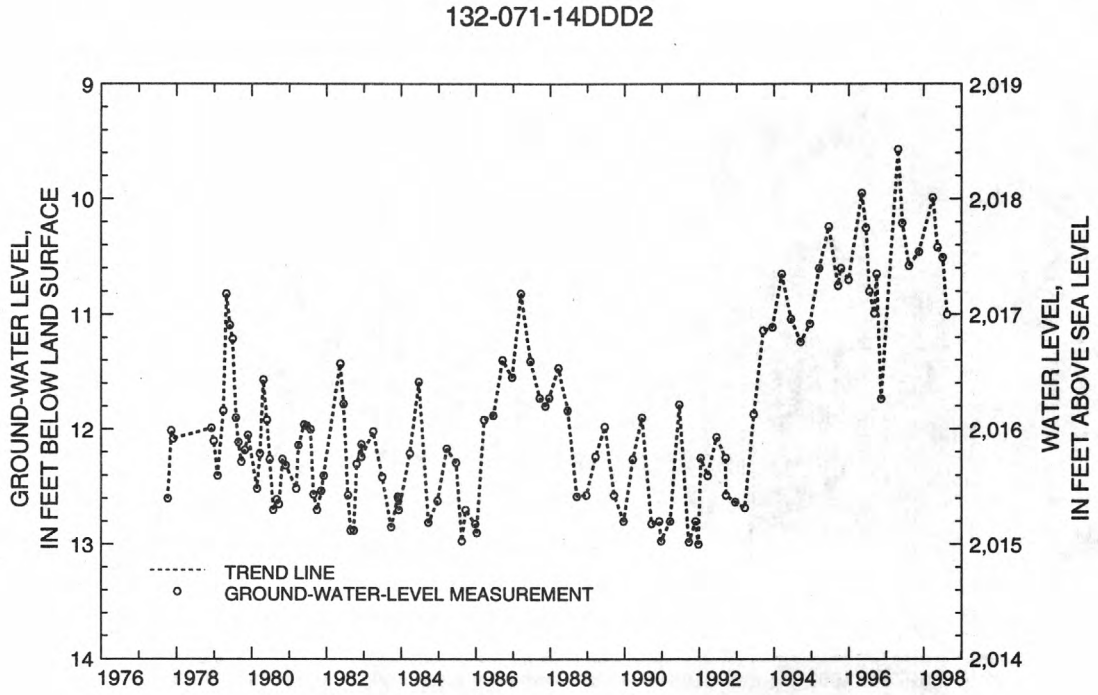
DATUM.--Altitude of land-surface datum is 2,028 ft. Measuring point: Top of casing 2.20 ft above land-surface datum.

PERIOD OF RECORD.--October 1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.57 ft below land-surface datum, April 29, 1997; lowest water level measured, 13.00 ft below land-surface datum, December 23, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 17	10.46	May 19	10.42	July 8	10.51	Aug. 18	11.00
Apr. 2	9.99						



GROUND-WATER LEVELS

McKENZIE COUNTY

474814103104701. Local number, 150-098-23AAB.

LOCATION.--Lat 47°48'14", long 103°10'47", Hydrologic Unit 10110205. Owner: North Dakota State Water Commission.

AQUIFER.--Cherry Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 162 ft, cased with 98 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 98 to 104 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

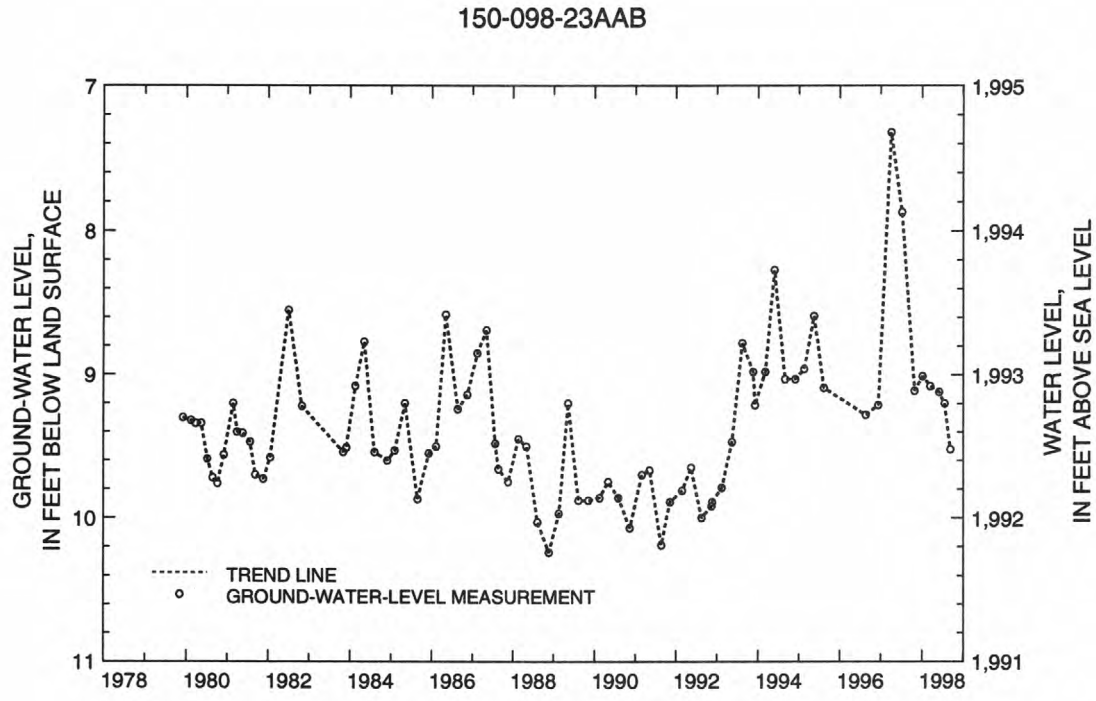
DATUM.--Altitude of land-surface datum is 2,002 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--December 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.32 ft below land-surface datum, April 2, 1997; lowest water level measured, 10.24 ft below land-surface datum, November 18, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 28	9.11	Mar. 17	9.08	July 21	9.20	Sept. 10	9.52
Jan. 8	9.01	June 4	9.12				



GROUND-WATER LEVELS

MERCER COUNTY

472641102105901. Local number, 146-090-20CCC.

LOCATION.--Lat 47°26'41", long 102°10'59", Hydrologic Unit 10130201. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 1,860 ft, cased with 1,540 ft of 4-in diameter steel pipe, open ended.

INSTRUMENTATION.--Measured using a steel tape.

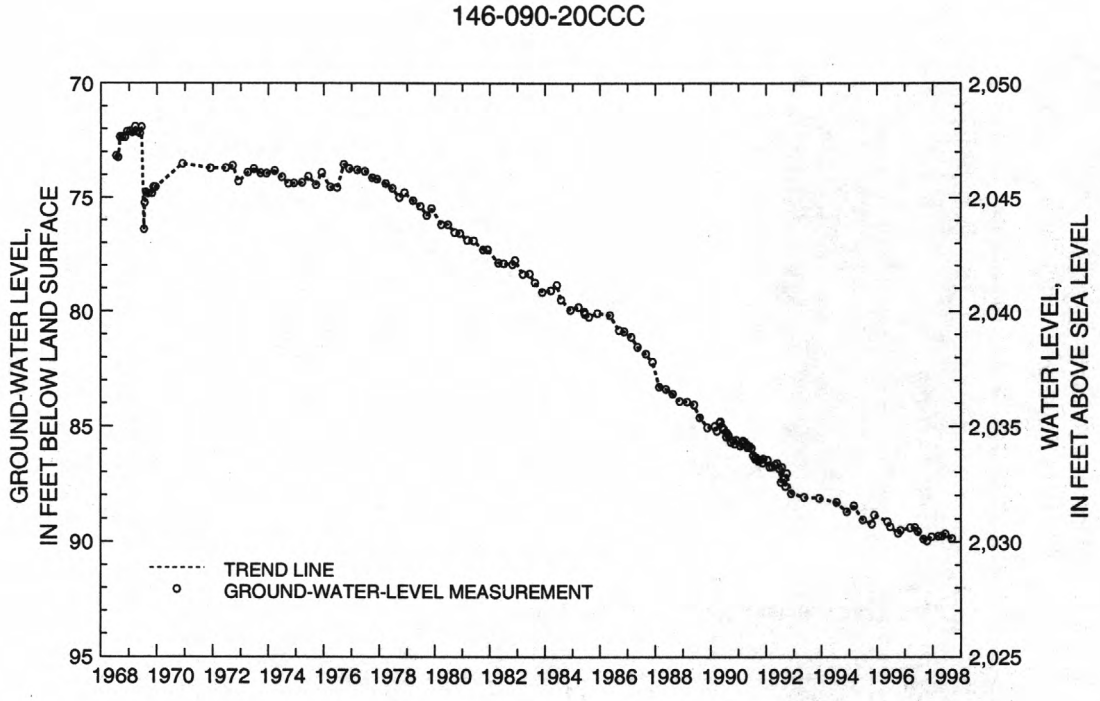
DATUM.--Altitude of land-surface datum is 2,120 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

PERIOD OF RECORD.--July 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 71.92 ft below land-surface datum, March 18, 1969; lowest water level measured, 89.96 ft below land-surface datum, December 16, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 20	89.96	Mar. 18	89.75	June 16	89.66	Sept. 10	89.86
Dec. 16	89.78	May 7	89.74				



GROUND-WATER LEVELS

MORTON COUNTY

464734100543501. Local number, 138-081-09ABB1.

LOCATION.--Lat 46°47'34", long 100°54'35", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 762 ft, cased with 525 ft of 2-in diameter steel pipe, No. 12 slot screen set 525 to 537 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,780 ft. Measuring point: Top of casing 3.50 ft above land-surface datum.

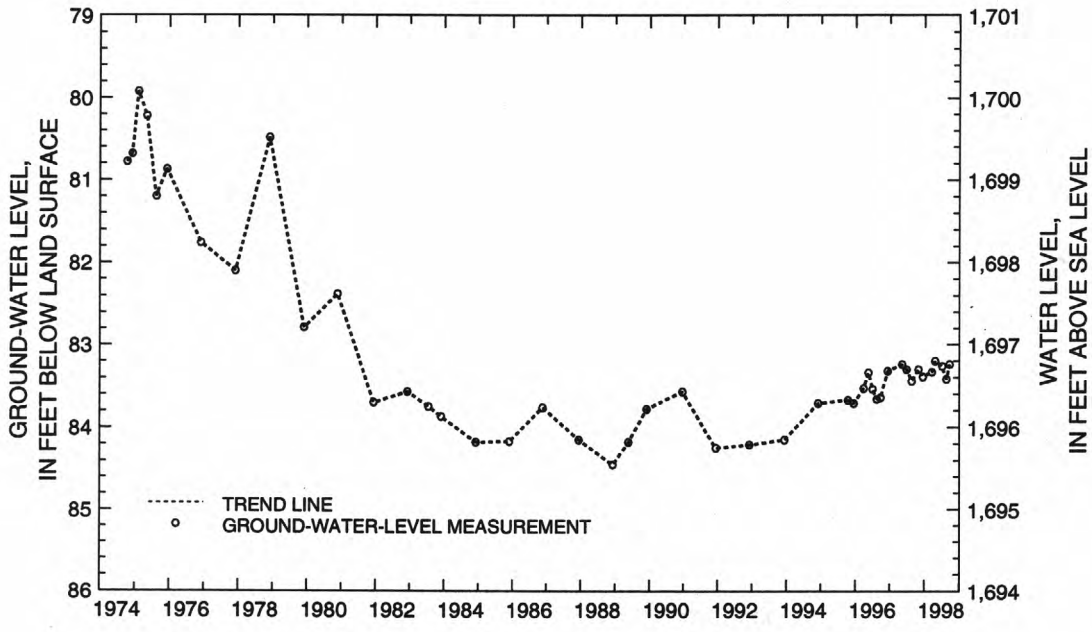
PERIOD OF RECORD.--October 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 79.92 ft below land-surface datum, February 5, 1975; lowest water level measured, 84.45 ft below land-surface datum, December 5, 1988.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 31	83.30	Mar. 23	83.33	July 6	83.26	Sept. 24	83.24
Dec. 18	83.39	Apr. 24	83.20	Aug. 21	83.42		

138-081-09ABB1



GROUND-WATER LEVELS

MORTON COUNTY

464734100543502. Local number, 138-081-09ABB2.

LOCATION.--Lat 46°47'34", long 100°54'35", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Hell Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 362 ft, cased with 336 ft of 2-in diameter steel pipe, No. 12 slot screen set 336 to 348 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

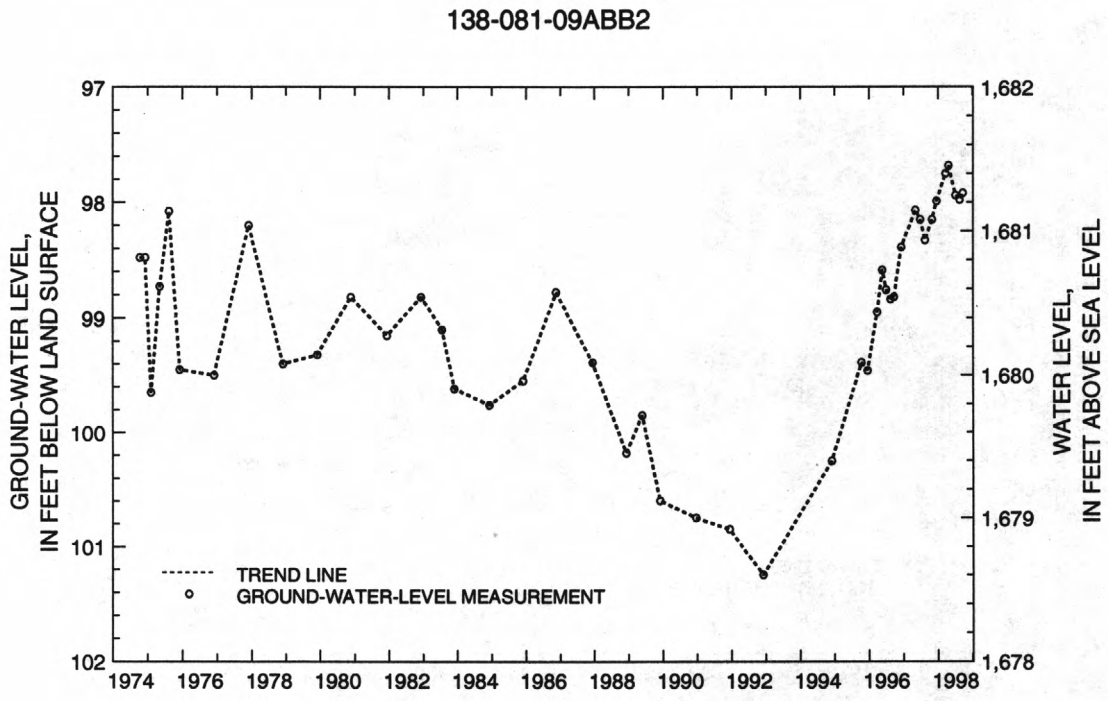
DATUM.--Altitude of land-surface datum is 1,780 ft. Measuring point: Top of casing 3.50 ft above land-surface datum.

PERIOD OF RECORD.--October 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 97.68 ft below land-surface datum, April 24, 1998; lowest water level measured, 101.25 ft below land-surface datum, December 4, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 31	98.15	Mar. 23	97.75	July 6	97.94	Sept. 24	97.92
Dec. 18	97.99	Apr. 24	97.68	Aug. 21	97.98		



GROUND-WATER LEVELS

MORTON COUNTY

464734100543504. Local number, 138-081-09ABB4.

LOCATION.--Lat 46°47'34", long 100°54'35", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Cannonball-Ludlow.

WELL CHARACTERISTICS.--Drilled observation well, depth 162 ft, cased with 153 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 153 to 159 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

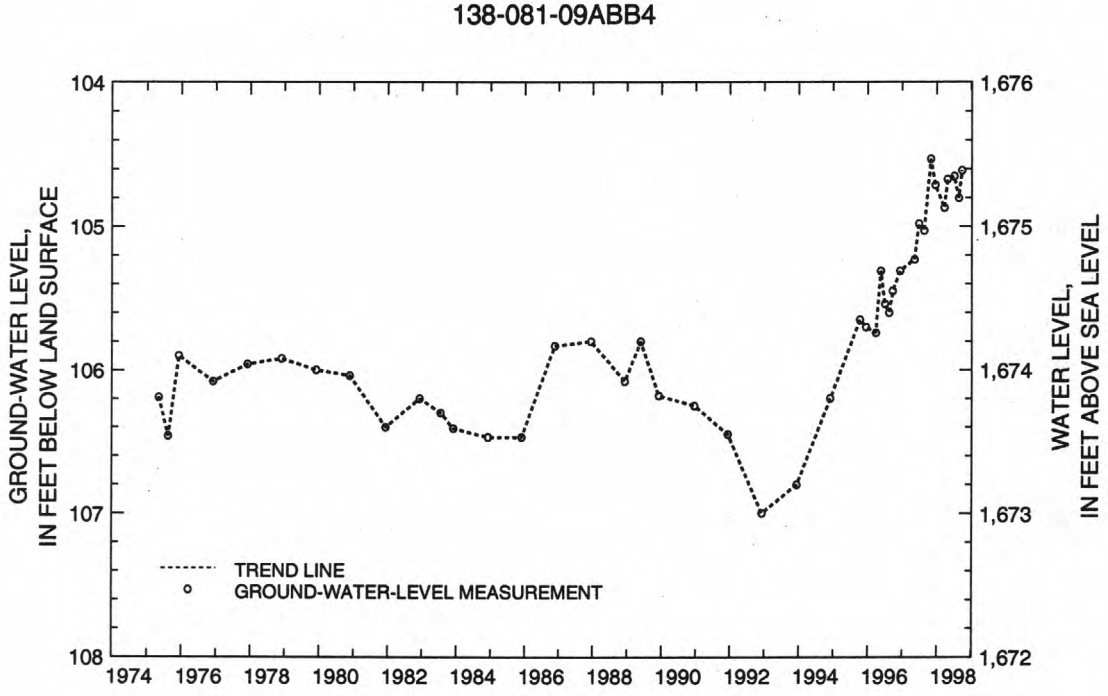
DATUM.--Altitude of land-surface datum is 1,780 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--May 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 104.53 ft below land-surface datum, October 31, 1997; lowest water level measured, 107.00 ft below land-surface datum, December 4, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 31	104.53	Mar. 23	104.87	July 6	104.65	Sept. 24	104.61
Dec. 18	104.71	Apr. 24	104.67	Aug. 21	104.80		



GROUND-WATER LEVELS

MORTON COUNTY

464847101303801. Local number, 139-086-35BCC.

LOCATION.--Lat 46°48'47", long 101°30'38", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Sims.

WELL CHARACTERISTICS.--Drilled observation well, depth 140 ft, cased with 57 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 57 to 63 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

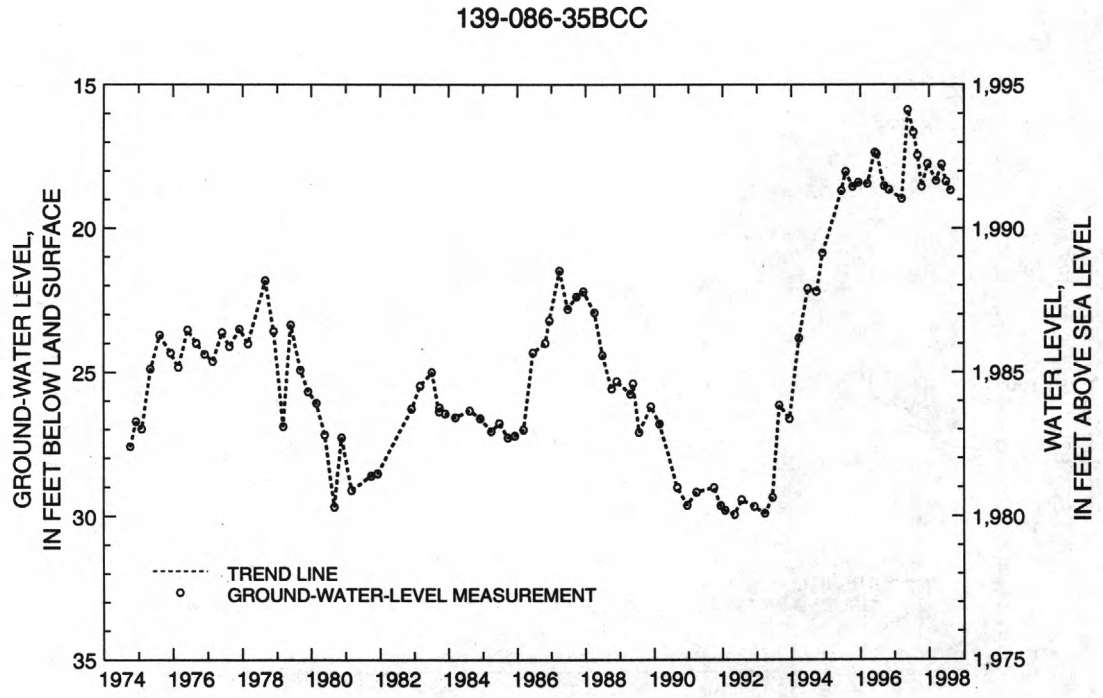
DATUM.--Altitude of land-surface datum is 2,010 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.86 ft below land-surface datum, May 22, 1997; lowest water level measured, 29.94 ft below land-surface datum, May 8, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 17	18.53	Mar. 19	18.33	July 1	18.36	Aug. 18	18.67
Dec. 18	17.74	May 14	17.76				



GROUND-WATER LEVELS

MORTON COUNTY

464846101464501. Local number, 139-088-34BCC1.

LOCATION.--Lat 46°48'46", long 101°46'45", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 1,302 ft, cased with 1,044 ft of 2-in diameter steel pipe, No. 12 slot screen set 1,044 to 1,062 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

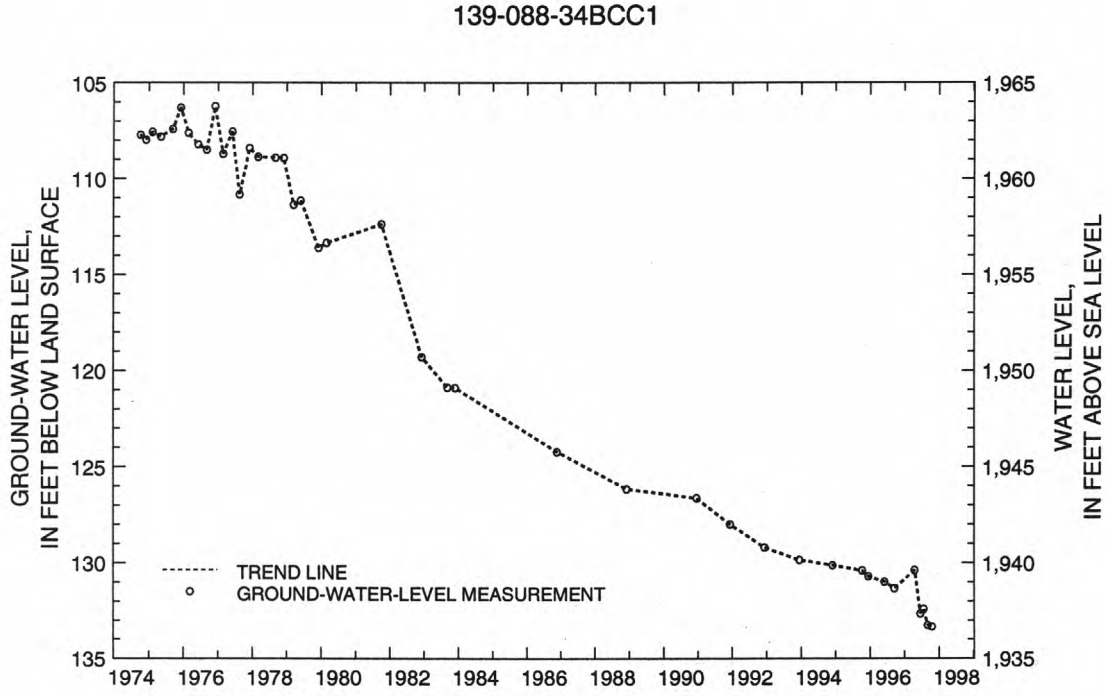
DATUM.--Altitude of land-surface datum is 2,070 ft. Measuring point: Top of casing 4.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1974 to October 1997 (discontinued).

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 106.22 ft below land-surface datum, November 30, 1976; lowest water level measured, 133.35 ft below land-surface datum, October 17, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL
Oct. 17	133.35



GROUND-WATER LEVELS

MORTON COUNTY

464846101464502. Local number, 139-088-34BCC2.

LOCATION.--Lat 46°48'46", long 101°46'45", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Hell Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 862 ft, cased with 842 ft of 2-in diameter steel pipe, No. 12 slot screen set 842 to 860 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

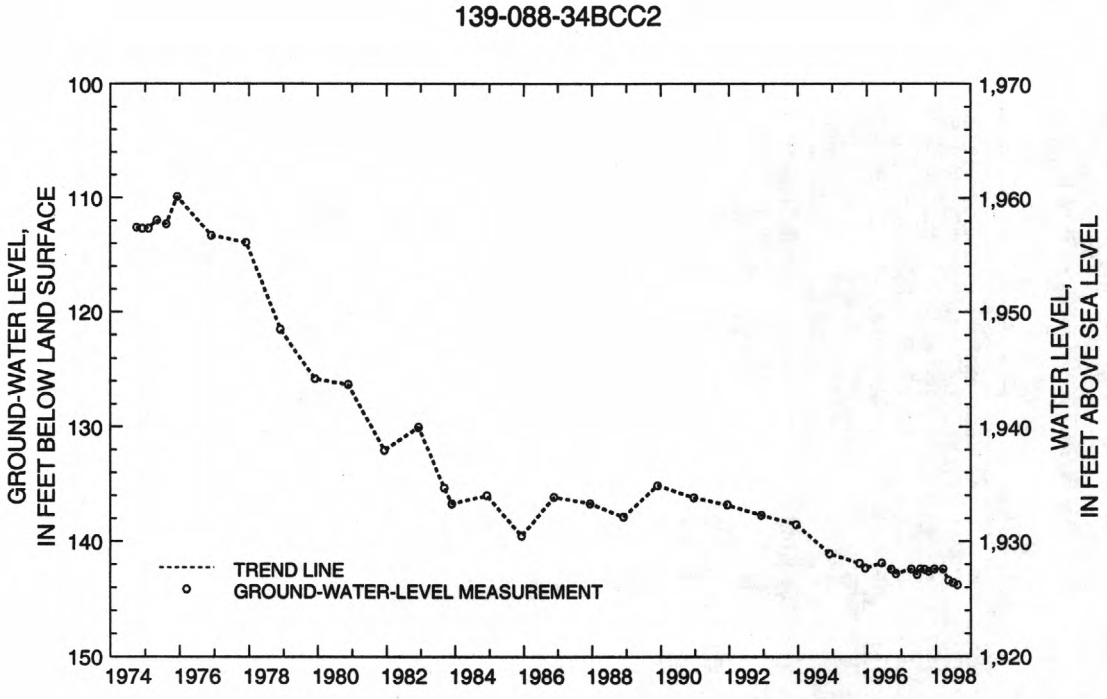
DATUM.--Altitude of land-surface datum is 2,070 ft. Measuring point: Top of casing 4.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 109.89 ft below land-surface datum, December 4, 1975; lowest water level measured, 143.77 ft below land-surface datum, August 18, 1998.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 17	142.60	Mar. 18	142.40	July 1	143.57	Aug. 18	143.77
Dec. 18	142.41	May 14	143.37				



GROUND-WATER LEVELS

MORTON COUNTY

464846101464503. Local number, 139-088-34BCC3.

LOCATION.--Lat 46°48'46", long 101°46'45", Hydrologic Unit 10130203. Owner: North Dakota State Water Commission.

AQUIFER.--Tongue River.

WELL CHARACTERISTICS.--Drilled observation well, depth 302 ft, cased with 288 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 288 to 294 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

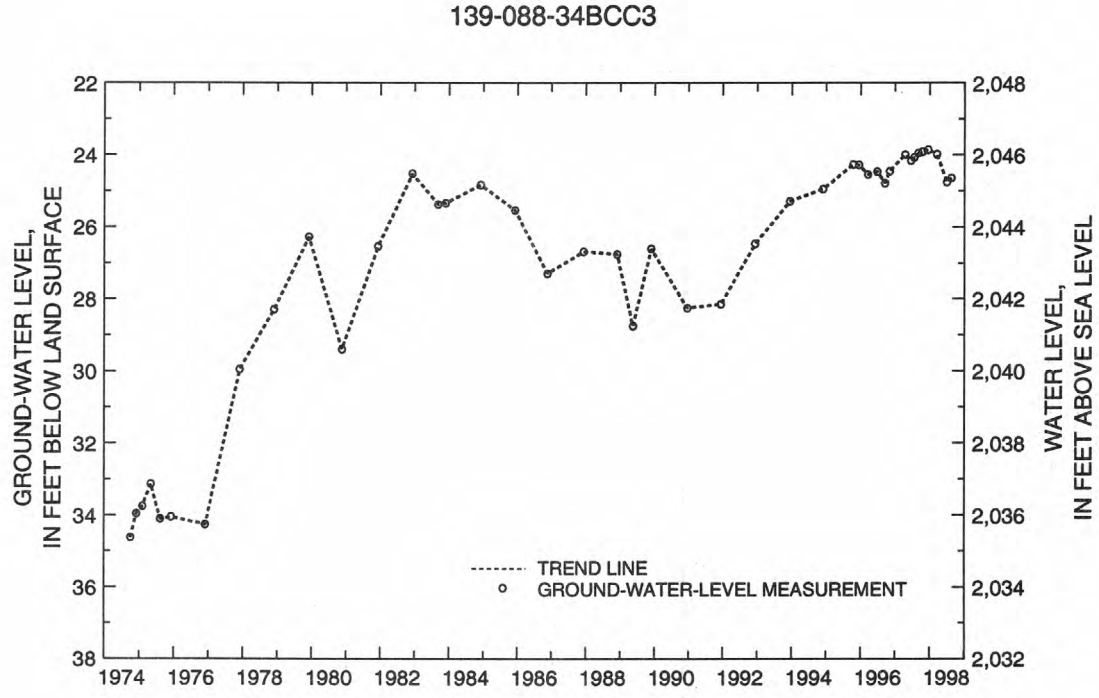
DATUM.--Altitude of land-surface datum is 2,070 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.86 ft below land-surface datum, December 18, 1997; lowest water level measured, 34.62 ft below land-surface datum, October 4, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 17	23.91	Mar. 18	23.98	July 1	24.76	Aug. 18	24.64
Dec. 18	23.86						



GROUND-WATER LEVELS

MOUNTRAIL COUNTY

480120101571901. Local number, 152-088-04BBBD1.

LOCATION.--Lat 48°01'20", long 101°57'19", Hydrologic Unit 10110101. Owner: North Dakota State Water Commission.

AQUIFER.--Sentinel Butte.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 66 ft of 1.25-in diameter plastic pipe, screen set 66 to 71 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

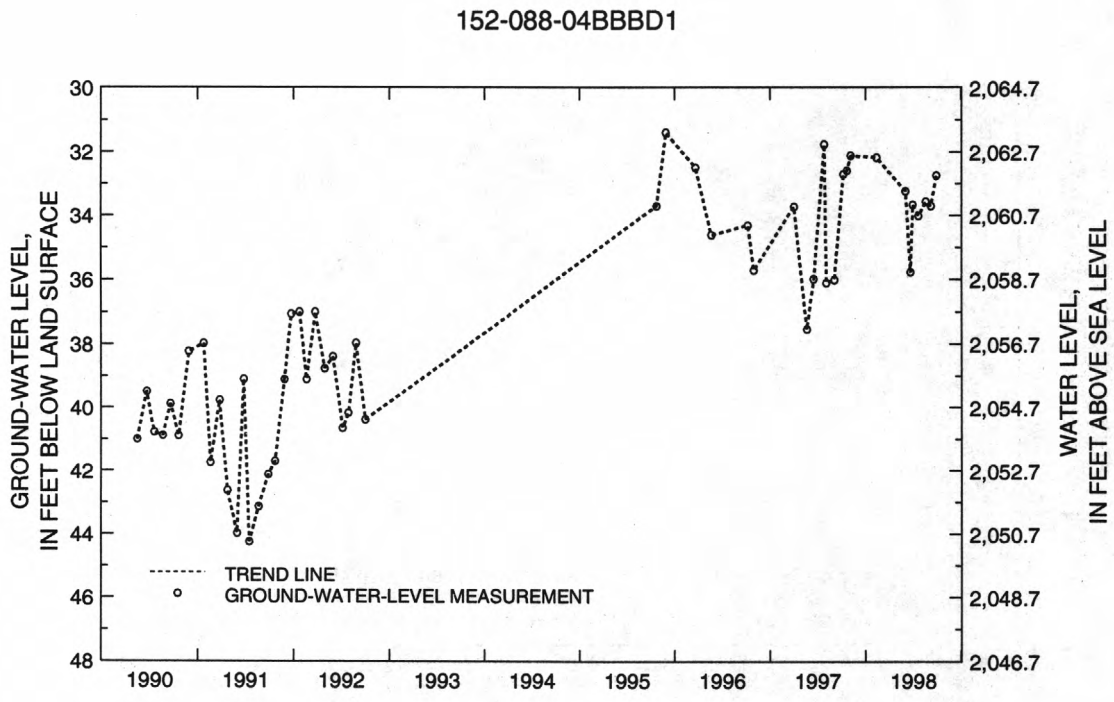
DATUM.--Altitude of land-surface datum is 2,094.73 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 31.40 ft below land-surface datum, November 29, 1995; lowest water level measured, 44.24 ft below land-surface datum, July 16, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 9	32.70	Feb. 12	32.18	July 1	33.66	Sept. 8	33.70
Oct. 22	32.59	June 3	33.23	July 23	34.01	Sept. 29	32.74
Nov. 6	32.12	June 22	35.78	Aug. 20	33.56		



GROUND-WATER LEVELS

MOUNTRAIL COUNTY

480120101571902. Local number, 152-088-04BBBD2.

LOCATION.--Lat 48°01'20", long 101°57'19", Hydrologic Unit 10110101. Owner: North Dakota State Water Commission.

AQUIFER.--Sentinel Butte.

WELL CHARACTERISTICS.--Drilled observation well, depth 89 ft, cased with 82 ft of 1.25-in diameter plastic pipe, screen set 82 to 87 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

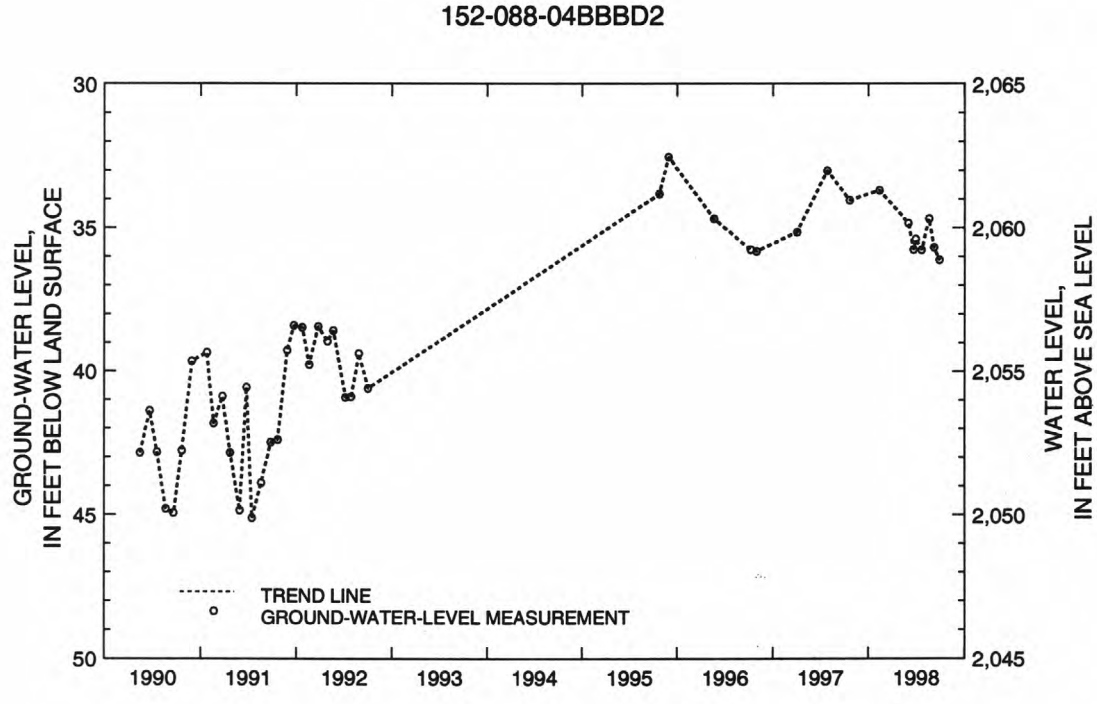
DATUM.--Altitude of land-surface datum is 2,095 ft. Measuring point: Top of casing 1.50 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.52 ft below land-surface datum, November 29, 1995; lowest water level measured, 45.12 ft below land-surface datum, July 16, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 22	34.03	June 22	35.76	July 23	35.77	Sept. 8	35.68
Feb. 12	33.69	July 1	35.39	Aug. 20	34.68	Sept. 29	36.12
June 3	34.84						



GROUND-WATER LEVELS

NELSON COUNTY

480138098074101. Local number, 153-058-32DBB.

LOCATION.--Lat 48°01'38", long 98°07'41", Hydrologic Unit 09020307. Owner: North Dakota State Water Commission.

AQUIFER.--Pierre Shale.

WELL CHARACTERISTICS.--Drilled observation well, depth 120 ft, cased with 120 ft of 5-in diameter steel pipe, slotted 110 to 120 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

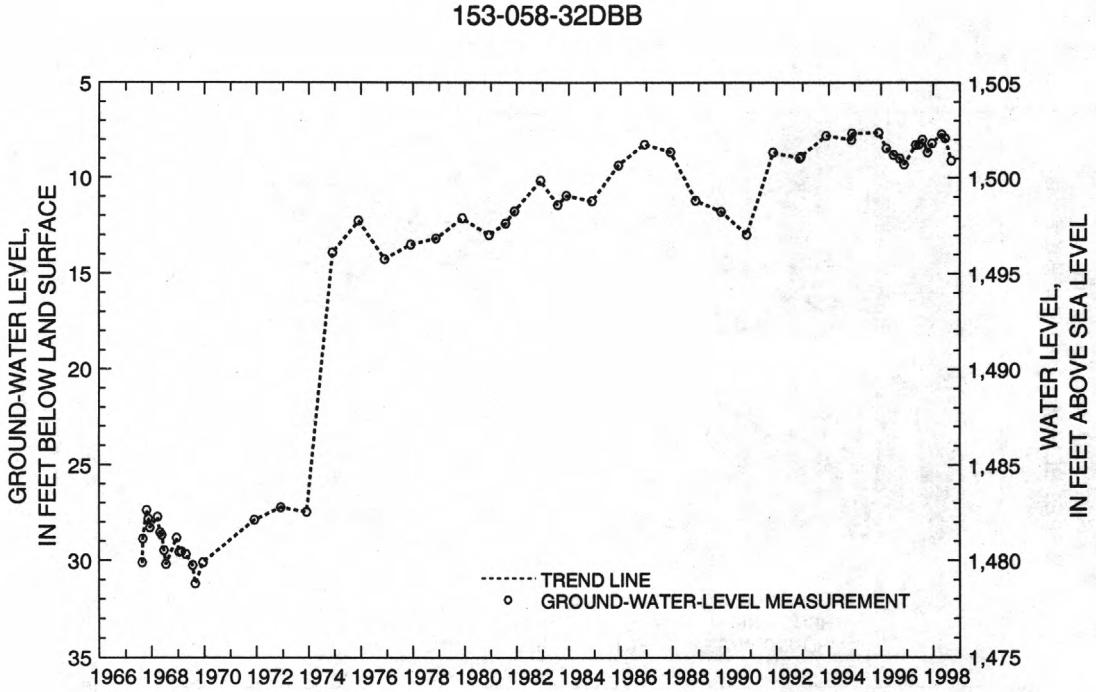
DATUM.--Altitude of land-surface datum is 1,510 ft. Measuring point: Top of casing 1.45 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.61 ft below land-surface datum, November 30, 1995; lowest water level measured, 31.20 ft below land-surface datum, August 28, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	8.66	Apr. 27	7.70	June 16	7.92	Sept. 10	9.09
Dec. 17	8.18						



GROUND-WATER LEVELS

OLIVER COUNTY

470642101162701. Local number, 142-084-24BBA.

LOCATION.--Lat 47°06'42", long 101°16'27", Hydrologic Unit 10130101. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 1,295 ft, cased with 966 ft of 4-in diameter steel pipe, open ended.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,006 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

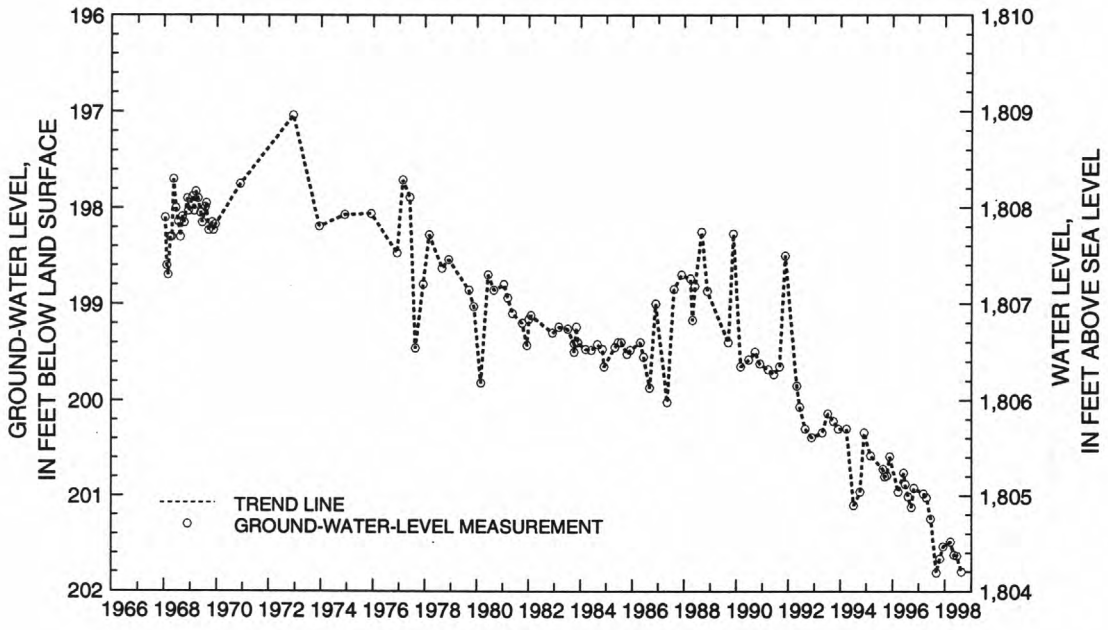
PERIOD OF RECORD.--January 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 197.04 ft below land-surface datum, December 8, 1972; lowest water level measured, 201.81 ft below land-surface datum, September 2, 1997.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 20	201.66	Mar. 17	201.48	June 16	201.63	Aug. 18	201.80
Dec. 9	201.53	May 7	201.62				

142-084-24BBA



GROUND-WATER LEVELS

PEMBINA COUNTY

485425097550502. Local number, 163-056-29CDD2.

LOCATION.--Lat 48°54'25", long 97°55'05", Hydrologic Unit 09020313. Owner: North Dakota State Water Commission.

AQUIFER.--Pembina River.

WELL CHARACTERISTICS.--Drilled observation well, depth 40 ft, cased with 20 ft of 4-in diameter steel pipe, No. 24 slot screen set 20 to 25 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

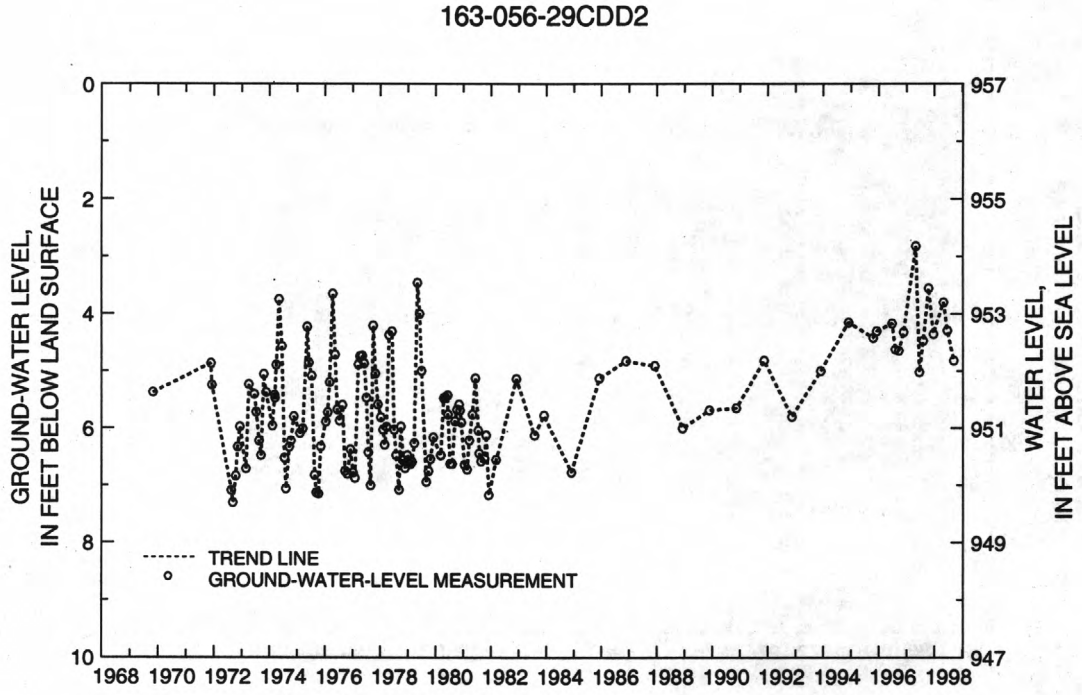
DATUM.--Altitude of land-surface datum is 957 ft. Measuring point: Top of casing 0.60 ft above land-surface datum.

PERIOD OF RECORD.--October 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.82 ft below land-surface datum, May 1, 1997; lowest water level measured, 7.31 ft below land-surface datum, September 7, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	3.55	Apr. 27	3.80	June 16	4.29	Sept. 10	4.82
Dec. 17	4.35						



GROUND-WATER LEVELS

PIERCE COUNTY

475139099484801. Local number, 151-072-36AAA1.

LOCATION.--Lat 47°51'39", long 99°48'48", Hydrologic Unit 09020202. Owner: North Dakota State Water Commission.

AQUIFER.--New Rockford.

WELL CHARACTERISTICS.--Drilled observation well, depth 320 ft, cased with 213 ft of 4-in diameter plastic pipe, screen set 213 to 238 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder November 1967 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for November 1967 to July 1974. From August 1974 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,602 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

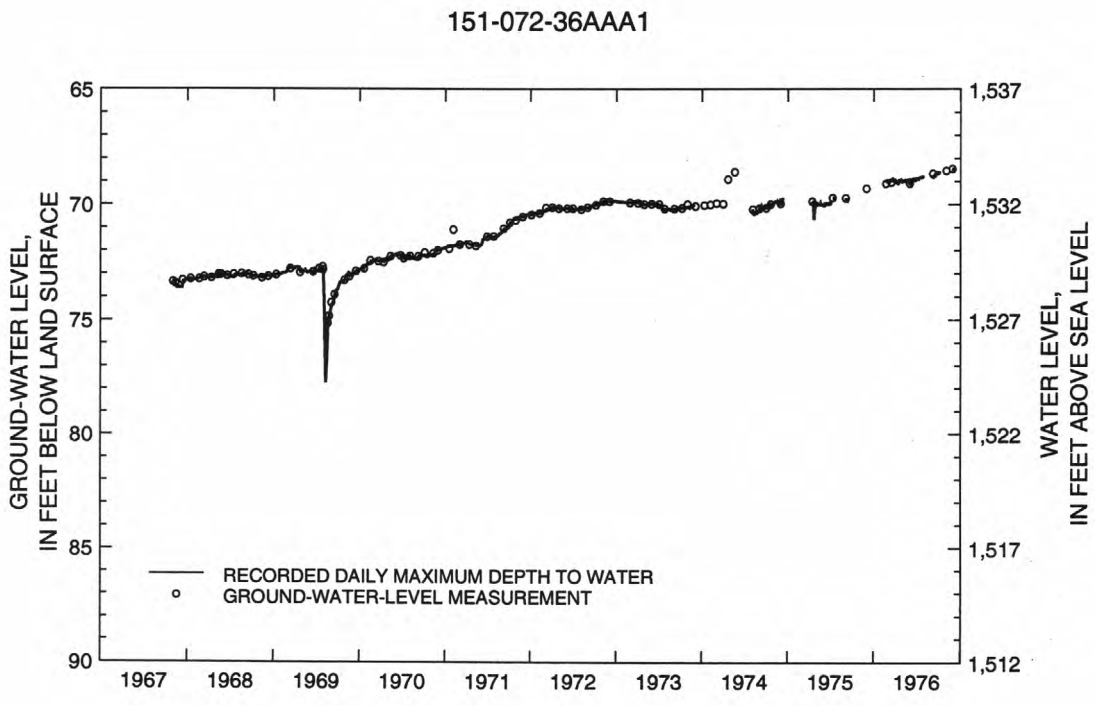
PERIOD OF RECORD.--November 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 68.26 ft below land-surface datum, March 10-11, 1977; lowest daily water level, 86.32 ft below land-surface datum, August 22-27, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	78.20	77.47	77.07	76.77	76.57	76.10	76.04	---	76.68	76.68	---	78.14
10	78.14	77.46	77.01	76.75	76.50	76.14	76.04	76.18	76.68	76.68	---	78.22
15	77.94	77.34	76.95	76.75	76.44	76.12	75.99	76.10	76.69	76.69	---	78.27
20	77.87	77.30	76.89	76.65	76.40	76.12	76.03	76.17	76.65	---	---	78.03
25	77.72	77.18	76.86	76.63	76.30	76.09	76.04	76.42	76.58	---	---	77.87
EOM	77.56	77.08	76.80	76.59	76.10	76.04	76.08	76.69	76.57	---	78.12	77.79
MAX	78.25	77.47	77.08	76.78	76.58	76.16	76.08	---	76.69	---	---	78.31

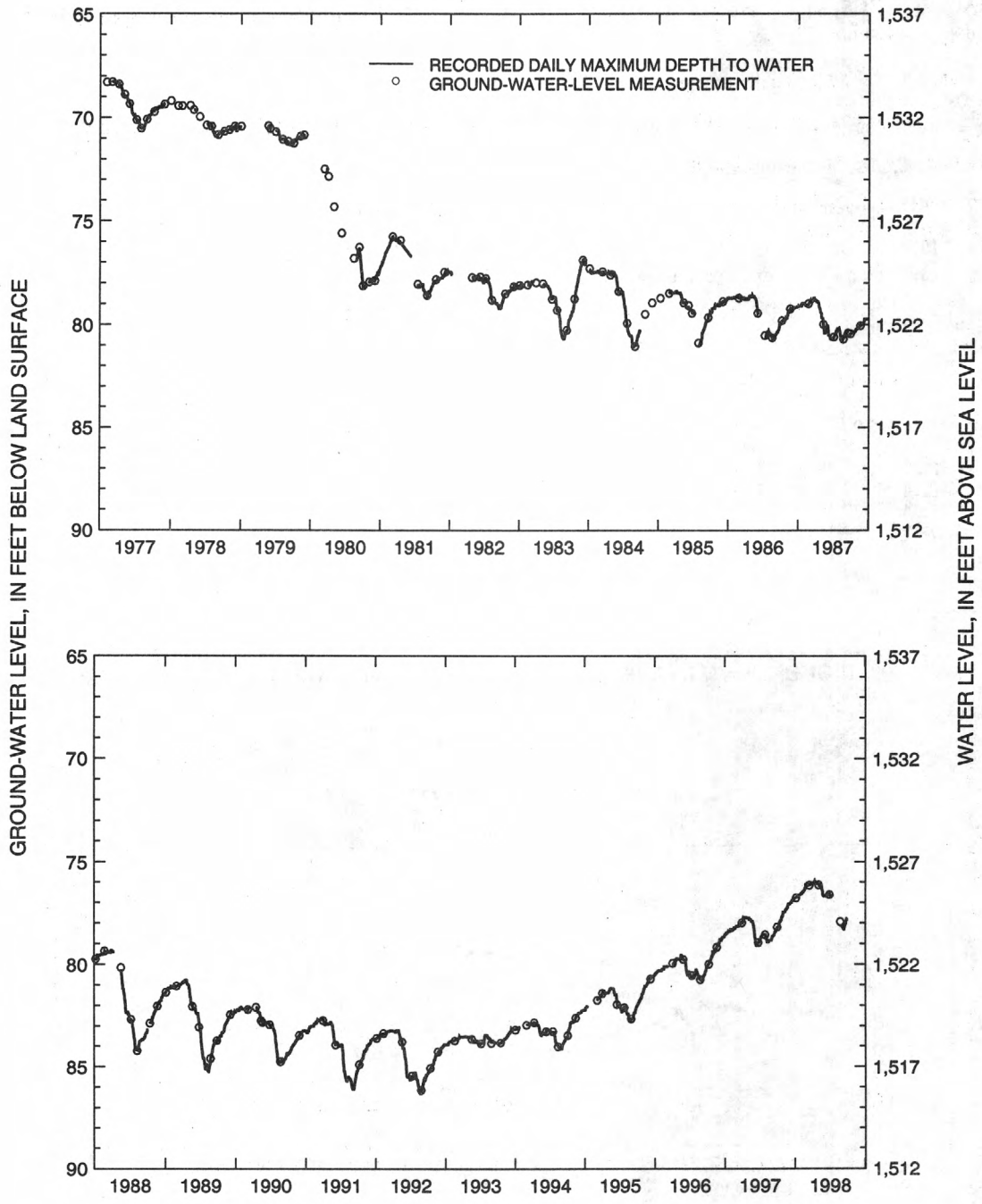
WATER YEAR 1998 HIGHEST WATER LEVEL 75.96 APRIL 13-15 LOWEST WATER LEVEL 78.31 SEPTEMBER 12-13



GROUND-WATER LEVELS

PIERCE COUNTY

151-072-36AAA1--Continued



GROUND-WATER LEVELS

PIERCE COUNTY

482033099594901. Local number, 156-073-12CCC.

LOCATION.--Lat 48°20'33", long 99°59'49", Hydrologic Unit 09010004. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 120 ft, cased with 72.5 ft of 4-in diameter plastic pipe, screen set 72.5 to 77.5 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

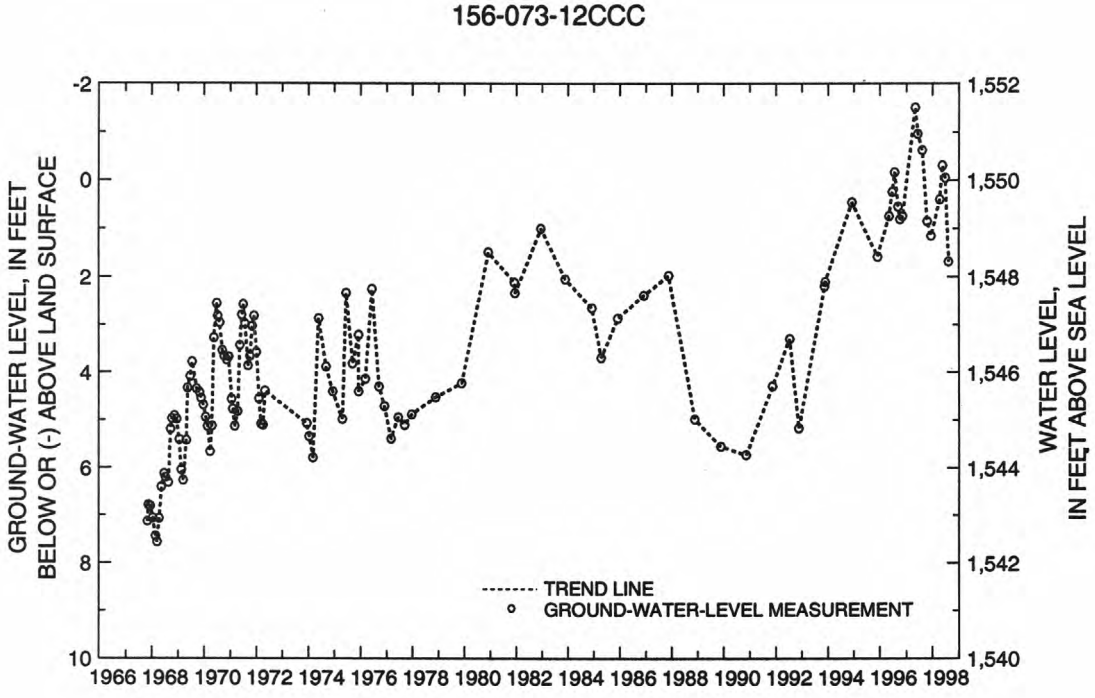
DATUM.--Altitude of land-surface datum is 1,550 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, -1.51 ft below land-surface datum, May 7, 1997; lowest water level measured, 7.57 ft below land-surface datum, March 12, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 22	0.85	Apr. 15	0.40	June 30	-0.05	Aug. 18	1.68
Dec. 17	1.15	May 19	-.30				



GROUND-WATER LEVELS

PIERCE COUNTY

483054100071901. Local number, 158-073-17BBB.

LOCATION.--Lat 48°30'54", long 100°07'19", Hydrologic Unit 09010004. Owner: North Dakota State Water Commission.

AQUIFER.--Lake Souris.

WELL CHARACTERISTICS.--Drilled observation well, depth 180 ft, cased with 56 ft of 1.25-in diameter plastic pipe, screen set 56 to 59 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

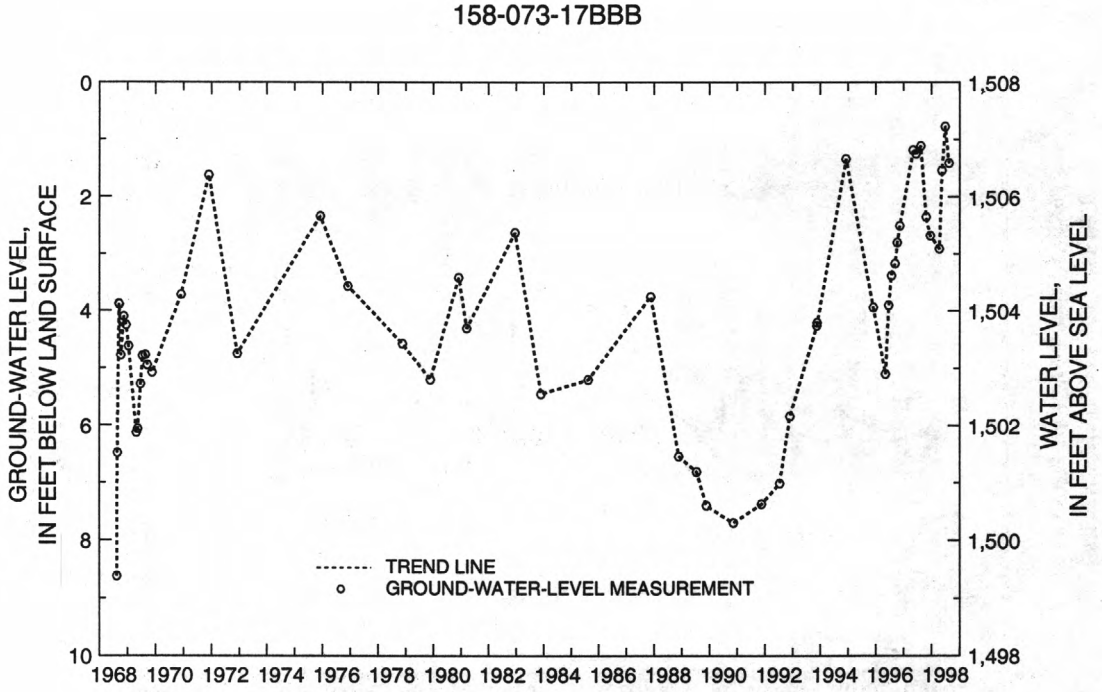
DATUM.--Altitude of land-surface datum is 1,508 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.--August 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.77 ft below land-surface datum, June 29, 1998; lowest water level measured, 8.62 ft below land-surface datum, August 12, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 22	2.35	Apr. 15	2.91	June 29	0.77	Aug. 19	1.41
Dec. 16	2.68	May 20	1.54				



GROUND-WATER LEVELS

RAMSEY COUNTY

480449099002402. Local number, 153-065-09DDD2.

LOCATION.--Lat 48°04'49", long 99°00'24", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 140 ft, cased with 117 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 117 to 120 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,458 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

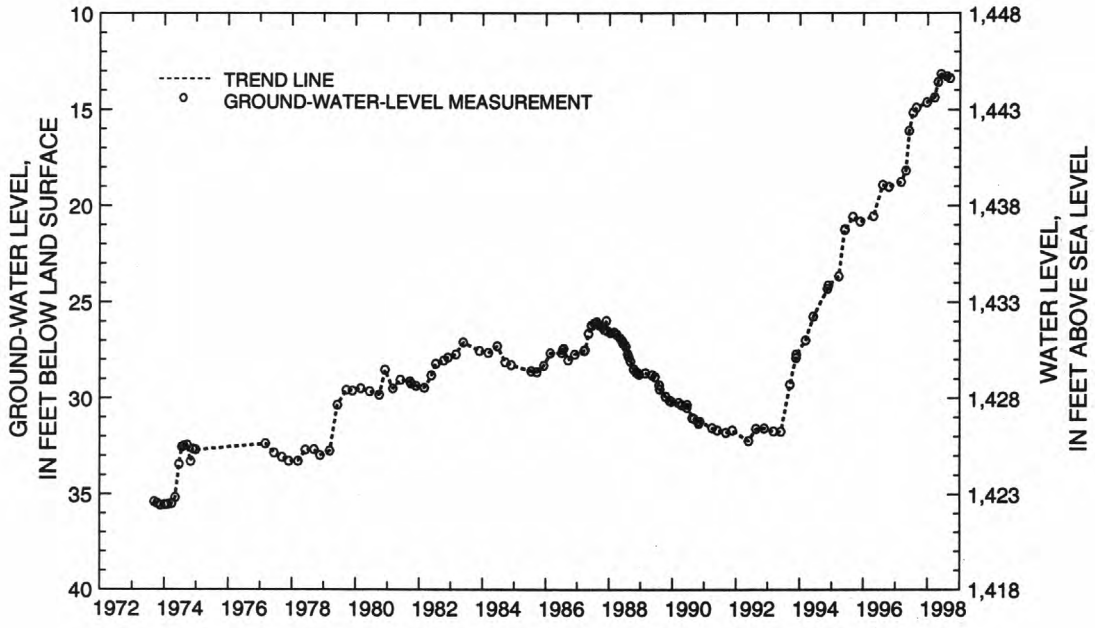
PERIOD OF RECORD.--September 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.15 ft below land-surface datum, June 2, 1998; lowest water level measured, 35.57 ft below land-surface datum, November 20, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Dec. 23	14.61	Apr. 30	13.56	Aug. 5	13.27	Sept. 15	13.37
Mar. 19	14.36	June 2	13.15				

153-065-09DDD2



GROUND-WATER LEVELS

RAMSEY COUNTY

480817099013201. Local number, 154-065-21CCC.

LOCATION.--Lat 48°08'17", long 99°01'32", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 160 ft, cased with 127 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 127 to 133 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

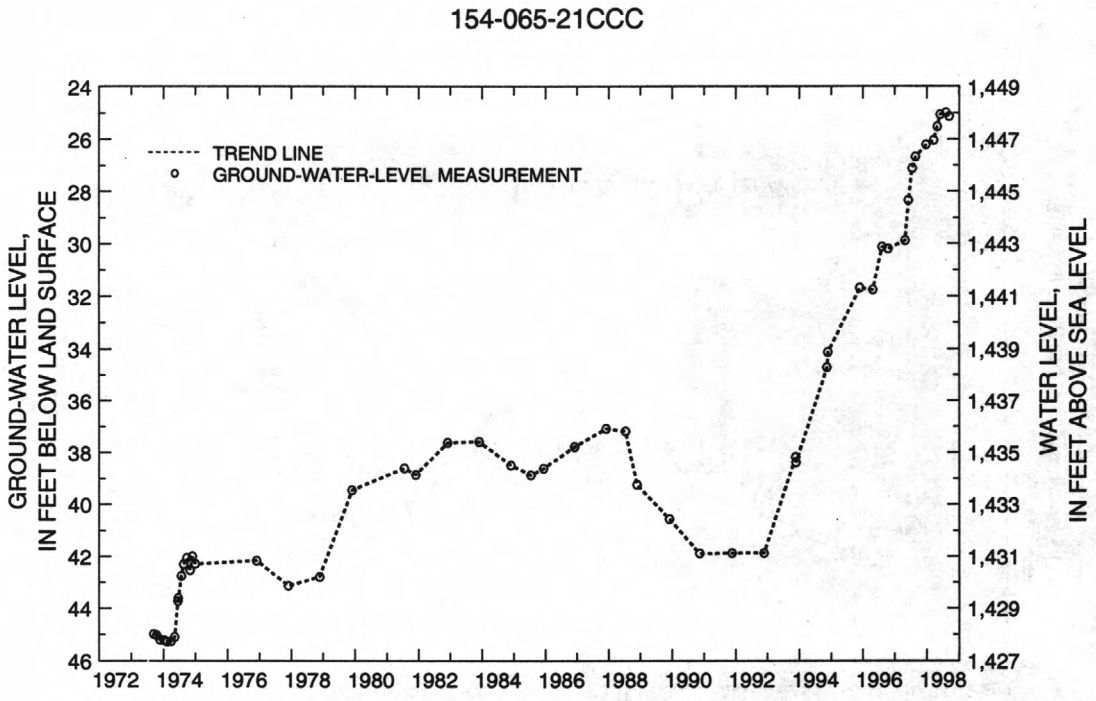
DATUM.--Altitude of land-surface datum is 1,473 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--September 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.98 ft below land-surface datum, August 5, 1998; lowest water level measured, 45.28 ft below land-surface datum, February 14, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Dec. 23	26.22	Apr. 30	25.53	Aug. 5	24.98	Sept. 15	25.13
Mar. 19	26.04	June 2	25.06				



GROUND-WATER LEVELS

RAMSEY COUNTY

481929098392601. Local number, 156-062-20BBB.

LOCATION.--Lat 48°19'29", long 98°39'26", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Pierre Shale.

WELL CHARACTERISTICS.--Drilled observation well, depth 60 ft, cased with 60 ft of 4-in diameter plastic pipe, slotted 48 to 58 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

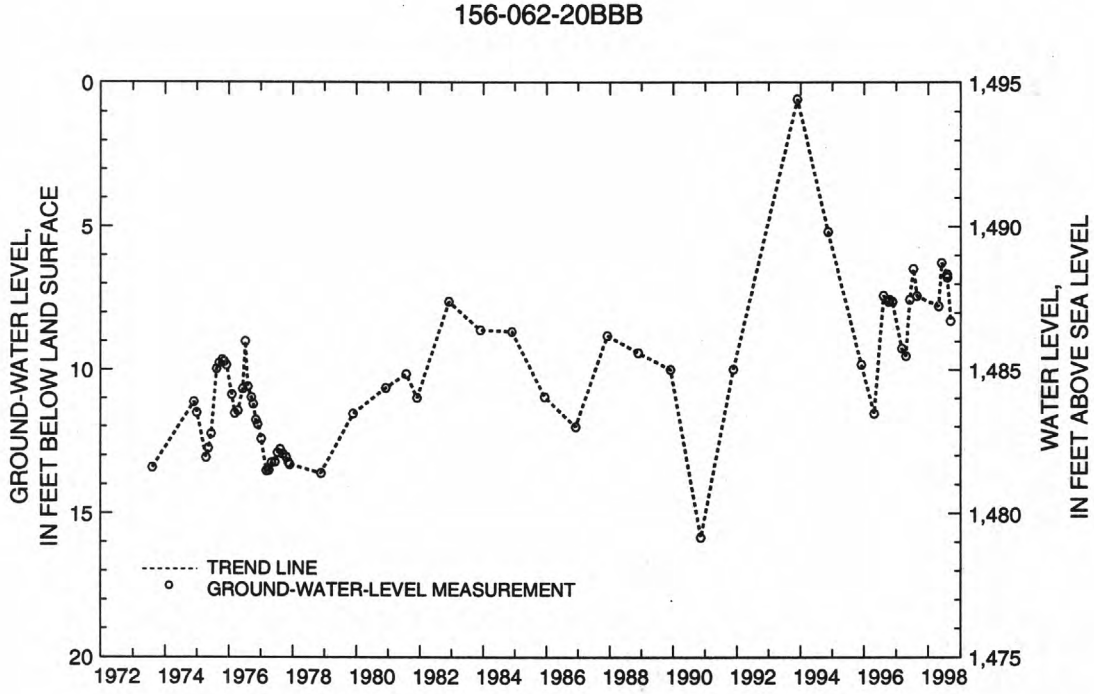
DATUM.--Altitude of land-surface datum is 1,495 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.--August 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.56 ft below land-surface datum, November 24, 1993; lowest water level measured, 15.84 ft below land-surface datum, November 14, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 8	8.90	Apr. 29	7.77	Aug. 4	6.66	Sept. 15	8.29
Mar. 17	9.33	June 3	6.26	Aug. 5	6.77		



GROUND-WATER LEVELS

RANSOM COUNTY

461838097553402. Local number, 133-058-25BBA2.

LOCATION.--Lat 46°18'38", long 97°55'34", Hydrologic Unit 09020105. Owner: North Dakota State Water Commission.

AQUIFER.--Englevale.

WELL CHARACTERISTICS.--Drilled observation well, depth 60 ft, cased with 34 ft of 5-in diameter plastic pipe, No. 15 slot screen set 34 to 38 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From June 1982 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,320 ft. Measuring point: Top of casing 1.50 ft above land-surface datum.

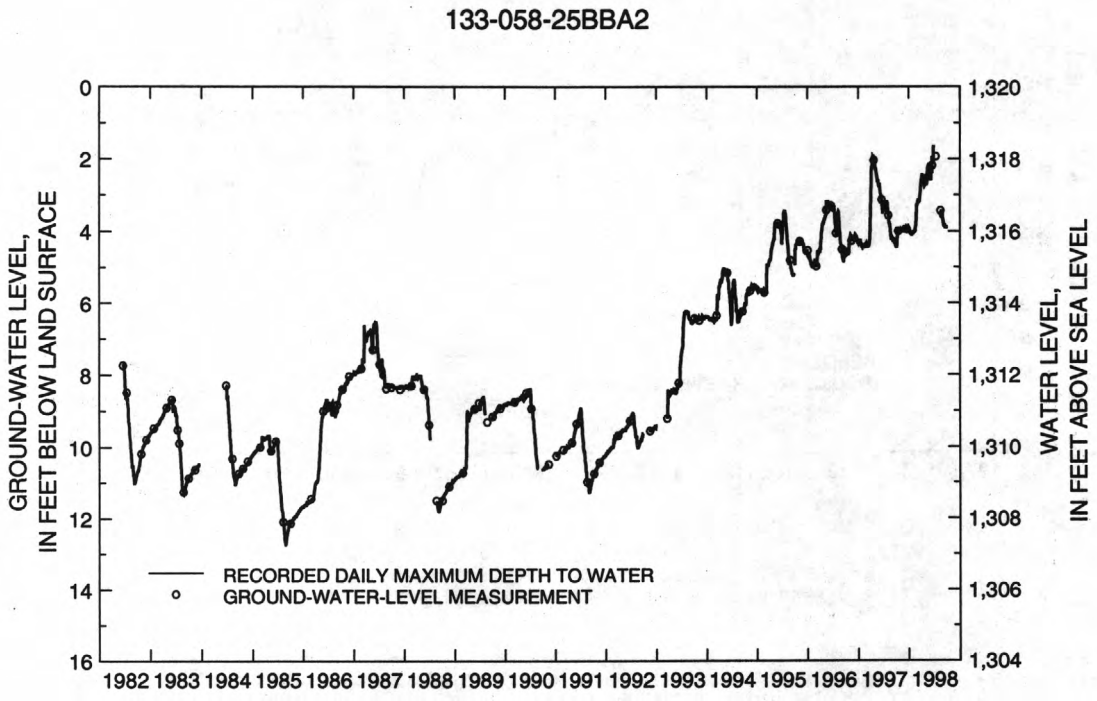
PERIOD OF RECORD.--June 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 1.87 ft below land-surface datum, April 15, 1997; lowest daily water level, 12.73 ft below land-surface datum, August 28-29, 1985.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.41	4.01	3.95	3.96	4.03	3.25	2.54	2.68	2.47	---	---	3.70
10	4.17	3.97	3.94	4.02	4.02	3.15	2.45	2.68	2.56	---	---	3.83
15	4.01	4.00	3.91	4.05	3.98	3.19	2.55	2.46	2.29	---	---	3.81
20	4.03	3.99	3.94	4.08	3.89	3.14	2.65	2.22	2.02	---	3.50	3.89
25	4.05	3.96	3.91	4.06	3.62	2.96	2.74	2.16	2.05	---	3.45	3.89
EOM	3.96	3.95	3.94	4.02	3.28	2.60	2.58	2.35	1.68	---	3.54	3.92
MAX	4.43	4.01	---	4.10	4.06	3.28	---	2.73	2.56	---	---	3.92

WATER YEAR 1998 HIGHEST WATER LEVEL 1.51 JUNE 26 LOWEST WATER LEVEL 4.10 JANUARY 21-22



GROUND-WATER LEVELS

RANSOM COUNTY

462400097552502. Local number, 134-058-24CDC2.

LOCATION.--Lat 46°24'00", long 97°55'25", Hydrologic Unit 09020105. Owner: North Dakota State Water Commission.

AQUIFER.--Englevale.

WELL CHARACTERISTICS.--Drilled observation well, depth 60 ft, cased with 54.5 ft of 4-in diameter plastic pipe, No. 20 slot screen set 54.5 to 59.5 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder April 1968 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for April 1968 to July 1968. From July 1968 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,344 ft. Measuring point: Top of casing 1.10 ft above land-surface datum.

PERIOD OF RECORD.--April 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 17.82 ft below land-surface datum, June 18, 1998; lowest daily water level, 27.08 ft below land-surface datum, September 11-13, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

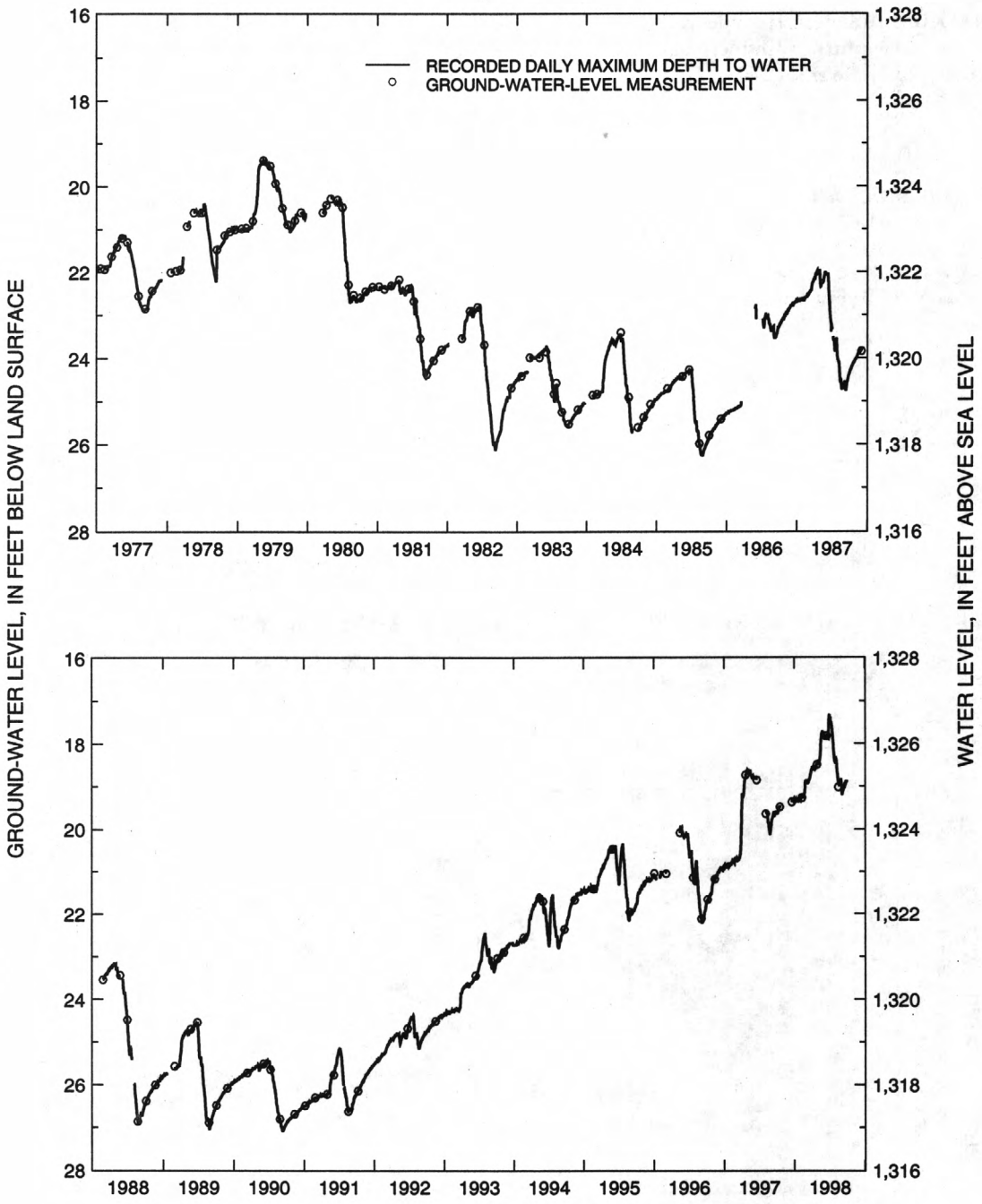
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	19.63	---	---	19.32	19.27	18.87	18.59	18.46	17.88	17.44	18.39	19.16
10	19.59	---	---	19.33	19.26	18.93	18.57	18.46	17.87	17.50	18.61	19.09
15	19.51	---	---	19.32	19.21	18.91	18.60	18.34	17.85	17.65	18.85	19.01
20	---	---	19.36	19.32	19.20	18.85	18.60	17.89	17.83	17.89	18.94	18.97
25	---	---	19.30	19.29	19.12	18.75	18.52	17.74	17.87	18.23	18.91	18.89
EOM	---	---	19.35	19.25	18.87	18.62	18.48	17.76	17.35	18.44	18.83	18.90
MAX	---	---	---	19.36	19.31	18.93	---	18.48	17.89	18.44	18.96	19.18

WATER YEAR 1998 HIGHEST WATER LEVEL 17.30 JULY 2-3 LOWEST WATER LEVEL 19.64 OCTOBER 1, 6

GROUND-WATER LEVELS

RANSOM COUNTY

134-058-24CDC2--Continued



GROUND-WATER LEVELS

RENVILLE COUNTY

484500101294901. Local number, 161-084-24DDD.

LOCATION.--Lat 48°45'00", long 101°29'49", Hydrologic Unit 09010005. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 662 ft, cased with 470 ft of 2-in diameter steel pipe, No. 12 slot screen set 470 to 488 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

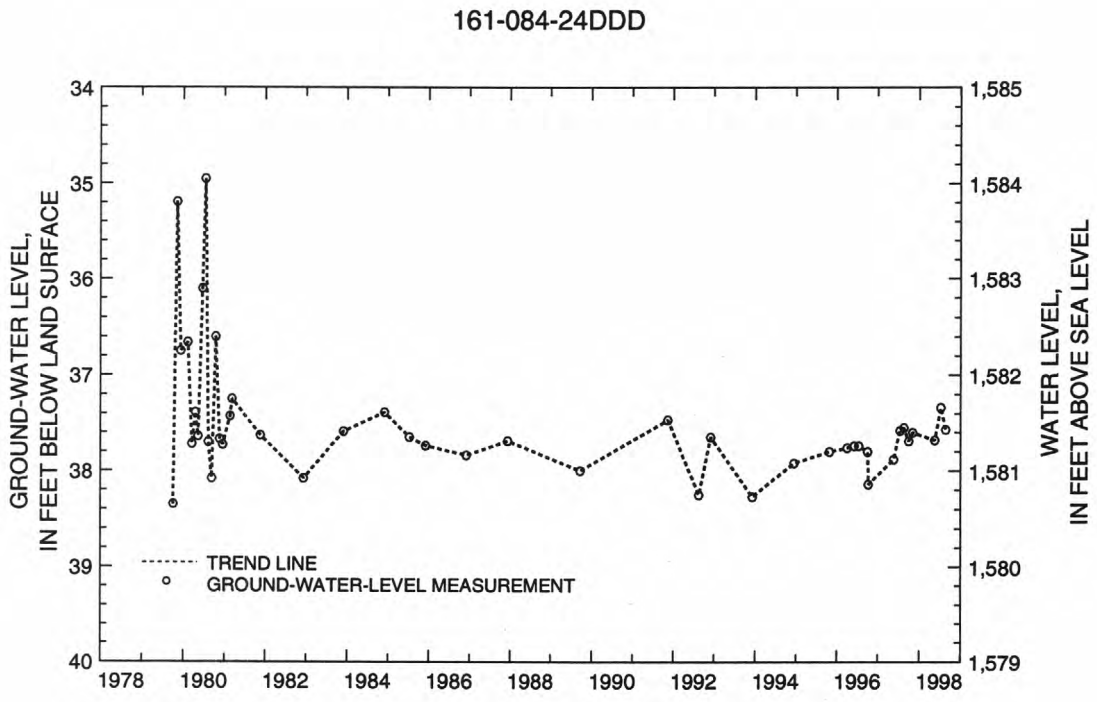
DATUM.--Altitude of land-surface datum is 1,619 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.95 ft below land-surface datum, July 17, 1980; lowest water level measured, 38.35 ft below land-surface datum, October 3, 1979.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 4	37.60	May 20	37.68	July 14	37.34	Aug. 25	37.57



GROUND-WATER LEVELS

RICHLAND COUNTY

460358096581401. Local number, 130-050-17DDD.

LOCATION.--Lat 46°03'58", long 96°58'14", Hydrologic Unit 09020105. Owner: North Dakota State Water Commission.

AQUIFER.--Milnor Channel.

WELL CHARACTERISTICS.--Drilled observation well, depth 57.6 ft, cased with 57.6 ft of 1.25-in diameter plastic pipe, slotted 47 to 57.6 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

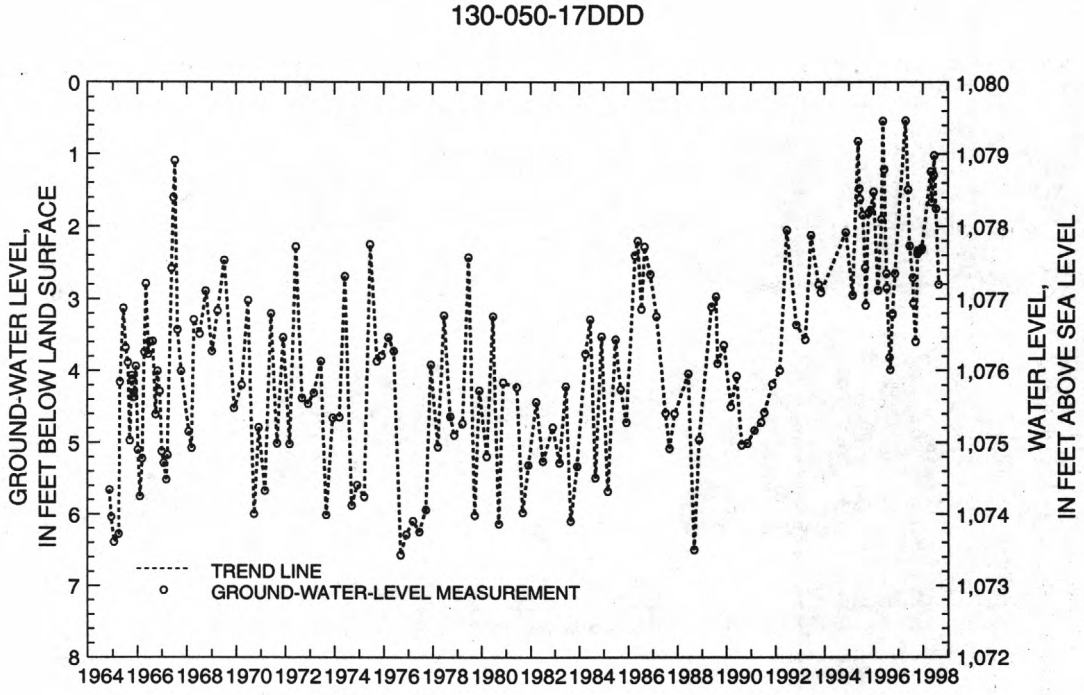
DATUM.--Altitude of land-surface datum is 1,080 ft. Measuring point: Top of casing 1.90 ft above land-surface datum.

PERIOD OF RECORD.--November 1964 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.53 ft below land-surface datum, April 20, 1997; lowest water level measured, 6.57 ft below land-surface datum, September 9, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	2.38	Dec. 16	2.32	May 12	1.66	July 15	1.75
Oct. 17	2.33	Dec. 19	2.30	June 11	1.29	Aug. 25	2.80
Nov. 19	2.34	Apr. 29	1.24	June 17	1.02		



GROUND-WATER LEVELS

RICHLAND COUNTY

462425096441202. Local number, 134-048-20ADD2.

LOCATION.--Lat 46°24'25", long 96°44'12", Hydrologic Unit 09020105. Owner: North Dakota State Water Commission.

AQUIFER.--Colfax.

WELL CHARACTERISTICS.--Drilled observation well, depth 260 ft, cased with 130 ft of 5-in diameter steel pipe, No. 15 slot screen set 130 to 135 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From June 1980 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 941.5 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

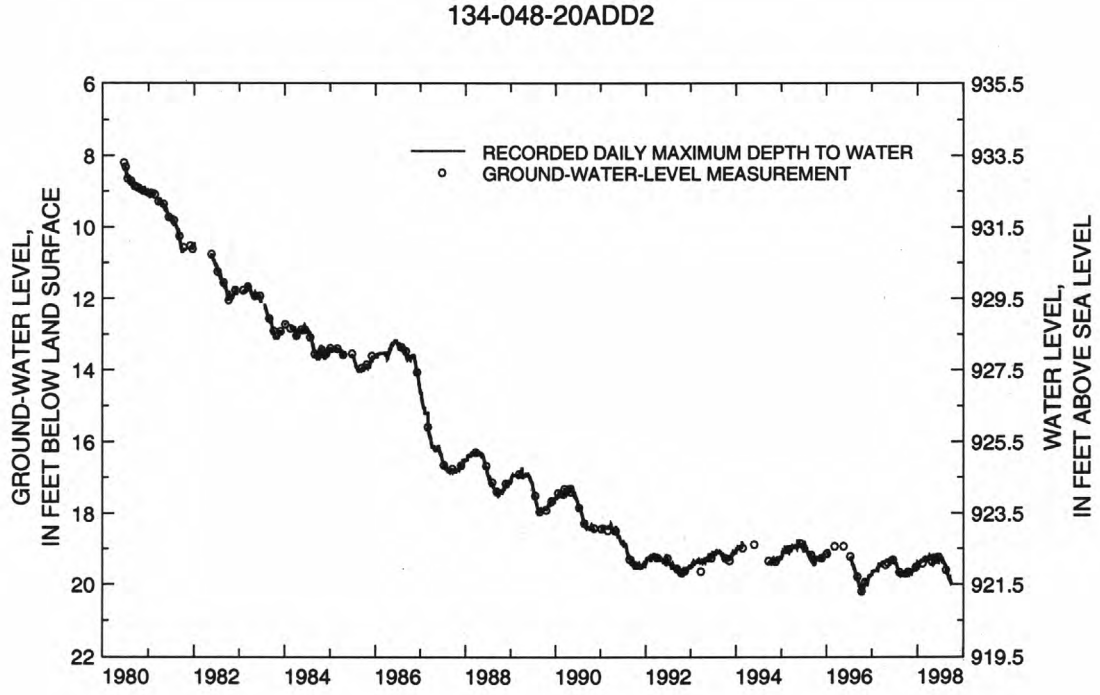
PERIOD OF RECORD.--June 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 8.20 ft below land-surface datum, June 18, 1980; lowest daily water level, 20.24 ft below land-surface datum, October 9-10, 1996.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	19.73	19.68	19.57	19.45	19.36	19.26	19.25	19.41	19.38	19.28	19.43	19.77
10	19.71	19.68	19.58	19.43	19.35	19.37	19.25	19.40	19.38	19.25	19.45	19.80
15	19.66	19.68	19.52	19.39	19.31	19.36	19.24	19.25	19.32	19.31	19.48	19.87
20	19.69	19.64	19.53	19.40	19.28	19.33	19.28	19.31	19.20	19.26	19.65	19.90
25	19.72	19.58	19.48	19.36	19.30	19.32	19.24	19.33	19.24	19.35	19.65	19.91
EOM	19.62	19.58	19.49	19.31	19.23	19.24	19.43	19.35	19.22	19.41	19.73	19.97
MAX	19.76	19.69	19.59	19.50	19.37	19.39	---	19.43	19.41	19.41	19.73	19.97

WATER YEAR 1998 HIGHEST WATER LEVEL 19.10 MAY 15-16 LOWEST WATER LEVEL 19.97 SEPTEMBER 30



GROUND-WATER LEVELS

RICHLAND COUNTY

462633097163402. Local number, 134-052-06CCD2.

LOCATION.--Lat 46°26'33", long 97°16'34", Hydrologic Unit 09020204. Owner: North Dakota State Water Commission.

AQUIFER.--Sheyenne Delta.

WELL CHARACTERISTICS.--Drilled observation well, depth 283 ft, cased with 40 ft of 4-in diameter plastic pipe, slotted 30 to 40 ft below land-surface datum.

INSTRUMENTATION.--Water-level data September 1963 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for May 1965 to September 1966. From September 1966 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,067.03 ft. Measuring point: Top of casing 0.65 ft above land-surface datum.

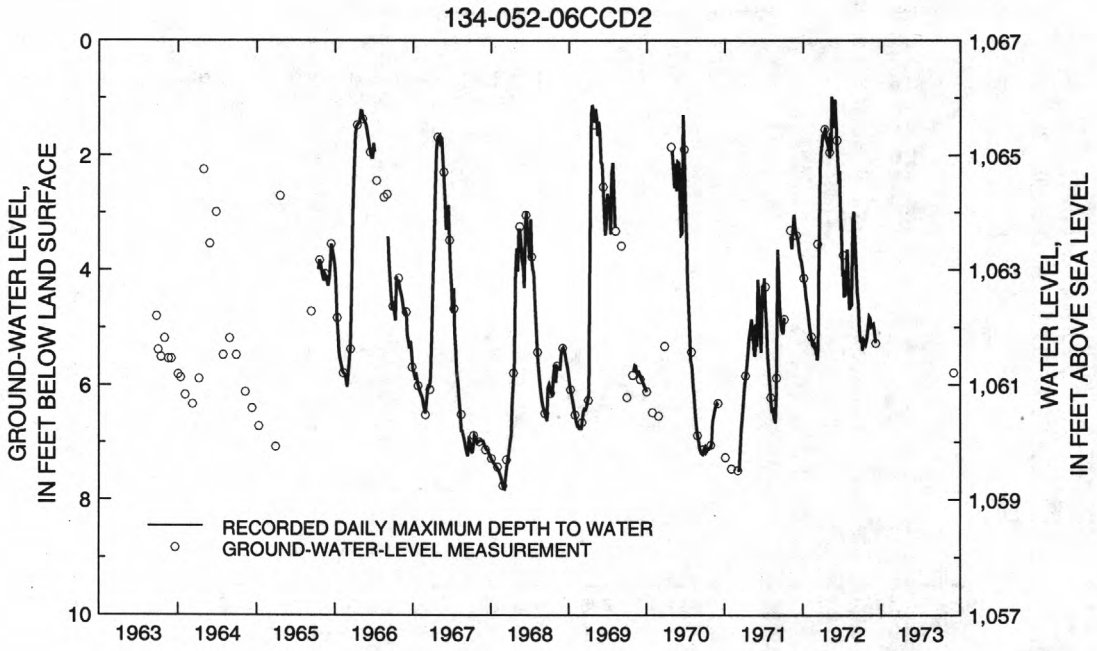
PERIOD OF RECORD.--September 1963 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 0.78 ft below land-surface datum, May 13, 1972; lowest daily water level, 9.07 ft below land-surface datum, February 22, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	5.83	3.17	2.98	3.68	3.93	2.20	2.05	2.90	2.82	1.94	3.39	5.52
10	5.83	2.95	3.00	3.86	3.99	2.34	2.08	2.60	2.96	2.12	3.90	5.75
15	5.83	3.07	3.00	3.99	3.86	2.45	2.13	1.76	2.73	2.70	4.27	5.65
20	3.04	3.12	3.05	4.08	3.08	2.21	2.36	2.00	2.40	2.43	4.61	6.06
25	3.17	3.03	3.24	4.01	2.30	2.08	2.54	2.31	2.70	2.86	4.80	6.18
EOM	3.13	2.86	3.41	3.85	2.17	1.95	2.60	2.59	1.66	3.37	5.24	5.93
MAX	5.83	3.17	3.41	4.09	3.99	2.45	---	2.90	2.99	3.37	5.24	6.18

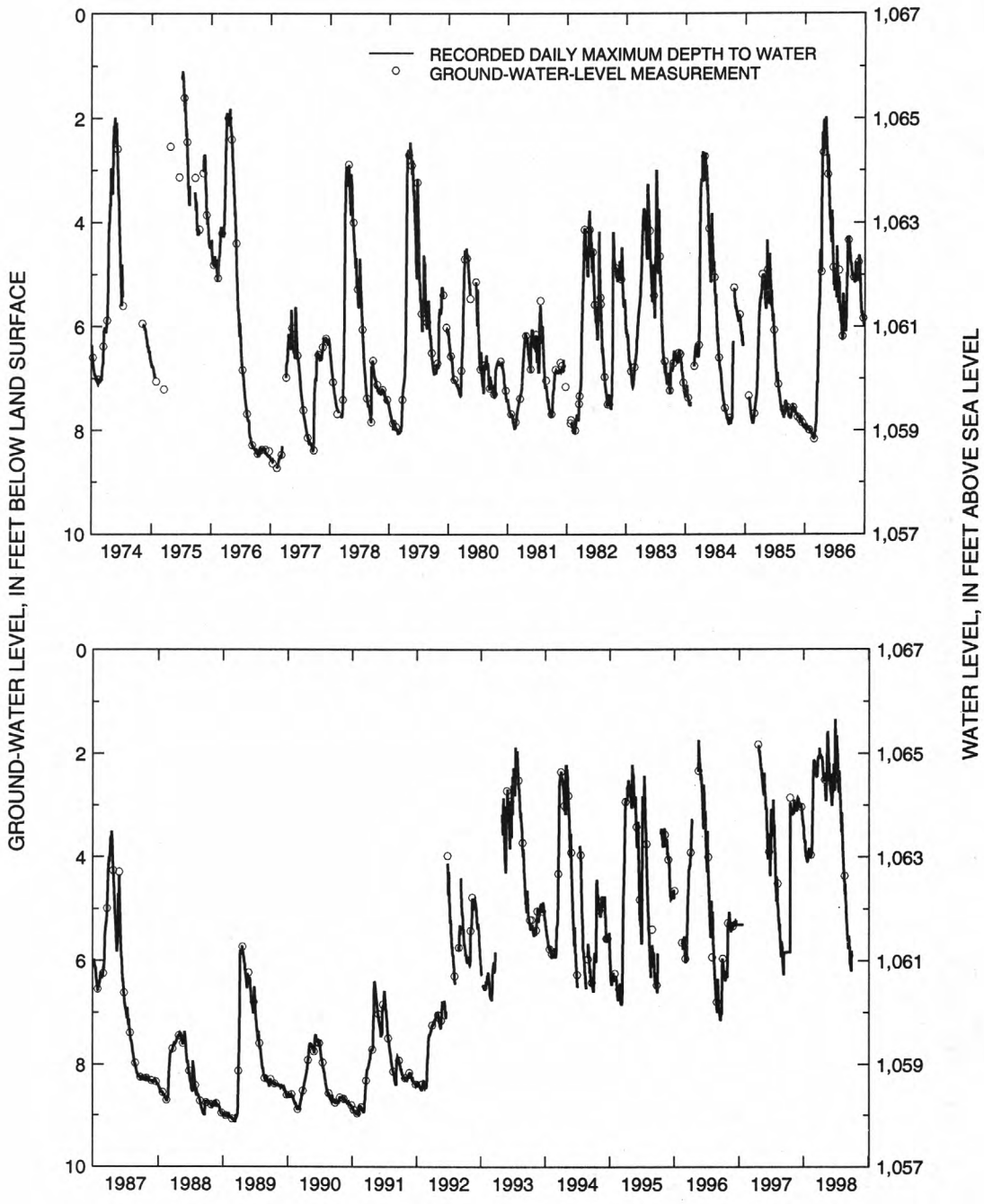
WATER YEAR 1998 HIGHEST WATER LEVEL 1.27 JUNE 26-27 LOWEST WATER LEVEL 6.18 SEPTEMBER 25-26



GROUND-WATER LEVELS

RICHLAND COUNTY

134-052-06CCD2--Continued



GROUND-WATER LEVELS

RICHLAND COUNTY

463422097115602. Local number, 136-052-22DDD2.

LOCATION.--Lat 46°34'22", long 97°11'56", Hydrologic Unit 09020204. Owner: North Dakota State Water Commission.

AQUIFER.--Sheyenne Delta.

WELL CHARACTERISTICS.--Drilled observation well, depth 26.9 ft, cased with 26.4 ft of 4-in diameter plastic pipe, slotted 17 to 26.4 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder October 1963 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for July 1965 to September 1966. From September 1966 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,050 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

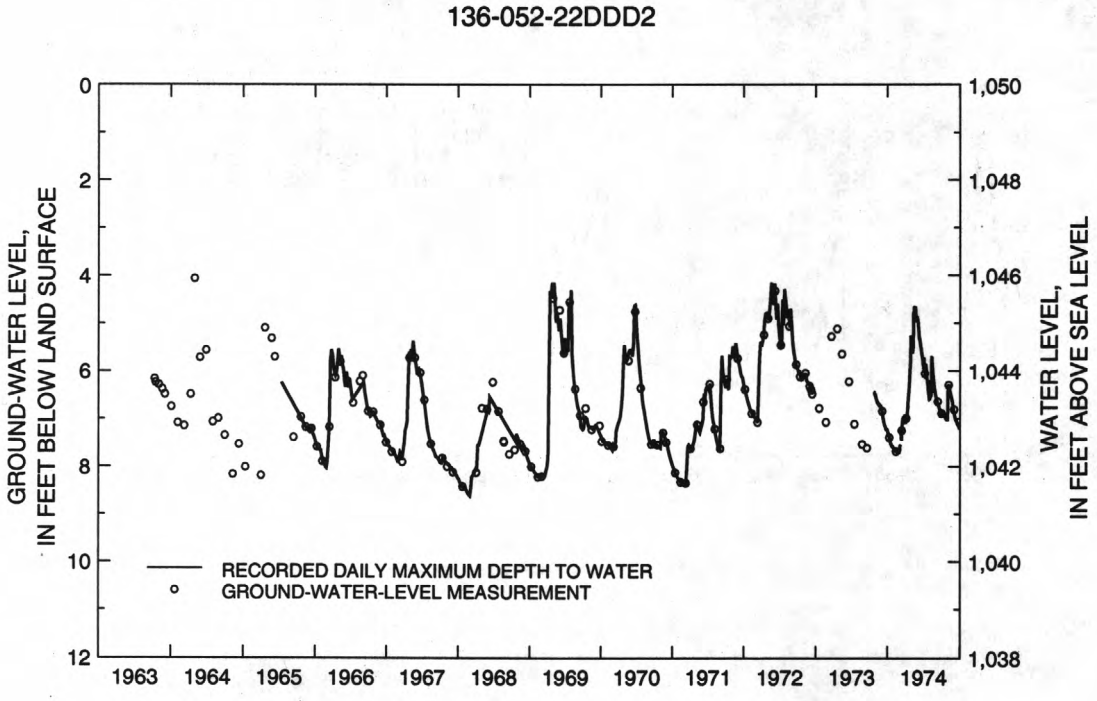
PERIOD OF RECORD.--October 1963 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 0.21 ft below land-surface datum, July 9, 1975; lowest daily water level, 9.35 ft below land-surface datum, March 1-10, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.21	5.51	5.53	6.12	6.36	3.96	3.11	4.35	3.58	2.10	3.90	5.46
10	5.92	5.36	5.57	6.15	6.39	4.21	3.17	3.90	3.79	1.68	4.39	5.63
15	5.14	5.55	5.64	6.27	6.35	4.50	3.34	2.19	3.07	2.47	4.78	5.13
20	5.24	5.64	5.70	6.35	5.89	4.31	3.76	2.78	2.29	2.05	5.01	5.61
25	5.39	5.62	5.86	6.37	5.00	3.69	4.07	3.04	2.94	2.89	5.03	5.72
EOM	5.45	5.53	5.95	6.32	4.22	2.77	4.19	3.06	1.70	3.58	5.30	5.01
MAX	6.23	5.64	5.95	6.37	6.40	4.51	---	4.41	3.79	3.58	5.30	5.72

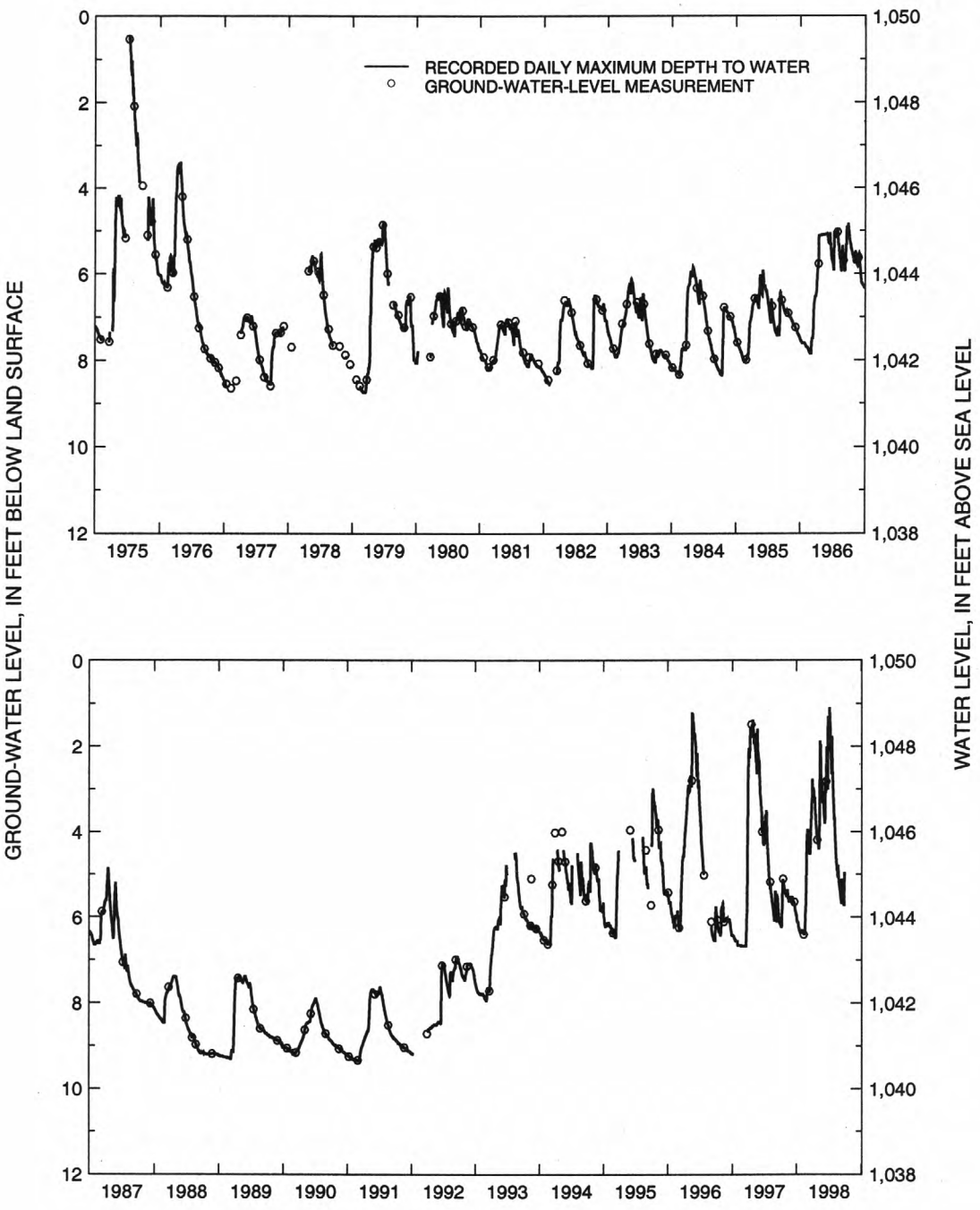
WATER YEAR 1998 HIGHEST WATER LEVEL -0.02 JULY 5 LOWEST WATER LEVEL 6.40 FEBRUARY 11-14



GROUND-WATER LEVELS

RICHLAND COUNTY

136-052-22DDD2--Continued



GROUND-WATER LEVELS

ROLETTE COUNTY

484731099504104. Local number, 161-071-03CDD4.

LOCATION.--Lat 48°47'31", long 99°50'41", Hydrologic Unit 09010004. Owner: Public Health Service.

AQUIFER.--Shell Valley.

WELL CHARACTERISTICS.--Drilled observation well, depth 42 ft, cased with 28.3 ft of 8-in diameter steel pipe, No. 40 slot screen set 28.3 to 38.3 ft below land-surface datum.

INSTRUMENTATION.--Intermittent water levels November 1974 to August 1979. Water-level recorder August 1979 to current year. Daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,752 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

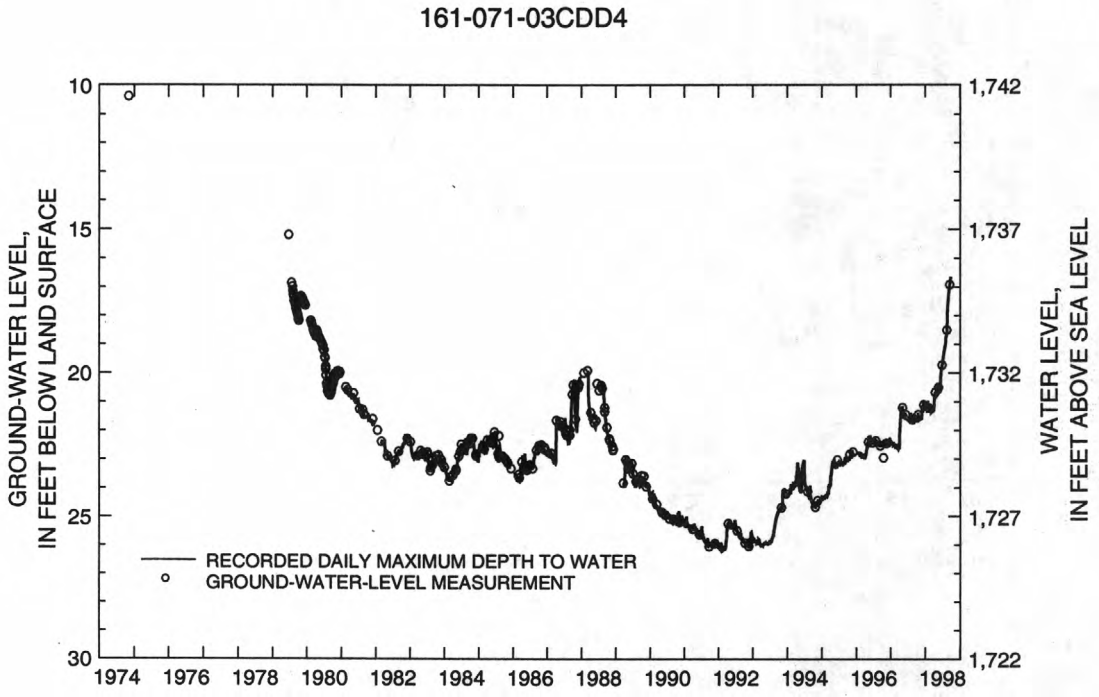
PERIOD OF RECORD.--November 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 10.37 ft below land-surface datum, November 4, 1974; lowest daily water level, 26.19 ft below land-surface datum, February 24, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	21.61	21.60	21.27	21.20	21.18	21.36	21.10	20.58	20.59	19.61	18.93	17.27
10	21.66	21.61	21.29	21.25	21.20	21.31	20.91	20.55	20.50	19.47	18.74	17.09
15	21.67	21.59	21.13	21.19	21.22	21.38	20.77	20.47	20.11	19.36	18.67	16.99
20	21.53	21.58	21.18	21.27	21.28	21.26	20.78	20.52	19.91	19.24	18.42	16.86
25	21.56	21.45	21.12	21.29	21.26	21.26	20.63	20.55	19.80	19.15	17.81	16.72
EOM	21.52	21.31	21.15	20.98	21.28	21.34	20.59	20.58	19.72	19.08	17.47	16.67
MAX	21.67	21.63	21.32	21.31	21.28	21.38	---	20.62	20.66	19.71	19.05	17.43

WATER YEAR 1998 HIGHEST WATER LEVEL 16.66 SEPTEMBER 28-30 LOWEST WATER LEVEL 21.67 OCTOBER 15-16



GROUND-WATER LEVELS

ROLETTE COUNTY

484310099572401. Local number, 161-072-35CDC.

LOCATION.--Lat 48°43'10", long 99°57'24", Hydrologic Unit 09010004. Owner: North Dakota State Water Commission.

AQUIFER.--Shell Valley.

WELL CHARACTERISTICS.--Drilled observation well, depth 77 ft, cased with 70 ft of 5-in diameter plastic pipe, No. 15 slot screen set 70 to 75 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From November 1982 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,630 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

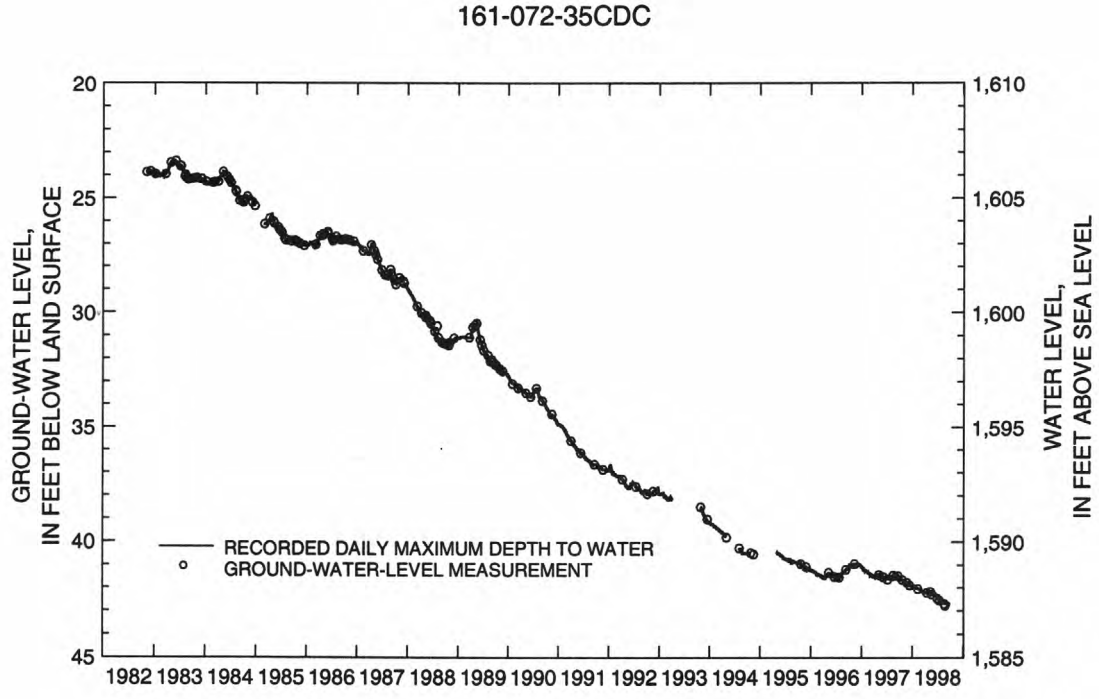
PERIOD OF RECORD.--November 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 23.33 ft below land-surface datum, May 21, 1983; lowest daily water level, 42.71 ft below land-surface datum, September 24-30, 1998.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	41.57	41.71	41.84	41.92	42.01	42.08	42.19	42.17	42.23	42.46	42.57	42.68
10	41.62	41.73	41.85	41.92	42.04	42.14	42.19	42.17	42.24	42.48	42.57	42.68
15	41.63	41.75	41.87	41.93	42.04	42.15	42.21	42.19	42.27	42.55	42.65	42.69
20	41.65	41.77	41.90	41.95	42.05	42.17	42.16	42.21	42.28	42.55	42.68	42.70
25	41.67	41.80	41.90	41.97	42.06	42.19	42.12	42.21	42.30	42.55	42.67	42.71
EOM	41.71	41.83	41.93	41.99	42.07	42.21	42.14	42.22	42.46	42.56	42.68	42.71
MAX	41.71	41.83	41.93	41.99	42.07	42.22	---	42.22	42.46	42.56	42.68	42.71

WATER YEAR 1998 HIGHEST WATER LEVEL 41.53 OCTOBER 2-3 LOWEST WATER LEVEL 42.71 SEPTEMBER 24-30



GROUND-WATER LEVELS

ROLETTE COUNTY

485707100053701. Local number, 163-073-11CCC1.

LOCATION.--Lat 48°57'07", long 100°05'37", Hydrologic Unit 09010004. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 715 ft, cased with 406 ft of 2-in diameter steel pipe, No. 12 slot screen set 406 to 412 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

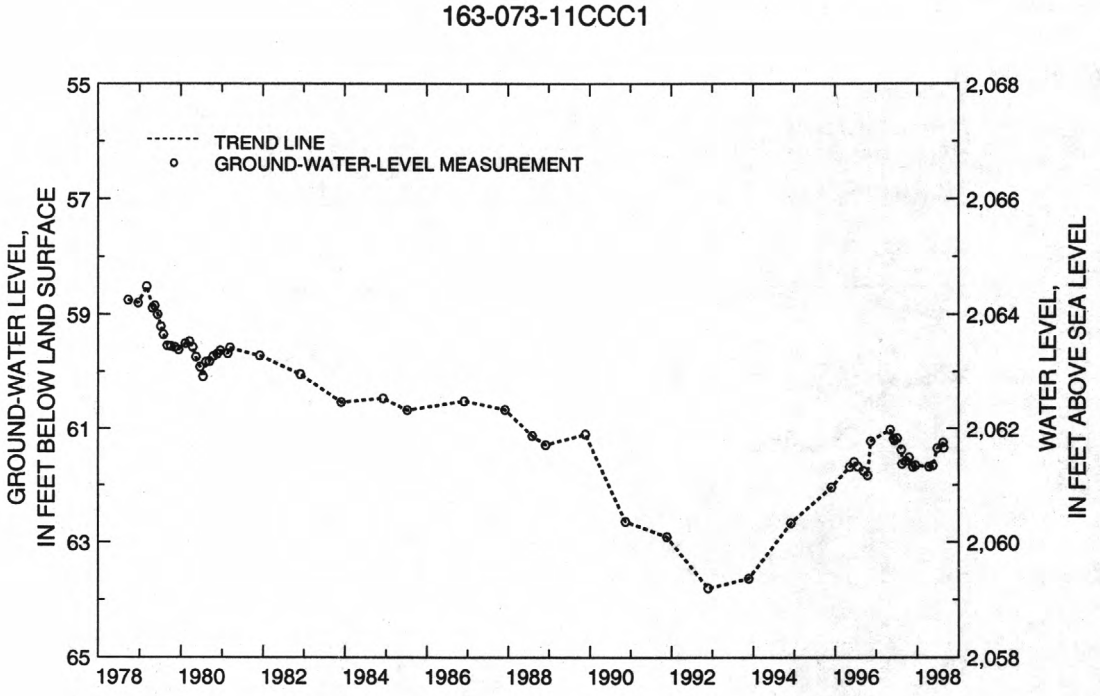
DATUM.--Altitude of land-surface datum is 2,123 ft. Measuring point: Top of casing 3.30 ft above land-surface datum.

PERIOD OF RECORD.--September 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 58.52 ft below land-surface datum, March 6, 1979; lowest water level measured, 63.80 ft below land-surface datum, November 23, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 22	61.51	Dec. 16	61.65	May 20	61.65	Aug. 19	61.25
Nov. 25	61.68	Apr. 16	61.67	June 29	61.35	Aug. 26	61.34



GROUND-WATER LEVELS

ROLETTE COUNTY

485707100053702. Local number, 163-073-11CCC2.

LOCATION.--Lat 48°57'07", long 100°05'37", Hydrologic Unit 09010004. Owner: North Dakota State Water Commission.

AQUIFER.--Hell Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 295 ft, cased with 269 ft of 2-in diameter steel pipe, No. 12 slot screen set 269 to 275 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

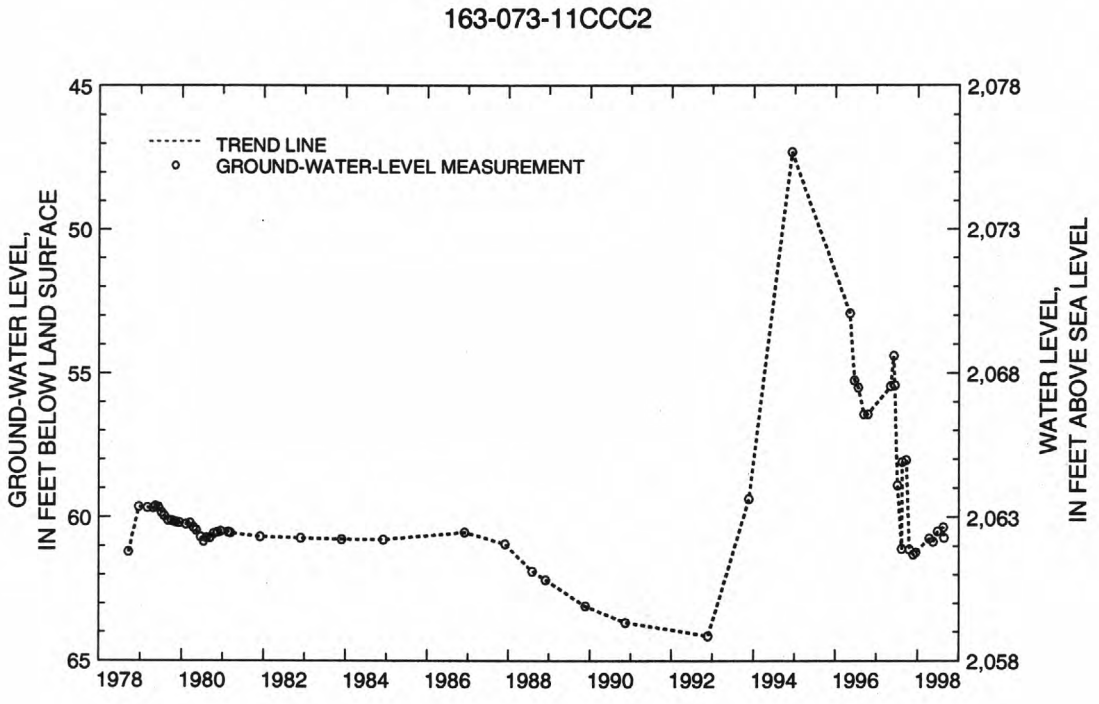
DATUM.--Altitude of land-surface datum is 2,123 ft. Measuring point: Top of casing 3.30 ft above land-surface datum.

PERIOD OF RECORD.--September 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.30 ft below land-surface datum, December 6, 1994; lowest water level measured, 64.15 ft below land-surface datum, November 23, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 22	61.12	Dec. 16	61.22	May 20	60.85	Aug. 19	60.35
Nov. 25	61.29	Apr. 16	60.74	June 29	60.50	Aug. 26	60.71



GROUND-WATER LEVELS

SARGENT COUNTY

460120097591803. Local number, 129-058-06AAA3.

LOCATION.--Lat 46°01'20", long 97°59'18", Hydrologic Unit 10160003. Owner: North Dakota State Water Commission.

AQUIFER.--Oakes.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 52 ft of 6-in diameter plastic pipe, 4 in No. 25 slot screen set 52 to 57 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From November 1993 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,313 ft. Measuring point: Top of casing 1.0 ft above land-surface datum.

PERIOD OF RECORD.--November 1993 to current year.

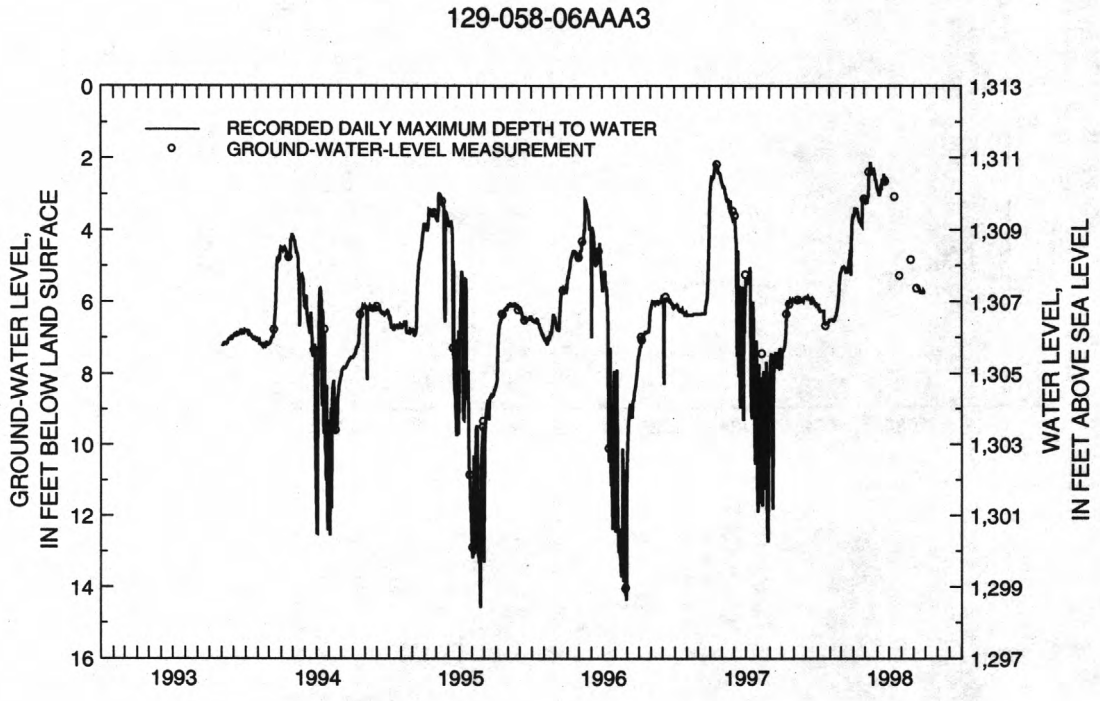
REMARKS.--This well replaces NDSWC 9619A drilled on July 1, 1976, which collapsed in September 1993. The new well was drilled on October 3, 1993, by the North Dakota State Water Commission and instrumented on November 3, 1993.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 2.15 ft below land-surface datum, Apr. 18, 1997; lowest daily water level, 14.58 ft below land-surface datum, August 23, 1995.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.36	6.01	5.89	6.20	6.52	5.07	3.59	3.24	2.94	---	---	---
10	7.17	5.98	5.91	6.26	6.54	5.05	3.42	3.09	2.95	---	---	---
15	6.27	6.01	5.92	6.26	6.43	5.18	3.63	2.41	2.59	---	---	5.59
20	6.07	6.00	5.96	6.60	6.22	5.15	3.77	2.37	2.57	---	---	5.75
25	6.02	5.96	6.03	6.62	5.71	4.67	3.90	2.35	2.53	---	---	5.76
EOM	5.95	5.89	6.13	6.52	5.24	3.70	3.20	2.70	---	---	---	5.75
MAX	7.88	6.01	6.13	6.64	6.54	5.27	---	3.25	---	---	---	---

WATER YEAR 1998 HIGHEST WATER LEVEL 2.09 MAY 15-16 LOWEST WATER LEVEL 7.88 OCTOBER 1



GROUND-WATER LEVELS

SARGENT COUNTY

461003097191501. Local number, 131-053-10CCC.

LOCATION.--Lat 46°10'03", long 97°19'15", Hydrologic Unit 09020105. Owner: North Dakota State Water Commission.

AQUIFER.--Milnor Channel.

WELL CHARACTERISTICS.--Drilled observation well, depth 140 ft, cased with 50 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 50 to 56 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,092 ft. Measuring point: Top of casing 2.20 ft above land-surface datum.

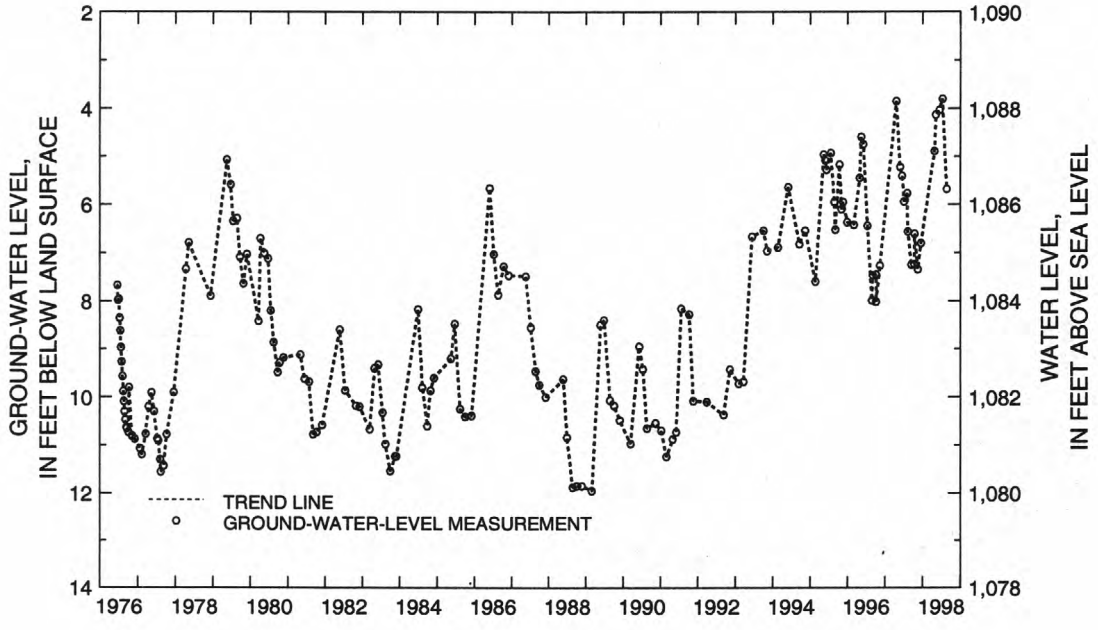
PERIOD OF RECORD.--June 1976 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.80 ft below land-surface datum, July 15, 1998; lowest water level measured, 11.95 ft below land-surface datum, March 1, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	7.24	Dec. 19	6.80	May 13	4.13	July 15	3.80
Oct. 17	6.61	Apr. 29	4.89	June 17	4.03	Aug. 26	5.68
Nov. 18	7.35						

131-053-10CCC



GROUND-WATER LEVELS

SHERIDAN COUNTY

474817100063801. Local number, 150-074-14CCC.

LOCATION.--Lat 47°48'17", long 100°06'38", Hydrologic Unit 09020202. Owner: North Dakota State Water Commission.

AQUIFER.--Martin.

WELL CHARACTERISTICS.--Drilled observation well, depth 235 ft, cased with 130 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 130 to 133 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

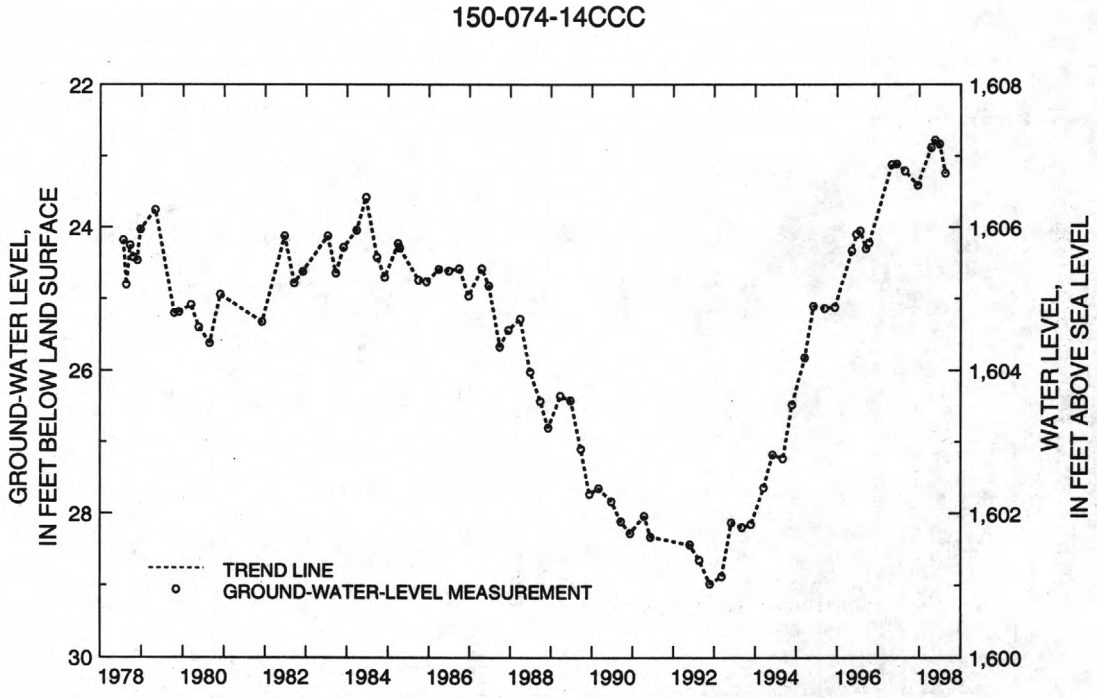
DATUM.--Altitude of land-surface datum is 1,630 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.--July 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.78 ft below land-surface datum, May 20, 1998; lowest water level measured, 29.06 ft below land-surface datum, August 19, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Dec. 16	23.41	May 20	22.78	June 30	22.83	Aug. 20	23.24
Apr. 15	22.88						



GROUND-WATER LEVELS

SIOUX COUNTY

460244101272701. Local number, 130-086-28CCC1.

LOCATION.--Lat 46°02'44", long 101°27'27", Hydrologic Unit 10130205. Owner: North Dakota State Water Commission.

AQUIFER.--Fox Hills.

WELL CHARACTERISTICS.--Drilled observation well, depth 580 ft, cased with 406 ft of 2-in diameter steel pipe, No. 12 slot screen set 406 to 424 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

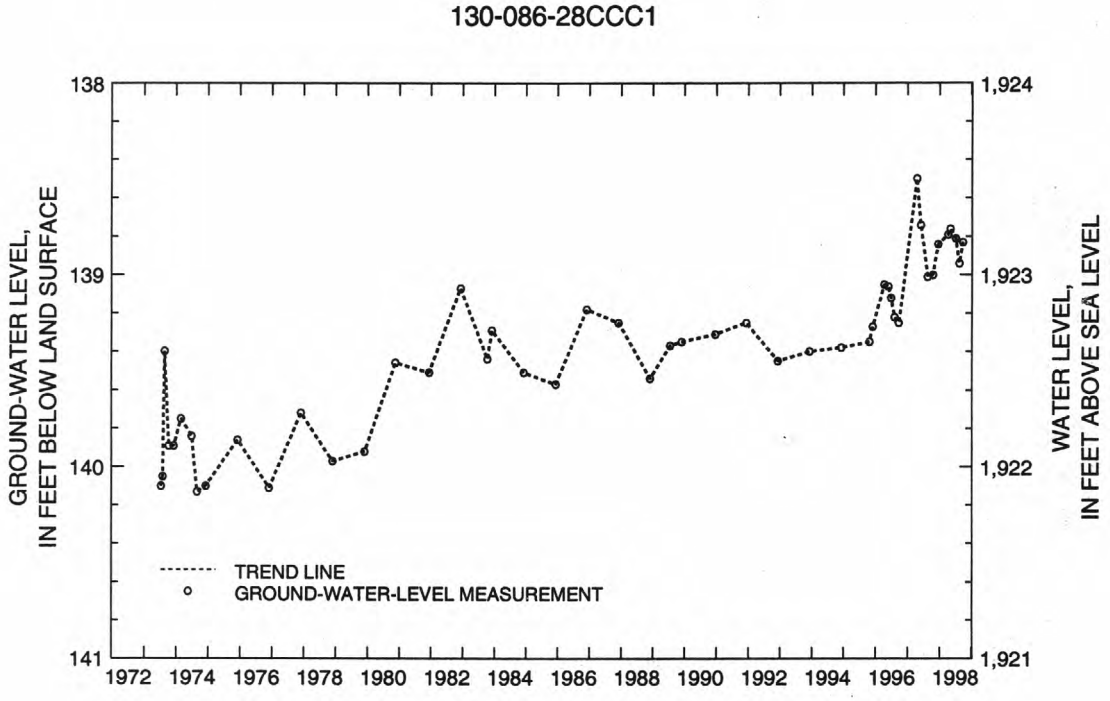
DATUM.--Altitude of land-surface datum is 2,062 ft. Measuring point: Top of casing 3.00 ft above land-surface datum.

PERIOD OF RECORD.--July 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 138.50 ft below land-surface datum, April 18, 1997; lowest water level measured, 140.13 ft below land-surface datum, August 27, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 16	139.00	Apr. 9	138.79	July 6	138.81	Sept. 24	138.83
Dec. 17	138.84	May 4	138.76	Aug. 14	138.94		



GROUND-WATER LEVELS

SIOUX COUNTY

460244101272702. Local number, 130-086-28CCC2.

LOCATION.--Lat 46°02'44", long 101°27'27", Hydrologic Unit 10130205. Owner: North Dakota State Water Commission.

AQUIFER.--Hell Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 210 ft, cased with 204 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 204 to 210 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

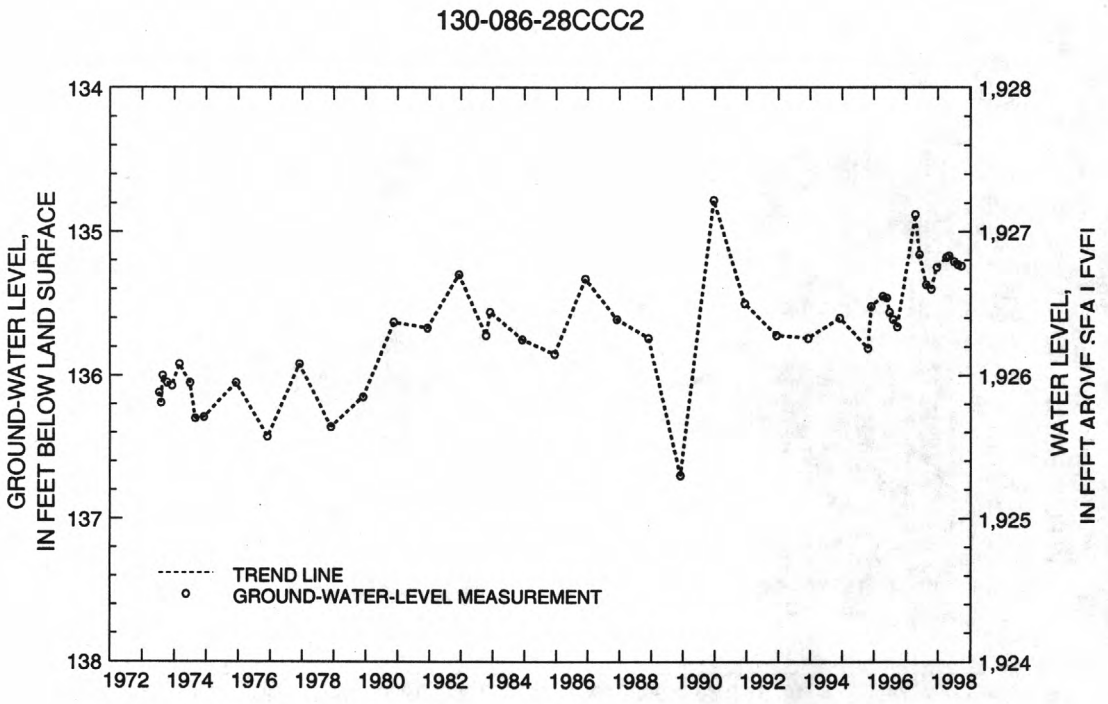
DATUM.--Altitude of land-surface datum is 2,062 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--July 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 134.78 ft below land-surface datum, December 18, 1990; lowest water level measured, 136.70 ft below land-surface datum, November 29, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 16	135.40	Apr. 9	135.18	July 6	135.21	Sept. 24	135.24
Dec. 17	135.25	May 4	135.17	Aug. 14	135.23		



GROUND-WATER LEVELS

SIOUX COUNTY

462239100375601. Local number, 134-079-32ADD.

LOCATION.--Lat 46°22'39", long 100°37'56", Hydrologic Unit 10130102. Owner: North Dakota State Water Commission.

AQUIFER.--Strasburg.

WELL CHARACTERISTICS.--Drilled observation well, depth 340 ft, cased with 282 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 282 to 288 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

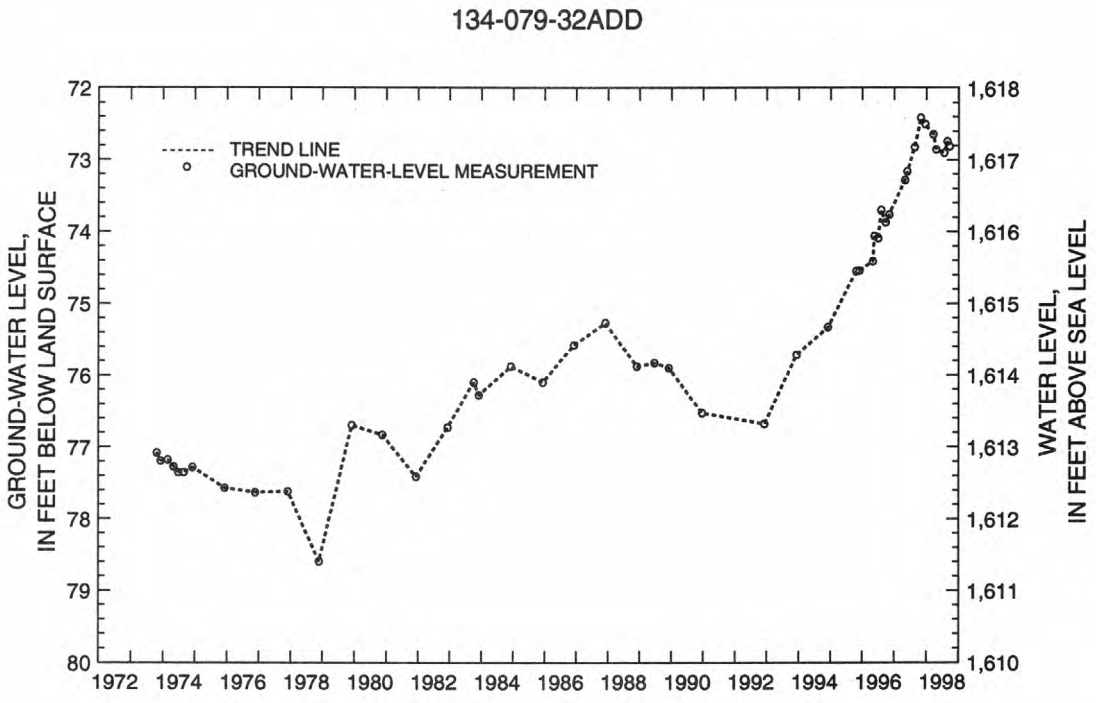
DATUM.--Altitude of land-surface datum is 1,690 ft. Measuring point: Top of casing 1.50 ft above land-surface datum.

PERIOD OF RECORD.--October 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 72.41 ft below land-surface datum, October 31, 1997; lowest water level measured, 78.60 ft below land-surface datum, November 20, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 31	72.41	Mar. 23	72.64	July 24	72.90	Sept. 25	72.81
Dec. 17	72.50	Apr. 22	72.85	Aug. 27	72.74		



GROUND-WATER LEVELS

STARK COUNTY

465755102410701. Local number, 140-095-08AAA.

LOCATION.--Lat 46°57'55", long 102°41'07", Hydrologic Unit 10130201. Owner: North Dakota State Water Commission.

AQUIFER.--Sentinel Butte.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 80 ft of 4-in diameter plastic pipe.

INSTRUMENTATION.--Measured using a steel tape.

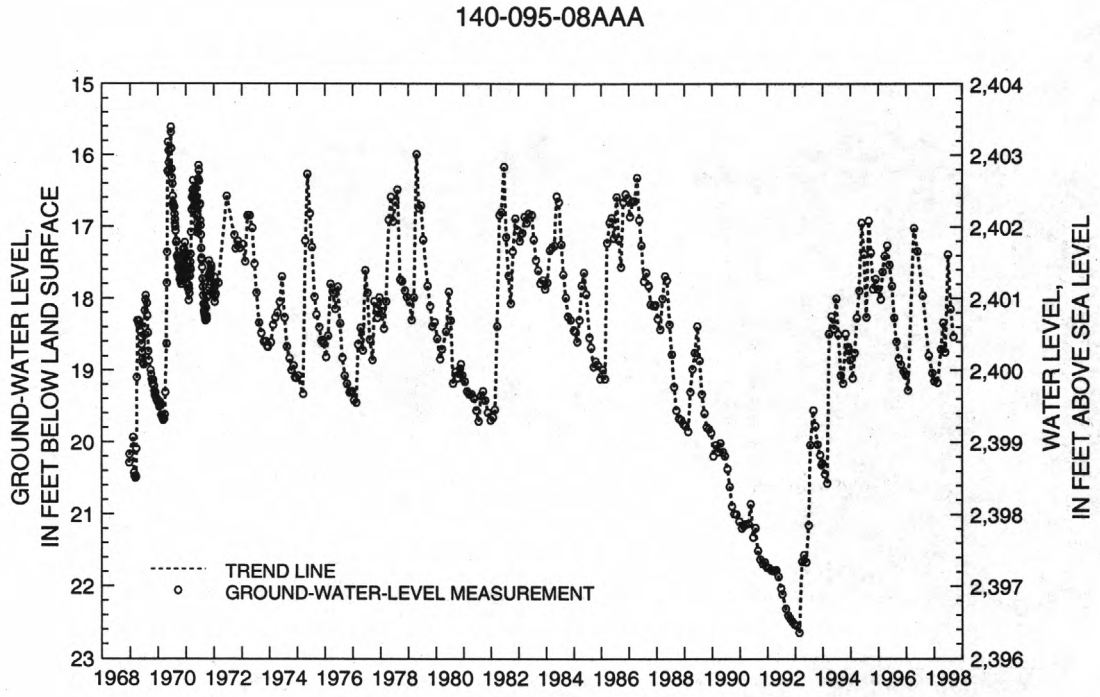
DATUM.--Altitude of land-surface datum is 2,419 ft. Measuring point: Top of casing 1.70 ft above land-surface datum.

PERIOD OF RECORD.--December 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.61 ft below land-surface datum, June 19, 1970; lowest water level measured, 22.64 ft below land-surface datum, February 25, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 28	18.79	Feb. 18	19.17	June 2	18.74	Sept. 15	18.53
Dec. 15	19.04	Apr. 6	18.70	July 9	17.39		
Jan. 7	19.15	May 6	18.34	Aug. 10	18.15		



GROUND-WATER LEVELS

STEELE COUNTY

472024097315201. Local number, 145-054-27CDC.

LOCATION.--Lat 47°20'24", long 97°31'52", Hydrologic Unit 09020109. Owner: North Dakota State Water Commission.

AQUIFER.--Dakota.

WELL CHARACTERISTICS.--Drilled observation well, depth 820 ft, cased from 0 to 273 ft with 4-in diameter steel pipe and from 273 to 640 ft with 2 in diameter steel pipe, No. 12 slot screen set 640 to 660 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

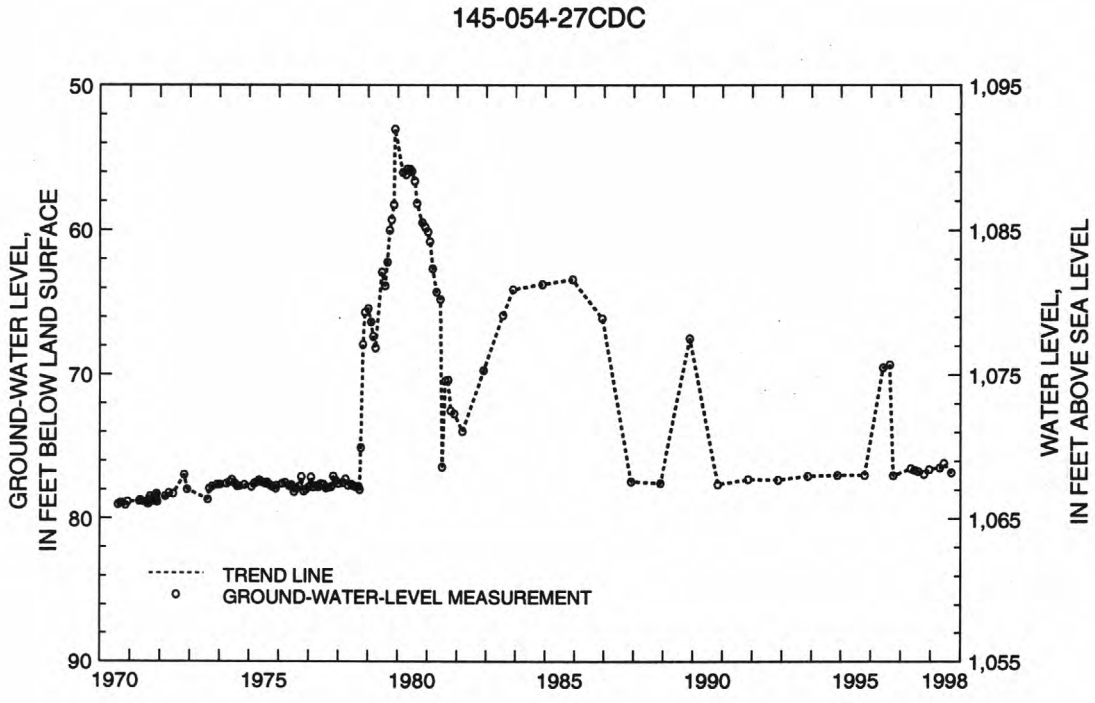
DATUM.--Altitude of land-surface datum is 1,145 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 53.01 ft below land-surface datum, November 27, 1979; lowest water level measured, 79.08 ft below land-surface datum, November 4, 1970.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 16	76.88	Apr. 28	76.45	June 17	76.14	Sept. 16	76.78
Dec. 18	76.55						



GROUND-WATER LEVELS

STUTSMAN COUNTY

463846098274101. Local number, 137-062-26DDD.

LOCATION.--Lat 46°38'46", long 98°27'41", Hydrologic Unit 10160003. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 240 ft, cased with 157 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 157 to 163 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,441.8 ft. Measuring point: Top of casing 1.92 ft above land-surface datum.

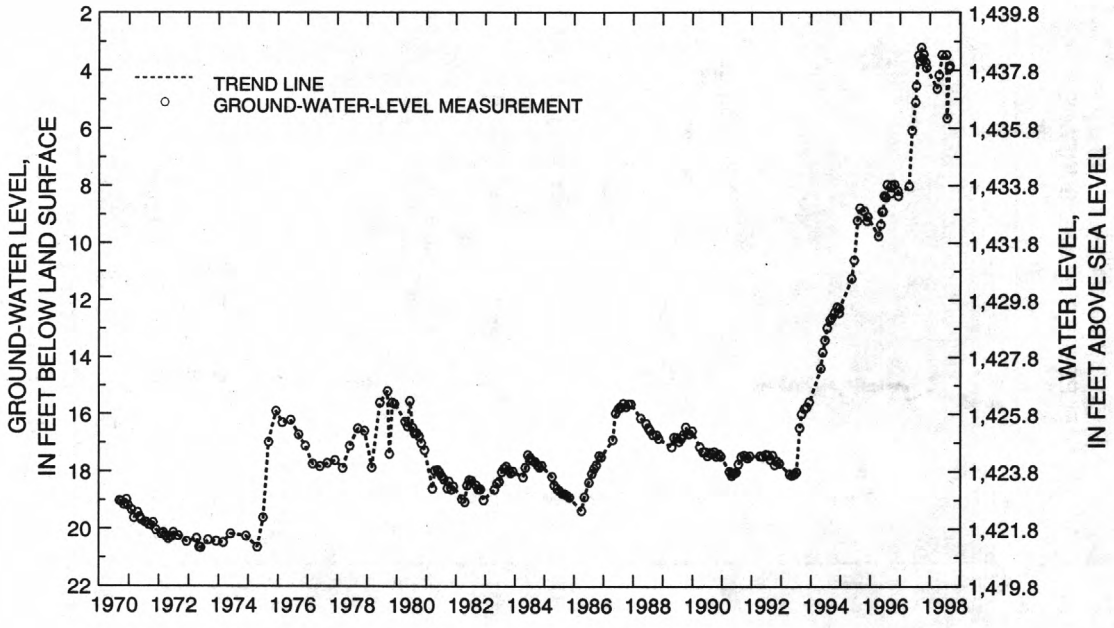
PERIOD OF RECORD.--September 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.21 ft below land-surface datum, Sept. 16, 1997; lowest water level measured, 20.67 ft below land-surface datum, May 28, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 7	3.60	Nov. 19	3.91	May 29	3.47	Aug. 28	3.92
Oct. 14	3.45	Mar. 29	4.63	July 23	3.47	Aug. 31	3.85
Nov. 10	3.73	Apr. 24	4.17	July 29	5.66		

137-062-26DDD



GROUND-WATER LEVELS

STUTSMAN COUNTY

465243098284801. Local number, 139-062-02CCC.

LOCATION.--Lat 46°52'43", long 98°28'48", Hydrologic Unit 10160003. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 240 ft, cased with 210 ft of 4-in diameter steel pipe, slotted 195 to 210 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder May 1967 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for May 1967 to August 1973. From August 1973 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,466.1 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

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

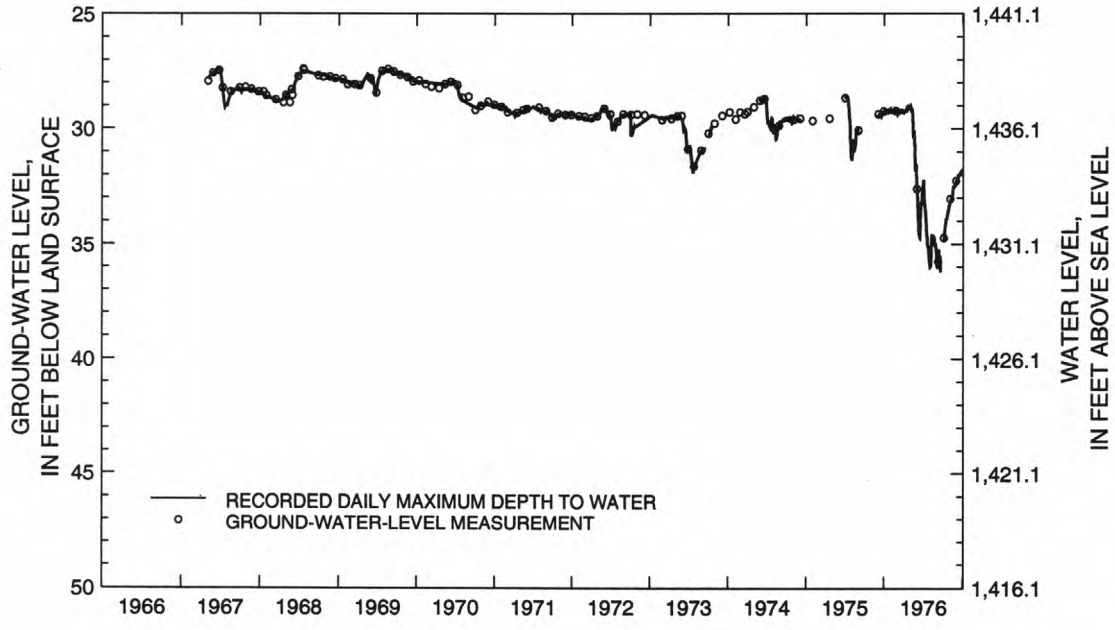
EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 27.40 ft below land-surface datum, July 19, 1968; lowest daily water level, 45.85 ft below land-surface datum, August 17, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	31.39	31.25	31.67	32.07	32.35	---	32.14	31.92	32.14	31.86	33.98	33.28
10	31.30	31.32	31.72	32.12	32.37	---	32.01	31.91	32.14	31.74	33.72	33.31
15	31.24	31.38	31.75	32.15	32.35	---	31.98	31.85	31.85	31.83	34.39	33.36
20	31.20	31.42	31.85	32.25	---	---	31.99	32.02	31.76	31.92	34.15	33.26
25	31.21	31.47	31.92	32.24	---	---	32.00	32.12	31.79	32.97	33.67	33.31
EOM	31.14	31.57	32.00	32.26	---	32.17	31.94	32.14	31.77	33.98	33.44	33.23
MAX	31.47	31.57	32.00	32.26	---	---	32.16	---	32.14	33.98	34.39	33.49

WATER YEAR 1998 HIGHEST WATER LEVEL 31.09 OCTOBER 31 AND NOVEMBER 2
LOWEST WATER LEVEL 34.39 AUGUST 15

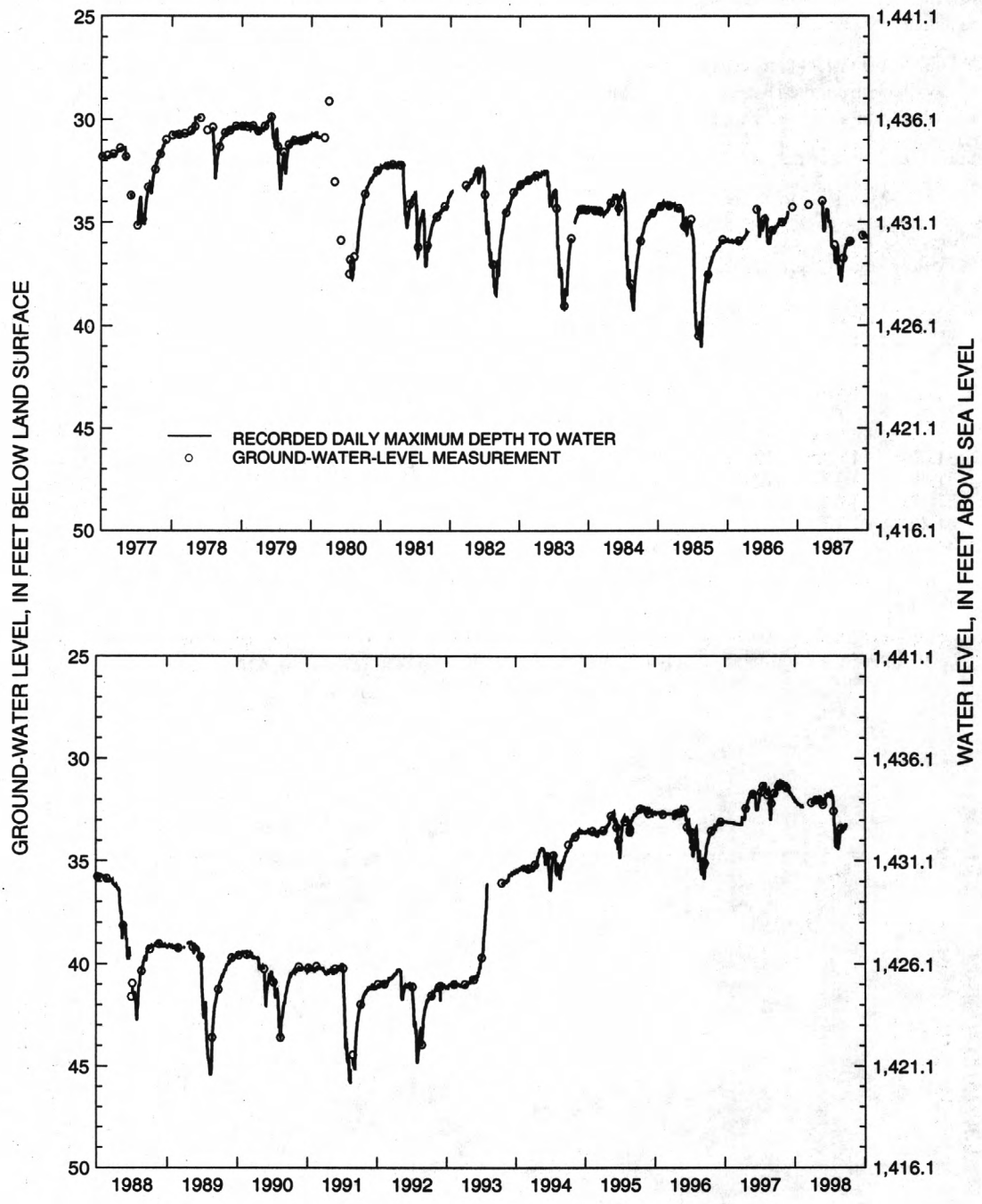
139-062-02CCC



GROUND-WATER LEVELS

STUTSMAN COUNTY

139-062-02CCC--Continued



GROUND-WATER LEVELS

STUTSMAN COUNTY

465757098274401. Local number, 140-062-02DDD.

LOCATION.--Lat 46°57'57", long 98°27'44", Hydrologic Unit 10160003. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 263 ft, cased with 207 ft of 12-in diameter steel pipe, No. 8 slot screen set 207 to 257 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From July 1984 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,480 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--July 1984 to current year.

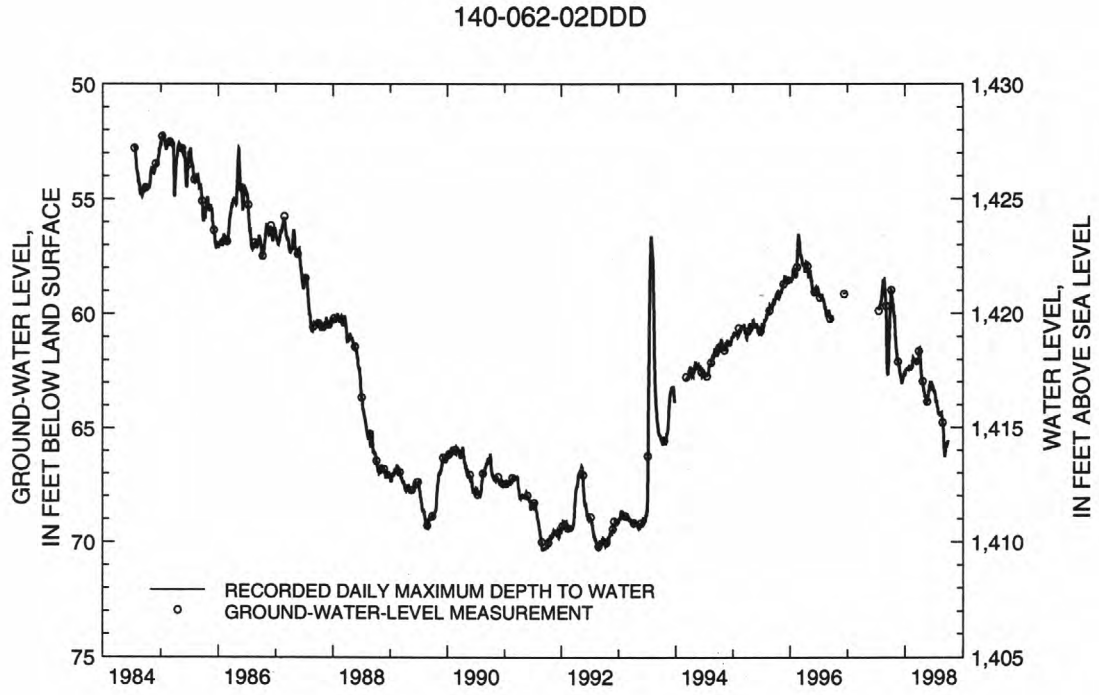
REMARKS.--Well house surrounded by water for part of year. Recorder tape destroyed by rodents.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 52.04 ft below land-surface datum, July 13 and 17, 1985; lowest daily water level, 70.37 ft below land-surface datum, September 3-4, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	58.98	61.35	62.78	62.52	62.27	62.07	61.57	63.51	63.30	63.44	64.41	65.62
10	59.29	61.72	62.94	62.48	62.41	62.15	62.05	63.63	63.07	63.49	64.42	66.23
15	59.65	62.03	62.98	62.40	62.28	62.04	62.68	63.64	63.24	63.76	64.34	66.06
20	59.89	62.18	62.88	62.41	62.01	62.05	62.92	63.93	63.16	63.84	64.38	65.84
25	60.18	62.29	62.67	62.37	61.99	62.16	63.04	63.81	63.16	64.08	64.65	65.75
EOM	60.81	62.58	62.74	62.31	62.05	61.56	63.29	63.47	63.30	64.32	64.95	65.57
MAX	60.81	62.58	63.07	62.66	62.41	62.19	63.29	---	63.37	64.32	64.95	66.28

WATER YEAR 1998 HIGHEST WATER LEVEL 58.95 OCTOBER 5-7 LOWEST WATER LEVEL 66.28 SEPTEMBER 11



GROUND-WATER LEVELS

TOWNER COUNTY

482908099134601. Local number, 158-066-30BBB.

LOCATION.--Lat 48°29'08", long 99°13'46", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 322 ft, cased with 208 ft of 5-in diameter steel pipe, No. 40 slot screen set 208 to 213 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

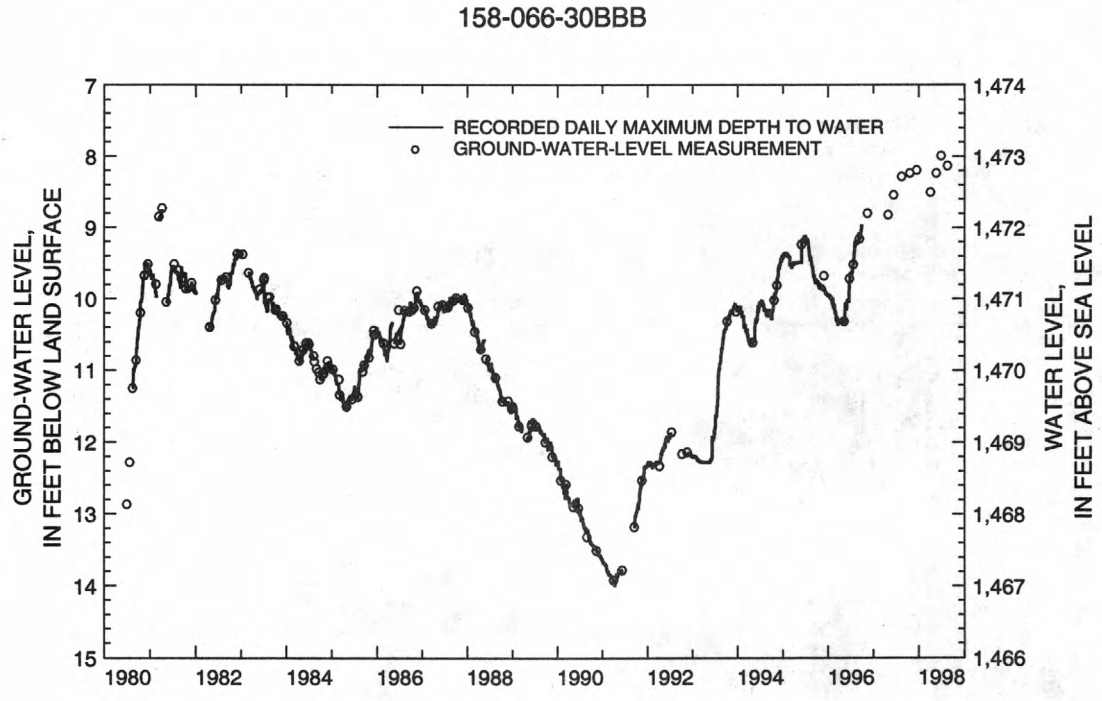
DATUM.--Altitude of land-surface datum is 1,481 ft. Measuring point: Top of casing 1.40 ft above land-surface datum.

PERIOD OF RECORD.--June 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 7.99 ft below land-surface datum, June 29, 1998; lowest daily water level, 13.99 ft below land-surface datum, April 11-13, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 23	8.23	Apr. 6	8.50	June 29	7.99	Aug. 18	8.13
Dec. 16	8.19	May 20	8.23				



GROUND-WATER LEVELS

TOWNER COUNTY

484209099174101. Local number, 160-067-10BBB1.

LOCATION.--Lat 48°42'09", long 99°17'41", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 402 ft, cased with 356 ft of 2-in diameter steel pipe, No. 12 slot screen set 356 to 362 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

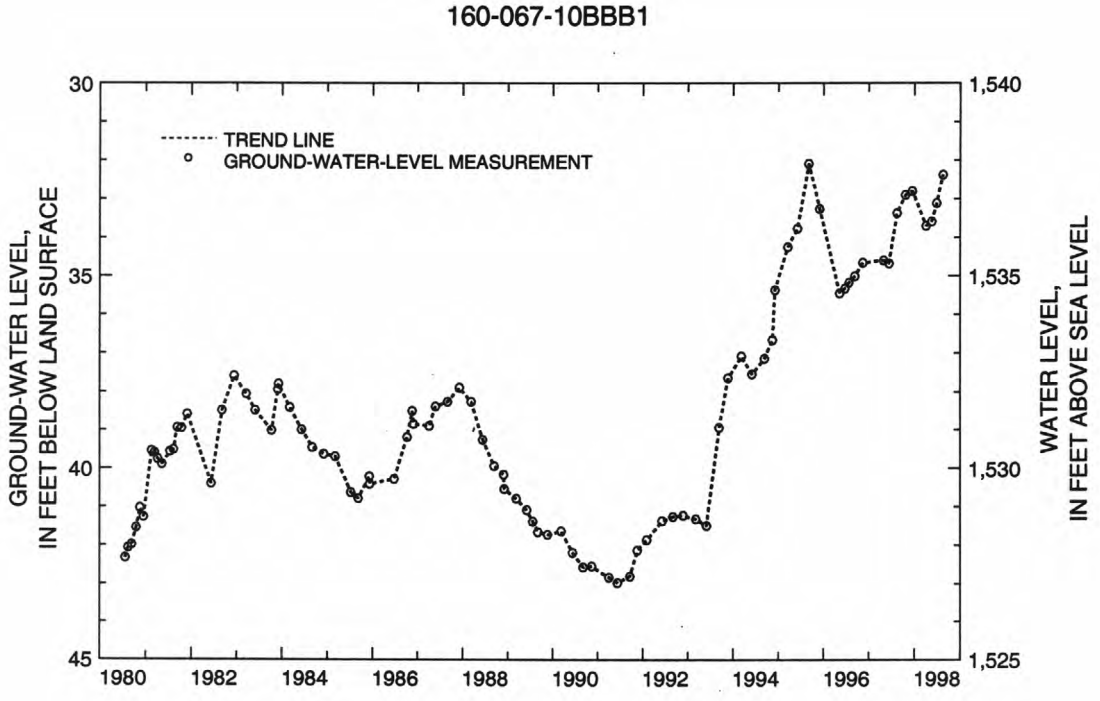
DATUM.--Altitude of land-surface datum is 1,570 ft. Measuring point: Top of casing 4.00 ft above land-surface datum.

PERIOD OF RECORD.--July 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.09 ft below land-surface datum, September 3, 1995; lowest water level measured, 42.98 ft below land-surface datum, June 11, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 23	32.90	Apr. 6	33.70	June 29	33.11	Aug. 19	32.37
Dec. 16	32.80	May 20	33.59				



GROUND-WATER LEVELS

TOWNER COUNTY

484209099174102. Local number, 160-067-10BBB2.

LOCATION.--Lat 48°42'09", long 99°17'41", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 62 ft, cased with 57 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 57 to 60 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

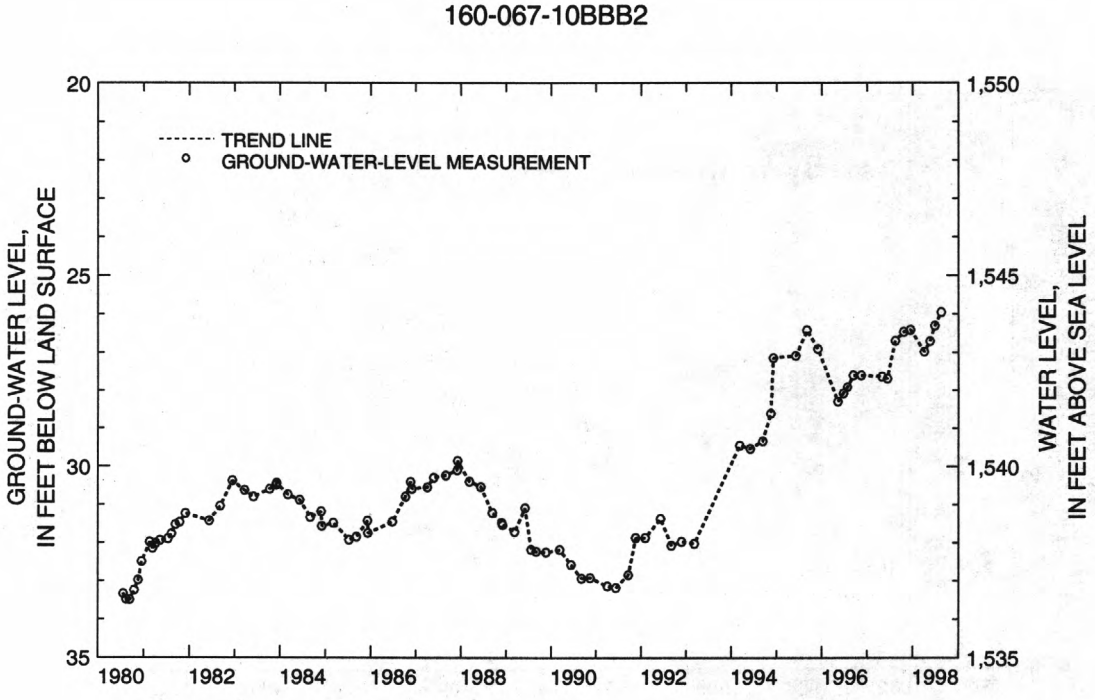
DATUM.--Altitude of land-surface datum is 1,570 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.--July 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.95 ft below land-surface datum, August 19, 1998; lowest water level measured, 35.50 ft below land-surface datum, September 11, 1980.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 23	26.46	Apr. 6	26.98	June 29	26.30	Aug. 19	25.95
Dec. 16	26.41	May 20	26.71				



GROUND-WATER LEVELS

TOWNER COUNTY

485659099222801. Local number, 163-067-18AAA1.

LOCATION.--Lat 48°56'59", long 99°22'28", Hydrologic Unit 09020313. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 282 ft, cased with 252 ft of 2-in diameter steel pipe, No. 18 slot screen set 252 to 258 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

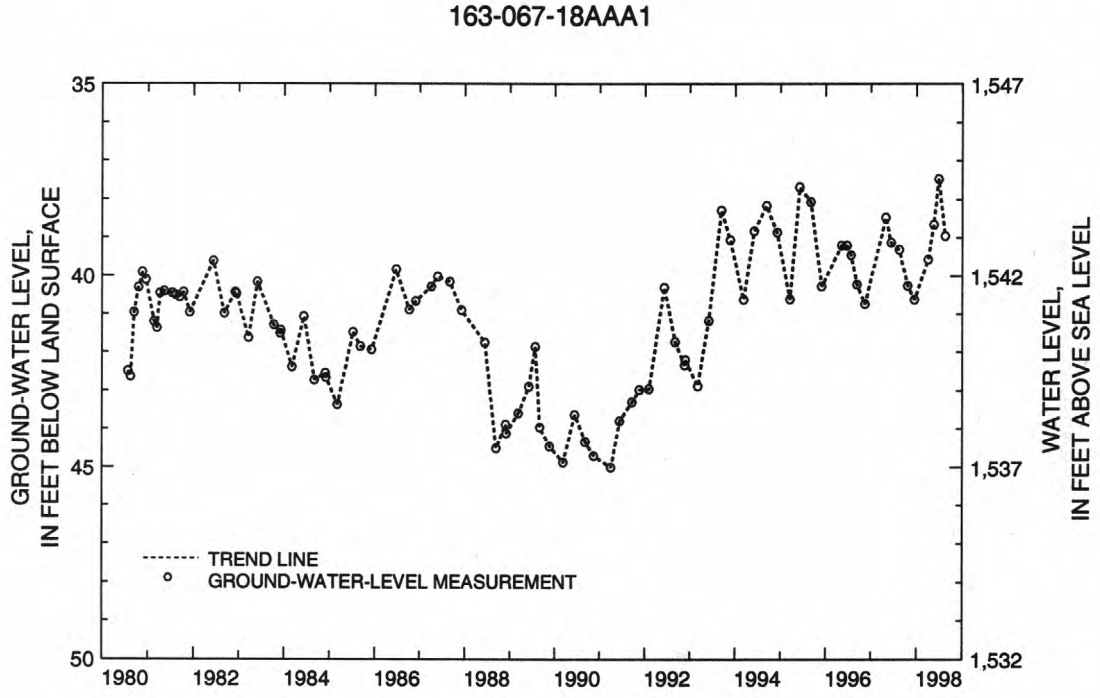
DATUM.--Altitude of land-surface datum is 1,582 ft. Measuring point: Top of casing 3.30 ft above land-surface datum.

PERIOD OF RECORD.--July 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.47 ft below land-surface datum, June 29, 1998; lowest water level measured, 45.00 ft below land-surface datum, April 3, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 23	40.25	Apr. 6	39.57	June 29	37.47	Aug. 19	38.95
Dec. 16	40.62	May 20	38.65				



GROUND-WATER LEVELS

TOWNER COUNTY

485659099222802. Local number, 163-067-18AAA2.

LOCATION.--Lat 48°56'59", long 99°22'28", Hydrologic Unit 09020313. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 142 ft, cased with 118 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 118 to 121 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

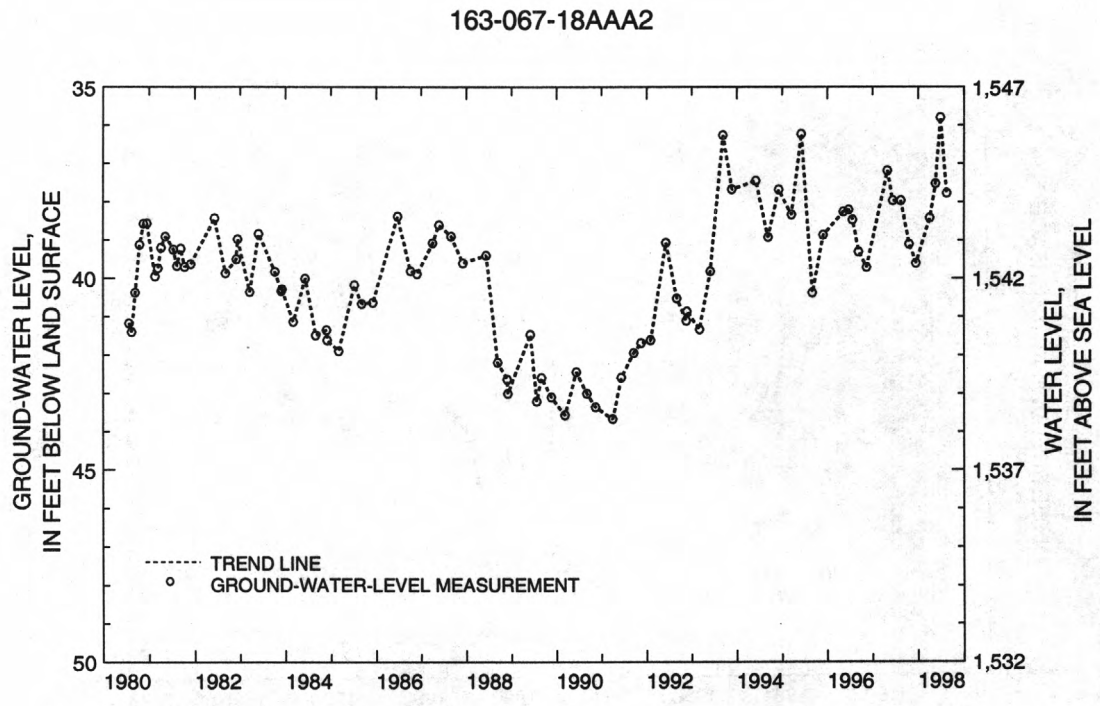
DATUM.--Altitude of land-surface datum is 1,582 ft. Measuring point: Top of casing 2.80 ft above land-surface datum.

PERIOD OF RECORD.--July 1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.80 ft below land-surface datum, June 29, 1998; lowest water level measured, 43.67 ft below land-surface datum, April 3, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 23	39.10	Apr. 6	38.41	June 29	35.80	Aug. 19	37.77
Dec. 16	39.60	May 20	37.52				



GROUND-WATER LEVELS

WALSH COUNTY

481234097234604. Local number, 155-053-25CDD4.

LOCATION.--Lat 48°12'35", long 97°23'44", Hydrologic Unit 09020308. Owner: U.S. Geological Survey.

AQUIFER.--Glacial Clay.

WELL CHARACTERISTICS.--Drilled observation well, depth 85 ft, cased with 80 ft of 2-in diameter plastic pipe, screen set 80 to 85 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

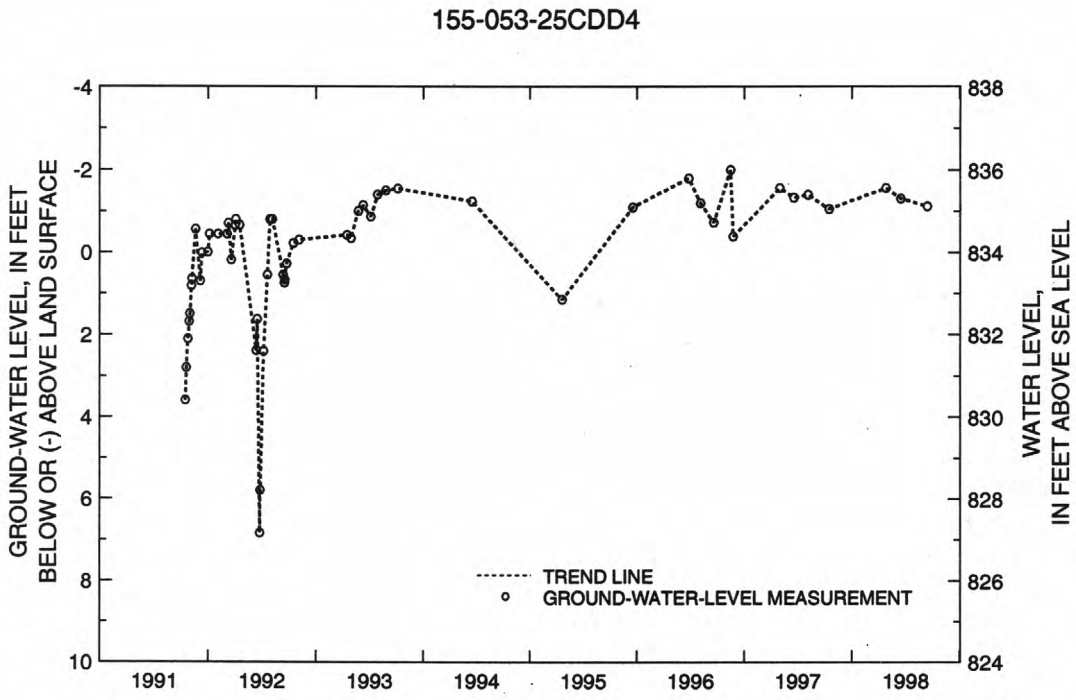
DATUM.--Altitude of land-surface datum is 834 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, -2.00 ft below land-surface datum, Nov. 15, 1996; lowest water level measured, 6.84 ft below land-surface datum, June 24, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 16	-1.06	Apr. 27	-1.56	June 16	-1.31	Sept. 14	-1.12



GROUND-WATER LEVELS

WALSH COUNTY

481234097234605. Local number, 155-053-25CDD5.

LOCATION.--Lat 48°12'35", long 97°23'44", Hydrologic Unit 09020308. Owner: U.S. Geological Survey.

AQUIFER.--Glacial Clay.

WELL CHARACTERISTICS.--Drilled observation well, depth 25 ft, cased with 20 ft of 2-in diameter plastic pipe, screen set 20 to 25 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

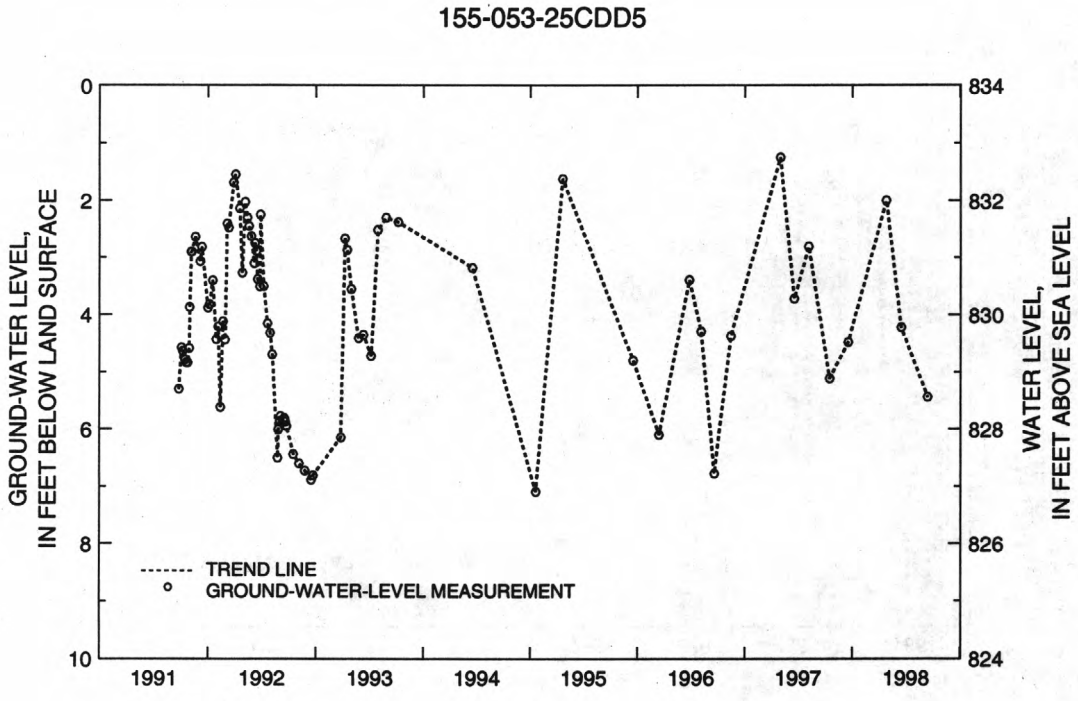
DATUM.--Altitude of land-surface datum is 834 ft. Measuring point: Top of casing 2.25 ft above land-surface datum.

PERIOD OF RECORD.--September 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.25 ft below land-surface datum, May 2, 1997; lowest water level measured, 7.09 ft below land-surface datum, January 19, 1995.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 16	5.11	Apr. 27	2.00	June 16	4.22	Sept. 14	5.44
Dec. 18	4.48						



GROUND-WATER LEVELS

WALSH COUNTY

481841097490301. Local number, 156-056-22DDD.

LOCATION.--Lat 48°18'41", long 97°49'03", Hydrologic Unit 09020308. Owner: North Dakota State Water Commission.

AQUIFER.--Fordville.

WELL CHARACTERISTICS.--Drilled observation well, depth 280 ft, cased with 52 ft of 4-in diameter plastic pipe, screen set 52 to 57 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder August 1968 to current year. Only intermittent low water levels, obtained from strip chart recorders, are available from the District office for August 1968 to September 1970. From October 1970 to current year, daily maximum and minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,170 ft. Measuring point: Top of casing 1.90 ft above land-surface datum.

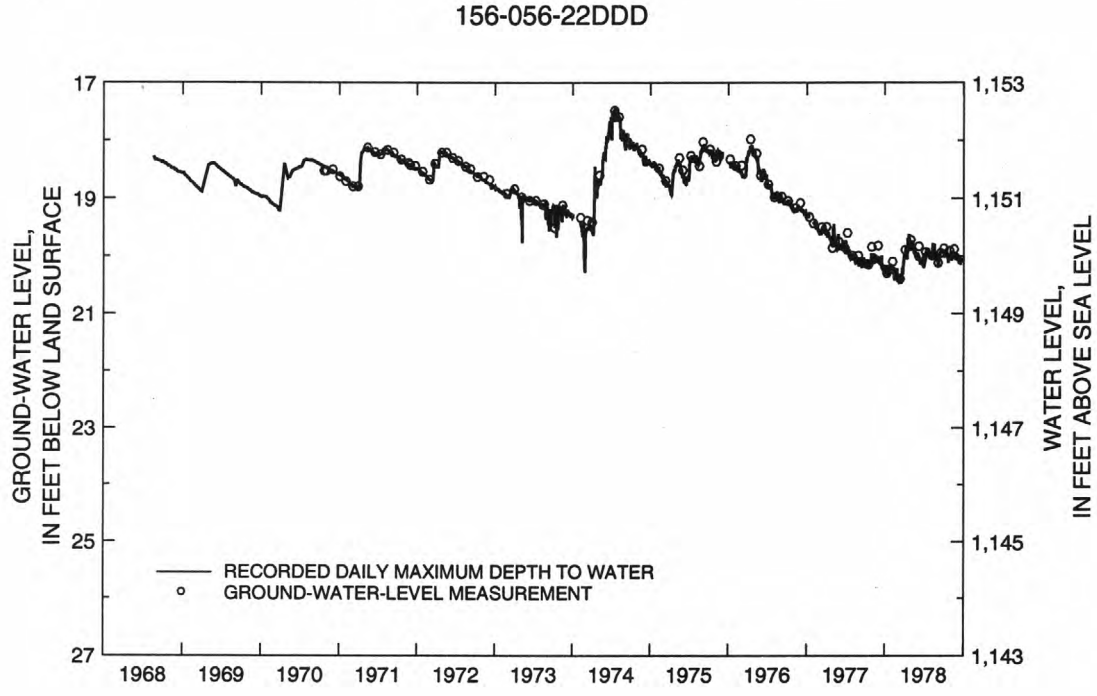
PERIOD OF RECORD.--October 1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 17.35 ft below land-surface datum, July 22, 1974; lowest daily water level, 24.21 ft below land-surface datum, June 7, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	20.85	20.69	20.82	20.88	20.91	20.72	20.57	20.66	21.05	21.01	21.17	21.35
10	20.74	20.70	20.81	20.87	20.97	20.79	20.56	20.66	21.08	21.11	21.17	21.39
15	20.70	20.68	20.86	20.86	20.90	20.78	20.54	20.66	21.14	21.14	21.17	21.47
20	20.71	20.82	20.83	20.91	20.92	20.79	20.48	20.93	20.96	21.11	21.26	21.36
25	20.68	20.73	20.89	20.88	20.78	20.68	20.46	21.05	21.02	21.16	21.28	21.44
EOM	20.64	20.78	20.87	20.91	20.67	20.70	20.59	21.04	21.25	21.17	21.34	21.43
MAX	20.90	20.84	20.90	20.98	20.99	20.84	---	21.16	21.25	21.33	21.34	21.53

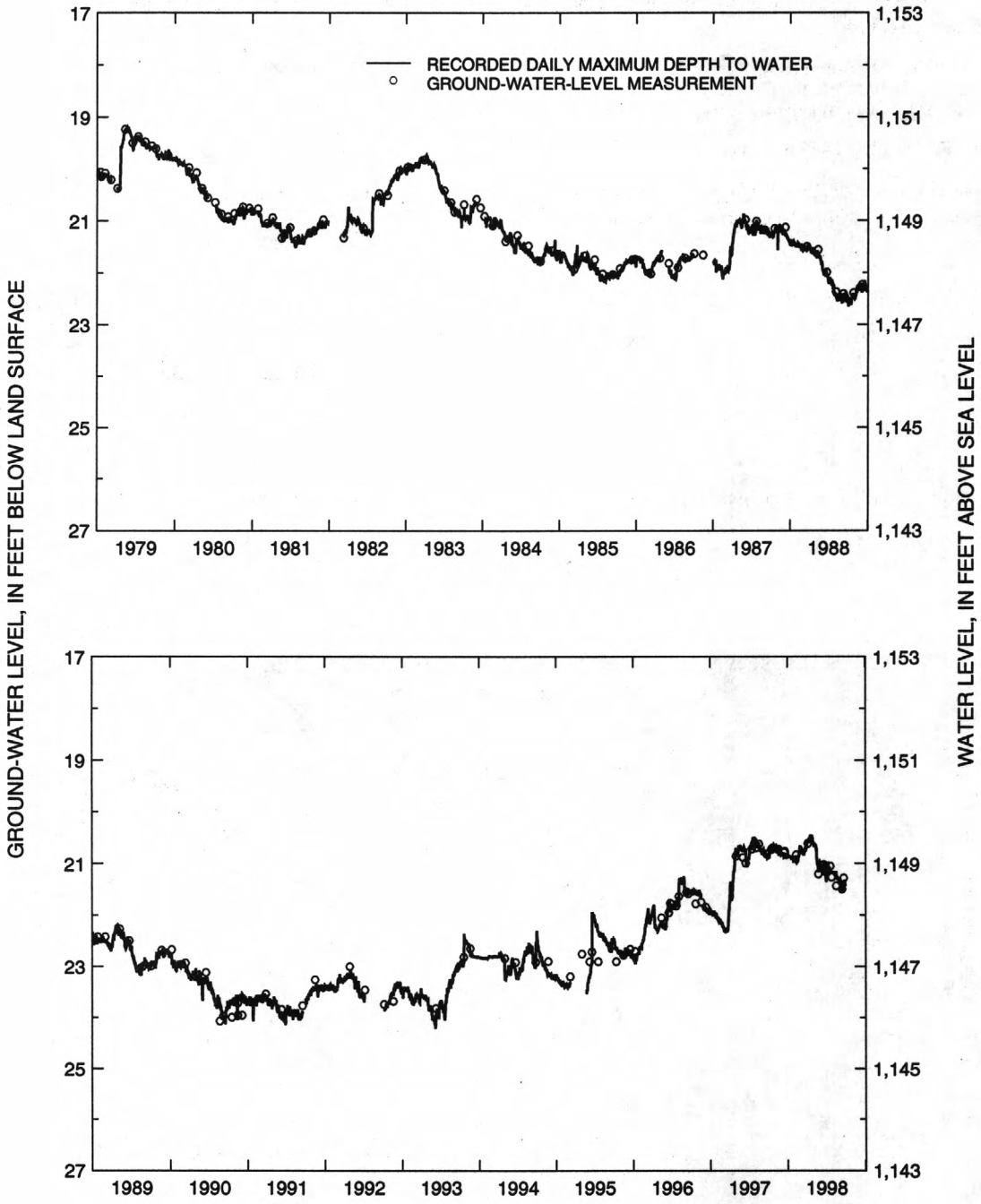
WATER YEAR 1998 HIGHEST WATER LEVEL 20.45 APRIL 19 LOWEST WATER LEVEL 21.53 SEPTEMBER 16, 21



GROUND-WATER LEVELS

WALSH COUNTY

156-056-22DDD--Continued



GROUND-WATER LEVELS

WALSH COUNTY

482408097443201. Local number, 157-055-21DBC.

LOCATION.--Lat 48°24'08", long 97°44'32", Hydrologic Unit 09020310. Owner: North Dakota State Water Commission.

AQUIFER.--Dakota.

WELL CHARACTERISTICS.--Drilled observation well, depth 496 ft, cased with 491 ft of 4-in diameter steel pipe, screen set 491 to 496 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

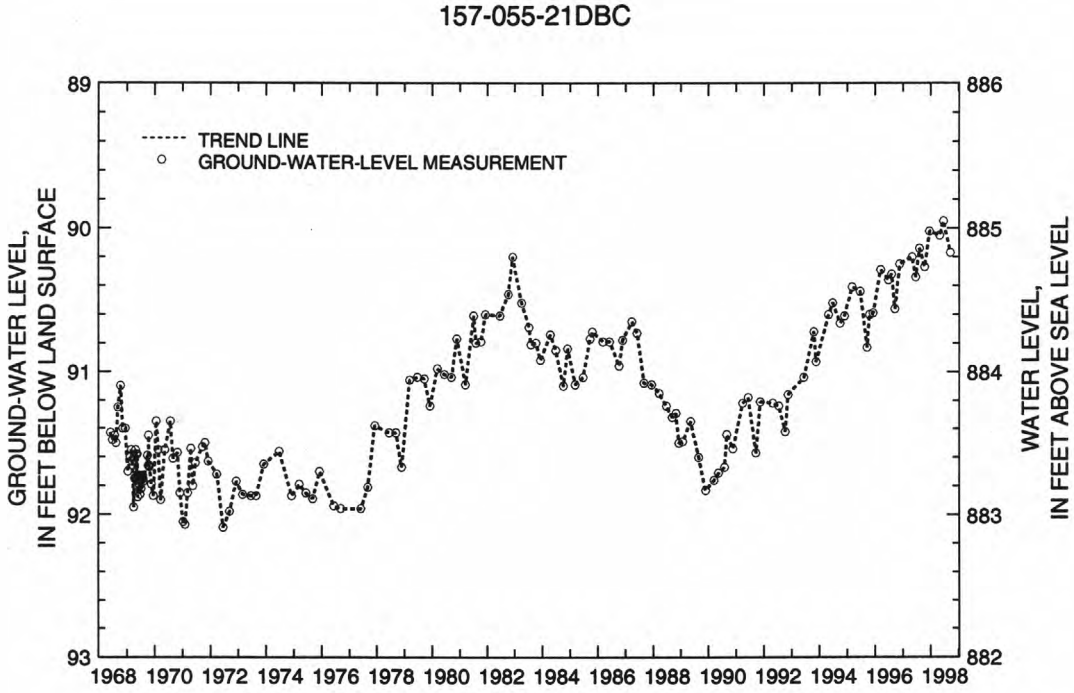
DATUM.--Altitude of land-surface datum is 975 ft. Measuring point: Top of casing 0.00 ft above land-surface datum.

PERIOD OF RECORD.--May 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 89.95 ft below land-surface datum, June 16, 1998; lowest water level measured, 92.09 ft below land-surface datum, June 15, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 15	90.27	Apr. 27	90.05	June 16	89.95	Sept. 16	90.17
Dec. 18	90.02						



GROUND-WATER LEVELS

WALSH COUNTY

482449098095801. Local number, 157-058-18DDD.

LOCATION.--Lat 48°24'49", long 98°09'58", Hydrologic Unit 09020308. Owner: North Dakota State Water Commission.

AQUIFER.--Pierre Shale.

WELL CHARACTERISTICS.--Drilled observation well, depth 140 ft, cased with 80 ft of 4-in diameter plastic pipe, screen set 80 to 100 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

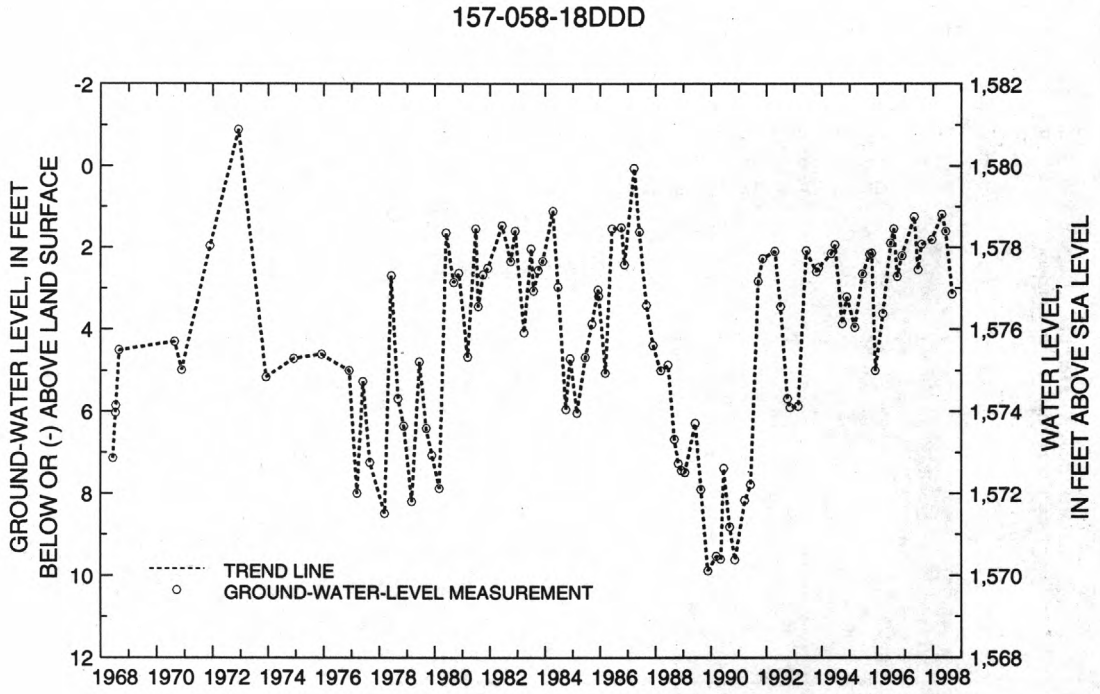
DATUM.--Altitude of land-surface datum is 1,580 ft. Measuring point: Top of casing 1.00 ft above land-surface datum.

PERIOD OF RECORD.--June 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.89 ft below land-surface datum, December 5, 1972; lowest water level measured, 9.89 ft below land-surface datum, November 21, 1989.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Dec. 17	1.81	Apr. 27	1.19	June 16	1.61	Sept. 10	3.15



GROUND-WATER LEVELS

WARD COUNTY

481058101120403. Local number, 154-082-03CDC3.

LOCATION.--Lat 48°10'58", long 101°12'04", Hydrologic Unit 09010001. Owner: North Dakota State Water Commission.

AQUIFER.--Sundre Buried Channel.

WELL CHARACTERISTICS.--Drilled observation well, depth 220 ft, cased with 170 ft of 12-in diameter steel pipe, screen set 170 to 220 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape December 1968 to June 1973. From November 1976 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,544 ft. Measuring point: Top of casing 1.45 ft above land-surface datum.

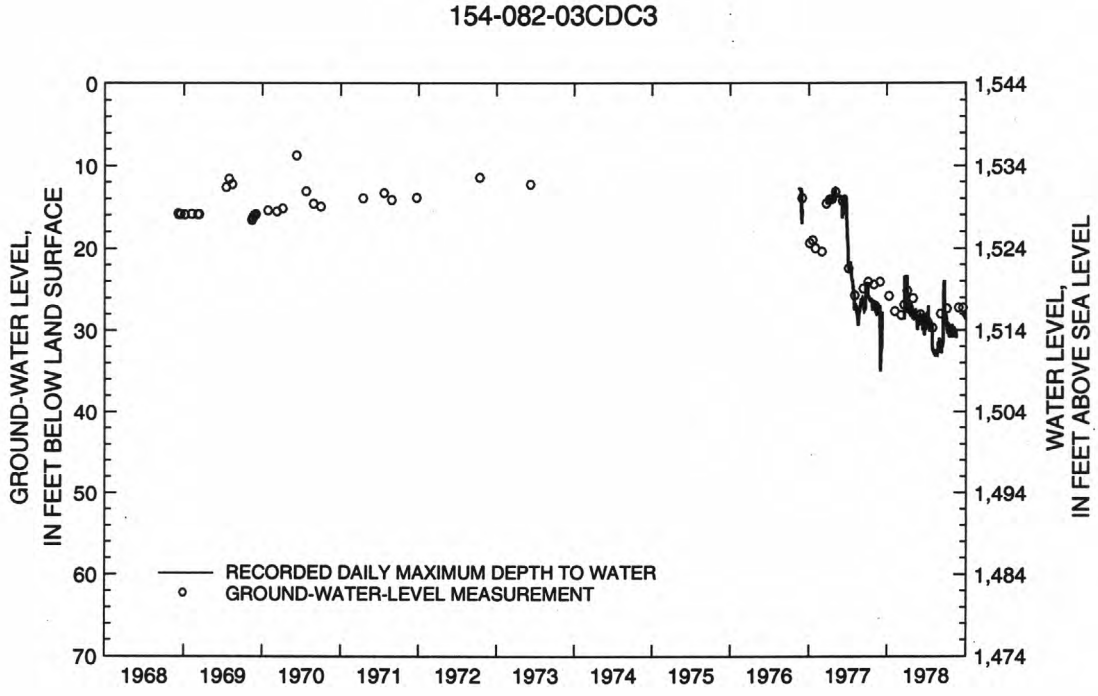
PERIOD OF RECORD.--December 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 8.73 ft below land-surface datum, June 9, 1970; lowest daily water level, 61.89 ft below land-surface datum, September 11, 1994.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	54.88	52.54	49.91	48.53	49.55	46.65	51.39	54.69	57.18	57.98	57.74	56.54
10	---	51.68	49.63	---	49.58	---	51.90	54.02	57.33	58.49	58.09	56.42
15	---	---	49.26	49.20	49.54	45.37	52.29	55.30	57.02	---	57.79	---
20	---	50.67	49.24	49.32	49.65	---	52.62	---	57.58	57.40	58.37	56.42
25	---	---	48.91	---	49.65	49.87	52.69	56.44	57.48	57.85	56.96	56.30
EOM	---	50.11	48.74	49.42	47.50	50.91	53.85	---	57.74	---	56.78	---
MAX	---	---	---	---	49.67	---	53.85	---	57.74	---	---	---

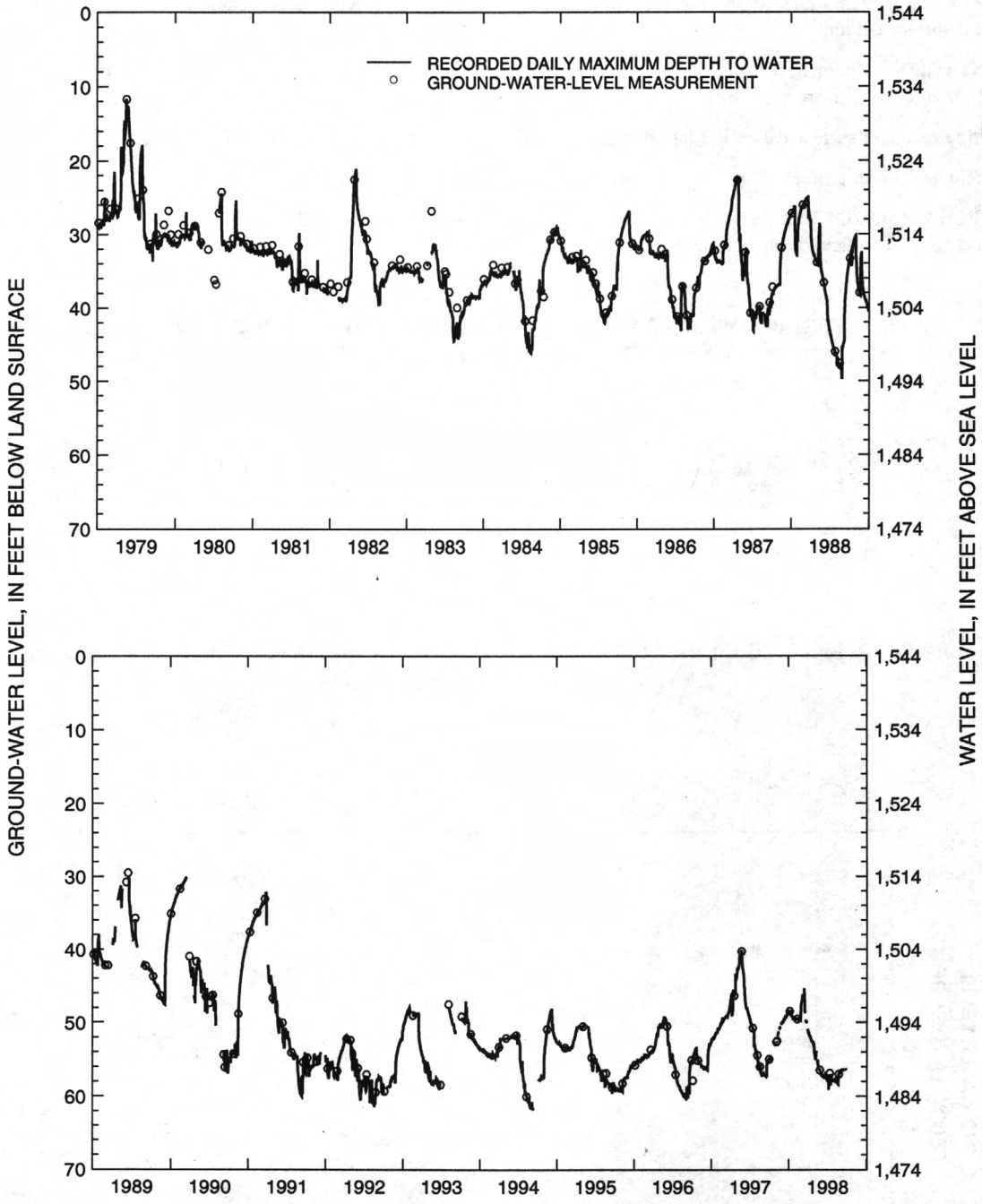
WATER YEAR 1998 HIGHEST WATER LEVEL 45.09 MARCH 16 LOWEST WATER LEVEL 59.09 JULY 7



GROUND-WATER LEVELS

WARD COUNTY

154-082-03CDC3--Continued



GROUND-WATER LEVELS

WELLS COUNTY

472329099194401. Local number, 145-068-10BCC.

LOCATION.--Lat 47°23'29", long 99°19'44", Hydrologic Unit 10160002. Owner: North Dakota State Water Commission.

AQUIFER.--Pipestem Creek.

WELL CHARACTERISTICS.--Drilled observation well, depth 52 ft, cased with 25 ft of 1.25-in diameter plastic pipe, No. 12 slot screen set 25 to 27 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,630 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

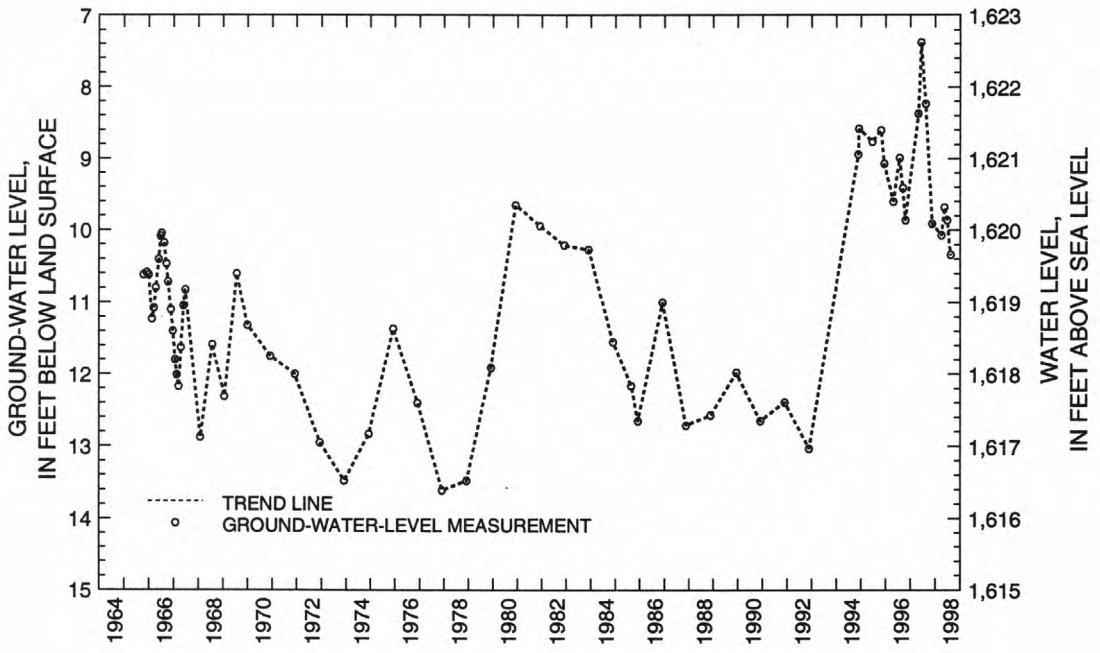
PERIOD OF RECORD.--October 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.38 ft below land-surface datum, June 10, 1997; lowest water level measured, 13.61 ft below land-surface datum, November 30, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	9.91	May 19	9.68	June 29	9.86	Aug. 18	10.34
Apr. 6	10.07						

145-068-10BCC



GROUND-WATER LEVELS

WELLS COUNTY

474419099371201. Local number, 149-070-09DAA1.

LOCATION.--Lat 47°44'19", long 99°37'12", Hydrologic Unit 10160001. Owner: North Dakota State Water Commission.

AQUIFER.--New Rockford.

WELL CHARACTERISTICS.--Drilled observation well, depth 283 ft, cased with 197 ft of 1.25-in diameter plastic pipe, slotted 177 to 197 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

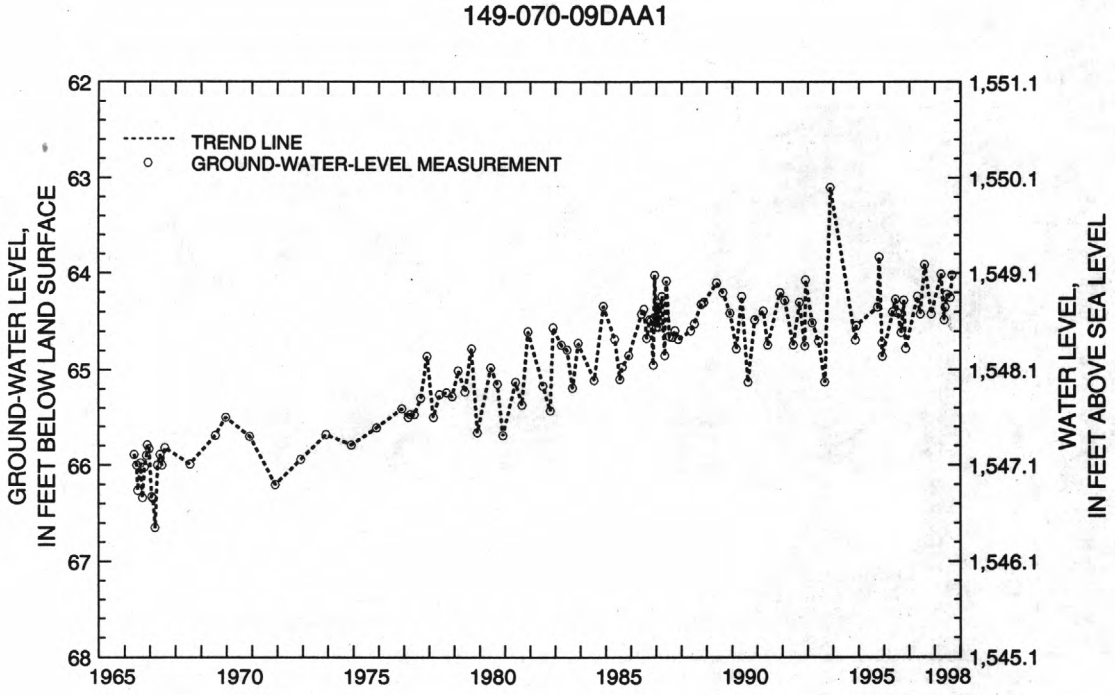
DATUM.--Altitude of land-surface datum is 1,613.06 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

PERIOD OF RECORD.--May 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 63.10 ft below land-surface datum, November 21, 1993; lowest water level measured, 66.65 ft below land-surface datum, March 15, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 17	64.42	May 19	64.48	June 29	64.22	Sept. 9	64.02
Apr. 6	64.01	June 3	64.35	Aug. 18	64.25		



GROUND-WATER LEVELS

WILLIAMS COUNTY

481056103024201. Local number, 154-096-08AAA.

LOCATION.--Lat 48°10'56", long 103°02'42", Hydrologic Unit 10110101. Owner: North Dakota State Water Commission.

AQUIFER.--Hofflund.

WELL CHARACTERISTICS.--Drilled observation well, depth 120 ft, cased with 77 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 77 to 83 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,883 ft. Measuring point: Top of casing 2.00 ft above land-surface datum.

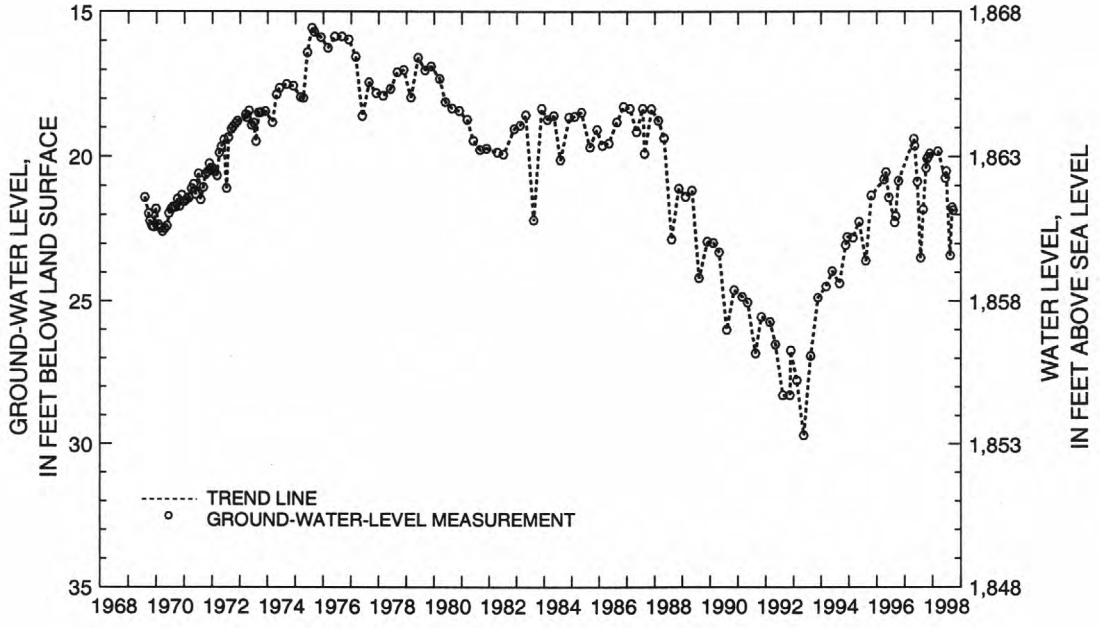
PERIOD OF RECORD.--August 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.55 ft below land-surface datum, August 4, 1975; lowest water level measured, 29.69 ft below land-surface datum, May 15, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 9	20.39	Dec. 3	19.89	July 1	20.50	Sept. 29	21.85
Oct. 22	20.07	Mar. 17	19.82	Aug. 20	23.41		
Nov. 6	20.02	June 22	20.74	Sept. 15	21.75		

154-096-08AAA



GROUND-WATER LEVELS

WILLIAMS COUNTY

483016103242801. Local number, 158-099-13DDD.

LOCATION.--Lat 48°30'16", long 103°24'28", Hydrologic Unit 10110102. Owner: North Dakota State Water Commission.

AQUIFER.--Ray.

WELL CHARACTERISTICS.--Drilled observation well, depth 294 ft, cased with 255 ft of 1.25-in diameter plastic pipe, No. 18 slot screen set 255 to 257 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 2,243 ft. Measuring point: Top of casing 1.90 ft above land-surface datum.

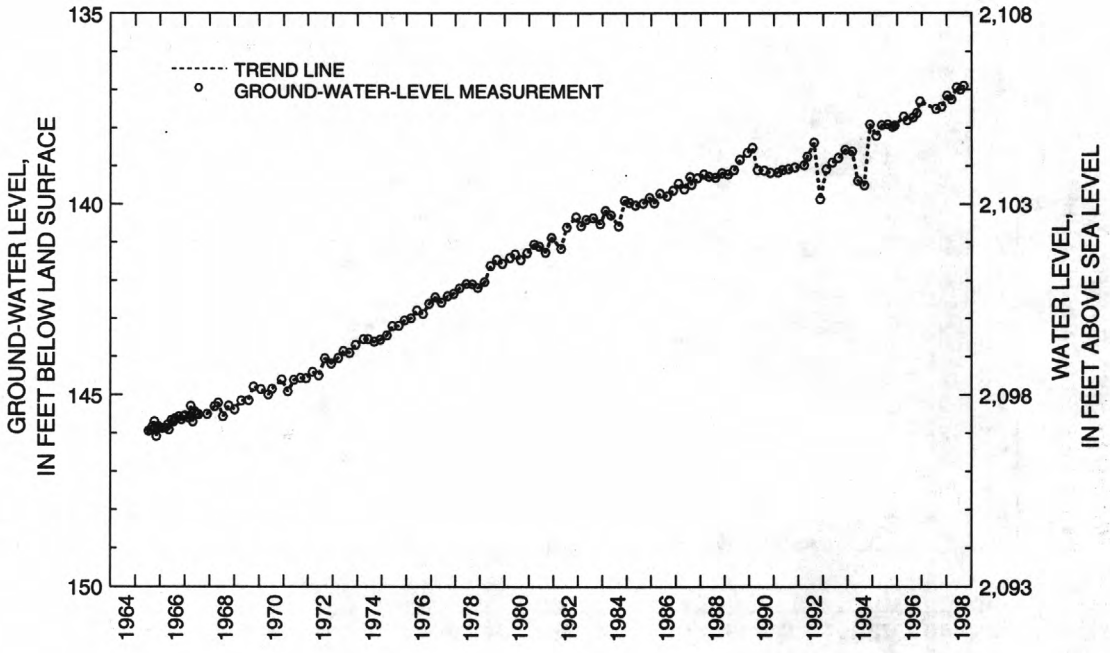
PERIOD OF RECORD.--July 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 136.90 ft below land-surface datum, September 14, 1998; lowest water level measured, 146.09 ft below land-surface datum, November 8, 1965.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 20	137.44	Mar. 18	137.25	July 27	137.00	Sept. 14	136.90
Jan. 8	137.16	June 2	136.94				

158-099-13DDD



GROUND-WATER LEVELS

WILLIAMS COUNTY

483127103373102. Local number, 158-100-08DAA2.

LOCATION.--Lat 48°31'27", long 103°37'31", Hydrologic Unit 10110102. Owner: North Dakota State Water Commission.

AQUIFER.--Little Muddy.

WELL CHARACTERISTICS.--Drilled observation well, depth 94 ft, cased with 78 ft of 4-in diameter plastic pipe, slotted 68 to 78 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From August 1966 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,997.8 ft. Measuring point: Top of casing 1.43 ft above land-surface datum.

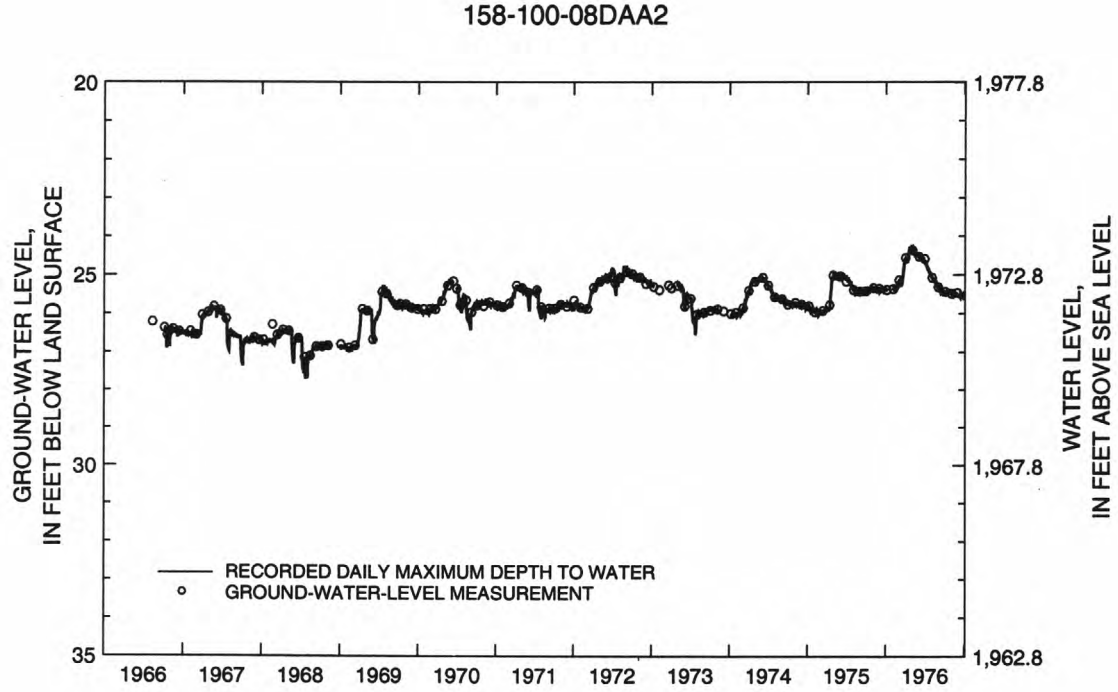
PERIOD OF RECORD.--August 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest daily water level, 24.24 ft below land-surface datum, May 4, 1976; lowest daily water level, 30.44 ft below land-surface datum, August 14-15, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
MAXIMUM VALUES (DAILY LOW WATER LEVEL)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	27.13	26.76	26.57	26.49	26.47	26.40	26.04	27.82	27.43	27.97	29.05	29.94
10	26.90	26.70	26.57	26.50	26.49	26.46	26.04	26.95	27.19	27.63	29.28	30.23
15	27.90	26.69	26.51	26.47	26.45	26.38	26.08	27.30	28.52	28.94	29.83	29.14
20	27.18	26.61	26.52	26.53	26.46	26.38	26.08	28.23	27.46	29.16	30.14	28.75
25	26.95	26.60	26.52	26.53	26.41	26.31	26.29	27.45	27.89	28.58	28.97	28.43
EOM	26.76	26.62	26.53	26.48	26.42	26.13	26.59	28.39	27.17	29.89	29.85	28.55
MAX	28.15	26.79	26.60	26.55	26.50	26.46	26.59	---	28.80	29.89	30.27	30.27

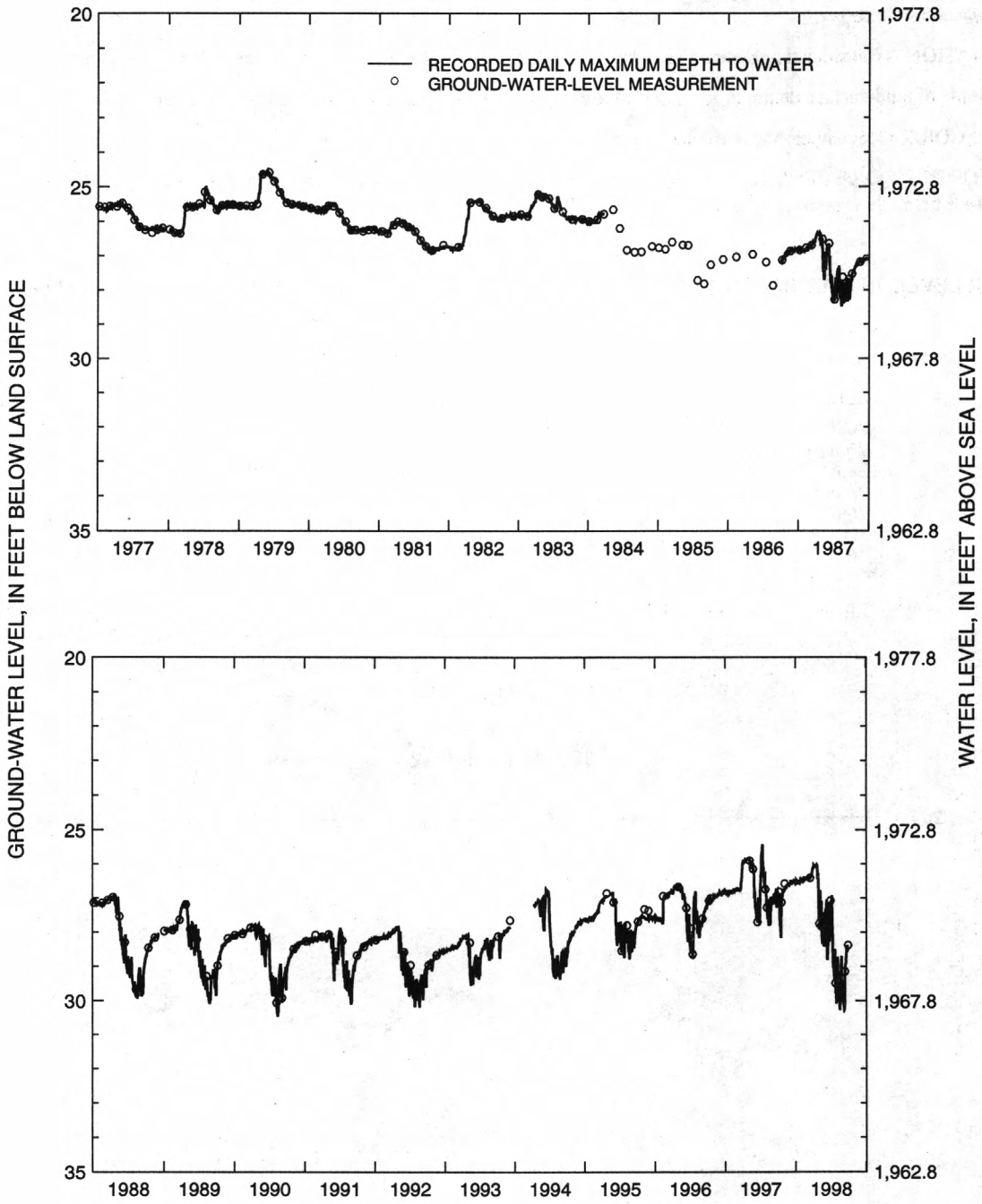
WATER YEAR 1998 HIGHEST WATER LEVEL 25.97 APRIL 11-12
LOWEST WATER LEVEL 30.27 AUGUST 19 AND SEPTEMBER 11



GROUND-WATER LEVELS

WILLIAMS COUNTY

158-100-08DAA2--Continued



GROUND-WATER LEVELS

WILLIAMS COUNTY

483700103191501. Local number, 159-098-10AAD.

LOCATION.--Lat 48°37'00", long 103°19'15", Hydrologic Unit 10110102. Owner: North Dakota State Water Commission.

AQUIFER.--West Wildrose.

WELL CHARACTERISTICS.--Drilled observation well, depth 260 ft, cased with 214 ft of 1.25-in diameter plastic pipe, slotted 200 to 214 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

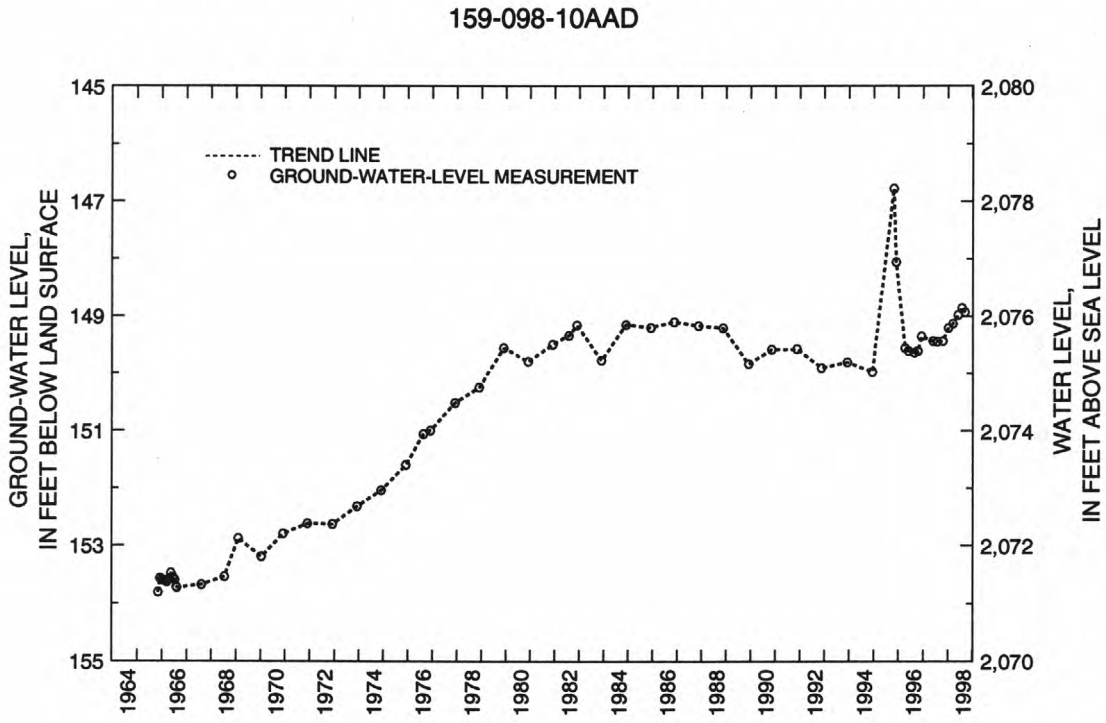
DATUM.--Altitude of land-surface datum is 2,225 ft. Measuring point: Top of casing 3.30 ft below land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 146.78 ft below land-surface datum, October 25, 1995; lowest water level measured, 153.81 ft below land-surface datum, November 8, 1965.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Oct. 20	149.44	Mar. 18	149.13	July 27	148.86	Sept. 14	148.93
Jan. 8	149.21	June 2	148.98				



MISCELLANEOUS GROUND-WATER LEVELS

BENSON COUNTY

475329098351401. Local number 151-062-15CCC.

LOCATION.--Lat 47°53'29", long 98°35'14", Hydrologic Unit 09020203. Owner: Bureau of Reclamation.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 25 ft, cased with 16 ft of 2-in diameter plastic pipe, screen set 16 to 21 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,479.1 ft. Measuring point: Top of casing 2.96 ft above land-surface datum.

PERIOD OF RECORD.--October 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.67 ft below land-surface datum, April 30, 1997; lowest measured, 10.82 ft below land-surface datum, September 27, 1990 and October 28, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	7.03	June 4	5.41	Aug. 20	7.52	Sept. 22	8.14
Apr. 16	4.24	July 10	5.92				

BENSON COUNTY

475258098375001. Local number 151-062-19ADD1.

LOCATION.--Lat 47°52'58", long 98°37'50", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 33 ft of 4-in diameter plastic pipe, screen set 33 to 38 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From July 1997 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,482.6 ft. Measuring point: Top of casing 1.60 ft above land-surface datum.

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

REMARKS.--Recorder installed July 10, 1997.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.67 ft below land-surface datum, August 10, 1993; lowest measured, 19.47 ft below land-surface datum, March 29, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	15.71	Apr. 16	15.25	July 10	15.55	Sept. 22	16.31
Nov. 25	15.69	June 4	15.39	Aug. 20	16.01		

MISCELLANEOUS GROUND-WATER LEVELS

BENSON COUNTY

475339098391201. Local number 151-063-13ADD.

LOCATION.--Lat 47°53'39", long 98°39'12", Hydrologic Unit 09020201. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 40 ft, cased with 33 ft of 2-in diameter plastic pipe, screen set 33 to 38 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,486 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

PERIOD OF RECORD.--April 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.49 ft below land-surface datum, April 30, 1997; lowest measured, 17.79 ft below land-surface datum, December 8, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	15.28	June 4	15.56	Aug. 20	15.72	Sept. 22	15.91
Apr. 16	15.40	July 10	15.69				

BENSON COUNTY

475236098455901. Local number 151-063-19DDCC.

LOCATION.--Lat 47°52'36", long 98°45'59", Hydrologic Unit 09020201. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 30 ft, cased with 25 ft of 2-in diameter plastic pipe, screen set 25 to 30 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,484.17 ft. Measuring point: Top of casing 2.25 ft above land-surface datum.

PERIOD OF RECORD.--July 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 21.73 ft below land-surface datum, June 4, 1997; lowest measured, 24.98 ft below land-surface datum, July 22, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Apr. 16	22.13	July 10	22.61	Aug. 19	22.66	Sept. 22	22.81
June 4	22.30						

MISCELLANEOUS GROUND-WATER LEVELS

BENSON COUNTY

475258098445802. Local number 151-063-20CAAA2.

LOCATION.--Lat 47°52'58", long 98°44'58", Hydrologic Unit 09020201. Owner: Spirit Lake Sioux Nation.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 145 ft, cased with 128 ft of 2-in diameter plastic pipe, screen set 128 to 133 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,474.8 ft. Measuring point: Top of casing 2.64 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.76 ft below land-surface datum, April 30,1997; lowest measured, 19.48 ft below land-surface datum, October 14, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	16.22	June 4	15.37	Aug. 20	16.06	Sept. 22	16.48
Apr. 16	15.11	July 10	15.93				

BENSON COUNTY

475308098424801. Local number 151-063-22CBBB.

LOCATION.--Lat 47°53'08", long 98°42'48", Hydrologic Unit 09020201. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 16 ft, cased with 10 ft of 2-in diameter plastic pipe, screen set 10 to 15 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,465 ft. Measuring point: Top of casing 1.80 ft above land-surface datum.

PERIOD OF RECORD.--July 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.92 ft below land-surface datum, April 30, 1997; lowest measured, 11.40 ft below land-surface datum, July 22, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	10.07	June 4	9.90	Aug. 19	11.06	Sept. 22	11.04
Apr. 16	9.60	July 10	10.05				

MISCELLANEOUS GROUND-WATER LEVELS

BENSON COUNTY

475224098443202. Local number 151-063-29AAC2.

LOCATION.--Lat 47°52'24", long 98°44'32", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 67 ft, cased with 67 ft of 6-in diameter steel pipe, slotted 57 to 67 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,483 ft. Measuring point: Top of casing 0.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1951 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.29 ft below land-surface datum, November 5, 1957; lowest measured, 26.90 ft below land-surface datum, September 17, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	22.65	June 4	23.56	Aug. 20	24.48	Sept. 22	24.63
Apr. 16	23.08	July 10	23.92				

BENSON COUNTY

475212098430701. Local number 151-063-29ADDB.

LOCATION.--Lat 47°52'12", long 98°43'07", Hydrologic Unit 09020201. Owner: Spirit Lake Sioux Nation.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 193 ft, cased with 165 ft of 2-in diameter plastic pipe, screen set 165 to 170 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,476.3 ft. Measuring point: Top of casing 2.09 ft above land-surface datum.

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

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.12 ft below land-surface datum, July 10, 1997; lowest measured, 26.31 ft below land-surface datum, November 1, 1990.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	19.86	June 4	19.54	Aug. 20	21.16	Sept. 22	20.80
Apr. 16	19.12	July 10	20.36				

MISCELLANEOUS GROUND-WATER LEVELS

BENSON COUNTY

475510098515502. Local number 151-064-04CCC2.

LOCATION.--Lat 47°55'10", long 98°51'55", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Tokio.

WELL CHARACTERISTICS.--Drilled observation well, depth 40 ft, cased with 34 ft of 2-in diameter plastic pipe, screen set 34 to 39 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From June 1997 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,556.1 ft. Measuring point: Top of casing 1.91 ft above land-surface datum.

PERIOD OF RECORD.--November 1986 to current year.

REMARKS.--Recorder installed June 5, 1997.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.19 ft below land-surface datum, August 14, 1997; lowest measured, 29.92 ft below land-surface datum, April 15, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	26.50	Apr. 16	26.52	July 10	26.50	Sept. 23	26.74
Nov. 25	26.44	June 4	26.44	Aug. 19	26.62		

BENSON COUNTY

475509098542502. Local number 151-064-06CCC2.

LOCATION.--Lat 47°55'09", long 98°54'25", Hydrologic Unit 09020203. Owner: North Dakota State Water Commission.

AQUIFER.--Tokio.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 73 ft of 2-in diameter plastic pipe, screen set 73 to 78 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,583.5 ft. Measuring point: Top of casing 2.03 ft above land-surface datum.

PERIOD OF RECORD.--November 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.53 ft below land-surface datum, April 30, 1997; lowest measured, 31.13 ft below land-surface datum, December 9, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	27.22	June 4	27.11	Aug. 19	27.52	Sept. 23	27.67
Apr. 16	26.78	July 10	27.32				

MISCELLANEOUS GROUND-WATER LEVELS

BENSON COUNTY

475658098571901. Local number 152-065-27DDD.

LOCATION.--Lat 47°56'58", long 98°57'19", Hydrologic Unit 09020202. Owner: North Dakota State Water Commission.

AQUIFER.--Tokio.

WELL CHARACTERISTICS.--Drilled observation well, depth 60 ft, cased with 36.5 ft of 2-in diameter plastic pipe, screen set 36.5 to 41.5 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,567.2 ft. Measuring point: Top of casing 2.28 ft above land-surface datum.

PERIOD OF RECORD.--November 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.52 ft below land-surface datum, April 30, 1997; lowest measured, 19.56 ft below land-surface datum, October 15, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	16.39	June 4	16.05	Aug. 19	17.01	Sept. 23	17.28
Apr. 16	15.79	July 10	16.32				

BENSON COUNTY

475827099061501. Local number 152-066-21AAD1.

LOCATION.--Lat 47°58'27", long 99°06'15", Hydrologic Unit 09020201. Owner: North Dakota State Water Commission.

AQUIFER.--Spiritwood.

WELL CHARACTERISTICS.--Drilled observation well, depth 240 ft, cased with 140 ft of 4-in diameter plastic pipe, screen set 140 to 145 ft below land-surface datum.

INSTRUMENTATION.--Water-level recorder. From June 1997 to current year, daily minimum recorded water levels also are available.

DATUM.--Altitude of land-surface datum is 1,495 ft. Measuring point: Top of casing 0.87 ft above land-surface datum.

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

REMARKS.--Recorder installed June 10, 1997.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.97 ft below land-surface datum, June 4, 1997; lowest measured, 46.84 ft below land-surface datum, December 15, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 19	34.54	June 4	32.97	Aug. 19	33.28	Sept. 23	33.46
Apr. 16	33.42	July 10	33.02				

MISCELLANEOUS GROUND-WATER LEVELS

EDDY COUNTY

474911098375601. Local number 150-062-07DDA.

LOCATION.--Lat 47°49'11", long 98°37'56", Hydrologic Unit 09020203. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 51 ft of 2-in diameter plastic pipe, screen set 51 to 56 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,475 ft. Measuring point: Top of casing 2.10 ft above land-surface datum.

PERIOD OF RECORD.--April 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.48 ft below land-surface datum, September 15, 1993; lowest measured, 13.02 ft below land-surface datum, December 8, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	11.05	June 4	10.66	Aug. 20	11.17	Sept. 21	11.48
Apr. 17	10.97	July 10	10.78				

EDDY COUNTY

474839098352401. Local number 150-062-16ADD.

LOCATION.--Lat 47°48'39", long 98°35'24", Hydrologic Unit 09020203. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 40 ft, cased with 15 ft of 2-in diameter plastic pipe, screen set 15 to 20 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,475 ft. Measuring point: Top of casing 1.30 ft above land-surface datum.

PERIOD OF RECORD.--April 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.75 ft below land-surface datum, August 17, 1993; lowest measured, 15.73 ft below land-surface datum, December 8, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	13.31	June 4	13.35	Aug. 20	14.28	Sept. 21	14.80
Apr. 17	13.76	July 10	13.56				

MISCELLANEOUS GROUND-WATER LEVELS

EDDY COUNTY

474943098402001. Local number 150-063-12BBC.

LOCATION.--Lat 47°49'43", long 98°40'20", Hydrologic Unit 09020203. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 60 ft, cased with 34 ft of 2-in diameter plastic pipe, screen set 34 to 39 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,470 ft. Measuring point: Top of casing 1.60 ft above land-surface datum.

PERIOD OF RECORD.--April 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.18 ft below land-surface datum, April 30, 1997; lowest measured, 8.68 ft below land-surface datum, April 14, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	6.76	June 4	6.51	Aug. 20	7.32	Sept. 22	7.77
Apr. 17	6.39	July 10	6.60				

EDDY COUNTY

474817098304001. Local number 150-063-16DDA.

LOCATION.--Lat 47°48'17", long 98°30'40", Hydrologic Unit 09020203. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 80 ft, cased with 55 ft of 2-in diameter plastic pipe, screen set 55 to 60 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,428 ft. Measuring point: Top of casing 1.70 ft above land-surface datum.

PERIOD OF RECORD.--April 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.64 ft below land-surface datum, June 4, 1998; lowest measured, 26.66 ft below land-surface datum, October 13, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	25.61	June 4	24.64	Aug. 20	25.40	Sept. 22	25.45
Apr. 17	25.21	July 10	25.05				

MISCELLANEOUS GROUND-WATER LEVELS

EDDY COUNTY

475044098531301. Local number 150-064-05BBB.

LOCATION.--Lat 47°50'44", long 98°53'13", Hydrologic Unit 09020203. Owner: North Dakota State Water Commission.

AQUIFER.--Tokio.

WELL CHARACTERISTICS.--Drilled observation well, depth 70 ft, cased with 63 ft of 2-in diameter plastic pipe, screen set 63 to 68 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,567.3 ft. Measuring point: Top of casing 1.90 ft above land-surface datum.

PERIOD OF RECORD.--November 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 31.28 ft below land-surface datum, April 30 and July 9, 1997; lowest measured, 34.04 ft below land-surface datum, December 9, 1992, and April 15, 1993.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	31.72	June 4	31.99	Aug. 19	32.16	Sept. 23	32.49
Apr. 16	31.95	July 10	31.99				

NELSON COUNTY

474714098290201. Local number 150-061-29AAA.

LOCATION.--Lat 47°47'14", long 98°29'02", Hydrologic Unit 09020203. Owner: U.S. Geological Survey.

AQUIFER.--Warwick.

WELL CHARACTERISTICS.--Drilled observation well, depth 110 ft, cased with 65 ft of 2-in diameter plastic pipe, screen set 65 to 70 ft below land-surface datum.

INSTRUMENTATION.--Measured using a steel tape.

DATUM.--Altitude of land-surface datum is 1,457 ft. Measuring point: Top of casing 1.60 ft above land-surface datum.

PERIOD OF RECORD.--April 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.24 ft below land-surface datum, July 9, 1996; lowest measured, 19.01 ft below land-surface datum, October 13, 1992.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
Nov. 18	16.04	June 4	16.29	Aug. 20	16.58	Sept. 21	16.81
Apr. 17	16.21	July 10	16.26				

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

COUNTY	STATION NUMBER	LOCAL IDENT-I-FIER	GEO-LOGIC UNIT	DATE	TIME	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	TEMPER-ATURE AIR (DEG C) (00020)
BENSON	475329098351401	151-062-15CCC	112WRCK	09-22-98	1220	572	7.5	7.7	17.4
BENSON	475236098455901	151-063-19DDCC	112WRCK	09-22-98	1650	498	7.5	7.7	19.5
BENSON	475308098424801	151-063-22CBBB	112WRCK	09-22-98	1330	185	7.2	7.4	20.5
BENSON	475212098430701	151-063-29ADDB	112WRCK	09-22-98	1450	505	7.4	7.5	20.9
BENSON	475510098515502	151-064-04CCC02	112TOKO	09-23-98	0945	655	7.2	7.5	13.4
BENSON	475509098542502	151-064-06CCC02	112TOKO	09-23-98	1100	487	7.2	7.5	16.8
BENSON	475658098571901	152-065-27DDD	112TOKO	09-23-98	1205	484	7.3	7.5	19.5
BENSON	475827099061501	152-066-21AAD1	112SPRD	09-23-98	1400	972	7.3	7.4	21.7
EDDY	474911098375601	150-062-07DDA	112WRCK	09-21-98	1745	385	7.4	7.5	18.5
EDDY	474839098352401	150-062-16ADD	112WRCK	09-21-98	1530	400	7.4	7.7	18.0
EDDY	474943098402001	150-063-12BBC	112WRCK	09-22-98	0900	476	7.4	7.5	14.4
EDDY	474817098304001	150-063-16DDA	112WRCK	09-22-98	1100	430	7.6	7.6	17.2
NELSON	474714098290201	150-061-29AAA	112WRCK	09-21-98	1345	860	7.5	7.5	18.0

	DATE	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
151-062-15CCC	09-22-98	13.2	340	86	31	5.6	3	.1	2.9	241	97	7.8
151-063-19DDCC	09-22-98	10.9	230	62	20	26	19	.7	3.8	190	88	2.1
151-063-22CB	09-22-98	14.3	100	26	8.5	2.1	4	.1	3.4	104	2.9	2.7
151-063-29ADDB	09-22-98	10.0	240	68	17	27	19	.7	4.8	263	45	2.7
151-064-04CCC02	09-23-98	10.0	420	110	39	3.2	2	.1	2.0	426	8.0	2.9
151-064-06CCC02	09-23-98	9.8	250	72	17	17	12	.5	9.0	267	32	2.4
152-065-27DDD	09-23-98	9.3	260	73	20	6.1	5	.2	3.1	216	34	1.3
152-066-21AAD1	09-23-98	10.0	590	110	78	145	34	3	17	475	370	43
150-062-07DDA	09-21-98	10.5	210	56	17	4.4	4	.1	2.3	221	9.7	1.8
150-062-16ADD	09-21-98	12.0	210	60	16	1.9	2	.1	.81	193	10	8.6
150-063-12BBC	09-22-98	10.6	260	73	20	15	11	.4	5.4	300	6.1	1.9
150-063-16DDA	09-22-98	13.0	220	60	17	14	12	.4	2.0	216	41	2.9
150-061-29AAA	09-21-98	10.5	210	50	21	164	62	5	7.9	413	150	3.0

	DATE	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)
151-062-15CCC	09-22-98	.28	23	416	437	.59	.126	3.74	3.87	<.020	--
151-063-19DDCC	09-22-98	.16	26	370	380	.52	.013	6.48	6.49	<.020	--
151-063-22CB	09-22-98	<.10	26	139	145	.20	.011	.873	.884	<.020	--
151-063-29ADDB	09-22-98	.16	28	351	365	.50	.011	--	<.050	.753	.08
151-064-04CCC02	09-23-98	.10	28	458	469	.64	.010	2.94	2.95	<.020	--
151-064-06CCC02	09-23-98	.20	38	350	361	.49	<.010	--	.078	.588	.06
152-065-27DDD	09-23-98	.18	23	338	356	.48	.080	10.9	11.0	<.020	--
152-066-21AAD1	09-23-98	.18	29	1080	1120	1.52	<.010	--	.064	1.31	.37
150-062-07DDA	09-21-98	.16	30	257	272	.37	.013	--	<.050	.130	.17
150-062-16ADD	09-21-98	<.10	28	254	266	.36	.013	2.87	2.88	<.020	--
150-063-12BBC	09-22-98	.14	28	333	340	.46	<.010	--	.348	.392	.04
150-063-16DDA	09-22-98	.14	29	298	312	.42	.012	--	<.050	.108	.09
150-061-29AAA	09-21-98	.36	35	680	688	.94	.011	--	<.050	2.01	.23

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

	DATE	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, TOTAL (MG/L AS N) (00600)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	PHOSPHORUS ORTHO, DISSOLVED (MG/L AS P) (00671)	ANTIMONY, DISSOLVED (UG/L AS SB) (01095)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	BARIUM, DISSOLVED (UG/L AS BA) (01005)	BERYLLIUM, DISSOLVED (UG/L AS BE) (01010)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)
151-062-15CCC	09-22-98	.20	4.1	.053	<.010	--	--	--	--	--	--
151-063-19DDCC	09-22-98	.19	6.7	.055	.063	--	--	--	--	--	--
151-063-22CB	09-22-98	<.10	--	.085	.114	--	--	--	--	--	--
151-063-29ADDB	09-22-98	.83	--	.274	.075	<1.0	5.6	177	<1.0	<1.0	1.2
151-064-04CCC02	09-23-98	<.10	--	.019	.018	--	--	--	--	--	--
151-064-06CCC02	09-23-98	.65	.73	.034	.034	--	--	--	--	--	--
152-065-27DDD	09-23-98	<.10	--	.017	<.010	--	--	--	--	--	--
152-066-21AAD1	09-23-98	1.7	1.7	.058	.082	--	--	--	--	--	--
150-062-07DDA	09-21-98	.30	--	<.050	.021	--	--	--	--	--	--
150-062-16ADD	09-21-98	.14	3.0	.066	.047	--	--	--	--	--	--
150-063-12BBC	09-22-98	.43	.78	.018	.017	--	--	--	--	--	--
150-063-16DDA	09-22-98	.19	--	.036	.024	--	--	--	--	--	--
150-061-29AAA	09-21-98	2.2	--	.011	.236	--	--	--	--	--	--

	DATE	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	NICKEL, DISSOLVED (UG/L AS NI) (01065)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	SILVER, DISSOLVED (UG/L AS AG) (01075)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DISSOLVED (UG/L AS U) (22703)
151-062-15CCC	09-22-98	--	--	<10	--	418	--	--	--	--	--
151-063-19DDCC	09-22-98	--	--	<10	--	9.4	--	--	--	--	--
151-063-22CB	09-22-98	--	--	11	--	11	--	--	--	--	--
151-063-29ADDB	09-22-98	<1.0	<1.0	59	<1.0	784	1.3	<1	<1.0	5.8	<1.0
151-064-04CCC02	09-23-98	--	--	<10	--	<3.0	--	--	--	--	--
151-064-06CCC02	09-23-98	--	--	420	--	399	--	--	--	--	--
152-065-27DDD	09-23-98	--	--	<10	--	114	--	--	--	--	--
152-066-21AAD1	09-23-98	--	--	4700	--	421	--	--	--	--	--
150-062-07DDA	09-21-98	--	--	2600	--	468	--	--	--	--	--
150-062-16ADD	09-21-98	--	--	<10	--	21	--	--	--	--	--
150-063-12BBC	09-22-98	--	--	660	--	239	--	--	--	--	--
150-063-16DDA	09-22-98	--	--	1100	--	407	--	--	--	--	--
150-061-29AAA	09-21-98	--	--	940	--	57	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

COUNTY	STATION NUMBER	LOCAL IDENT-I-FIER	GEO-LOGIC UNIT	DATE	TIME	DEPTH OF WELL, TOTAL (FEET) (72008)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)
ADAMS	461614102515202	132-097-07CAB2	125LHCK	06-04-98	--	590	2090
BENSON	482212099475801	156-071-04BBA	112PLLK	09-17-98	0845	58	355
CASS	463926096513801	137-049-27BBC	112WFRG	10-08-97	1345	350	--
CASS	471326097332902	143-054-08BBB2	112PAGE	06-18-98	1245	86	465
DIVIDE	484746104015901	161-103-02CCB	112SKJL	08-11-98	1500	96	1000
EDDY	473934099032301	148-066-03DDC	112NRKF	06-23-98	1800	218	2400
LAMOURE	461958098132901	133-060-16DAA	112LMUR	07-15-98	1354	63	680
LOGAN	463417099271002	136-070-26BBB2	112STRR	08-27-98	1605	43	720
MOUNTRAIL	480120101571901	152-088-04BBBD1	125SNLB	08-20-98	1600	71	2140
MOUNTRAIL	480120101571902	152-088-04BBBD2	125SNLB	08-20-98	1625	87	2580
RANSOM	461838097553402	133-058-25BBA2	112EGLV	07-14-98	2010	34	1120
RICHLAND	460358096581401	130-050-17DDD	112MLCL	06-11-98	1845	60	1550
ROLETTE	484731099504104	161-071-03CDD4	112SLVL	09-17-98	1725	38	--
SARGENT	460120097591803	129-058-06AAA3	112OKES	06-22-98	1436	57	525
WALSH	481841097490301	156-056-22DDD	112FDVL	07-21-98	1630	57	569

LOCAL IDENT-I-FIER	DATE	SPE-CIFIC CON-DUCT-ANCE LAB (US/CM) (90095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L AS CACO3) (00900)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)
132-097-07CAB2	06-04-98	2060	--	9.4	9	1180	2.0	1.0	530	99
156-071-04BBA	09-17-98	386	--	--	200	199	55	15	8.0	8
137-049-27BBC	10-08-97	1330	--	--	290	321	71	27	160	54
143-054-08BBB2	06-18-98	402	--	9.0	210	228	54	18	1.5	1
161-103-02CCB	08-11-98	1010	--	--	250	427	61	24	140	54
148-066-03DDC	06-23-98	2240	--	7.5	240	697	66	18	440	79
133-060-16DAA	07-15-98	713	--	9.8	390	262	110	29	3.5	2
136-070-26BBB2	08-27-98	755	--	--	320	260	73	33	35	19
152-088-04BBBD1	08-20-98	2100	--	--	540	658	93	75	310	55
152-088-04BBBD2	08-20-98	2440	--	--	450	649	68	68	420	66
133-058-25BBA2	07-14-98	1160	--	8.7	640	278	170	52	28	9
130-050-17DDD	06-11-98	1580	--	10.0	900	477	130	140	36	8
161-071-03CDD4	09-17-98	745	--	--	380	273	82	43	19	10
129-058-06AAA3	06-22-98	525	7.3	9.7	280	275	77	21	6.0	4
156-056-22DDD	07-21-98	606	--	--	270	246	70	23	30	19

LOCAL IDENT-I-FIER	DATE	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)
132-097-07CAB2	06-04-98	76	2.2	.40	15	7.1	1270	260	10
156-071-04BBA	09-17-98	.2	1.4	20	1.2	.20	220	120	260
137-049-27BBC	10-08-97	4	6.1	160	110	.30	728	100	130
143-054-08BBB2	06-18-98	.0	12	.00	.00	.10	225	630	1400
161-103-02CCB	08-11-98	4	5.1	130	17	.40	637	2400	180
148-066-03DDC	06-23-98	12	12	400	100	.20	1460	470	670
133-060-16DAA	07-15-98	.1	1.8	140	7.3	.10	452	1600	790
136-070-26BBB2	08-27-98	.9	4.0	150	5.7	.10	460	2400	490
152-088-04BBBD1	08-20-98	6	13	550	19	.20	1460	460	320
152-088-04BBBD2	08-20-98	9	14	650	82	.10	1690	320	160
133-058-25BBA2	07-14-98	.5	4.5	370	15	.10	812	4400	1100
130-050-17DDD	06-11-98	.5	14	520	8.6	.30	1140	970	680
161-071-03CDD4	09-17-98	.4	3.4	110	5.7	.20	--	420	80
129-058-06AAA3	06-22-98	.2	2.9	19	3.5	.10	296	790	470
156-056-22DDD	07-21-98	.8	2.6	81	4.8	.20	360	390	390

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CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
	Length	
inch (in.)	2.54×10^{1}	millimeter
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter
mile (mi)	1.609×10^{0}	kilometer
	Area	
acre	4.047×10^{3}	square meter
	4.047×10^{-1}	square hectometer
	4.047×10^{-3}	square kilometer
square mile (mi^2)	2.590×10^{0}	square kilometer
	Volume	
gallon (gal)	3.785×10^{0}	liter
	3.785×10^{0}	cubic decimeter
	3.785×10^{-3}	cubic meter
million gallons (Mgal)	3.785×10^{3}	cubic meter
	3.785×10^{-3}	cubic hectometer
cubic foot (ft^3)	2.832×10^{1}	cubic decimeter
	2.832×10^{-2}	cubic meter
cubic-foot-per-second day [(ft^3/s) d]	2.447×10^{3}	cubic meter
	2.447×10^{-3}	cubic hectometer
acre-foot (acre-ft)	1.233×10^{3}	cubic meter
	1.233×10^{-3}	cubic hectometer
	1.233×10^{-6}	cubic kilometer
	Flow	
cubic foot per second (ft^3/s)	2.832×10^{1}	liter per second
	2.832×10^{1}	cubic decimeter per second
	2.832×10^{-2}	cubic meter per second
gallon per minute (gal/min)	6.309×10^{-2}	liter per second
	6.309×10^{-2}	cubic decimeter per second
	6.309×10^{-5}	cubic meter per second
million gallons per day (Mgal/d)	4.381×10^{1}	cubic decimeter per second
	4.381×10^{-2}	cubic meter per second
	Mass	
ton (short)	9.072×10^{-1}	megagram or metric ton

Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

U.S. DEPARTMENT OF THE INTERIOR
U.S. Geological Survey
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