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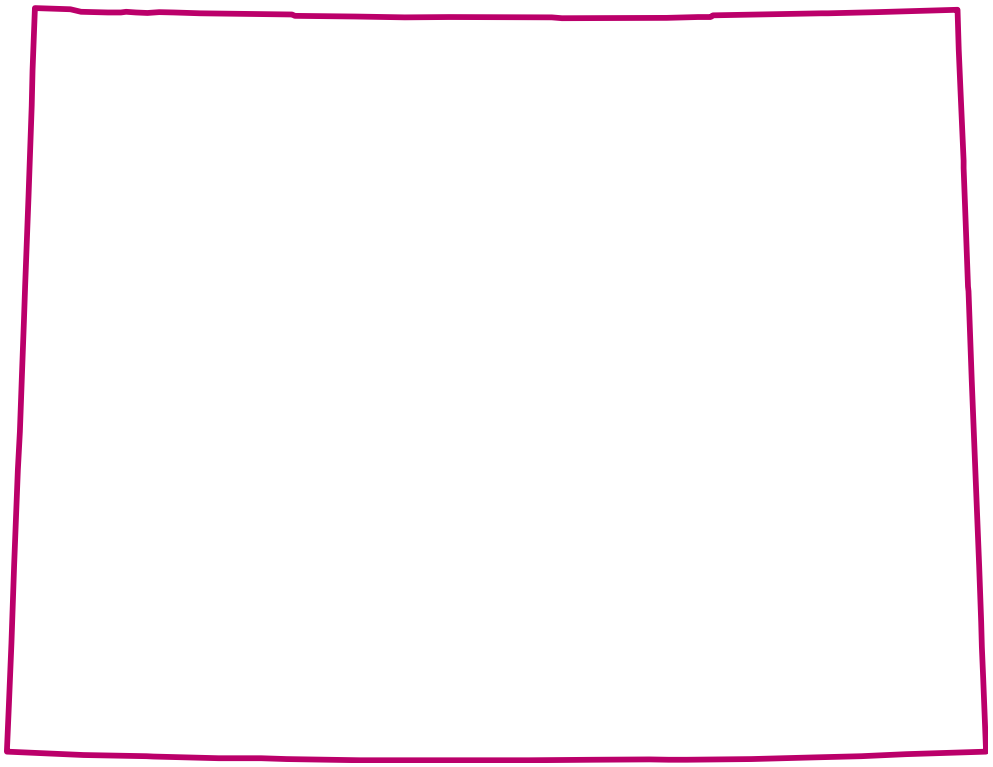
Water Resources Data
Wyoming
Water Year 2002

Volume 2. Ground Water

Water-Data Report WY-02-2



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

Prepared in cooperation with the
Wyoming State Engineer's Office and
with other State and local agencies

CALENDAR FOR WATER YEAR 2002

2001

OCTOBER

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2002

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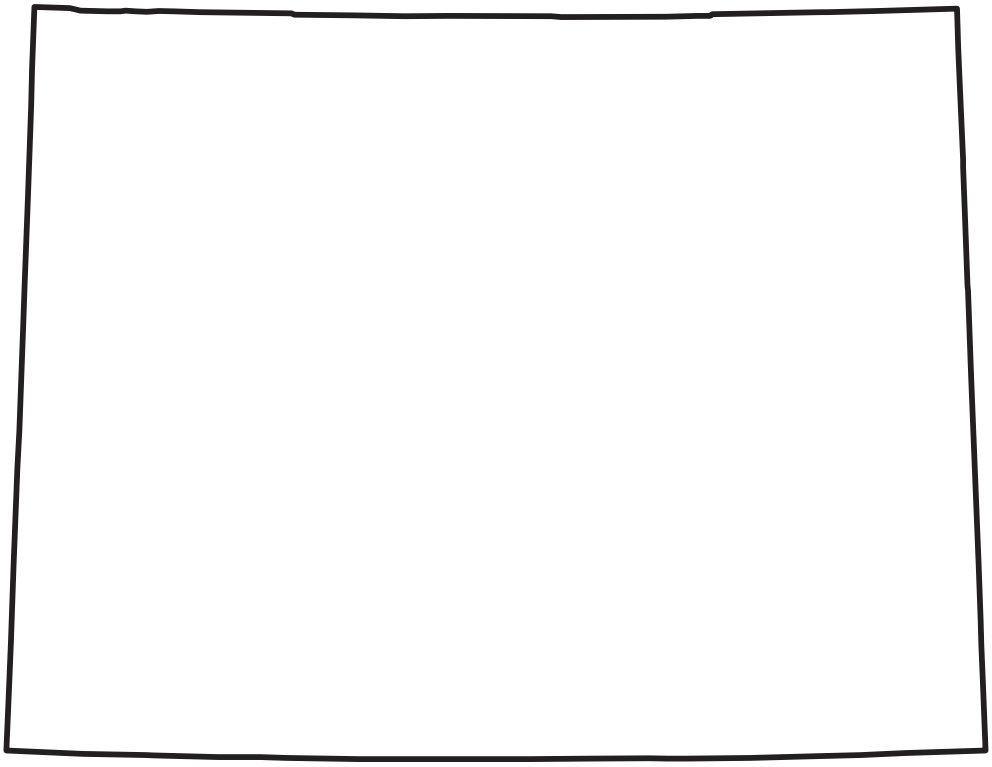
U.S. Department of the Interior
U.S. Geological Survey

Water Resources Data Wyoming Water Year 2002

Volume 2. Ground Water

By R.B. Swanson, E.J. Blajszczak, S.C. Roberts, K.R. Watson, and J.P. Mason

Water-Data Report WY-02-2



Prepared in cooperation with the Wyoming State Engineer's Office
and with other State and local agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

GALE A. NORTON, Secretary

GEOLOGICAL SURVEY

Charles G. Groat, Director

For information on the water program in Wyoming, write to:
District Chief, Water Resources Division
U.S. Geological Survey
2617 East Lincolnway, Suite B
Cheyenne, Wyoming 82001-5662

2003

PREFACE

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

Volume 1. Surface-Water Data
Volume 2. Ground-Water Data

These reports are the culmination of a concerted effort by personnel from the Wyoming District of the U.S. Geological Survey and personnel of the Wyoming State Engineer's Office. Water-quality data and some water-level data contained in this report were collected by personnel from the U.S. Geological Survey. In addition U.S. Geological Survey personnel compiled, analyzed, verified, and organized the data, as well as typed, edited, and assembled the report. The authors had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to U.S. Geological Survey policies and guidelines. The following U.S. Geological Survey personnel are recognized for their significant contributions to this report:

T. Bartos	G. Laidlaw	K. Remley	J. Wheeler
E. Blajszczak	T. Lehman	W. Sadler	R. Woodruff
M. Clark	C. Miller	P. Spatz	
N. Friday	J. Norris	J. Swanson	
L. Hallberg	T. Pointon	K. Watson	

Most of the water-level data contained in this report were collected by personnel from the Wyoming State Engineer's Office. The following Wyoming State Engineer's Office personnel are recognized for their significant contributions to this report:

J. Harju	D. Parkin	R. Stockdale
J. Manley	L. Porter	C. Verplancke

This report was prepared under the general supervision of Myron H. Brooks, District Chief, Wyoming, and in cooperation with Patrick T. Tyrrell, the Wyoming State Engineer.

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13. ABSTRACT *(Maximum 200 words)*

Water resources data for the 2002 water year for Wyoming consists of records of stage, discharge and water quality of streams; stage and contents of lakes and reservoirs, and water levels and water quality of ground water. Volume 2 of this report contains water levels records for 67 wells. Additional ground-water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous studies and programs. These data together with the data in Volume 1 represent part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Wyoming.

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INTRODUCTION

The Water Resources Division of the U.S. Geological Survey (USGS), in cooperation with State, Tribal, county, municipal, and other Federal agencies, collects data each water year describing the water resources of Wyoming. These data, accumulated through many water years, contribute to an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the USGS, the data are published annually in this report series entitled, "**Water Resources Data for Wyoming**".

Water resources data for Wyoming in this volume consists of records of ground-water levels and quality for water year 2002, which began October 1, 2001, and ended September 30, 2002. This report contains historic water levels from 68 observation wells in the form of tables and hydrographs. The locations of observation wells listed in this report are shown in figure 1. Additional ground-water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous measurements.

Since 1940, the USGS, in cooperation with State, county, municipal, and other Federal agencies, has measured ground-water levels in observation wells in Wyoming. Ground-water levels were systematically measured in 67 observation wells in 15 counties in Wyoming during the water year. The observation-well program is conducted by the USGS in cooperation with the Wyoming State Engineer's Office. Water-level data were collected at 58 of the 67 observation wells by Wyoming State Engineer personnel; data at the remaining nine wells were collected by USGS personnel. The wells are located primarily in areas where ground water is used in large quantities for irrigation or municipal purposes.

Prior to 1997, only miscellaneous ground-water data were published in this report. In the past, the majority of ground-water level data collected in Wyoming was published in other report series of the USGS. Records of ground-water levels were published from 1935 to 1974 in a series of USGS water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities of the United States or may be purchased from USGS Information Services, Box 25286, DenverFederal Center, Denver, Colorado 80225. Wyoming ground-water-level data and hydrographs can be found in a series of 14 open-file reports published by the U.S. Geological Survey between 1973 and 1995.

Beginning with the 1971 water year, streamflow, water-quality, and ground-water data were published in official USGS reports on a State-boundary basis. These official USGS reports carry 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 WY-02-2**." These water-data reports are for sale, in paper copy or on microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on the back of the title page, by telephone at (307) 778-2931, or by email at state_rep_wy@usgs.gov. Hydrologic data for Wyoming is available on the World Wide Web at:

http://wy.water.usgs.gov/

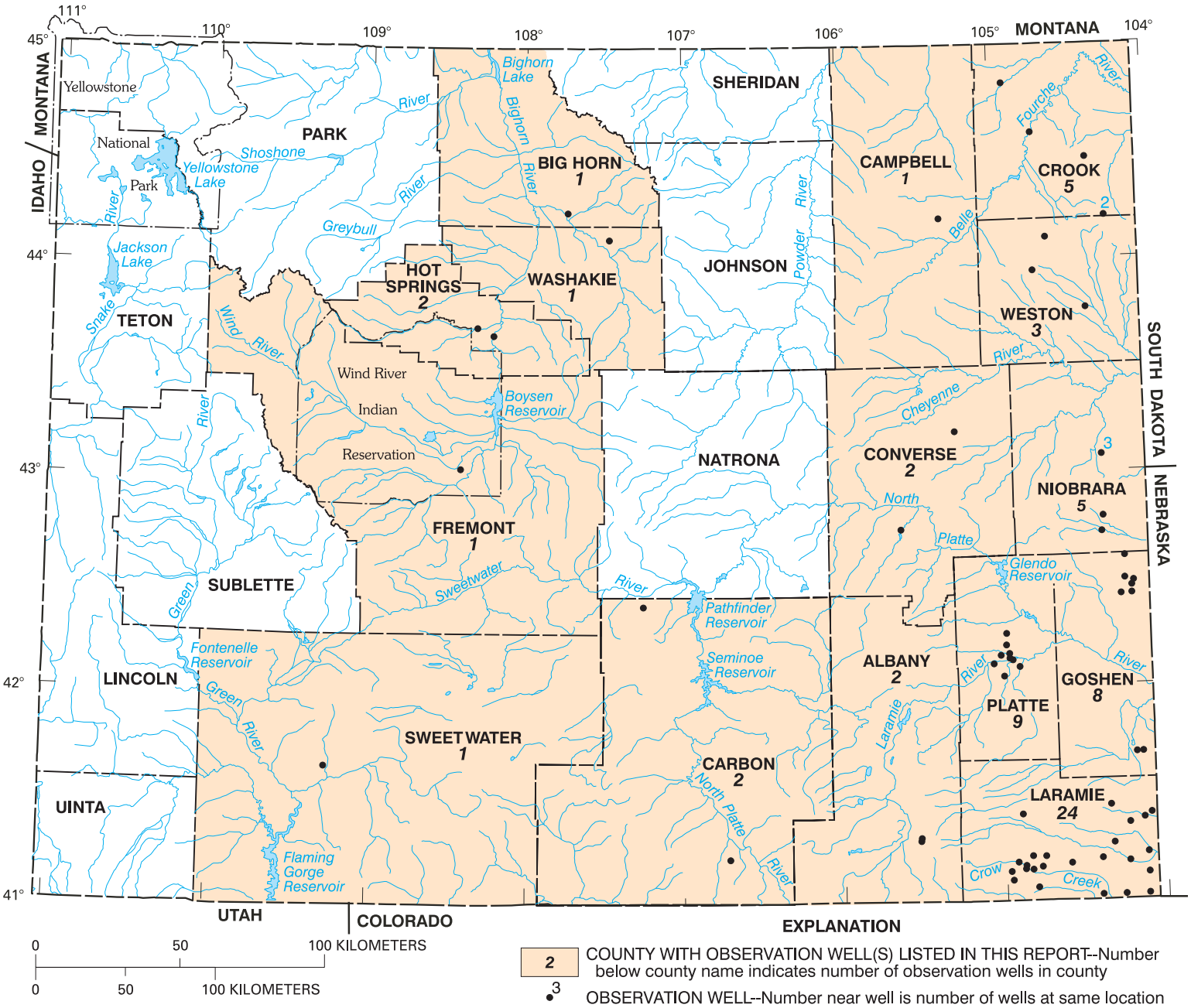


Figure 1. Location of observation wells covered by this report.

COOPERATION

The USGS and organizations of the State of Wyoming have had cooperative agreements for the systematic collection of streamflow records since 1895, for measurement of ground-water levels since 1940, and for collection of water-quality samples since 1946. Agencies and organizations that assisted in data collection during water year 2002 through cooperative agreements with the USGS were:

Federal Agencies

National Park Service, U.S. Department of the Interior

State Agencies

Wyoming State Engineer's Office, Patrick T. Tyrrell, State Engineer

Wyoming Department of Agriculture, Ronald Micheli, Commissioner

Local Agencies

Lingle-Fort Laramie Conservation District, Nancy Borton, District Manager

North Platte Valley Conservation District, Nancy Borton, District Manager

SUMMARY OF HYDROLOGIC CONDITIONS

Ground-Water Levels

Wyoming continued to experience prolonged drought during water year 2002. Water-levels measured in Wyoming last year (water year 2001) were already declining and in water year 2002 continued to decline. On average, water-levels in the statewide observation-well network decreased by 0.89 ft between water years 2000 and 2001 and by 1.18 ft between water years 2001 and 2002. Record low water levels were recorded at 46 percent of the wells in the statewide network in water year 2002. The average period of record from wells with record-setting low water levels was 22 years with the longest record being 33 years.

Wells completed in the High Plains aquifer coincide with areas of ground-water withdrawal in southeastern Wyoming and comprise 60 percent of the observation-well network. Ground water is withdrawn from the High Plains aquifer for irrigation in Niobrara County, Platte County, Goshen County, and the eastern part of Laramie County. In addition, large quantities of ground water are withdrawn from the High Plains aquifer for municipal and domestic use in central Laramie County. Record low water levels were recorded during water year 2002 at 63 percent of the network observation wells completed in the High Plains aquifer. The average period of record from wells with record-setting low water levels in the High Plains aquifer was 22 years with the longest record being 33 years. Hydrographs from representative High Plains observation wells in southeastern Wyoming are shown in figure 2.

Water levels were measured in at least one observation well in 15 of 23 counties in Wyoming. During 2002, water levels were measured continuously in 52 wells equipped with float-driven digital water-level recorders or electronic data recorders and in one well equipped with a pressure-sensing transducer and an electronic data recorder. Hydraulic heads in two flowing wells were measured continuously using pressure-sensing transducers and electronic data recorders. The remaining 12 wells were periodically measured using a steel tape, electric tape, or an air line.

Changes in water levels for the statewide observation-well network and for wells completed only in the High Plains aquifer are summarized in table 1. Many of the observation wells in these networks are located in areas with extensive ground-water withdrawal or in areas of artificial recharge. Water levels from some of these wells may reflect local, rather than regional ground-water conditions. Local influences such as nearby pumping can cause water levels in observaton wells to be lower than the regional-water table, while artificial recharge by surface-water irrigation can cause the water

levels in observation wells to be higher than the regional-water table. The changes in water levels from water year 2001 to water year 2002 were determined from the difference between the highest water levels measured each year. Some wells in the network were not included in the comparison of water-level changes between water years because few water-level measurements were made at the wells. Many of the wells not included in the comparison of water-level changes between water years were hand-measured wells where only two or three measurements per year were collected.

Table 1.--Changes in ground-water levels in statewide observation-well network and wells completed in the High Plains aquifer.

[Hydrographs for five representative observation wells in southeast Wyoming are shown in figure 2]

Observation-well network	Water years[1]	Number of wells in network	Number of wells with water-level increase	Average water-level increase (in feet)	Number of wells with water-level decrease	Average water-level decrease (in feet)	Number of wells with few water-level measurements
Statewide network	2001-2002	67	9	0.34	45	-1.49	13
High Plains aquifer	2001-2002	43	4	0.13	34	-1.12	5

[1]Water year is from October 1 to September 30 of the following year.

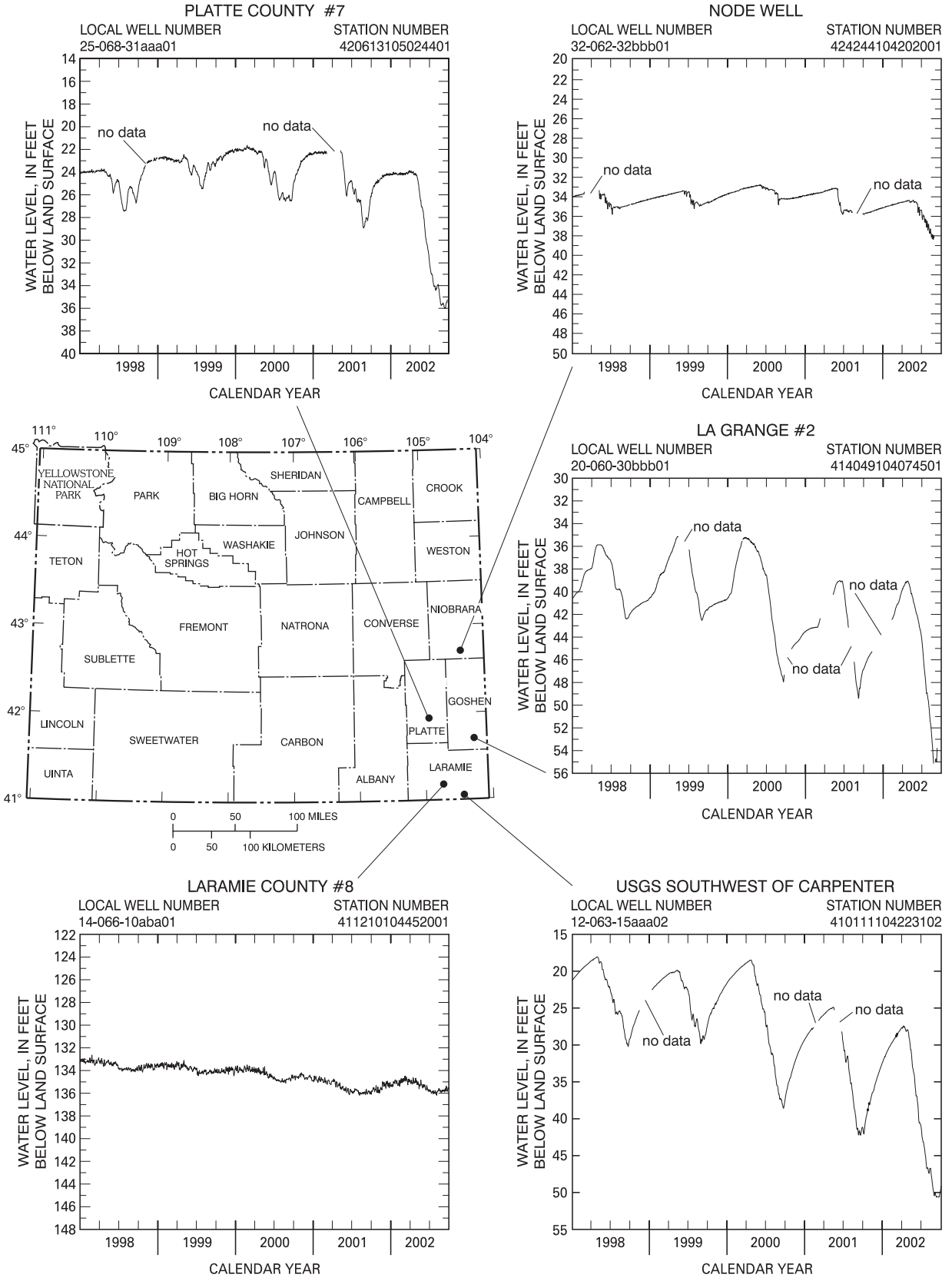


Figure 2. Water-level hydrographs for observation wells in areas of extensive ground-water withdrawals, calendar year 1998 through September 30, 2002.

EXPLANATION OF THE RECORDS

Numbering System for Wells

All wells listed in this report, except for one well located on the Wind River Indian Reservation, are identified according to the Federal township-range system of land subdivision, and also are assigned a local number. An example of a local number in this report is 14-063-15aaa01 (fig. 3). The first number (14) denotes the township, the second number (063) denotes the range, and the third number (15) denotes the section. The first letter following the section number denotes the quarter section (160-acre tract); the second letter, the quarter-quarter section (40-acre tract); and the third letter, if shown, the quarter-quarter-quarter section (10-acre tract). These subsections are designated a, b, c, and d in a counter-clockwise direction, beginning in the northeastern quadrant. The last two numbers in the local number are a sequence number indicating the order of inventory. For example, in figure 3, observation well 14-063-15aaa01 is the first well inventoried in the northeastern quarter of the northeastern quarter of the northeastern quarter of section 15, township 14 north (T. 14 N.), range 63 west (R. 63 W.). All wells in this report have ranges west of the Sixth Principal Meridian and townships north of the 40th Parallel Base Line.

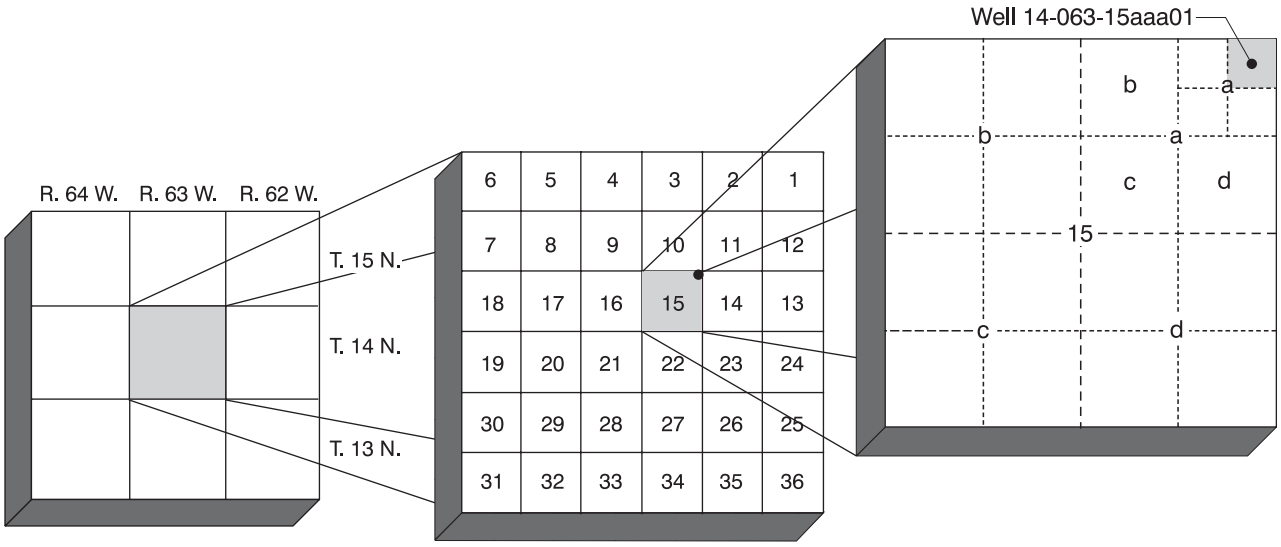


Figure 3. Federal township-range system for numbering wells.

On the Wind River Indian Reservation, the township-range system is based on the Wind River Meridian and Base Line system. Townships are denoted as north or south of the base line and ranges are denoted as east or west of the meridian. Wells may be located in the northeastern, northwestern, southwestern, or southeastern quadrants of this base-line and meridian net. For example, in figure 4, observation well 1N-4E-28acc01 is the first well inventoried in the southwestern quarter of the southwestern quarter of the northeastern quarter of section 28, township 1 north (T. 1 N.), range 4 east (R. 4 E.), in the northeastern quadrant of the Wind River Indian Reservation.

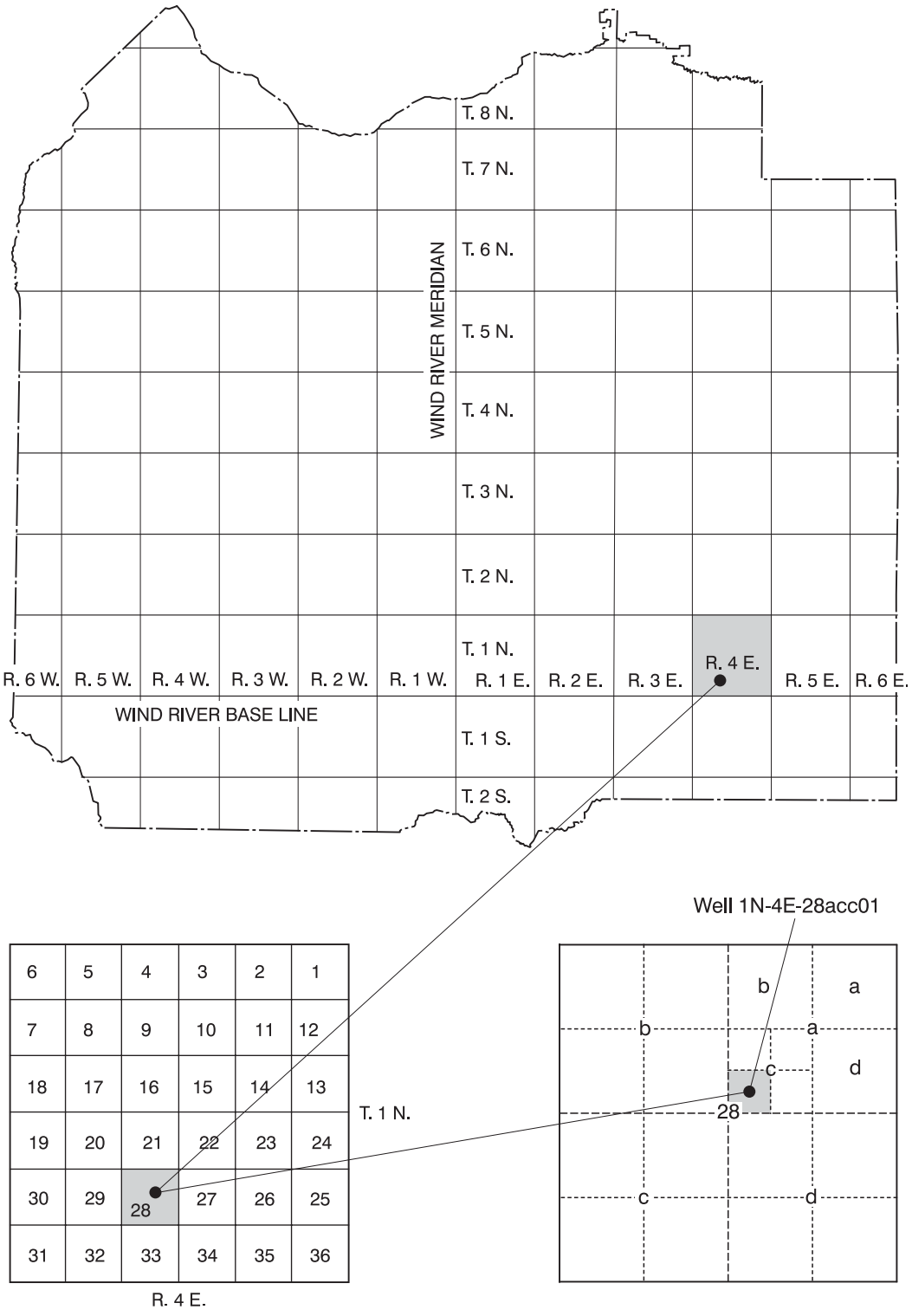


Figure 4. System for numbering wells on the Wind River Indian Reservation.

Latitude-Longitude System

Identification numbers also are assigned to wells according to the grid system of latitude and longitude. The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of north latitude, the next seven digits denote degrees, minutes, and seconds of west longitude, and the last two digits (assigned sequentially) identify the order of inventory of sites if more than one site lies within a 1-second grid (fig. 5). The identification number, once assigned, has no locational significance. If the initial determination of latitude and longitude is found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description.

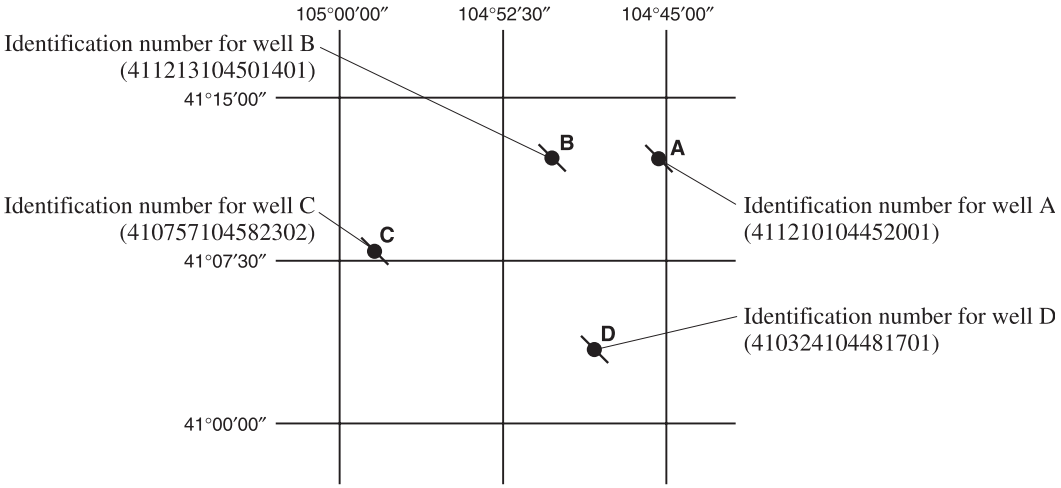


Figure 5. System for assigning identification numbers to wells using latitude and longitude.

Data Collection and Computation

Water levels are measured in many types of wells, often with changing hydrologic conditions, but the methods of measurement are standardized as much as possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and precision.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

Presentation of Data

Water-level data are presented by county; the counties for which water-level data are available are listed alphabetically. Records of observation wells for each county are preceded by a map showing the location of the wells (figs. 6-20). Water-level hydrographs or hydraulic-head hydrographs for the period of record for each well follow the map for each county. A table above each hydrograph lists water-level measurements taken during water year 2002. For wells equipped with continuous water-level recorders, the table lists the daily maximum recorded water level for every fifth day and the end of the month (EOM). The daily maximum recorded water level in a well is the water level recorded for the day with the minimum distance from the land surface to the water level in the well. Data for artesian wells are listed as daily maximum in feet of hydraulic head and are the maximum difference in the water surface to the land surface at the well. For hand-measured wells, the table lists all water-level measurements obtained during water year 2002.

The hydrographs for the 67 observation wells were plotted using water-level measurements from either continuous water-level recorders or periodic measurements. The daily maximum water level was used for plotting hydrographs for wells equipped with continuous recorders. The hydrographs show water-level fluctuations and water-level trends. If more precise water levels are needed, tabulations of actual water-level measurements are available from the U.S. Geological Survey, 2617 East Lincolnway, Suite B, Cheyenne, Wyoming 82001-5662 (telephone (307) 778-2931).

Miscellaneous ground-water-level measurements and ground-water-quality data are listed at the end of the volume. These data are from wells that are not part of a systematic observation network. Both miscellaneous water-level and water-quality data are presented in tabular form.

Station Manuscript

Station number: See text description of latitude-longitude system (p. 8).

Local number: See text description of numbering system for wells (p. 6).

Local name: Local reference name of observation well.

Location: Latitude, longitude, and legal description of well.

Hydrologic unit: Geographic area representing part or all of a surface-drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight digit number.

Aquifer: The geologic formation, group of formations, or part of a formation that the well is completed in.

Well characteristics: Depth of well, in feet below land surface.

Datum: Elevation of land surface in feet above sea level. Water levels are given in feet below or above this datum plane.

Measuring point: Arbitrary permanent reference point from which the distance to the water surface is measured to obtain the water level. The height of the measuring point above or below the land surface is subtracted or added to the water-level measurement to determine the depth to water below the land surface or feet of head above the land surface.

Cooperation.--Records provided by a cooperating organization or obtained for the USGS by a cooperating organization are identified here.

Period of record: Years for which water-level measurements are available.

Extremes for period of record: The highest and lowest water levels or hydraulic heads recorded for the period of record which represent the static water levels, in feet below land surface, or hydraulic heads, in feet above land surface, unless otherwise footnoted.

Explanation of Hydrographs

———— Water-level or hydraulic-head measurements collected by digital or electronic data recorders. Missing sections of lines indicate periods of no measurement (no data). Typically, intermittent periods without data are the result of recording equipment malfunctions.

•---------• Individual water-level measurements. Dashed line represents inferred trends between measurements; however, actual water levels may deviate (increase or decrease) from the inferred line.

Ground-Water Quality

Records of ground-water quality in this report differ from records of ground-water levels because ground-water quality samples were collected only once or twice during the water year. The quality of ground water ordinarily changes slowly; therefore, for most purposes, one annual sampling, or a few samples taken at infrequent intervals during the year, is sufficient. Frequent measurements of the same constituents are not necessary unless one is concerned with a particular problem, such as monitoring for trends in individual water-quality constituents. In the special cases where ground-water quality may change more rapidly, samples may be collected more frequently to characterize temporal changes.

Data Collection

The records of ground-water quality in this report primarily were obtained from special studies in specific areas. Consequently, a number of chemical analyses are presented for some counties, but none are presented for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality statewide.

Procedures for on-site measurements and for collecting, preserving, and shipping ground-water samples are documented in a series of Techniques of Water-Resources Investigations (TWRI) publications titled "National Field Manual for the Collection of Water-Quality Data". All of these references are listed under "TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS" which appears at the end of the introductory text. The values included in this report represent water-quality conditions at the time of sampling, consistent with available sampling techniques and methods of analysis. All samples were obtained by trained personnel. The wells sampled were pumped for a sufficient time period to assure that the water collected came directly from the aquifer and to minimize exposure to the atmosphere and to the materials comprising the casings.

Data Presentation

The records of ground-water quality are published in a section titled QUALITY OF GROUND WATER immediately following the ground-water-levels records. Data for quality of ground water are grouped by special study and then listed alphabetically by county, and are identified by well number. The primary identification number for wells sampled is the 15-digit number derived from the latitude-longitude locations. No descriptive statements are given for ground-water-quality records; however, the well number, depth of well, date of sampling, and other ancillary data are given in the table containing the chemical analyses of the ground water.

Precision varies for different analytical methods used to determine the same constituent. The presence of trailing zeroes after the decimal point in values printed in this report does not necessarily indicate that the method used for the determination is as precise as the level implied by the rightmost zero.

Remark Codes

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

PRINTED OUTPUT	REMARK
E	Estimated value
M	Presence of material verified, but not quantified
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
k	Results based on colony count outside the acceptable range (non- ideal colony count)

ACCESS TO WATER DATA

The USGS provides water-quality and ground-water data through the World Wide Web (WWW). These data may be accessed at:

http://water.usgs.gov/nwis/

In addition, data can be provided in various machine-readable formats. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division District offices (See address on the back of the title page).

DEFINITION OF TERMS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Blue-green algae (*Cyanophyta*) are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample. (See also "Phytoplankton")

Bottom material (See "Bed material")

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

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

Cells volume (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are frequently used in aquatic surveys as an indicator of algal production. However,

cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume (μm^3) is determined by obtaining critical cell measurements or cell dimensions (for example, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (for example, spheres, cones, or cylinders). Representative formulae used to compute biovolume are as follows:

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

pi (π) is the ratio of the circumference to the diameter of a circle; pi = 3.14159….

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

Cfs-day (See "Cubic foot per second-day")

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample. (See also "Phytoplankton")

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

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

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

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

Dissolved-solids concentration in water is the quantity of dissolved material in a sample of water. It is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. In the mathematical calculation, the bicarbonate value, in milligrams per liter, is multiplied by 0.4926 to convert it to carbonate. Alternatively, alkalinity concentration (as mg/L $CaCO_3$) can be converted to carbonate concentration by multiplying by 0.60.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample. (See also "Phytoplankton")

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

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

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

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

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

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

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

Horizontal datum (See "Datum")

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Method detection limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99-percent confidence that the analyte concentration is greater than zero. It is determined from the analysis of a sample in

a given matrix containing the analyte. At the MDL concentration, the risk of a false positive is predicted to be less than or equal to 1 percent.

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

Micrograms per gram (UG/G, µg/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per kilogram (UG/KG, µg/kg) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the constituent per unit mass (kilogram) of the material analyzed. One microgram per kilogram is equivalent to 1 part per billion.

Micrograms per liter (UG/L, µg/L) is a unit expressing the concentration of chemical constituents in water as mass (micrograms) of constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter. One microgram per liter is equivalent to 1 part per billion.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Return period (See "Recurrence interval")

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

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

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

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

Sea level, as used in this report, refers to one of the two commonly used national vertical datums (NGVD 1929 or NAVD 1988). See separate entries for definitions of these datums.

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

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

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

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

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

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

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

Specific electrical conductance (conductivity) is a measure of the capacity of water (or other media) to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 °C. Specific electrical conductance is a function of the types and quantity of dissolved substances in water and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is from 55 to 75 percent of

the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

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

Stage (See "Gage height")

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

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

Substrate is the physical surface upon which an organism lives.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Kingdom:	Animal
Phylum:	Arthropoda
Class:	Insecta
Order:	Ephemeroptera
Family:	Ephemeridae
Genus:	*Hexagenia*
Species:	*Hexagenia limbata*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Vertical datum (See "Datum")

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

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

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

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

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

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

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

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

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

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

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

The USGS publishes a series of manuals titled the "Techniques of Water-Resources Investigations" that describe procedures for planning and conducting specialized work in water-resources investigations. The material in these manuals 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. Each chapter then is limited to a narrow field of the section subject matter. This publication format permits flexibility when revision or printing is required.

Manuals in the Techniques of Water-Resources Investigations series, which are listed below, are available online at http://water.usgs.gov/pubs/twri/. Printed copies are available for sale from the USGS, Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (an authorized agent of the Superintendent of Documents, Government Printing Office). Please telephone "1-888-ASK-USGS" for current prices, and refer to the title, book number, section number, chapter number, and mention the "U.S. Geological Survey Techniques of Water-Resources Investigations." Other products can be viewed online at http://www.usgs.gov/sales.html, or ordered by telephone or by FAX to (303)236-4693. Order forms for FAX requests are available online at http://mac.usgs.gov/isb/pubs/forms/. Prepayment by major credit card or by a check or money order payable to the "U.S. Geological Survey" is required.

Book 1. Collection of Water Data by Direct Measurement

Section D. Water Quality

1–D1. *Water temperature—Influential factors, field measurement, and data presentation*, by H.H. Stevens, Jr., J.F. Ficke, and G.F. Smoot: USGS–TWRI book 1, chap. D1. 1975. 65 p.

1–D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W. Wood: USGS–TWRI book 1, chap. D2. 1976. 24 p.

Book 2. Collection of Environmental Data

Section D. Surface Geophysical Methods

2–D1. *Application of surface geophysics to ground-water investigations*, by A.A.R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS–TWRI book 2, chap. D1. 1974. 116 p.

2–D2. *Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS–TWRI book 2, chap. D2. 1988. 86 p.

Section E. Subsurface Geophysical Methods

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

2–E2. *Borehole geophysics applied to ground-water investigations*, by W.S. Keys: USGS–TWRI book 2, chap. E2. 1990. 150 p.

Section F. Drilling and Sampling Methods

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

Book 3. Applications of Hydraulics

Section A. Surface-Water Techniques

3–A1. *General field and office procedures for indirect discharge measurements*, by M.A. Benson and Tate Dalrymple: USGS–TWRI book 3, chap. A1. 1967. 30 p.

3–A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M.A. Benson: USGS–TWRI book 3, chap. A2. 1967. 12 p.

3–A3. *Measurement of peak discharge at culverts by indirect methods*, by G.L. Bodhaine: USGS–TWRI book 3, chap. A3. 1968. 60 p.

3–A4. *Measurement of peak discharge at width contractions by indirect methods*, by H.F. Matthai: USGS-TWRI book 3, chap. A4. 1967. 44 p.

3–A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS–TWRI book 3, chap. A5. 1967. 29 p.

3–A6. *General procedure for gaging streams*, by R.W. Carter and Jacob Davidian: USGS–TWRI book 3, chap. A6. 1968. 13 p.

3–A7. *Stage measurement at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A7. 1968. 28 p.

3–A8. *Discharge measurements at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS–TWRI book 3, chap. A8. 1969. 65 p.

3–A9. *Measurement of time of travel in streams by dye tracing*, by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS–TWRI book 3, chap. A9. 1989. 27 p.

3–Al0. *Discharge ratings at gaging stations*, by E.J. Kennedy: USGS–TWRI book 3, chap. A10. 1984. 59 p.

3–A11. *Measurement of discharge by the moving-boat method*, by G.F. Smoot and C.E. Novak: USGS–TWRI book 3, chap. A11. 1969. 22 p.

3–A12. *Fluorometric procedures for dye tracing*, Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS–TWRI book 3, chap. A12. 1986. 34 p.

3–A13. *Computation of continuous records of streamflow*, by E.J. Kennedy: USGS–TWRI book 3, chap. A13. 1983. 53 p.

3–A14. *Use of flumes in measuring discharge*, by F.A. Kilpatrick and V.R. Schneider: USGS–TWRI book 3, chap. A14. 1983. 46 p.

3–A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS–TWRI book 3, chap. A15. 1984. 48 p.

3–A16. *Measurement of discharge using tracers*, by F.A. Kilpatrick and E.D. Cobb: USGS–TWRI book 3, chap. A16. 1985. 52 p.

3–A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS–TWRI book 3, chap. A17. 1985. 38 p.

3–A18. *Determination of stream reaeration coefficients by use of tracers*, by F.A. Kilpatrick, R.E. Rathbun, Nobuhiro Yotsukura, G.W. Parker, and L.L. DeLong: USGS–TWRI book 3, chap. A18. 1989. 52 p.

3–A19. *Levels at streamflow gaging stations*, by E.J. Kennedy: USGS–TWRI book 3, chap. A19. 1990. 31 p.

3–A20. *Simulation of soluble waste transport and buildup in surface waters using tracers*, by F.A. Kilpatrick: USGS–TWRI book 3, chap. A20. 1993. 38 p.

3–A21 *Stream-gaging cableways*, by C. Russell Wagner: USGS–TWRI book 3, chap. A21. 1995. 56 p.

Section B. Ground-Water Techniques

3–B1. *Aquifer-test design, observation, and data analysis*, by R.W. Stallman: USGS–TWRI book 3, chap. B1. 1971. 26 p.

3–B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G.D. Bennett: USGS–TWRI book 3, chap. B2. 1976. 172 p.

3–B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J.E. Reed: USGS–TWRI book 3, chap. B3. 1980. 106 p.

3–B4. *Regression modeling of ground-water flow*, by R.L. Cooley and R.L. Naff: USGS–TWRI book 3, chap. B4. 1990. 232 p.

3–B4. *Supplement 1. Regression modeling of ground-water flow—Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems*, by R.L. Cooley: USGS–TWRI book 3, chap. B4. 1993. 8 p.

3–B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems—An introduction*, by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS–TWRI book 3, chap. B5. 1987. 15 p.

3–B6. *The principle of superposition and its application in ground-water hydraulics*, by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS–TWRI book 3, chap. B6. 1987. 28 p.

3–B7. *Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow*, by E.J. Wexler: USGS–TWRI book 3, chap. B7. 1992. 190 p.

3–B8. *System and boundary conceptualization in ground-water flow simulation*, by T.E. Reilly: USGS–TWRI book 3, chap. B8. 2001. 29 p.

Section C. Sedimentation and Erosion Techniques

3–C1. *Fluvial sediment concepts*, by H.P. Guy: USGS–TWRI book 3, chap. C1. 1970. 55 p.

3–C2. *Field methods for measurement of fluvial sediment*, by T.K. Edwards and G.D. Glysson: USGS–TWRI book 3, chap. C2. 1999. 89 p.

3–C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS–TWRI book 3, chap. C3. 1972. 66 p.

Book 4. Hydrologic Analysis and Interpretation

Section A. Statistical Analysis

4–A1. *Some statistical tools in hydrology*, by H.C. Riggs: USGS–TWRI book 4, chap. A1. 1968. 39 p.

4–A2. *Frequency curves*, by H.C. Riggs: USGS–TWRI book 4, chap. A2. 1968. 15 p.

4–A3. *Statistical methods in water resources*, by D.R. Helsel and R.M. Hirsch: USGS–TWRI book 4, chap. A3. 1991. Available only online at http://water.usgs.gov/pubs/twri/twri4a3/. (Accessed August 30, 2002.)

Section B. Surface Water

4–B1. *Low-flow investigations*, by H.C. Riggs: USGS–TWRI book 4, chap. B1. 1972. 18 p.

4–B2. *Storage analyses for water supply*, by H.C. Riggs and C.H. Hardison: USGS–TWRI book 4, chap. B2. 1973. 20 p.

4–B3. *Regional analyses of streamflow characteristics*, by H.C. Riggs: USGS–TWRI book 4, chap. B3. 1973. 15 p.

Section D. Interrelated Phases of the Hydrologic Cycle

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

Book 5. Laboratory Analysis

Section A. Water Analysis

5–A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M.J. Fishman and L.C. Friedman, editors: USGS–TWRI book 5, chap. A1. 1989. 545 p.

5–A2. *Determination of minor elements in water by emission spectroscopy*, by P.R. Barnett and E.C. Mallory, Jr.: USGS–TWRI book 5, chap. A2. 1971. 31 p.

5–A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS–TWRI book 5, chap. A3. 1987. 80 p.

5–A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L.J. Britton and P.E. Greeson, editors: USGS–TWRI book 5, chap. A4. 1989. 363 p.

5–A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS–TWRI book 5, chap. A5. 1977. 95 p.

5–A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L.C. Friedman and D.E. Erdmann: USGS–TWRI book 5, chap. A6. 1982. 181 p.Section C. Sediment Analysis

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

Book 6. Modeling Techniques

Section A. Ground Water

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

6–A2. *Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model*, by S.A. Leake and D.E. Prudic: USGS–TWRI book 6, chap. A2. 1991. 68 p.

6–A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual*, by L.J. Torak: USGS–TWRI book 6, chap. A3. 1993. 136 p.

6–A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions*, by R.L. Cooley: USGS–TWRI book 6, chap. A4. 1992. 108 p.

6–A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details*, by L.J. Torak: USGS–TWRI book 6, chap. A5. 1993. 243 p.

6–A6. *A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction*, by Eric D. Swain and Eliezer J. Wexler: USGS–TWRI book 6, chap. A6. 1996. 125 p.

6–A7. *User's guide to SEAWAT: A computer program for simulation of three-dimensional variable-density ground-water flow*, by Weixing Guo and Christian D. Langevin: USGS–TWRI book 6, chap. A7. 2002. 77 p.

Book 7. Automated Data Processing and Computations

Section C. Computer Programs

7–C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS–TWRI book 7, chap. C1. 1976. 116 p.

7–C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L.F. Konikow and J.D. Bredehoeft: USGS–TWRI book 7, chap. C2. 1978. 90 p.

7–C3. *A model for simulation of flow in singular and interconnected channels*, by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS–TWRI book 7, chap. C3. 1981. 110 p.

Book 8. Instrumentation

Section A. Instruments for Measurement of Water Level

8–A1. *Methods of measuring water levels in deep wells*, by M.S. Garber and F.C. Koopman: USGS–TWRI book 8, chap. A1. 1968. 23 p.

8–A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS–TWRI book 8, chap. A2. 1983. 57 p.

Section B. Instruments for Measurement of Discharge

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

Book 9. Handbooks for Water-Resources Investigations

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

9–A1. *National field manual for the collection of water-quality data: Preparations for water sampling*, by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A1. 1998. 47 p.

9–A2. *National field manual for the collection of water-quality data: Selection of equipment for water sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A2. 1998. 94 p.

9–A3. *National field manual for the collection of water-quality data: Cleaning of equipment for water sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A3. 1998. 75 p.

9–A4. *National field manual for the collection of water-quality data: Collection of water samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A4. 1999. 156 p.

9–A5. *National field manual for the collection of water-quality data: Processing of water samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS–TWRI book 9, chap. A5. 1999, 149 p.

9–A6. *National field manual for the collection of water-quality data: Field measurements*, edited by F.D. Wilde and D.B. Radtke: USGS–TWRI book 9, chap. A6. 1998. Variously paginated.

9–A7. *National field manual for the collection of water-quality data: Biological indicators*, edited by D.N. Myers and F.D. Wilde: USGS–TWRI book 9, chap. A7. 1997 and 1999. Variously paginated.

9–A8. *National field manual for the collection of water-quality data: Bottom-material samples*, by D.B. Radtke: USGS–TWRI book 9, chap. A8. 1998. 48 p.

9–A9. *National field manual for the collection of water-quality data: Safety in field activities*, by S.L. Lane and R.G. Fay: USGS–TWRI book 9, chap. A9. 1998. 60 p.

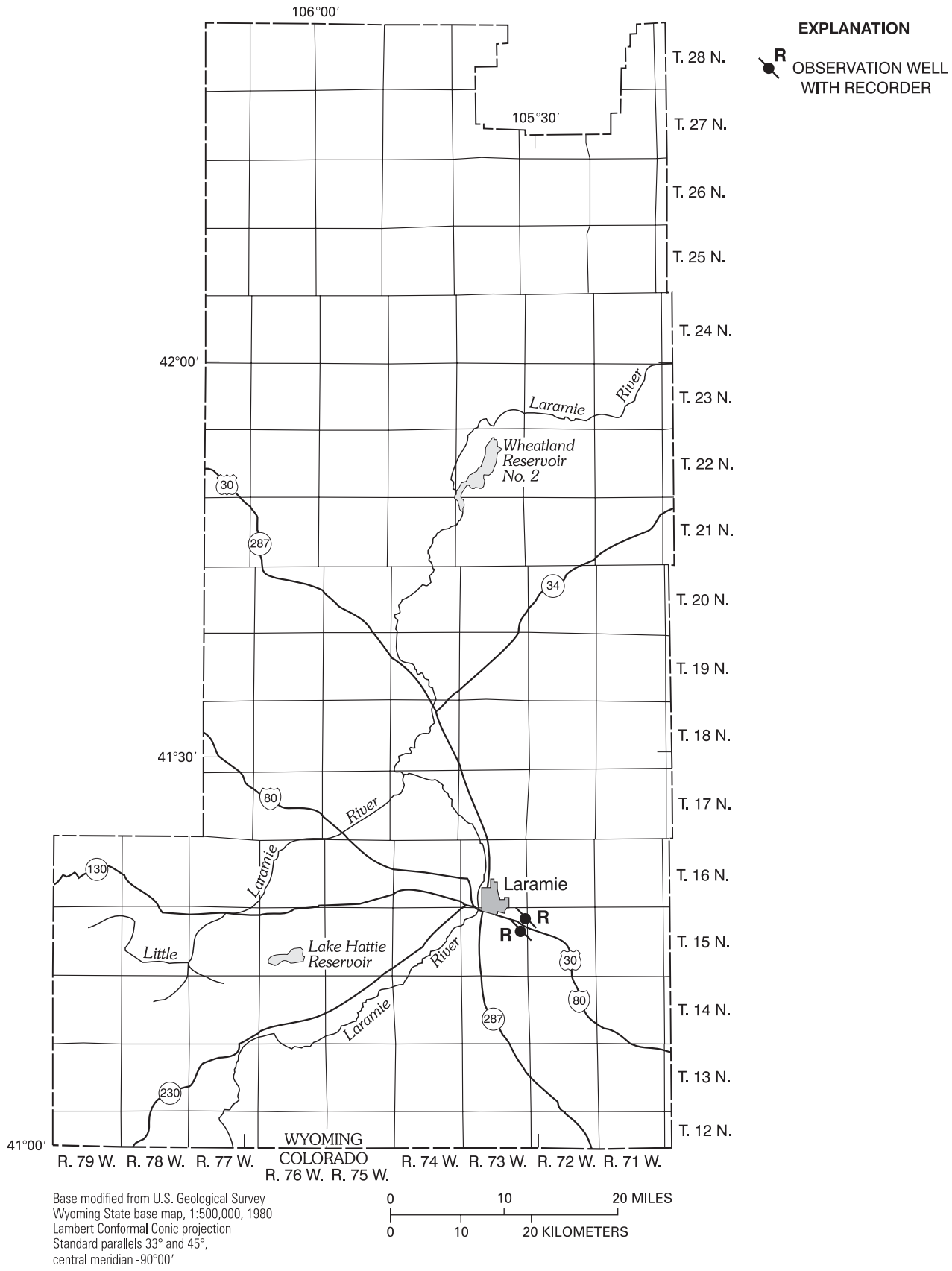


Figure 6. Location of observation wells in Albany County, Wyoming.

ALBANY COUNTY

IDENTIFICATION.--Station number, 411751105312701. Local number, 15-073-01dba01. Local name, Huntoon #1.

Location.--Lat 41°17'51", long 105°31'27", in NE $^1/_4$ NW $^1/_4$ SE $^1/_4$ sec.1, T.15 N., R.73 W., Hydrologic Unit 10180010.

Aquifer.--Casper Formation.

WELL CHARACTERISTICS.--Depth of well, 182 ft below land surface.

DATUM.--Elevation of land surface is 6,500 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 0.9 ft above land surface.

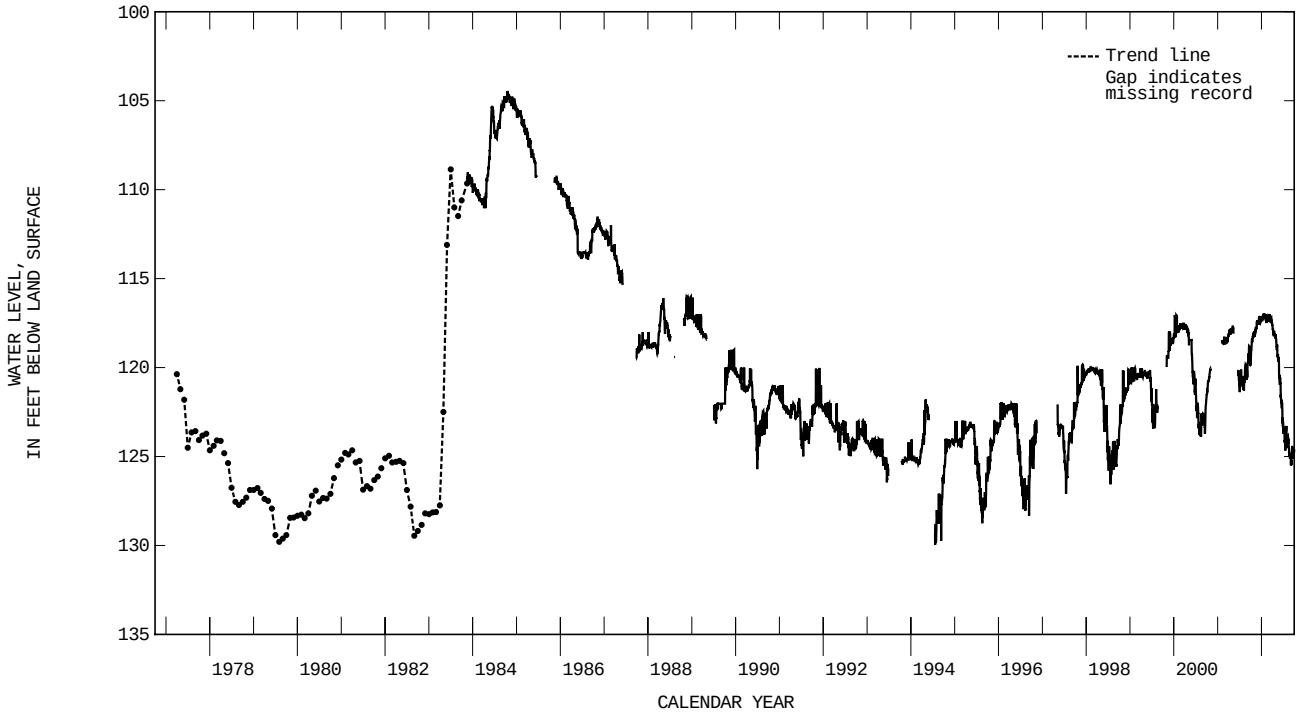
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 104.45 ft below land surface, Oct. 17, 1984; lowest, 129.95 ft below land surface, July 22, 1994.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	119.24	118.16	117.40	117.32	117.22	117.28	117.89	118.73	120.56	123.42	124.24	125.20
10	118.79	117.97	117.22	117.31	117.50	117.35	118.09	118.81	121.69	123.61	123.94	124.75
15	118.58	117.84	117.12	117.06	117.35	117.25	117.97	119.40	121.80	124.16	124.37	124.59
20	118.22	117.71	117.35	116.96	117.18	117.41	118.09	119.67	122.04	124.16	124.86	124.78
25	118.18	117.37	117.43	117.15	117.23	117.35	118.35	119.63	122.82	123.50	125.04	124.91
EOM	117.95	117.34	117.25	117.08	117.11	117.63	118.33	120.71	123.33	124.52	124.94	124.59
MAX	117.95	117.34	117.12	116.96	117.02	116.99	117.59	118.35	120.56	123.28	123.85	124.46
MIN	119.79	118.27	117.59	117.35	117.50	117.63	118.37	120.71	123.34	124.66	125.13	125.49



ALBANY COUNTY--Continued

IDENTIFICATION.--Station number, 411703105314001. Local number, 15-073-12dbb01. Local name, Huntoon #2.

LOCATION.--Lat 41°17'03", long 105°31'40", in NW $^1/_4$ NW $^1/_4$ SE $^1/_4$ sec.12, T.15 N., R.73 W., Hydrologic Unit 10180010.

AQUIFER.--Casper Formation.

WELL CHARACTERISTICS.--Depth of well, 243 ft below land surface.

DATUM.--Elevation of land surface is 6,500 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.30 ft above land surface.

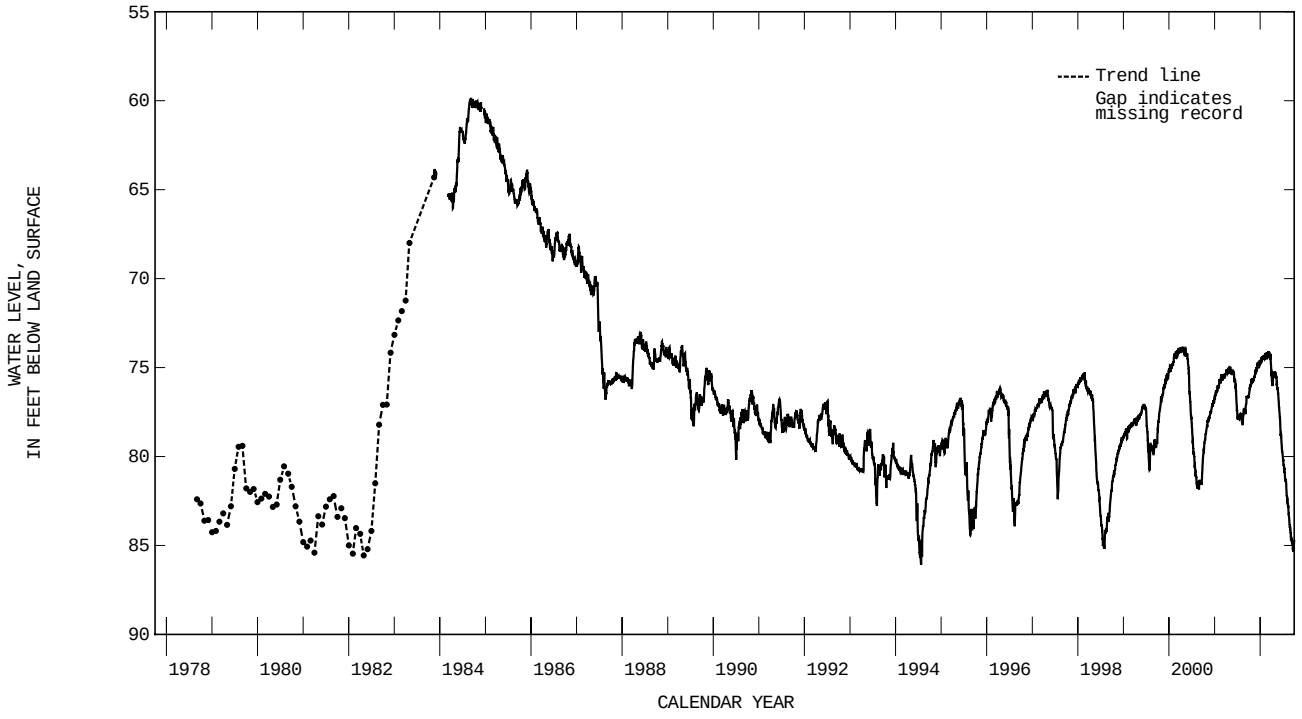
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 59.84 ft below land surface, Sept. 7, 1984; lowest, 86.08 ft below land surface, July 24, 1994.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	76.38	75.66	75.00	74.72	74.43	74.29	75.80	75.56	77.59	80.36	82.37	84.59
10	76.22	75.60	74.77	74.68	74.56	74.35	75.86	75.55	78.16	80.53	82.69	84.66
15	76.10	75.57	74.75	74.44	74.41	74.35	75.33	75.90	78.75	80.90	83.04	84.91
20	75.88	75.39	74.80	74.36	74.33	74.52	75.36	76.24	79.18	81.31	83.42	85.11
25	75.90	75.16	74.84	74.52	74.32	74.38	75.41	76.47	79.71	81.42	83.82	85.16
EOM	75.60	75.05	74.71	74.47	74.13	75.30	75.28	77.23	79.95	82.07	84.08	84.69
MAX	75.60	75.05	74.59	74.31	74.13	74.07	75.20	75.25	77.20	80.03	82.19	84.28
MIN	76.57	75.83	75.25	74.75	74.56	75.30	76.04	77.23	79.95	82.07	84.08	85.35



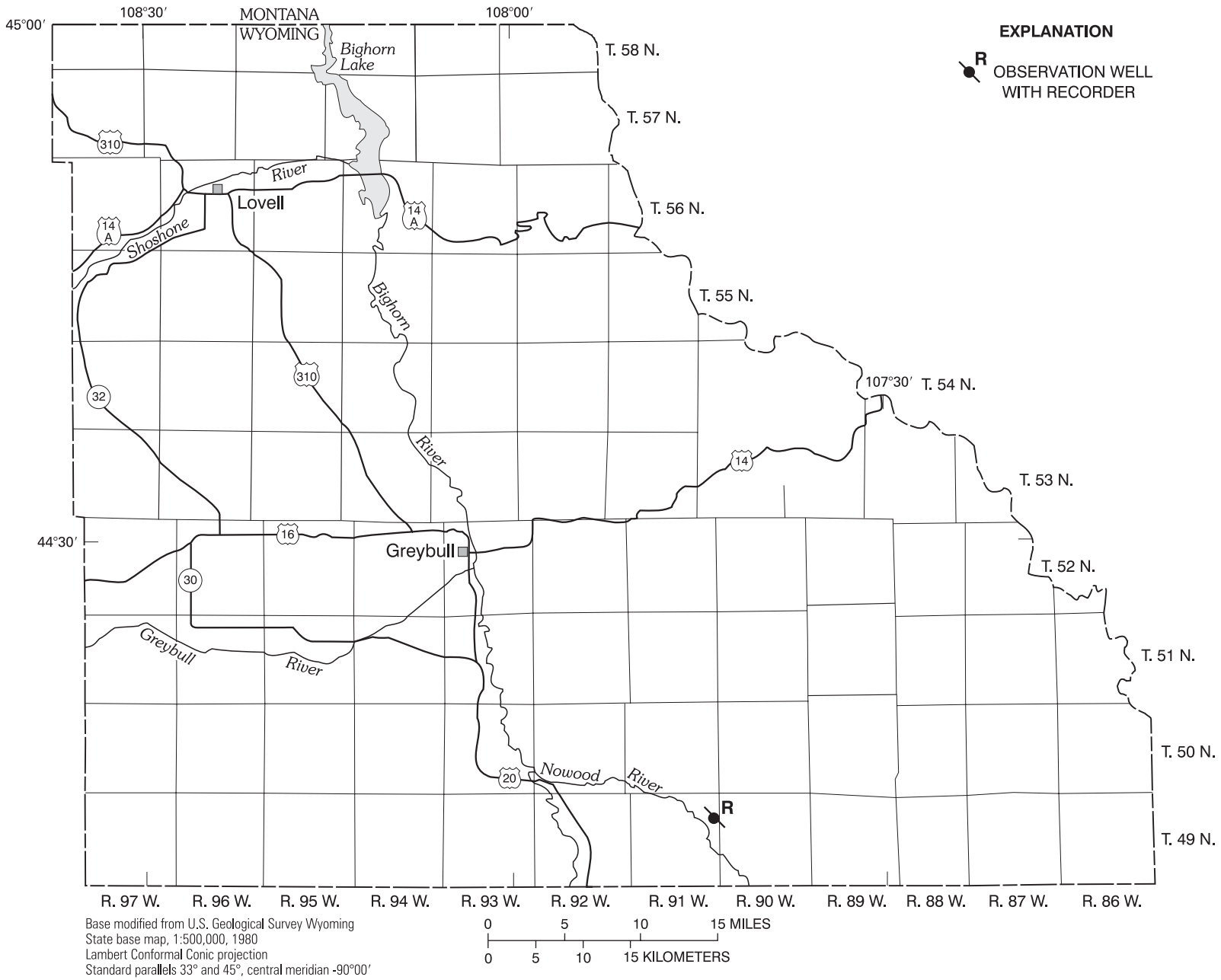


Figure 7. Location of observation well in Big Horn County, Wyoming.

BIG HORN COUNTY

IDENTIFICATION.--Station number, 441351107434701. Local number, 49-091-12dba01. Local name, Worland-1.

LOCATION.--Lat 44°13'53", long 107°43'41", in NE $^{1}/_{4}$ NW $^{1}/_{4}$ SE $^{1}/_{4}$ sec.12, T.49 N., R.91 W., Hydrologic Unit 10080008.

AQUIFER.--Madison Limestone.

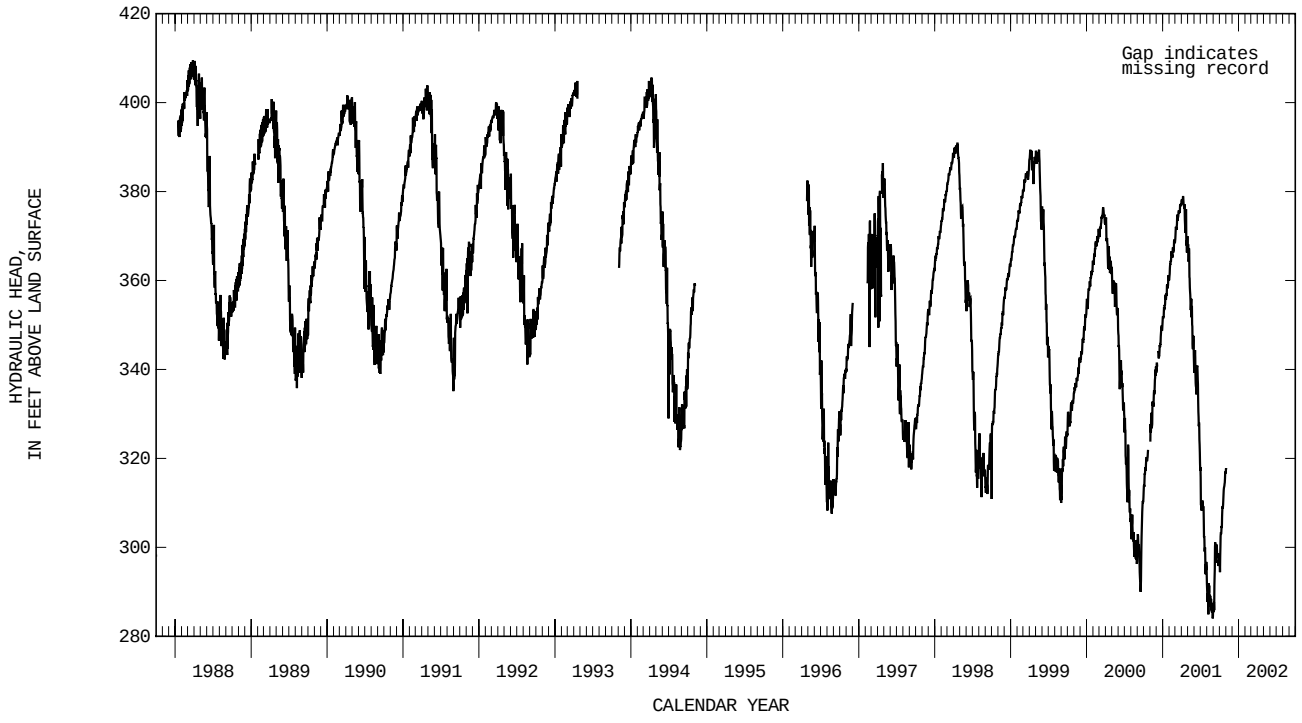
WELL CHARACTERISTICS.--Depth of well, 2,730 ft below land surface.

DATUM.--Elevation of land surface is 4,421.7 ft above NGVD of 1929, from levels.

REMARKS.--Shut-in pressure was measured by pressure transducer and converted to hydraulic head above land surface for illustration purposes. Hydraulic head, in feet above land surface, was calculated by multiplying the shut-in pressure in pounds per square inch by 2.31. The accuracy of the hydraulic head measurements is 5.0 ft. Data collected by U.S. Geological Survey. Water levels not available at time of publication.

PERIOD OF RECORD.--1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest hydraulic head, 409.50 ft above land surface, Mar. 26, 1988; lowest, 284.02 ft above land surface, Aug. 29, 2001.



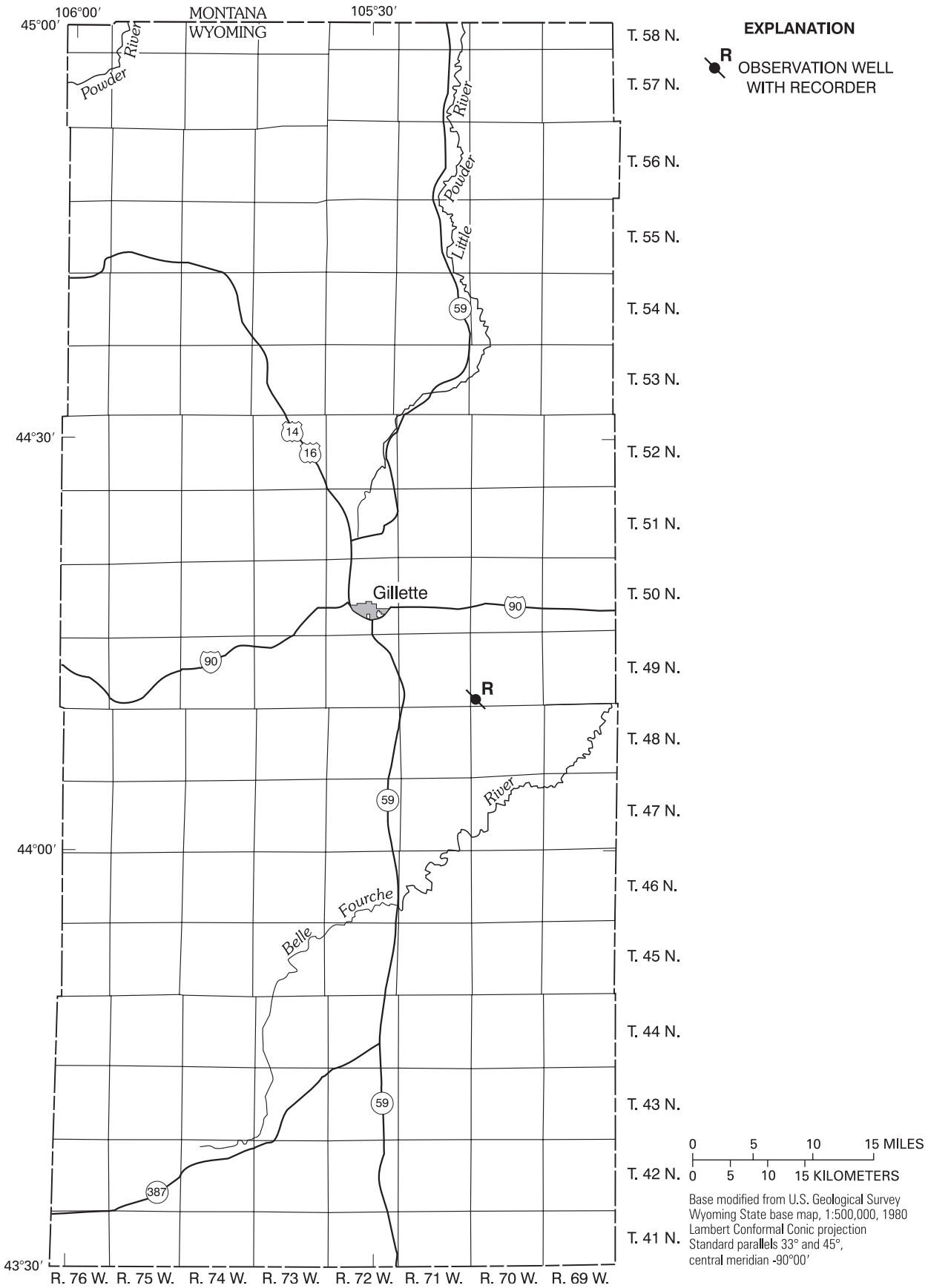


Figure 8. Location of observation well in Campbell County, Wyoming.

CAMPBELL COUNTY--Continued

IDENTIFICATION.-- Station number, 441117105192901. Local number, 49-070-31bbb01. Local name, Hampshire-1.

LOCATION.--Lat 44°11'17", long 105°19'29", in $NW^1/_4$ $NW^1/_4$ $NW^1/_4$ sec.31, T.49 N., R.70 W., Hydrologic Unit 10120201.

AQUIFER.--Fox Hills Formation.

WELL CHARACTERISTICS.--Depth of well, 3,750 ft below land surface.

DATUM.--Elevation of land surface is 4,620 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.60 ft above land surface.

REMARKS.--Because of the extreme depths to water and well construction, the accuracy of water-level measurements is 4.0 ft.

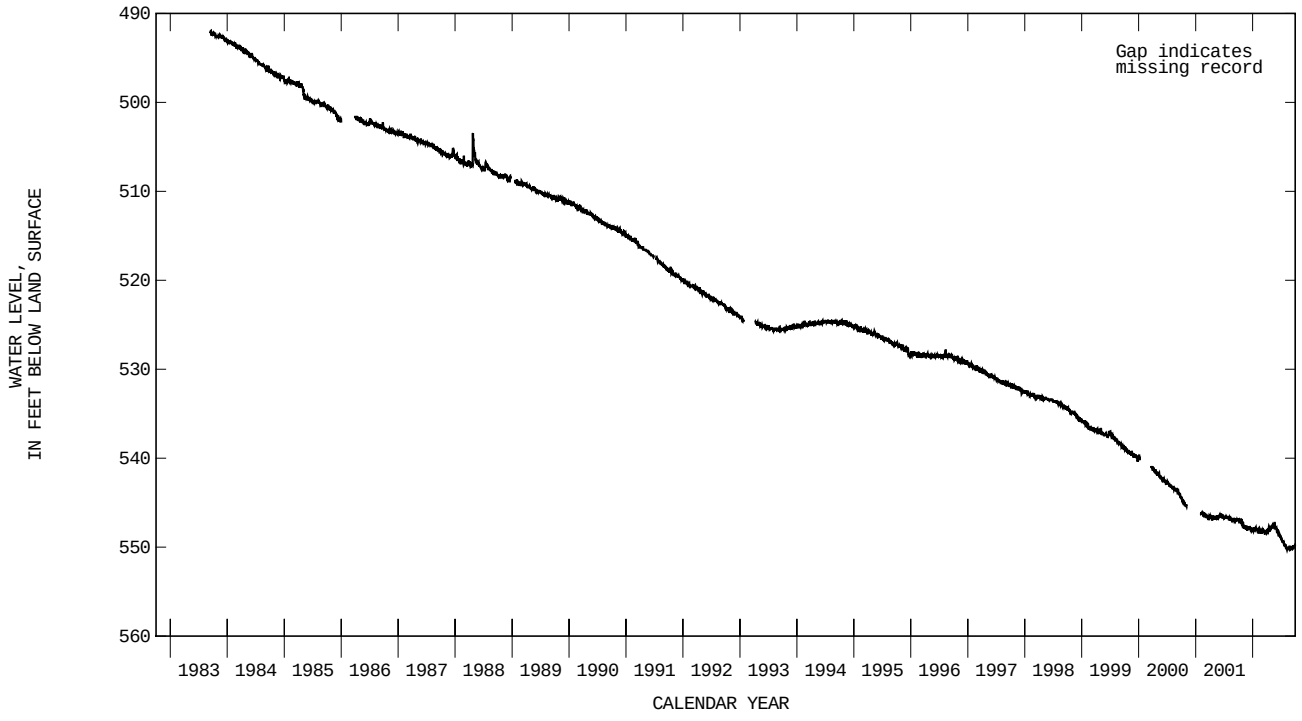
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 491.98 ft below land surface, Sept. 17, 1983; lowest, 550.43 ft below land surface, Aug. 17, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	547.03	547.63	547.89	548.18	548.14	548.16	548.19	547.68	548.11	549.03	550.12	550.04
10	547.00	547.76	547.72	548.19	548.12	548.24	548.14	547.72	548.12	549.49	550.24	550.23
15	547.34	547.86	547.98	548.05	548.33	548.30	547.68	547.56	548.48	549.36	550.22	550.06
20	547.24	547.71	547.85	547.83	548.14	548.34	548.05	547.57	548.66	549.56	550.04	549.86
25	547.55	547.96	548.05	547.96	548.50	548.39	548.01	547.71	548.87	549.80	550.22	550.07
EOM	547.25	547.82	548.14	548.19	548.09	548.11	547.84	547.97	548.90	549.85	550.15	549.71
MAX	547.55	548.14	548.20	548.19	548.50	548.56	548.44	547.97	548.90	549.86	550.30	550.23
MIN	546.83	547.50	547.63	547.79	547.91	548.00	547.68	547.28	547.86	548.91	549.97	549.71



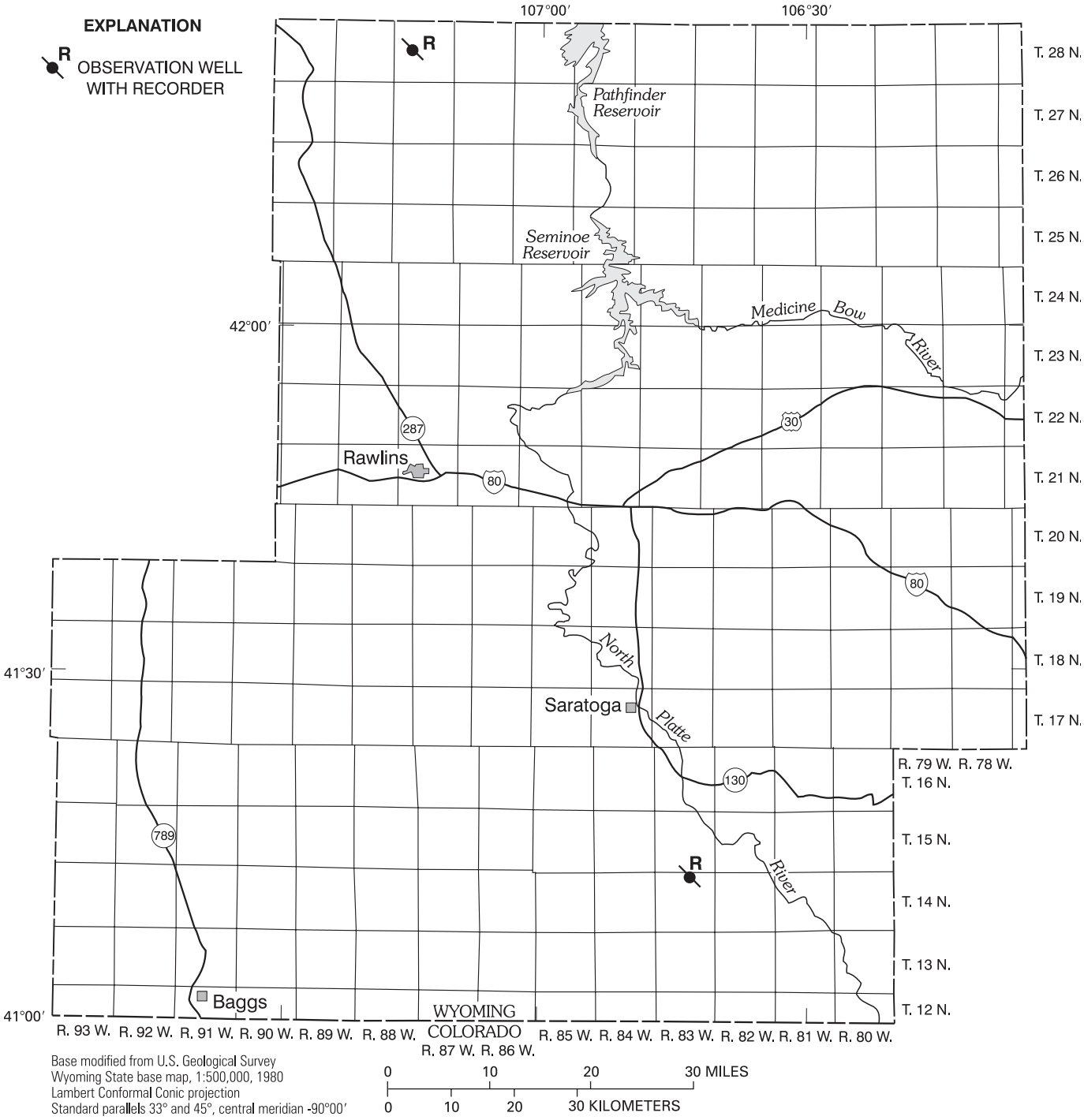


Figure 9. Location of observation wells in Carbon County, Wyoming.

CARBON COUNTY

IDENTIFICATION.--Station number, 411234106424601. Local number, 14-083-03cab01. Local name, Helmer South.

LOCATION.--Lat 41°12'34", long 106°42'46", in $NW^1/_4$ $NE^1/_4$ $SW^1/_4$ sec.3, T.14 N., R.83 W., Hydrologic Unit 10180002.

AQUIFER.--Browns Park Formation (formerly North Park Formation).

WELL CHARACTERISTICS.--Depth of well, 58 ft below land surface.

DATUM.--Elevation of land surface is 7,245 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 5.40 ft below land surface.

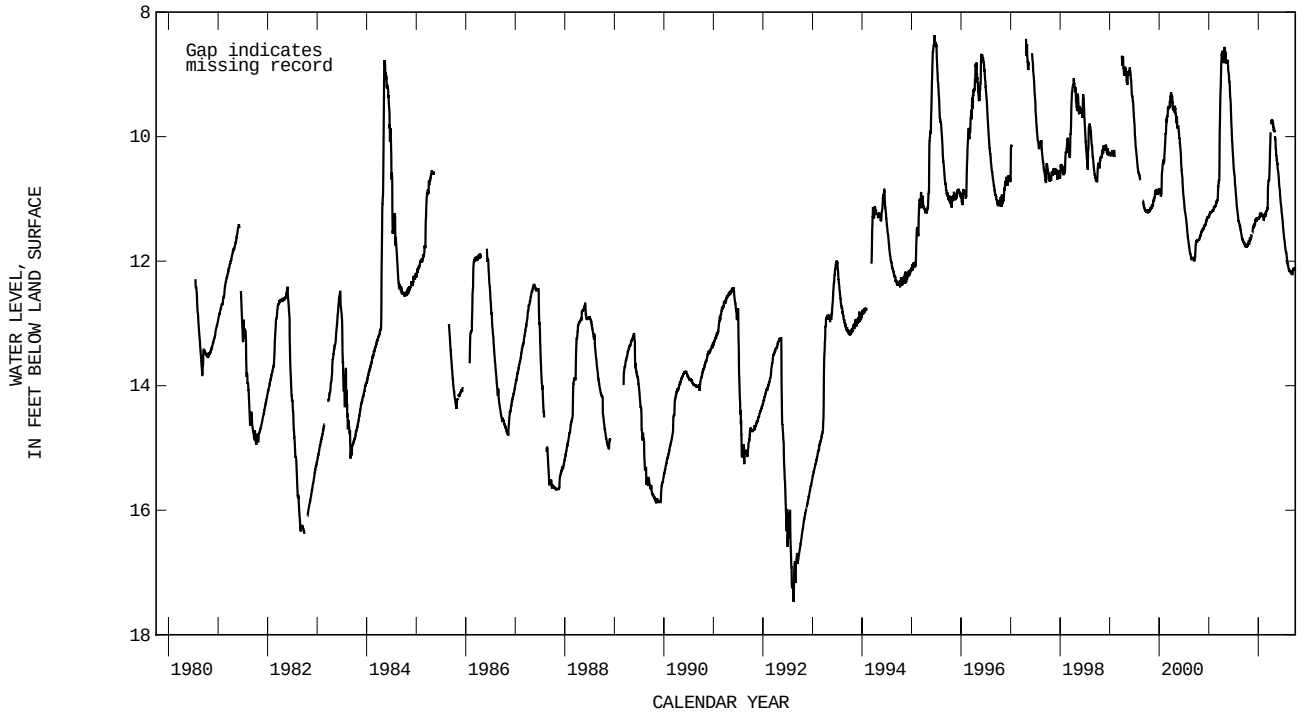
REMARKS.--Data collected by U.S. Geological Survey.

PERIOD OF RECORD.--1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 8.37 ft below land surface, June 20, 1995; lowest, 17.47 ft below land surface, Aug. 13, 1992.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.77	11.63	11.40	11.32	11.28	11.18	9.80	10.03	10.82	11.51	12.05	12.20
10	11.77	11.59	11.34	11.29	11.35	11.14	9.74	10.19	10.94	11.63	12.09	12.21
15	11.76	---	11.32	11.23	11.30	10.75	9.74	10.33	11.06	11.72	12.14	12.14
20	11.71	11.51	11.31	11.23	11.27	10.70	9.80	10.45	11.16	11.81	12.15	12.13
25	11.72	11.43	11.33	11.27	11.22	10.50	9.89	10.54	11.27	11.86	12.17	12.12
EOM	11.62	11.42	11.30	11.26	11.20	10.01	9.90	10.65	11.40	11.97	12.19	12.11
MAX	11.62	11.42	11.29	11.23	11.20	10.01	9.74	9.92	10.69	11.42	11.99	12.11
MIN	11.78	11.67	11.44	11.32	11.35	11.21	9.94	10.65	11.40	11.97	12.19	12.21



CARBON COUNTY--Continued

IDENTIFICATION.--Station number, 422338107145001. Local number, 28-087-16cca01. Local name, Split Rock #2.

LOCATION.--Lat 42°23'38", long 107°14'50", in $NE^1/_4$ $SW^1/_4$ $SW^1/_4$ sec.16, T.28 N, R.87 W., Hydrologic Unit 10180006.

AQUIFER.--White River Formation (formerly Arikaree Formation).

WELL CHARACTERISTICS.--Depth of well, 812 ft below land surface.

DATUM.--Elevation of land surface is 6,000 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.95 ft above land surface.

REMARKS.--The record from a twenty-day pumping test conducted in September and October 1981 is not shown on the hydrograph.

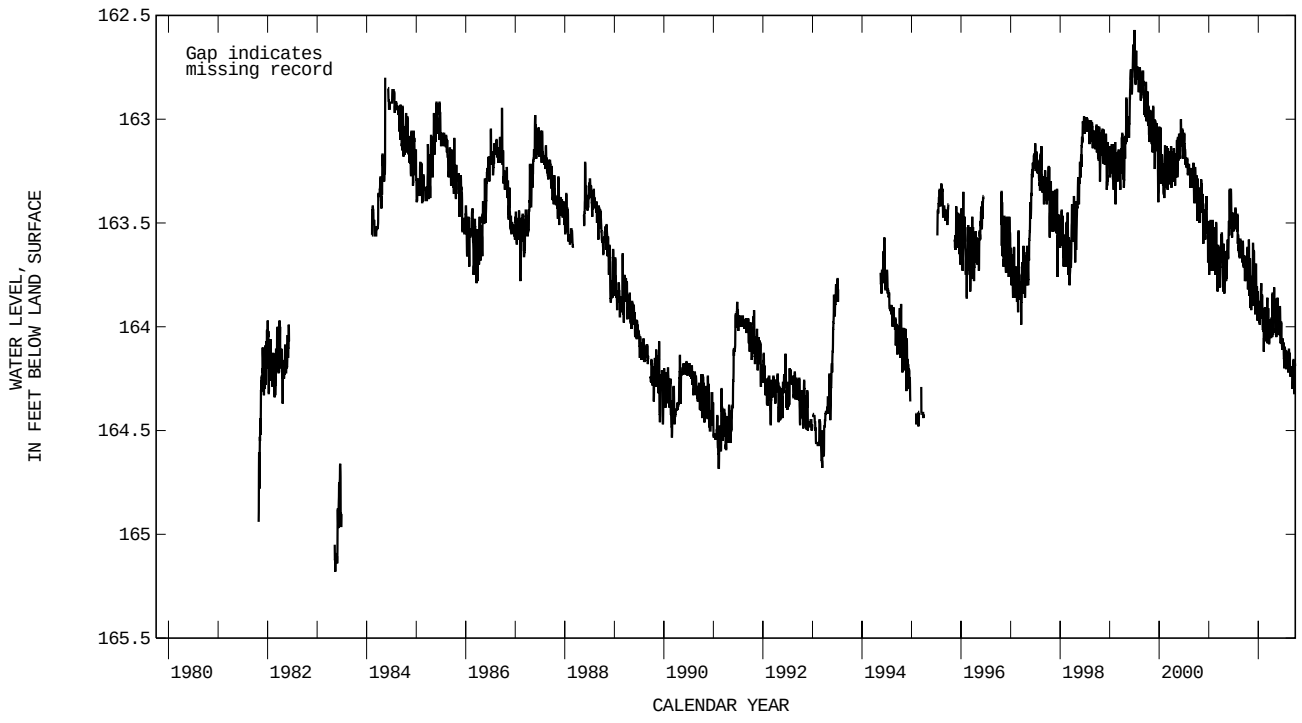
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 162.57 ft below land surface, July 3, 1999; lowest, 182.66 ft below land surface, Oct. 16, 1981, affected by pumping test.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	163.75	163.84	163.75	163.95	164.02	164.01	164.05	163.94	164.04	164.08	---	164.23
10	163.67	163.87	163.74	163.95	164.12	164.08	164.03	163.97	163.91	164.19	164.19	164.30
15	163.71	163.81	163.70	163.88	164.02	163.92	163.84	163.96	164.07	164.10	164.11	164.29
20	163.72	163.82	163.87	163.82	163.95	164.02	164.02	163.98	164.04	164.12	164.13	164.20
25	163.75	163.63	163.97	163.96	163.98	163.99	163.97	163.96	164.10	164.20	164.24	164.27
EOM	163.67	163.64	163.92	163.93	163.94	164.02	163.90	164.03	164.06	164.15	164.21	164.19
MAX	163.58	163.60	163.70	163.79	163.91	163.86	163.81	163.86	163.90	164.08	164.11	164.16
MIN	163.85	163.92	163.97	163.99	164.12	164.08	164.05	164.05	164.11	164.20	164.24	164.32



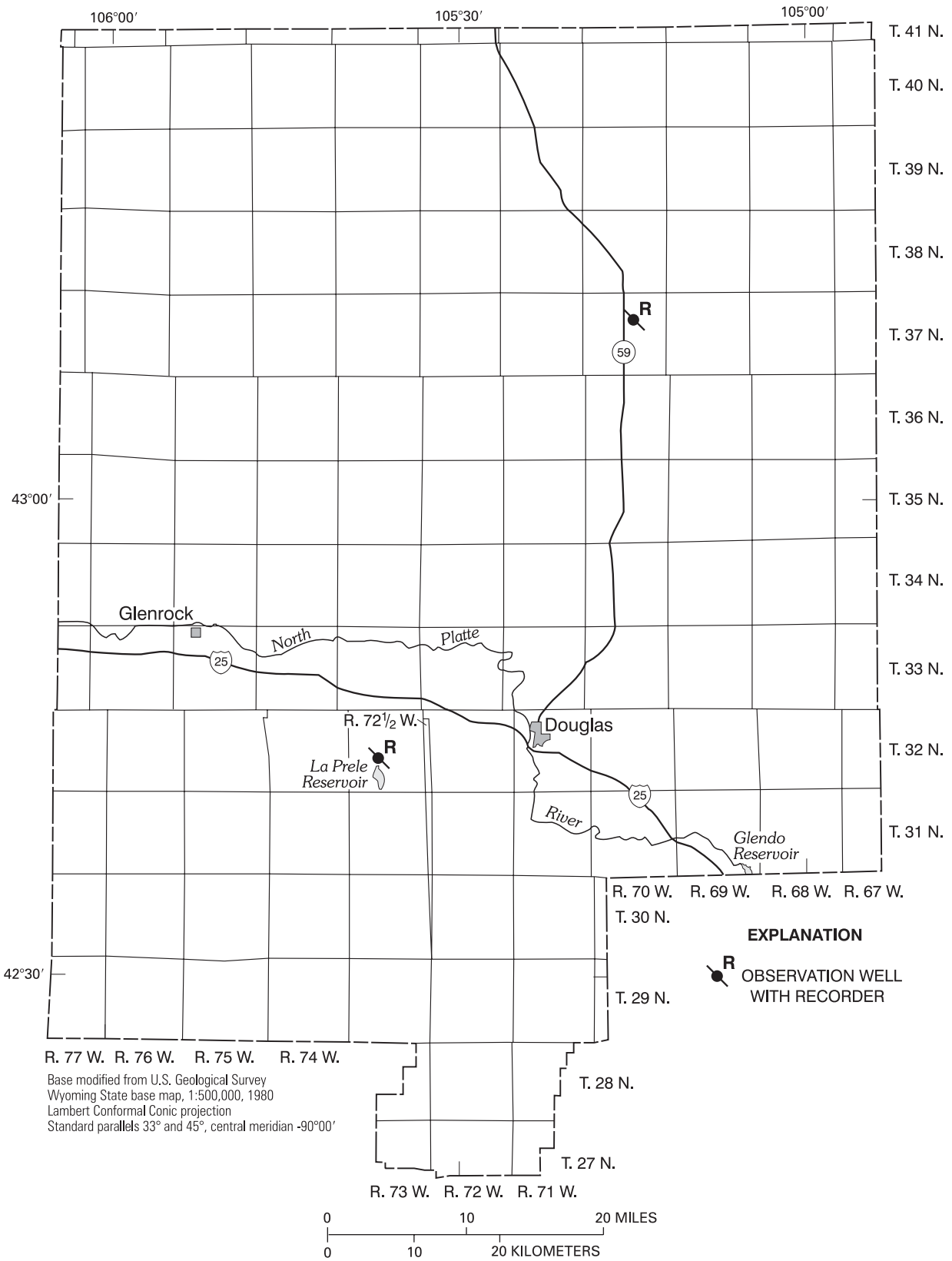


Figure 10. Location of observation wells in Converse County, Wyoming.

CONVERSE COUNTY

IDENTIFICATION.-- Station number, 424420105364201. Local number, 32-073-16cdb01. Local name, Natural Bridge East.

LOCATION.--Lat 42°44'20", long 105°36'42", in $NW^1/_4$ $SE^1/_4$ $SW^1/_4$ sec.16, T.32 N., R.73 W., Hydrologic Unit 10180007.

AQUIFER.--Casper Formation.

WELL CHARACTERISTICS.--Depth of well, 220 ft below land surface.

DATUM.--Elevation of land surface is 5,316.4 ft above NGVD of 1929, from levels. Measuring point: top of casing, 1.70 ft above land surface.

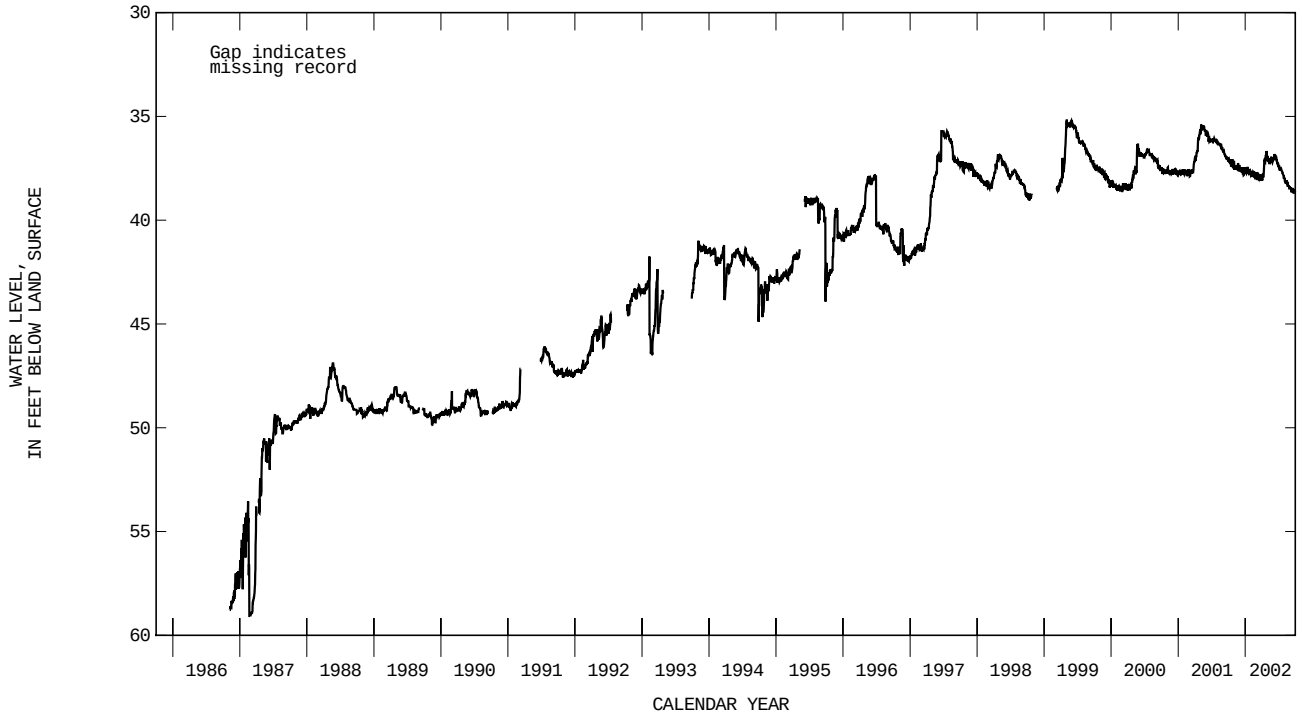
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 35.19 ft below land surface, May 3, 4, 1999; lowest, 59.12 ft below land surface , Feb. 21, 1987.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	37.20	37.37	37.56	37.70	37.79	37.81	37.90	37.14	37.05	37.41	38.10	38.52
10	37.23	37.44	37.49	37.76	37.88	37.85	37.79	37.17	36.93	37.61	38.15	38.63
15	37.41	37.47	37.56	37.62	37.92	37.97	37.08	37.07	36.96	37.52	38.18	38.63
20	37.25	37.44	37.66	37.58	37.82	37.98	36.99	37.15	37.14	37.65	38.20	38.55
25	37.45	37.39	37.79	37.70	38.03	37.99	36.82	37.17	37.29	37.80	38.36	38.68
EOM	37.14	37.44	37.67	37.84	37.72	37.86	36.91	37.10	37.34	37.95	38.46	38.59
MAX	37.04	37.25	37.44	37.43	37.65	37.69	36.67	36.94	36.81	37.35	37.98	38.42
MIN	37.46	37.64	37.83	37.84	38.03	38.10	38.11	37.30	37.34	37.96	38.46	38.68



CONVERSE COUNTY--Continued

IDENTIFICATION.--Station number, 431140105151901. Local number, 37-070-10cbb01. Local name, Bill #6.

LOCATION.--Lat 43°11'40", long 105°15'19", in $NW^1/_4$ $NW^1/_4$ $SW^1/_4$ sec.10, T.37 N., R.70 W., Hydrologic Unit 10120105.

AQUIFER.--Wasatch Formation.

WELL CHARACTERISTICS.--Depth of well, 268 ft below land surface.

DATUM.--Elevation of land surface is 4,720 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 0.40 ft above land surface.

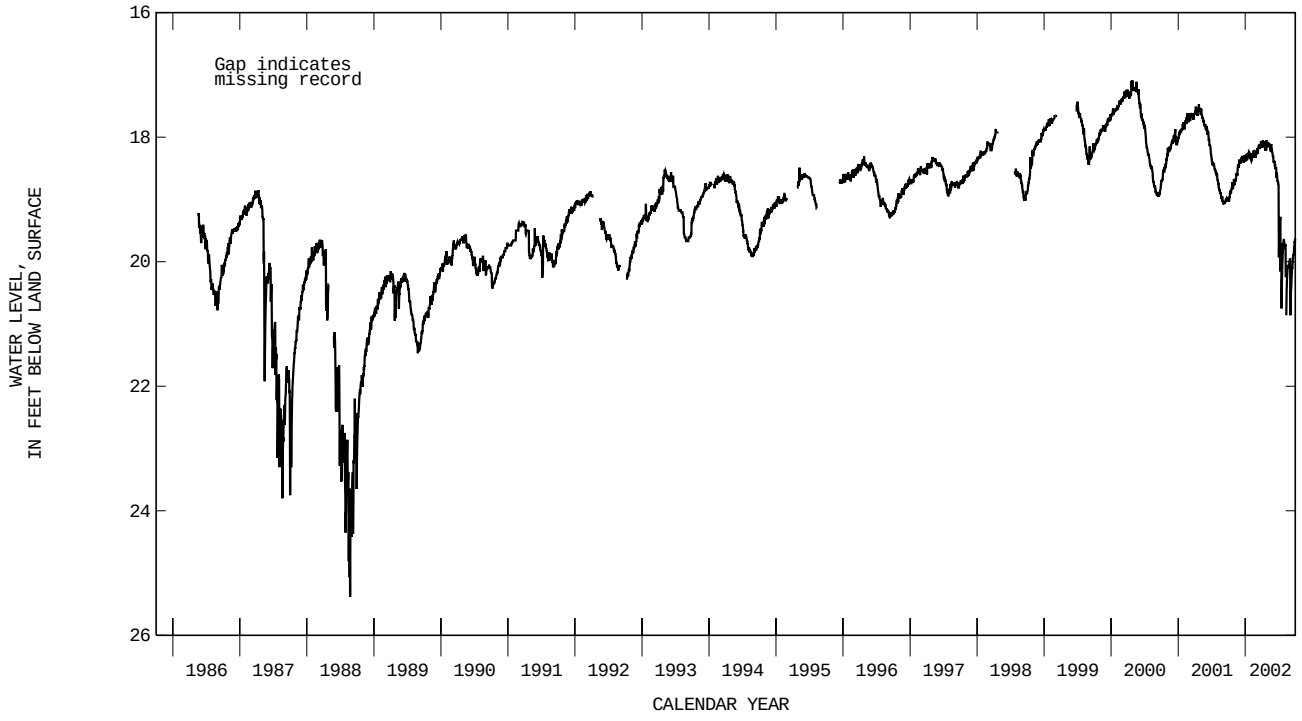
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 17.09 ft below land surface, Apr. 23, 25, 2000; lowest, 25.38 ft below land surface, Aug. 31, 1988.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	19.00	18.69	18.41	18.37	18.35	18.22	18.12	18.10	18.40	19.55	19.73	20.68
10	18.92	18.67	18.34	18.37	18.32	18.22	18.11	18.11	18.44	19.28	---	20.27
15	18.90	18.60	18.34	18.30	18.30	18.15	18.08	18.12	18.50	19.71	20.38	20.05
20	18.81	18.52	18.35	18.24	18.26	18.14	18.17	18.20	18.64	20.23	20.05	19.88
25	18.82	18.45	18.39	18.31	18.33	18.14	18.17	18.21	18.70	19.81	20.08	19.77
EOM	18.67	18.39	18.32	18.36	18.22	18.09	18.12	18.31	18.76	19.66	19.97	19.63
MAX	18.67	18.36	18.29	18.24	18.22	18.07	18.05	18.09	18.31	18.77	19.71	19.63
MIN	19.04	18.77	18.42	18.39	18.38	18.28	18.22	18.31	18.76	20.75	20.86	20.86



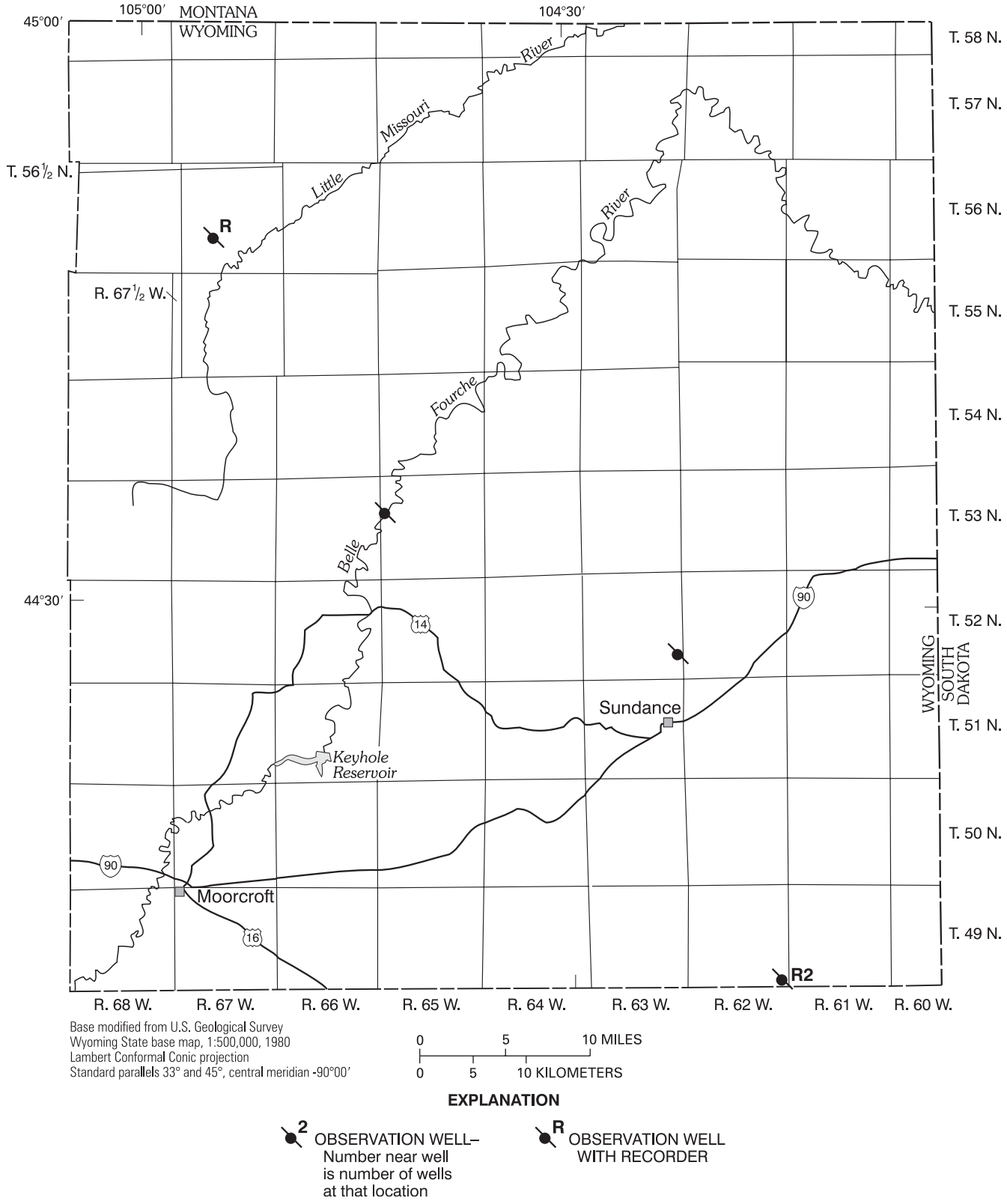


Figure 11. Location of observation wells in Crook County, Wyoming.

CROOK COUNTY

IDENTIFICATION.--Station number, 441113104151001. Local number, 49-062-36cbb01. Local name, Inyan Kara Mountain CCMOW6.

LOCATION.--Lat 44°11'13", long 104°15'10", in $NW^1/_4$ $NW^1/_4$ $SW^1/_4$ sec.36, T.49 N., R.62 W., Hydrologic Unit 10120201.

AQUIFER.--Madison Formation.

WELL CHARACTERISTICS.--Depth of well, 1,280 ft below land surface.

DATUM.--Elevation of land surface is 5,403 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 0.60 ft above land surface.

REMARKS.--This well was included in the cooperative program between the Wyoming State Engineer's Office and the U.S. Geological Survey cooperative program on Oct. 1, 1997. Data prior to Oct. 1, 1997 is available from the Wyoming State Engineer's Office.

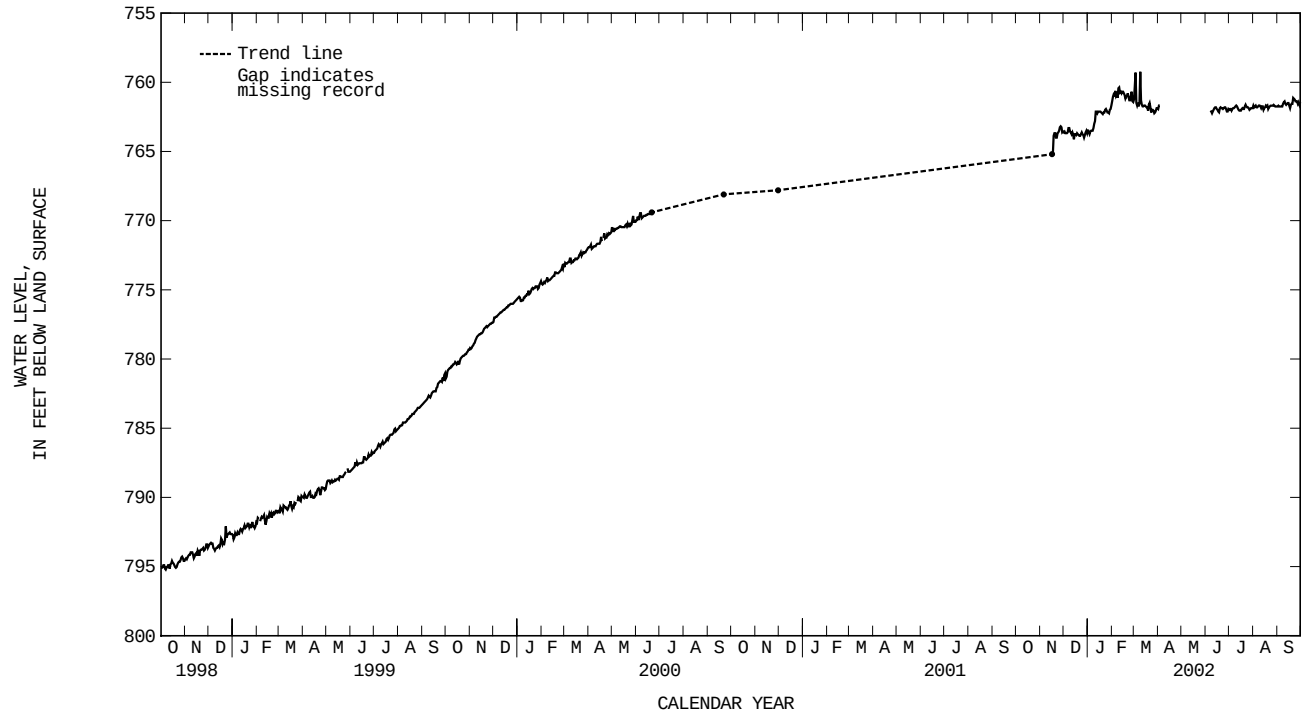
COOPERATION.--Data collected by the Wyoming State Engineer's Office and compiled and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1994 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 768.10 ft below land surface, from hand-measured data, Sept. 21, 2000; lowest, 840.05* ft below land surface, Apr. 22, 1995.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	763.68	763.50	760.62	761.68	---	---	---	761.93	761.81	761.75
10	---	---	763.62	762.81	760.37	761.30	---	---	762.11	761.68	761.74	761.38
15	---	---	763.75	762.12	760.68	761.68	---	---	761.93	762.05	761.87	761.50
20	---	763.68	763.81	762.30	760.99	761.62	---	---	761.81	761.93	761.93	761.56
25	---	763.50	763.75	762.05	760.99	761.99	---	---	761.81	761.81	761.69	761.38
EOM	---	763.56	763.68	761.68	761.43	761.87	---	---	761.93	761.87	761.75	761.44
MAX	---	763.18	763.31	761.68	760.37	759.24	761.68	---	761.81	761.62	761.63	761.13
MIN	---	765.20	764.12	763.75	761.43	762.24	761.93	---	762.24	762.05	761.99	761.87



CROOK COUNTY--Continued

IDENTIFICATION.--Station number, 441113104151002. Local number, 49-062-36cbb02. Local name, Inyan Kara Mountain CCMOW6A.

LOCATION.--Lat 44°11'13", long 104°15'10", in $NW^1/_4$ $NW^1/_4$ $SW^1/_4$ sec.36, T.49 N., R.62 W., Hydrologic Unit 10120201.

AQUIFER.--Minnelusa Formation.

WELL CHARACTERISTICS.--Depth of well, 500 ft below land surface.

DATUM.--Elevation of land surface is 5,403 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 0.90 ft above land surface.

REMARKS.--This well was included in the Wyoming State Engineer's Office/U.S. Geological Survey cooperative program on Oct. 1, 1997. Data prior to Oct. 1, 1997 is available from the Wyoming State Engineer's Office.

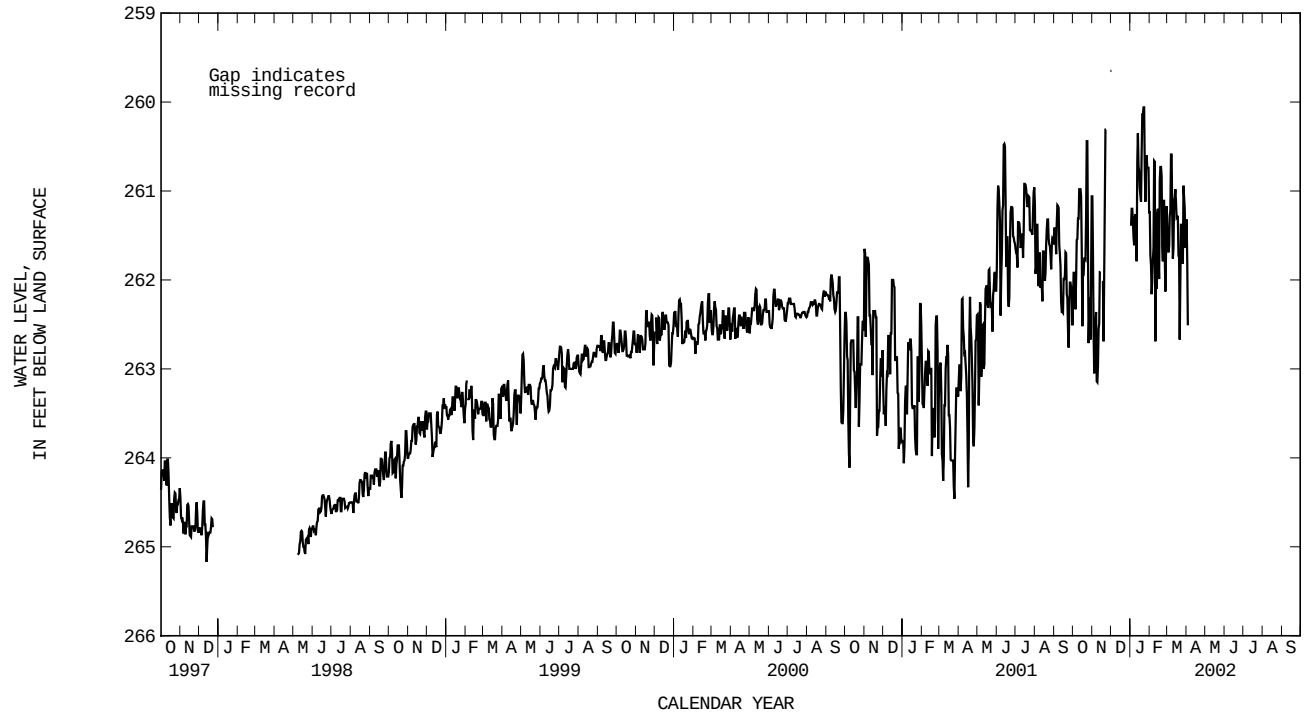
COOPERATION.--Data collected by the Wyoming State Engineer's Office and compiled and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1995 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 261.94 ft below land surface, Sept. 9, 2000; lowest, 267.30* ft below land surface, Mar. 1, 1995.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	262.33	262.52	---	261.34	262.00	261.28	---	---	---	---	---	---
10	261.31	262.97	---	261.48	262.69	261.76	---	---	---	---	---	---
15	261.65	---	---	260.78	261.72	261.12	---	---	---	---	---	---
20	261.76	261.94	---	260.14	260.83	261.74	---	---	---	---	---	---
25	261.65	---	---	261.12	261.73	261.73	---	---	---	---	---	---
EOM	261.06	259.65	---	261.24	261.17	261.53	---	---	---	---	---	---
MAX	260.44	259.65	---	260.06	260.66	260.59	261.32	---	---	---	---	---
MIN	262.71	263.15	---	261.79	262.69	262.67	262.51	---	---	---	---	---



CROOK COUNTY--Continued

IDENTIFICATION.--Station number, 442739104214601. Local number, 52-063-25dcd01. Local name, Cole #3A.

LOCATION.--Lat 44°27'39", long 104°21'46", in $SE^1/_4$ $SW^1/_4$ $SE^1/_4$ sec. 25, T.52 N., R.63 W., Hydrologic Unit 10120203.

AQUIFER.--Madison Limestone.

WELL CHARACTERISTICS.--Depth of well, 1,120 ft below land surface.

DATUM.--Elevation of land surface is 4,740 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 2.0 ft above land surface.

REMARKS.--Data reflect static and pumping water levels.

COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

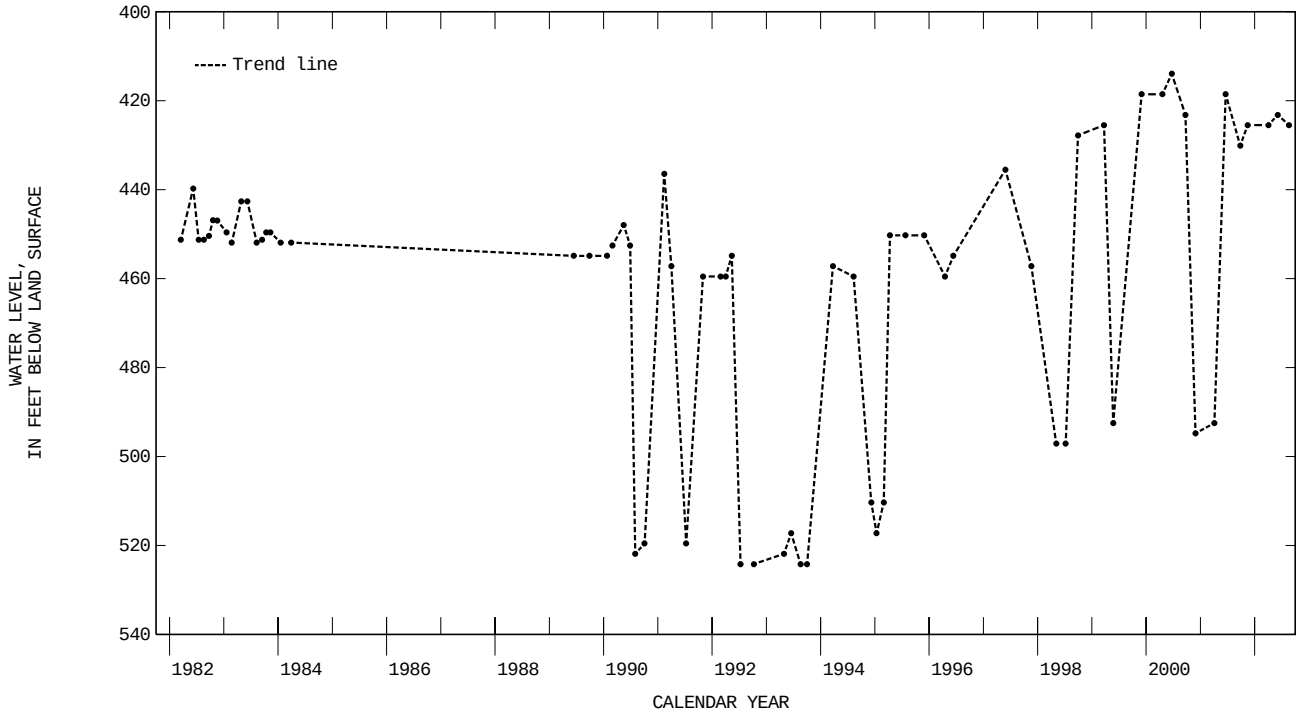
PERIOD OF RECORD.--1982 to 1984, 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 413.93 ft below land surface, June 21, 2000; lowest, 524.19 ft below land surface, July 10, Oct. 7, 1992, Aug. 18, Oct. 1, 1993.

WATER LEVELS IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 14	425.48	APR 03	425.48	JUN 04	423.17	AUG 20	425.48

WATER YEAR 2002 HIGHEST 423.17 JUN 04, 2002 LOWEST 425.48 APR 03, 2002 AUG 20, 2002



CROOK COUNTY--Continued

IDENTIFICATION.--Station number, 443453104425602. Local number, 53-065-18bbd02. Local name, Park Service.

LOCATION.--44°34'53", long 104°42'56", in $SE^1/_4$ $NW^1/_4$ $NW^1/_4$ sec.18, T.53 N., R.65 W., Hydrologic Unit 10120201.

AQUIFER.--Madison (Pahasapa) Limestone.

WELL CHARACTERISTICS.--Depth of well, 1,340 ft below land surface.

DATUM.--Elevation of land surface is 3,865 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 2.3 ft above land surface.

REMARKS.--After 1982, some water levels were measured while well was being pumped or recently after the well was pumped.

COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

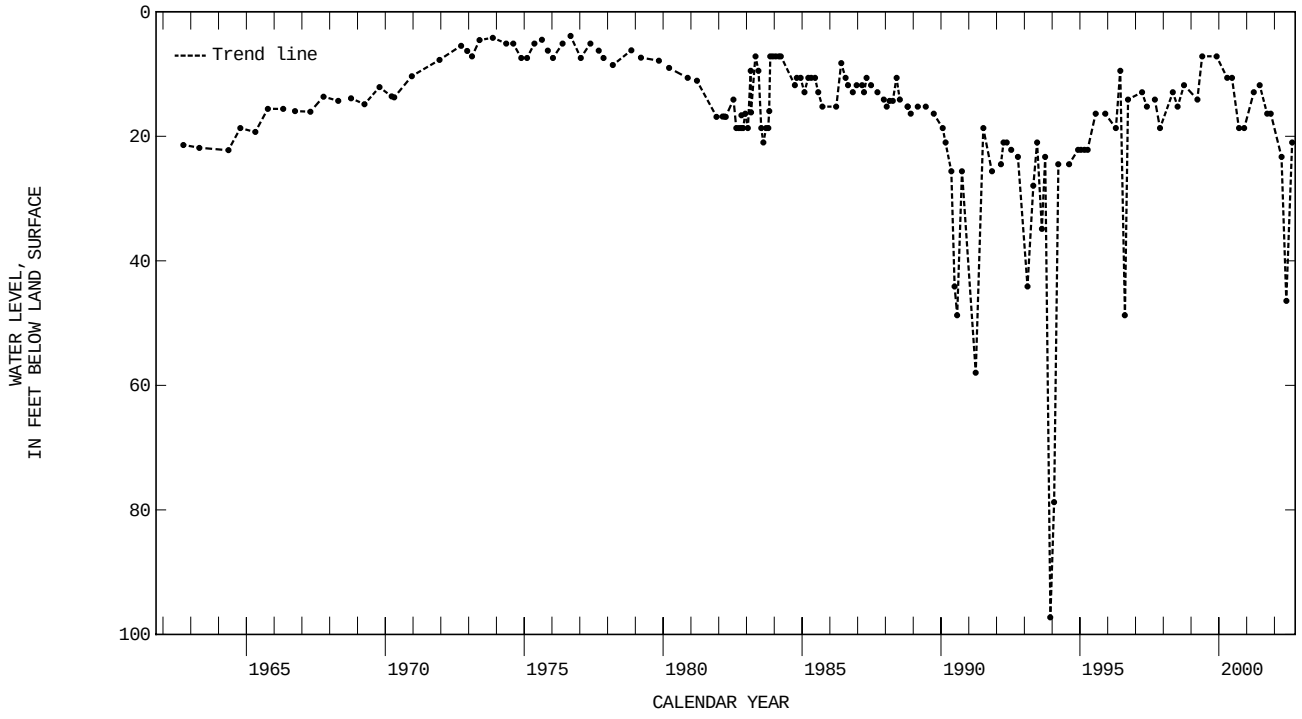
PERIOD OF RECORD.--1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.90 ft below land surface, Sept. 1, 1976; lowest, 97.24 ft below land surface (well being pumped), Dec. 8, 1993.

WATER LEVELS IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 14	16.39	APR 03	23.32	JUN 05	46.42	AUG 21	21.01

WATER YEAR 2002 HIGHEST 16.39 NOV 14, 2002 LOWEST 23.32 APR 03, 2002



CROOK COUNTY--Continued

IDENTIFICATION.--Station number, 444854104534502. Local number, 56-067-28aab02. Local name, Cole #41 Minnelusa.

LOCATION.--Lat 44°48'54", long 104°53'45", in $NW^1/_4$ $NE^1/_4$ $NE^1/_4$ sec.28, T.56 N., R.67 W., Hydrologic Unit 10110201.

AQUIFER.--Minnelusa Formation.

WELL CHARACTERISTICS.--Depth of well, 2,230 ft below land surface.

DATUM.--Elevation of land surface is 4,500 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.20 ft above land surface.

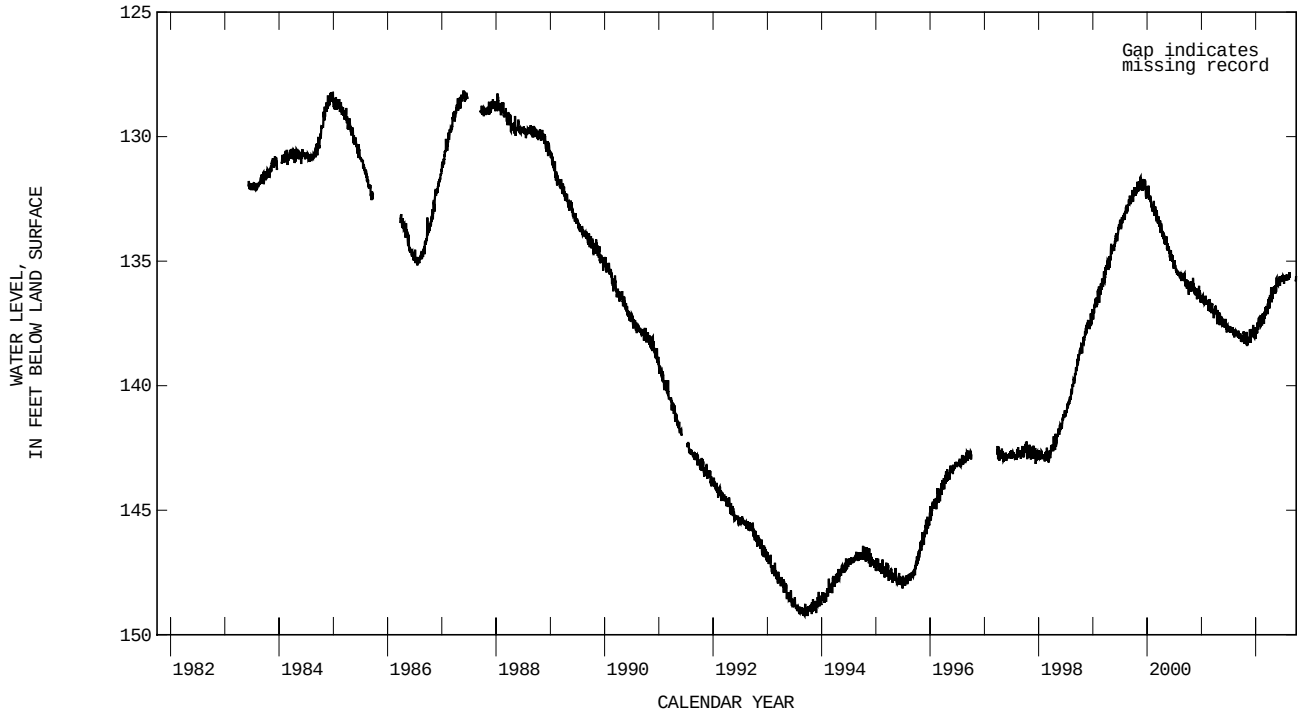
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 128.18 ft below land surface, May 25-28, 31, 1987; lowest, 149.25 ft below land surface, Sept. 28, 1993.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	138.17	138.15	137.90	137.90	137.47	136.99	136.58	136.11	135.86	135.59	135.67	---
10	138.05	138.22	137.83	137.89	137.50	136.96	136.55	136.16	135.71	135.91	135.62	---
15	138.32	138.16	137.70	137.70	137.45	136.95	136.05	135.99	135.85	135.60	135.66	---
20	138.10	138.08	137.81	137.36	137.20	136.90	136.45	135.98	135.83	135.64	---	---
25	138.27	137.95	138.06	137.43	137.52	136.84	136.43	135.95	135.82	135.68	---	---
EOM	137.84	137.81	137.97	137.57	137.03	136.50	136.25	135.96	135.60	135.56	---	135.63
MAX	137.82	137.74	137.56	137.28	137.03	136.50	136.05	135.66	135.56	135.54	135.44	135.61
MIN	138.34	138.41	138.09	138.12	137.62	137.32	136.90	136.31	135.99	135.91	135.77	135.81



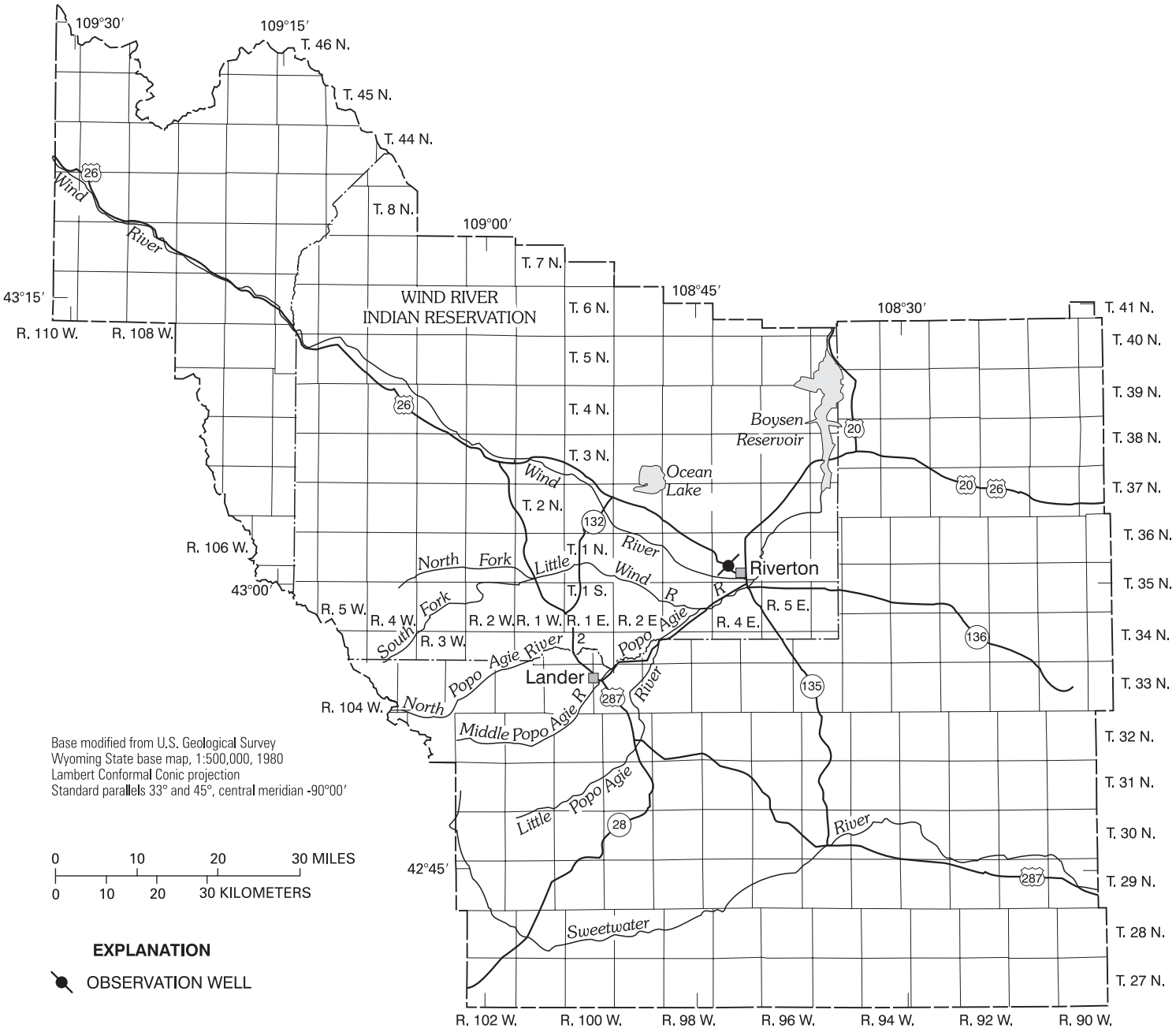


Figure 12. Location of observation well in Fremont County, Wyoming.

FREMONT COUNTY

IDENTIFICATION.--Station number, 430205108243201. Local number, 1N-4E-28acc01. Local name, Brentwood.

LOCATION.--Lat 43°02'05", long 108°24'32", in $SW^1/_4$ $SW^1/_4$ $NE^1/_4$ sec.28, T.1 N., R.4 E., Hydrologic Unit 10080001.

AQUIFER.--Wind River Formation.

WELL CHARACTERISTICS.--Depth of well, 440 ft below land surface.

DATUM.--Elevation of land surface is 5,050 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.0 ft above land surface.

REMARKS.--Data collected by U.S. Geological Survey.

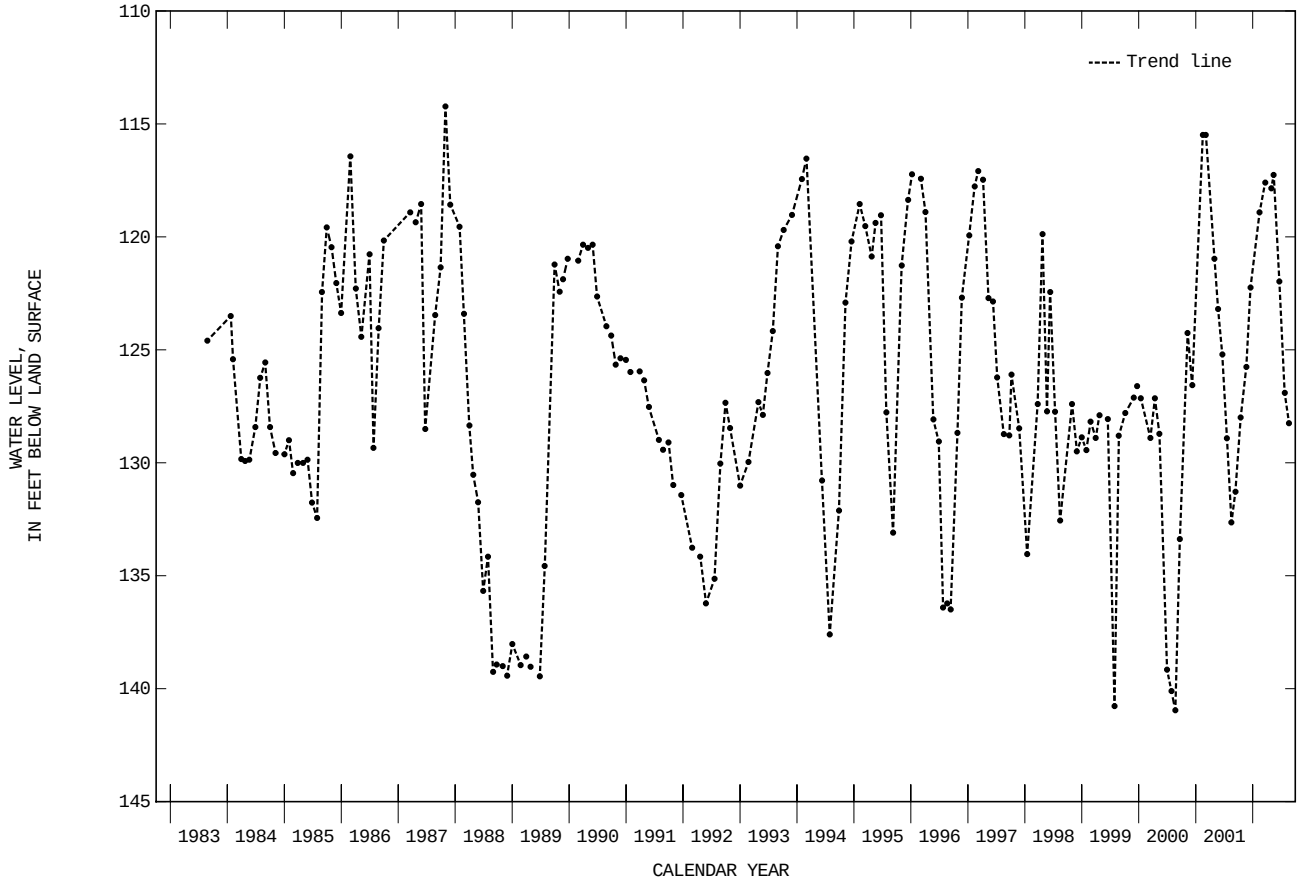
PERIOD OF RECORD.--1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 114.22 ft below land surface, Oct. 30, 1987; lowest, 140.96 ft below land-surface, Aug. 22, 2000.

WATER LEVELS IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	128.00	DEC 17	122.24	MAR 21	117.59	MAY 15	117.25	JUL 24	126.91
NOV 20	125.76	FEB 13	118.92	APR 29	117.85	JUN 20	121.97	AUG 21	128.25

WATER YEAR 2002 HIGHEST 117.25 MAY 15, 2002 LOWEST 128.25 AUG 21, 2002



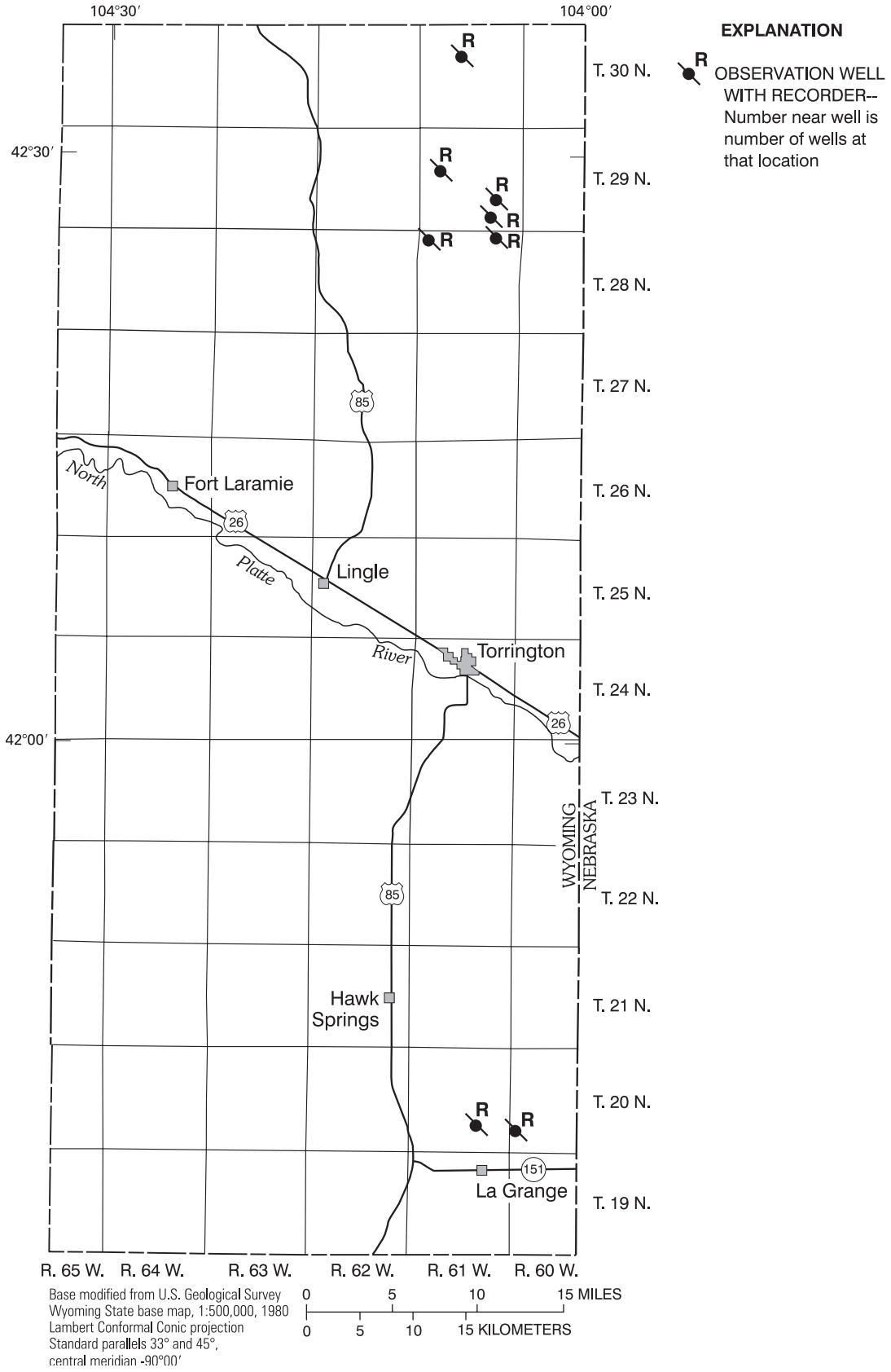


Figure 13. Location of observation wells in Goshen County, Wyoming.

GOSHEN COUNTY

IDENTIFICATION.--Station number, 414049104074501. Local number, 20-060-30bbb01. Local name, LaGrange #2.

LOCATION.--Lat 41°40'49", long 104°07'45", in $NW^1/_4$ $NW^1/_4$ $NW^1/_4$ sec.30, T.20 N., R.60 W., Hydrologic Unit 10180012.

AQUIFER.--Brule Formation.

WELL CHARACTERISTICS.--Depth of well, 70 ft below land surface.

DATUM.--Elevation of land surface is 4,530 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.00 ft above land surface.

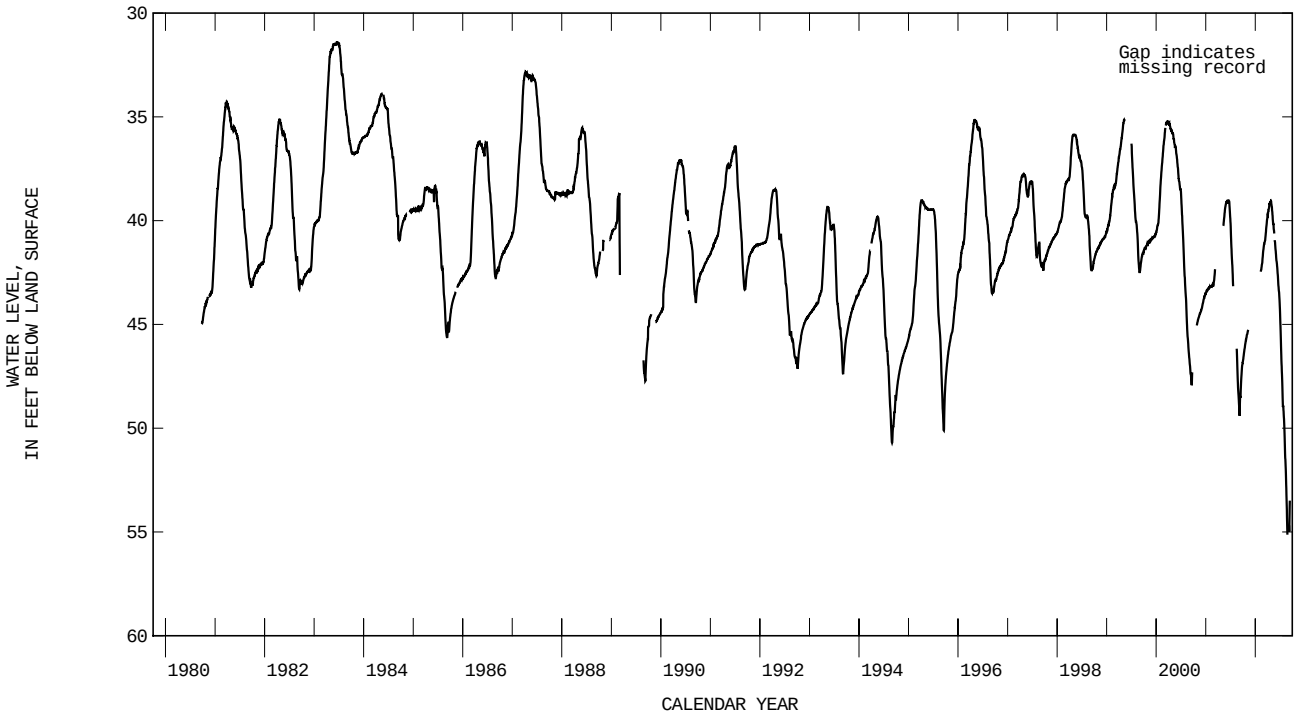
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 31.40 ft below land surface, June 18-21, 1983; lowest, 55.42 ft below land surface, Aug. 26 and Sept. 1, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	46.58	45.37	---	---	---	41.19	39.59	39.54	41.92	45.07	50.48	54.73
10	46.32	---	---	---	42.46	41.05	39.42	40.00	42.19	46.28	51.50	54.18
15	46.12	---	---	---	42.26	40.87	39.18	40.23	42.60	47.26	52.44	---
20	45.89	---	---	---	42.05	40.55	39.11	40.62	43.15	48.29	53.67	---
25	45.71	---	---	---	41.69	40.17	39.08	41.00	43.48	48.91	55.13	---
EOM	45.49	---	---	---	41.44	39.81	39.24	41.47	44.13	49.55	---	---
MAX	45.49	45.26	---	---	41.44	39.81	39.06	39.31	41.57	44.27	49.71	53.49
MIN	46.77	45.48	---	---	42.46	41.40	39.75	41.47	44.13	49.55	55.13	54.98



GOSHEN COUNTY--Continued

IDENTIFICATION.--Station number, 414051104100701. Local number, 20-061-23ccc01. Local name, Curt Meier.

LOCATION.--Lat 41°40'51", long 104°10'07", in $SW^1/_4$ $SW^1/_4$ $SW^1/_4$ sec. 23, T.20 N., R.61 W., Hydrologic Unit 10180012.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Depth of well, 82.0 ft below land surface.

DATUM.--Elevation of land surface is 4,506 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.00 ft above land surface.

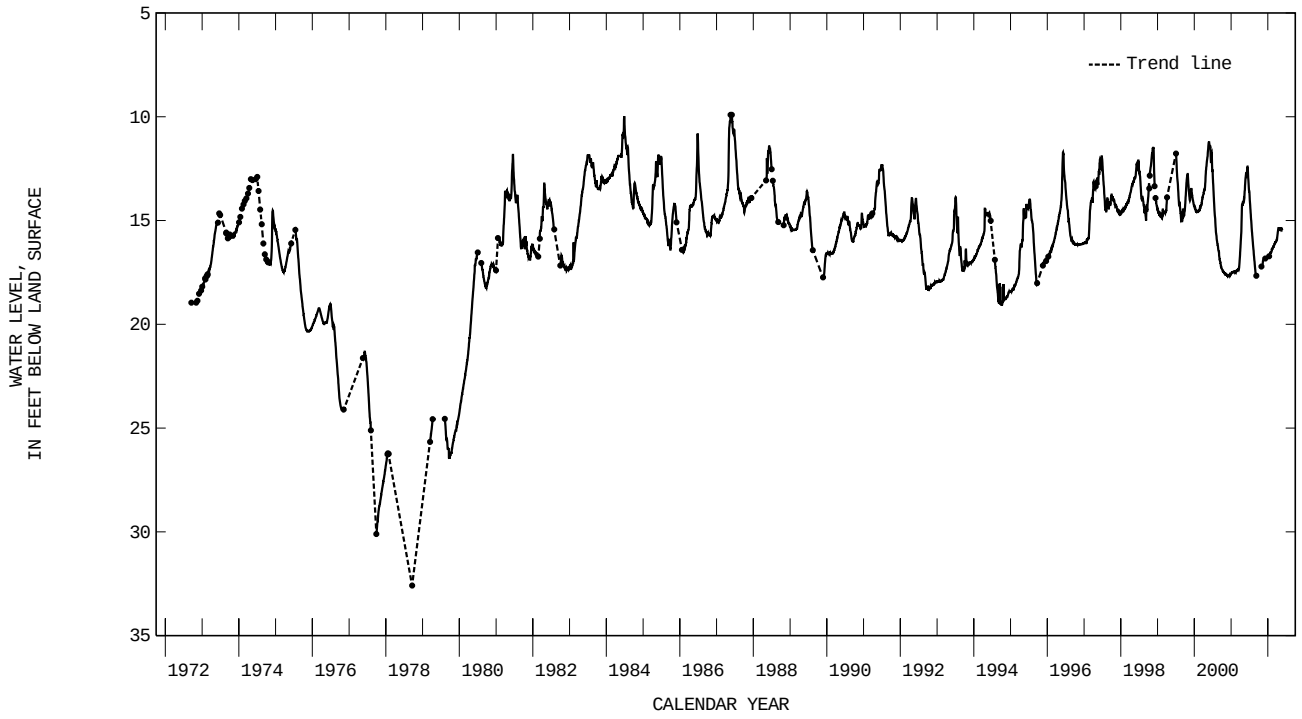
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1972 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 9.89 ft below land surface, May 19, 1987; lowest, 32.59 ft below land surface, from hand-measured data, Sept. 18, 1978.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	17.19	16.83	---	16.51	16.15	15.75	15.40	---	---	---	---
10	---	17.09	---	---	16.41	16.12	15.54	15.44	---	---	---	---
15	---	16.92	---	16.71	16.35	16.06	15.38	15.37	---	---	---	---
20	---	16.88	---	16.60	16.32	16.03	15.37	15.41	---	---	---	---
25	---	16.83	---	16.55	16.26	16.00	15.40	15.48	---	---	---	---
EOM	17.22	16.83	---	16.54	16.25	15.92	15.38	---	---	---	---	---
MAX	17.22	16.83	16.82	16.54	16.25	15.92	15.37	15.37	---	---	---	---
MIN	17.22	17.22	16.83	16.72	16.54	16.23	15.88	15.48	---	---	---	---



GOSHEN COUNTY--Continued

IDENTIFICATION.--Station number, 422519104095101. Local number, 28-061-02ccd01. Local name, Prairie Center #6.

LOCATION.--Lat 42°25'19", long 104°09'51", in $SE^1/_4$ $SW^1/_4$ $SW^1/_4$ sec. 2, T.28 N., R.61 W., Hydrologic Unit 10180009.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 255 ft below land surface.

DATUM.--Elevation of land surface is 4,795 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.70 ft above land surface.

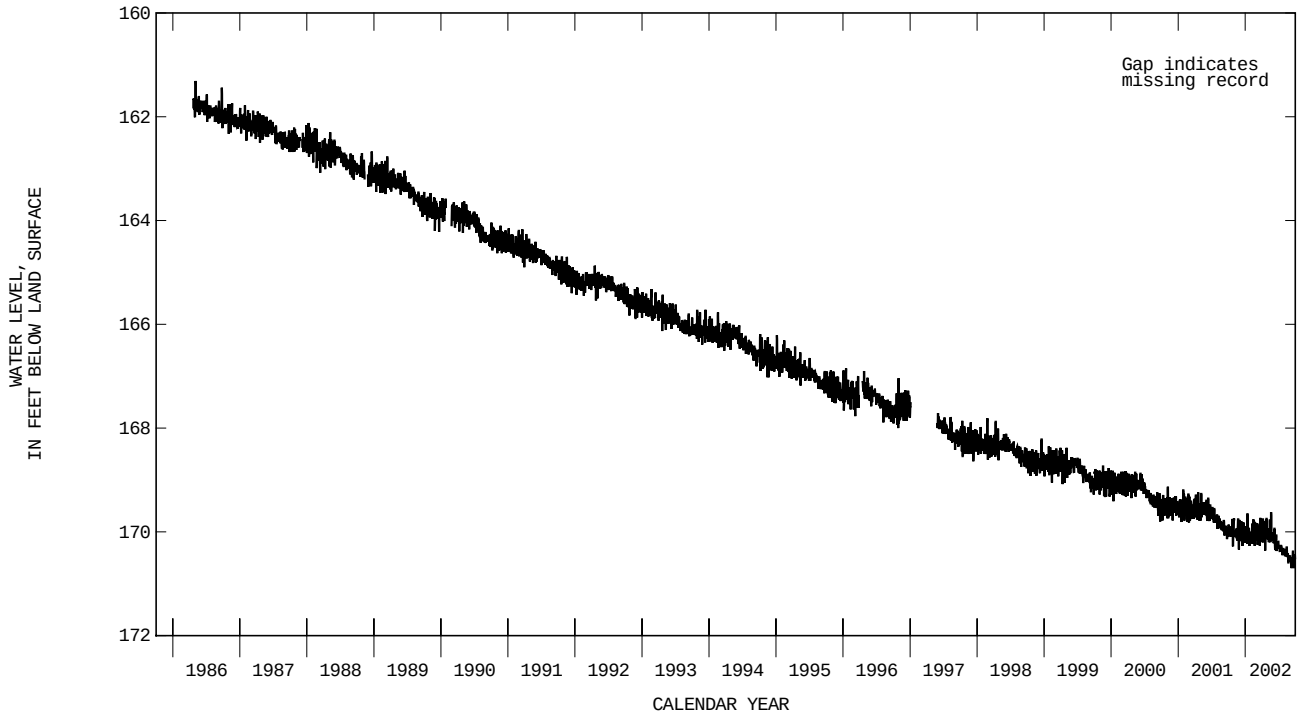
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 161.31 ft below land surface, May 4, 1986; lowest, 170.90 ft below land surface, Sept. 22, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	170.08	169.96	169.99	170.13	170.04	169.98	170.05	170.07	170.20	170.28	170.47	170.53
10	170.00	170.06	169.89	170.11	170.23	170.03	170.12	170.03	170.01	170.38	170.41	170.70
15	170.08	170.08	169.90	170.08	170.13	170.13	169.81	169.78	170.17	170.27	170.30	170.63
20	170.01	169.95	170.11	169.94	170.10	170.16	170.06	170.01	170.37	170.35	170.43	170.57
25	170.27	170.10	170.16	170.08	170.17	170.13	170.04	170.13	170.26	170.39	170.54	170.48
EOM	169.74	169.79	170.17	170.19	169.84	169.96	169.98	170.11	170.19	170.38	170.51	170.53
MAX	169.74	169.76	169.80	169.66	169.76	169.73	169.75	169.62	169.94	170.27	170.30	170.38
MIN	170.28	170.34	170.27	170.27	170.27	170.27	170.36	170.20	170.37	170.45	170.59	170.70



GOSHEN COUNTY--Continued

IDENTIFICATION.--Station number, 422512104135501. Local number, 28-061-06aba01. Local name, Goshen County #2.

LOCATION.--Lat 42°25'12", long 104°13'55", in $NE^1/_4$ $NW^1/_4$ $NE^1/_4$ sec. 6, T.28 N., R.61 W., Hydrologic Unit 10180009.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 220 ft below land surface.

DATUM.--Elevation of land surface is 4,765 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.60 ft above land surface.

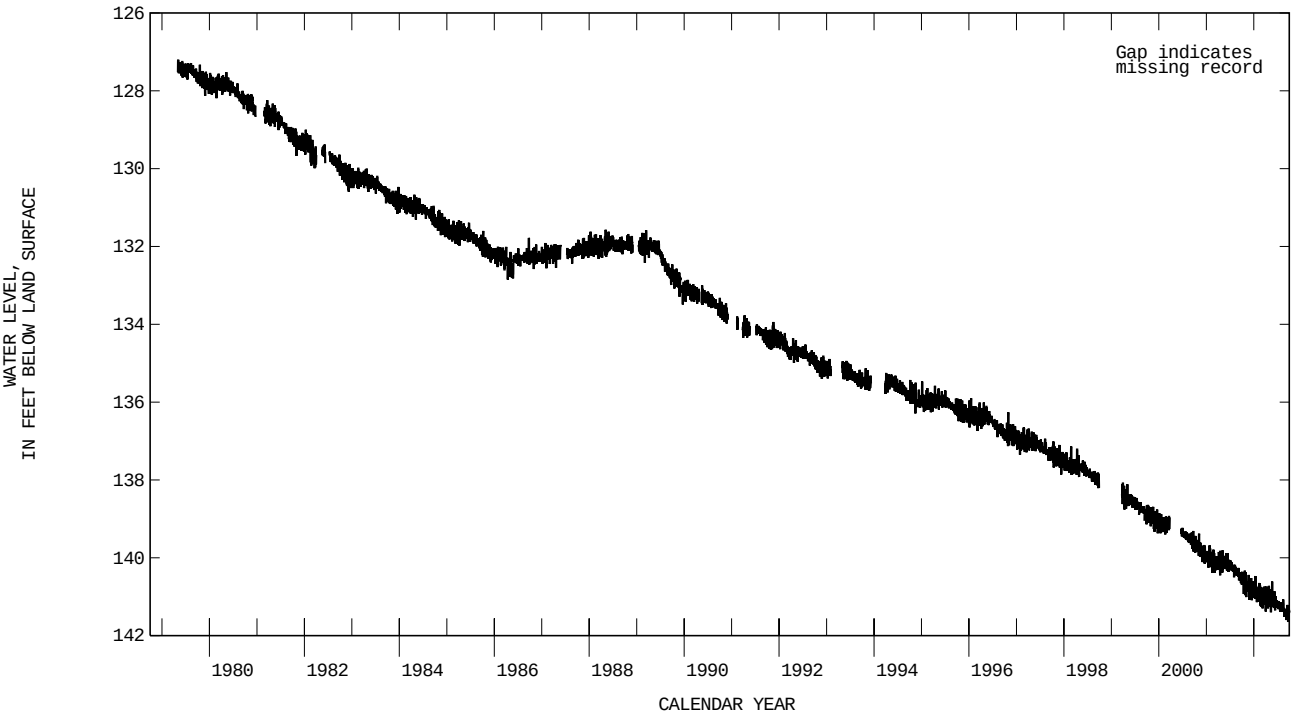
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 127.23 ft below land surface, May 4, 1979; lowest, 141.89 ft below land surface, Sept. 21, 22, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	140.58	140.60	140.73	140.98	140.94	140.92	140.95	141.05	141.11	141.22	141.30	141.41
10	140.68	140.74	140.69	141.05	141.04	140.93	141.07	141.05	141.06	141.32	141.20	141.51
15	140.93	140.84	140.70	140.85	141.13	141.20	140.79	140.92	141.07	141.22	141.15	141.45
20	140.57	140.64	140.94	140.78	141.07	141.12	141.02	141.00	141.28	141.25	141.28	141.38
25	140.96	140.79	140.95	140.93	141.26	141.14	141.00	141.12	141.25	141.29	141.37	141.45
EOM	140.37	140.59	140.94	141.10	140.76	140.89	140.95	141.13	141.19	141.22	141.41	141.38
MAX	140.33	140.44	140.52	140.47	140.65	140.74	140.72	140.61	140.86	141.12	141.07	141.21
MIN	140.96	141.08	141.09	141.14	141.26	141.30	141.38	141.40	141.35	141.38	141.52	141.65



GOSHEN COUNTY--Continued

IDENTIFICATION.--Station number, 422928104121401. Local number, 29-061-17aad01. Local name, Prairie Center #4.

LOCATION.--Lat 42°29'28", long 104°12'14", in $SE^1/_4$ $NE^1/_4$ $NE^1/_4$ Sec. 17, T.29 N., R.61 W., Hydrologic Unit 10180009.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 220 ft below land surface.

DATUM.--Elevation of land surface is 4,790 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.90 ft above land surface.

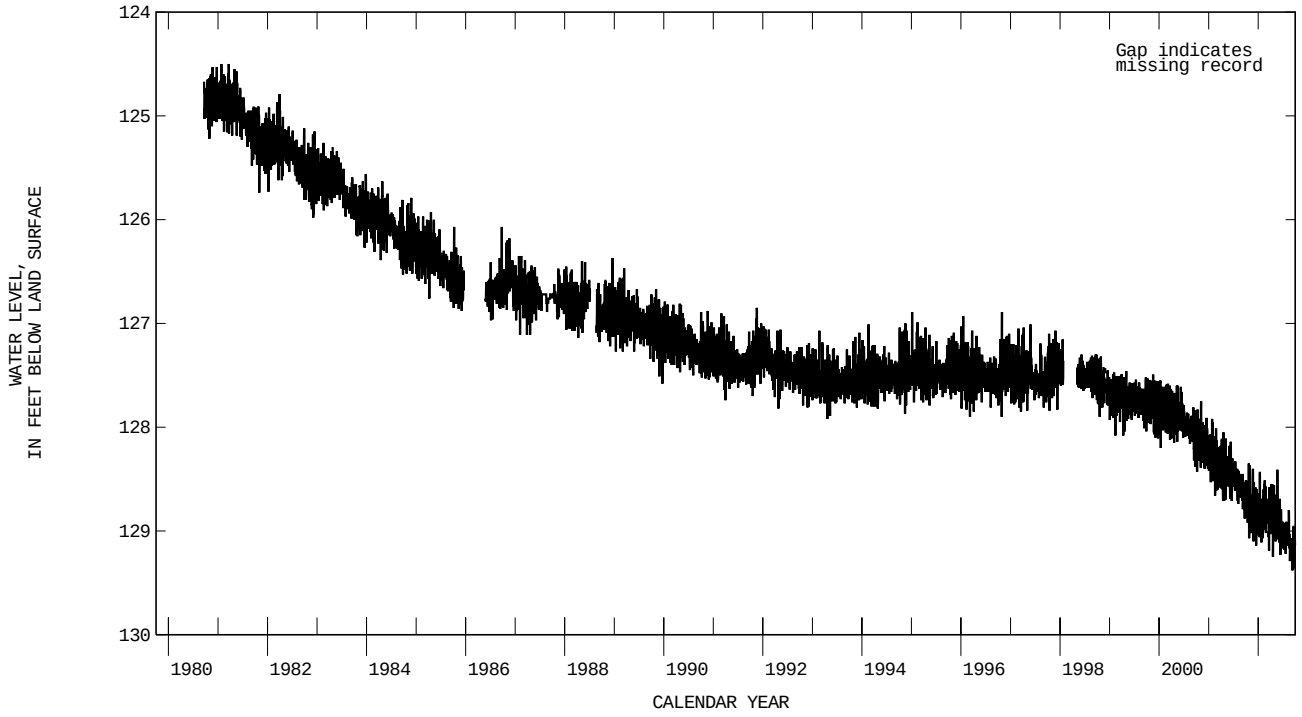
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 124.50 ft below land surface, Jan. 24, Mar. 20, 1981; lowest, 129.63 ft below land surface, Sept. 21, 22, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	128.75	128.68	128.77	128.95	128.85	128.72	128.86	128.93	129.04	128.98	129.11	129.18
10	128.77	128.81	128.60	128.93	128.99	128.92	128.92	128.94	128.80	129.18	129.00	129.38
15	128.92	128.87	128.64	128.83	128.89	128.93	128.56	128.66	128.97	128.95	128.81	129.28
20	128.68	128.70	128.89	128.69	128.81	129.00	129.13	128.91	129.17	129.03	129.04	129.17
25	129.07	128.83	128.96	128.90	128.91	128.83	128.92	129.01	129.09	129.06	129.17	129.17
EOM	128.37	128.54	128.95	129.05	128.72	128.76	128.80	129.00	128.92	129.00	129.14	129.14
MAX	128.35	128.41	128.58	128.44	128.52	128.58	128.55	128.41	128.70	128.92	128.80	128.96
MIN	129.07	129.10	129.14	129.11	129.07	129.19	129.25	129.10	129.23	129.22	129.29	129.38



GOSHEN COUNTY--Continued

IDENTIFICATION.--Station number, 422849104090801. Local number, 29-061-23abb01. Local name, Goshen County #1.

LOCATION.--Lat 42°28'49", long 104°09'08", in $NW^1/_4$ $NW^1/_4$ $NE^1/_4$ sec. 23, T.29 N., R.61 W., Hydrologic Unit 10180009.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 300 ft below land surface.

DATUM.--Elevation of land surface is 4,870 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.00 ft above land surface.

REMARKS.--Well was slug tested by instantaneous recharge on June 12, 1987 to test well's connection with aquifer. Water level did not recover properly, so it was redeveloped in March 1991.

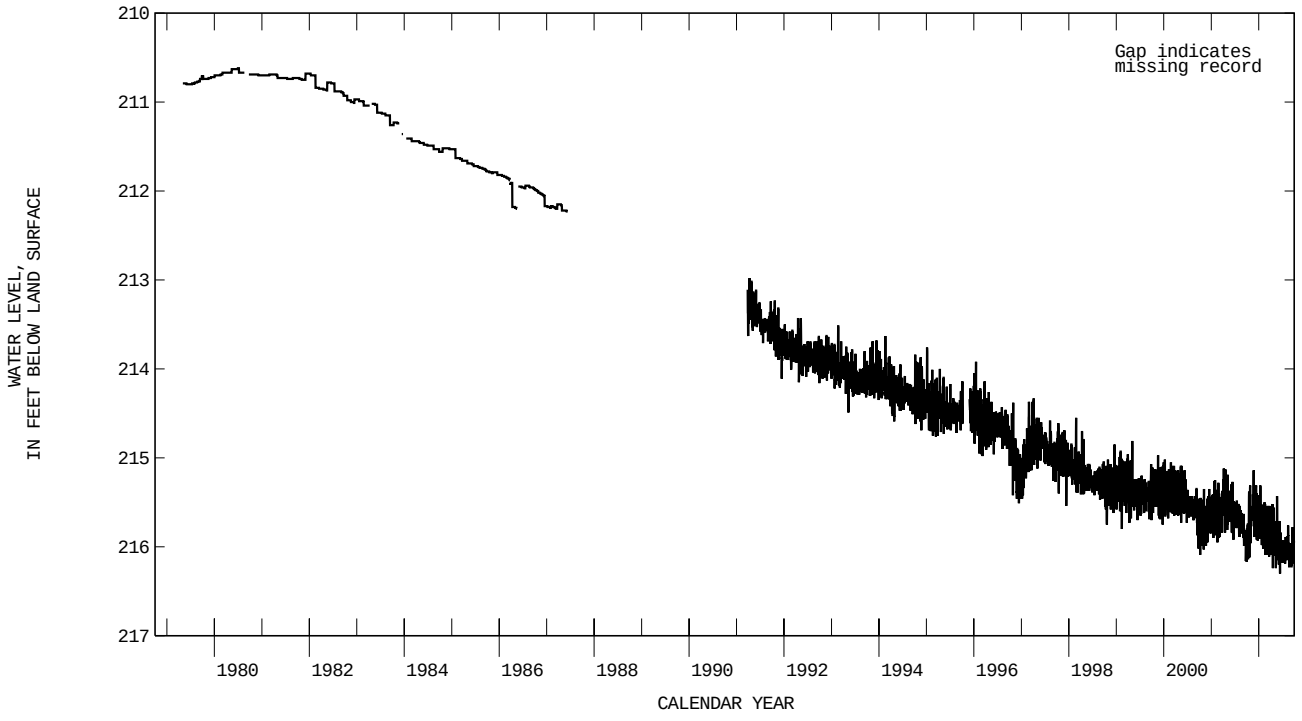
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 198.29 ft below land surface, affected by slug test; lowest, 216.56 ft below land surface, Mar. 21, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	215.87	215.60	215.57	215.83	215.80	215.74	215.88	215.95	216.04	216.03	216.07	216.04
10	216.14	---	215.34	215.91	215.95	215.84	215.93	215.96	215.87	216.18	215.97	216.22
15	215.83	215.65	215.45	215.68	215.95	216.01	215.53	215.77	216.00	215.97	215.88	216.10
20	216.12	215.48	215.70	215.54	215.84	216.00	215.96	215.92	216.18	216.01	215.95	215.97
25	215.34	215.56	215.82	215.81	216.05	215.97	215.95	216.03	216.12	216.06	216.08	216.06
EOM	215.62	215.37	215.80	215.97	215.57	215.77	215.83	216.01	216.01	215.97	216.08	215.94
MAX	215.31	215.14	215.31	215.31	215.50	215.54	215.52	215.43	215.71	215.89	215.76	215.78
MIN	216.14	215.89	215.93	215.98	216.09	216.11	216.24	216.24	216.30	216.19	216.23	216.22



GOSHEN COUNTY--Continued

IDENTIFICATION.--Station number, 422730104094801. Local number, 29-061-26cbb01. Local name, Prairie Center #3.

LOCATION.--Lat 42°27"30", long 104°09'48", in $NW^1/_4$ $NW^1/_4$ $SW^1/_4$ sec. 26, T.29 N., R.61 W., Hydrologic Unit 10180009.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 200 ft below land surface.

DATUM.--Elevation of land surface is 4,770 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.50 ft above land surface.

REMARKS.--Considerable seepage of sediment into the well in combination with a falling water level caused the well to go dry in April 2000.

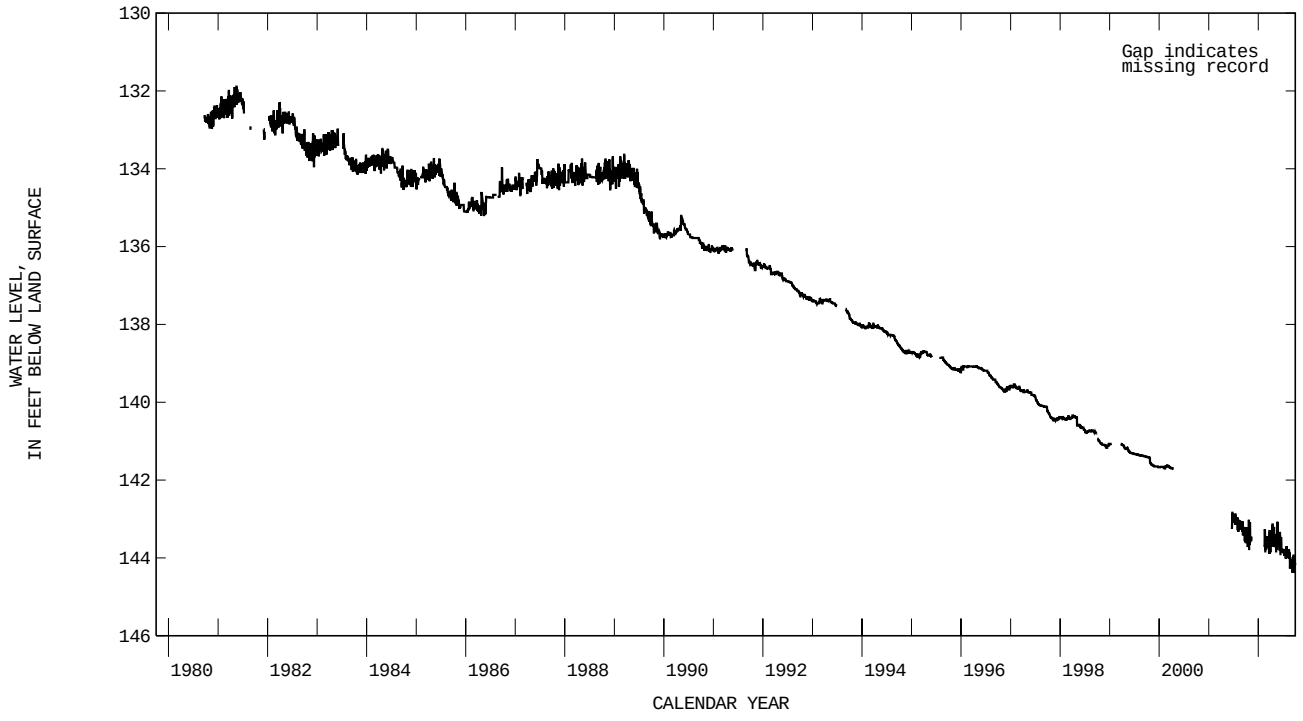
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 131.89 ft below land surface, May 15, 16, 1981; lowest, 144.69 ft below land surface, Sept. 21, 22, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	143.47	---	---	---	---	---	---	---	143.81	143.81	143.92	144.16
10	143.50	143.57	---	---	---	---	143.60	143.55	143.41	143.94	143.85	144.38
15	143.72	---	---	---	143.72	---	143.14	143.38	---	143.80	143.80	144.25
20	143.38	---	---	---	143.54	143.73	---	143.53	143.85	143.82	143.96	144.12
25	143.80	---	---	---	143.80	---	---	143.63	143.83	143.87	144.15	144.29
EOM	143.08	---	---	---	---	143.46	143.43	143.62	143.79	143.82	144.16	144.13
MAX	143.02	143.26	---	---	143.26	143.28	143.14	143.07	143.33	143.70	143.80	143.94
MIN	143.80	143.60	---	---	143.86	143.89	143.87	143.86	143.93	144.02	144.27	144.38



GOSHEN COUNTY--Continued

IDENTIFICATION.--Station number, 423549104120901. Local number, 30-061-09bbb01. Local name, Prairie Center #5.

LOCATION.--Lat 42°35'49", long 104°12'09", in $NW^1/_4$ $NW^1/_4$ $NW^1/_4$ sec. 9, T.30 N., R.61 W., Hydrologic Unit 10180009.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 220 ft below land surface.

DATUM.--Elevation of land surface is 4,850 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.60 ft above land surface.

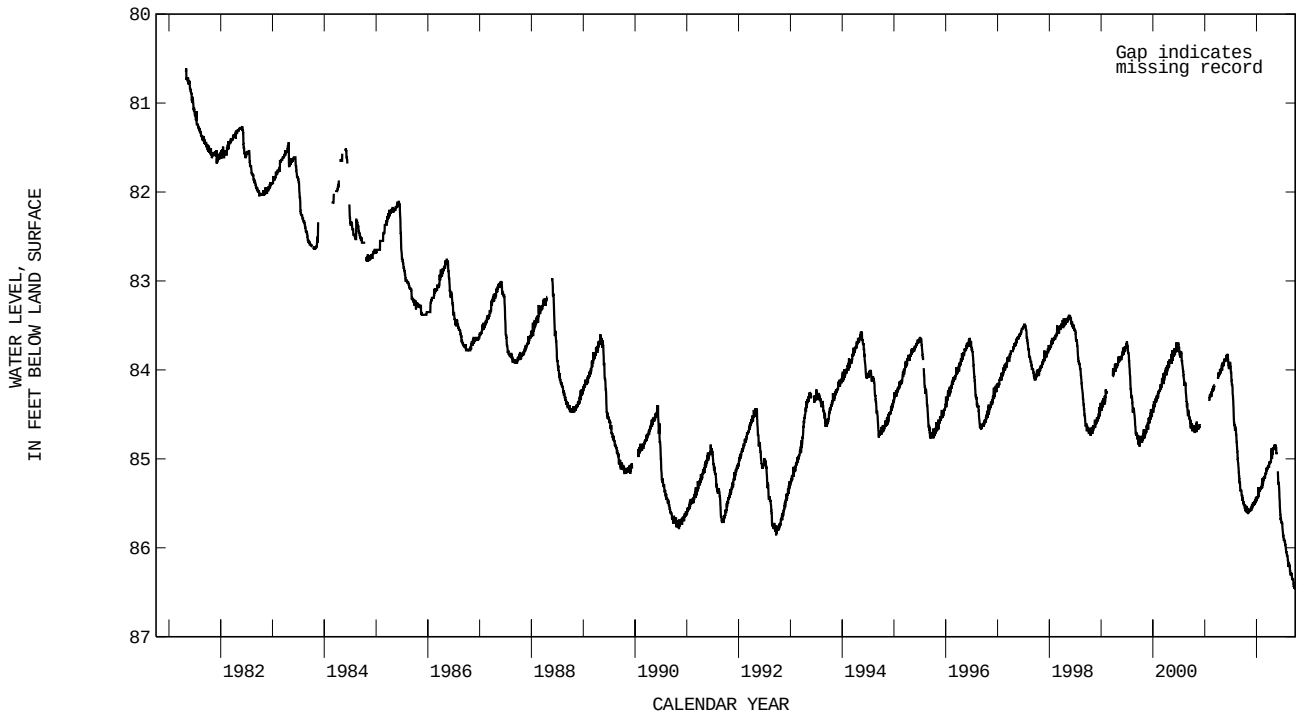
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 80.61 ft below land surface, May 1, 1981; lowest, 86.46 ft below land surface, Sept. 23-30, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	85.52	85.57	85.53	85.44	85.31	85.17	85.04	84.89	85.27	85.82	86.09	86.30
10	85.56	85.59	85.50	85.43	85.26	85.12	85.03	84.87	85.37	85.87	86.14	86.35
15	85.59	85.58	85.49	85.37	85.28	85.13	84.93	84.85	85.56	85.91	86.21	86.36
20	85.54	85.58	85.47	85.34	85.23	85.11	84.99	84.94	85.69	85.93	86.19	86.44
25	85.59	85.56	85.46	85.32	85.21	85.08	84.93	---	85.71	85.98	86.26	86.45
EOM	85.56	85.54	85.46	85.34	85.20	85.04	84.89	85.15	85.73	86.05	86.30	86.46
MAX	85.49	85.53	85.44	85.32	85.20	85.04	84.88	84.84	85.20	85.73	86.05	86.28
MIN	85.61	85.61	85.55	85.46	85.33	85.22	85.05	85.15	85.73	86.05	86.30	86.46



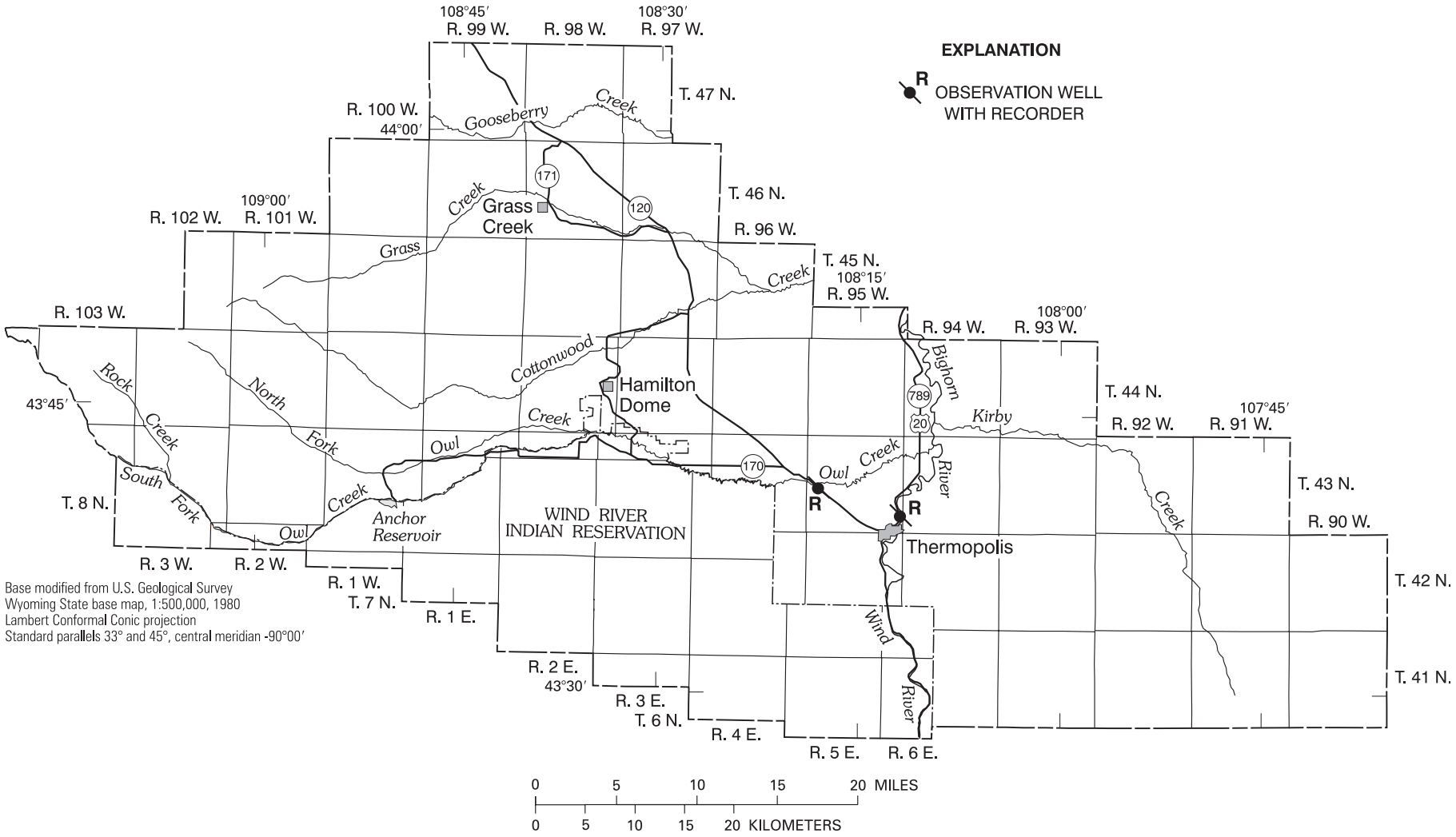


Figure 14. Location of observation wells in Hot Springs County, Wyoming.

HOT SPRINGS COUNTY

IDENTIFICATION.--Station number, 434136108183301. Local number, 43-095-18cab01. Local name, Thermopolis GTW-1.

LOCATION.--Lat 43°41'36", long 108°18'33", in $NW^1/_4$ $NE^1/_4$ $SW^1/_4$ sec.18, T.43 N., R.95 W., Hydrologic Unit 10080007.

AQUIFER.--Ten Sleep Sandstone.

WELL CHARACTERISTICS.--Depth of well, 354 ft below land surface.

DATUM.--Elevation of land surface is 4,700 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.40 ft above land surface.

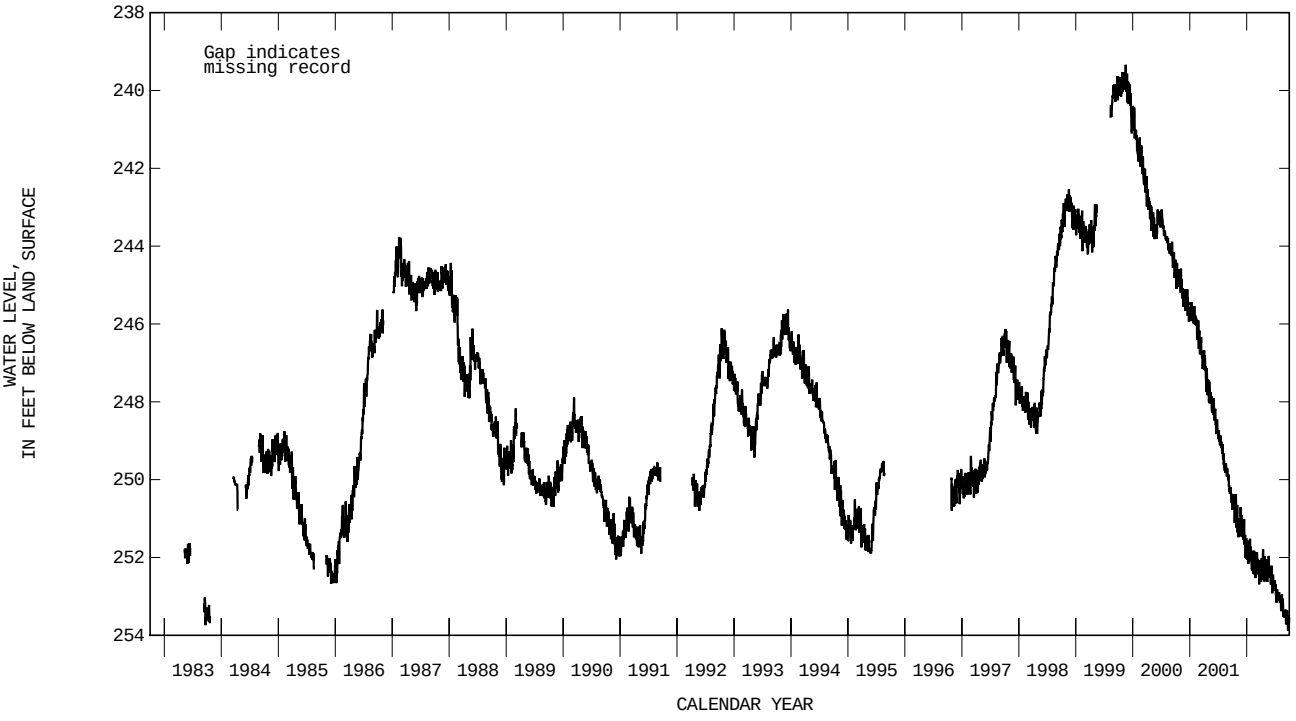
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 239.34 ft below land surface, Nov. 16, 1999; lowest, 253.89 ft below land surface, Sept. 25, 26, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	250.72	251.05	251.23	252.02	252.18	252.04	252.21	252.23	252.55	252.71	---	253.46
10	250.72	251.22	251.16	252.13	252.30	252.18	252.33	252.33	252.50	253.16	253.15	253.70
15	251.11	251.18	251.08	251.92	252.38	252.27	251.79	252.29	252.71	252.84	253.15	253.61
20	250.79	251.14	251.50	251.65	252.08	252.35	252.33	252.17	252.74	253.00	253.10	253.54
25	251.17	250.92	251.99	251.90	252.53	252.39	252.38	252.44	252.86	253.10	253.38	253.85
EOM	250.65	250.94	251.85	252.16	252.00	252.19	252.15	252.46	252.72	252.98	253.45	253.53
MAX	250.37	250.71	251.01	251.52	251.83	251.87	251.79	251.96	252.21	252.68	252.94	253.34
MIN	251.23	251.48	252.02	252.16	252.53	252.69	252.63	252.63	252.92	253.16	253.54	253.88



HOT SPRINGS COUNTY--Continued

IDENTIFICATION.--Station number, 433933108121901. Local number, 43-095-25cdc01. Local name, Thermopolis GTW-3.

LOCATION.--Lat 43°39'33", long 108°12'19", in $SW^1/_4$ $SE^1/_4$ $SW^1/_4$ sec.25, T.43 N., R.95 W., Hydrologic Unit 10080007.

AQUIFER.--Phosphoria Formation (formerly identified as Park City Formation).

WELL CHARACTERISTICS.--Depth of well, 228 ft below land surface.

DATUM.--Elevation of land surface is 4,700 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.60 ft above land surface.

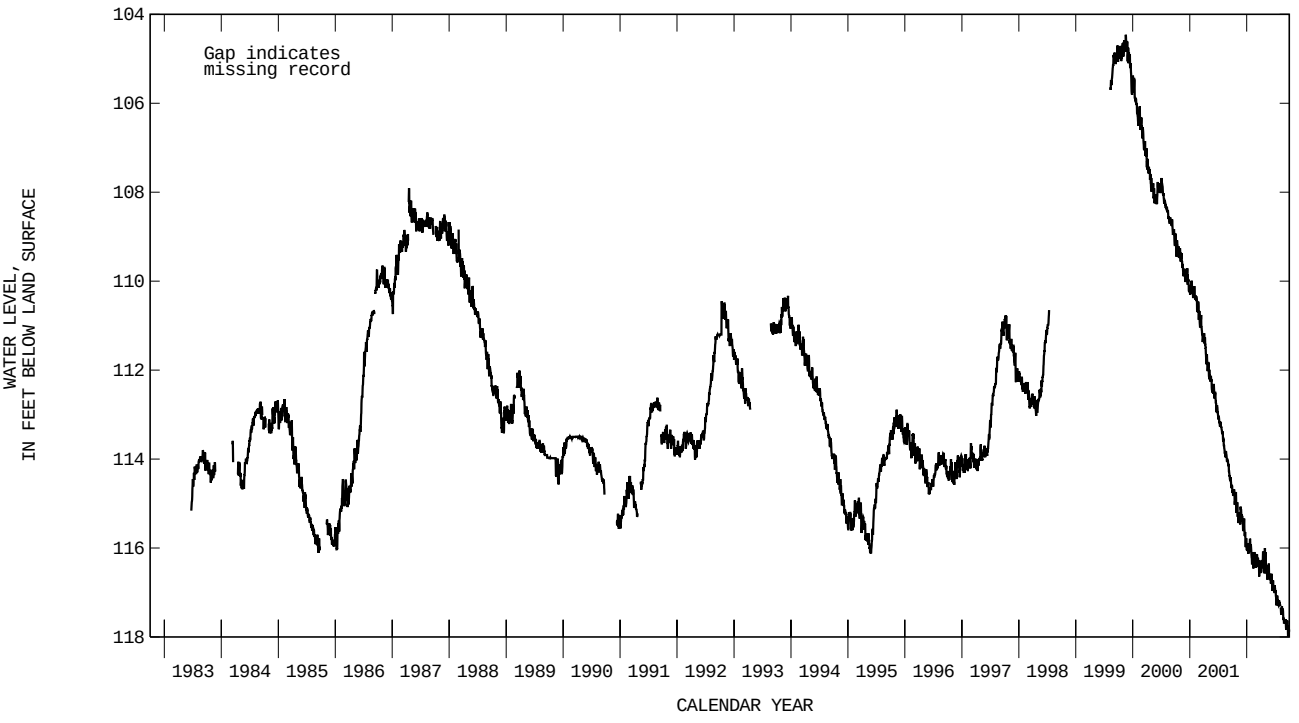
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 104.46 ft below land surface, Nov. 17, 1999; lowest, 118.06 ft below land surface, Sept. 23, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	114.83	115.22	115.36	116.04	116.32	116.26	116.43	116.45	116.76	116.97	---	117.66
10	114.82	115.36	115.45	116.10	116.37	116.34	116.39	116.56	116.68	117.29	117.42	117.84
15	115.03	115.28	115.35	116.00	116.37	116.31	116.08	116.56	116.92	117.08	117.39	117.82
20	114.92	115.36	115.67	115.87	116.17	116.42	116.45	116.51	116.89	117.18	117.38	117.74
25	115.08	115.13	115.98	116.05	116.41	116.41	116.50	116.64	116.99	117.28	117.59	118.00
EOM	114.97	115.26	115.95	116.18	116.28	116.38	116.40	116.69	116.89	117.22	117.63	117.83
MAX	114.68	115.00	115.28	115.79	116.09	116.14	116.00	116.09	116.58	116.92	117.27	117.60
MIN	115.21	115.47	115.98	116.18	116.46	116.64	116.57	116.71	116.99	117.29	117.68	118.00



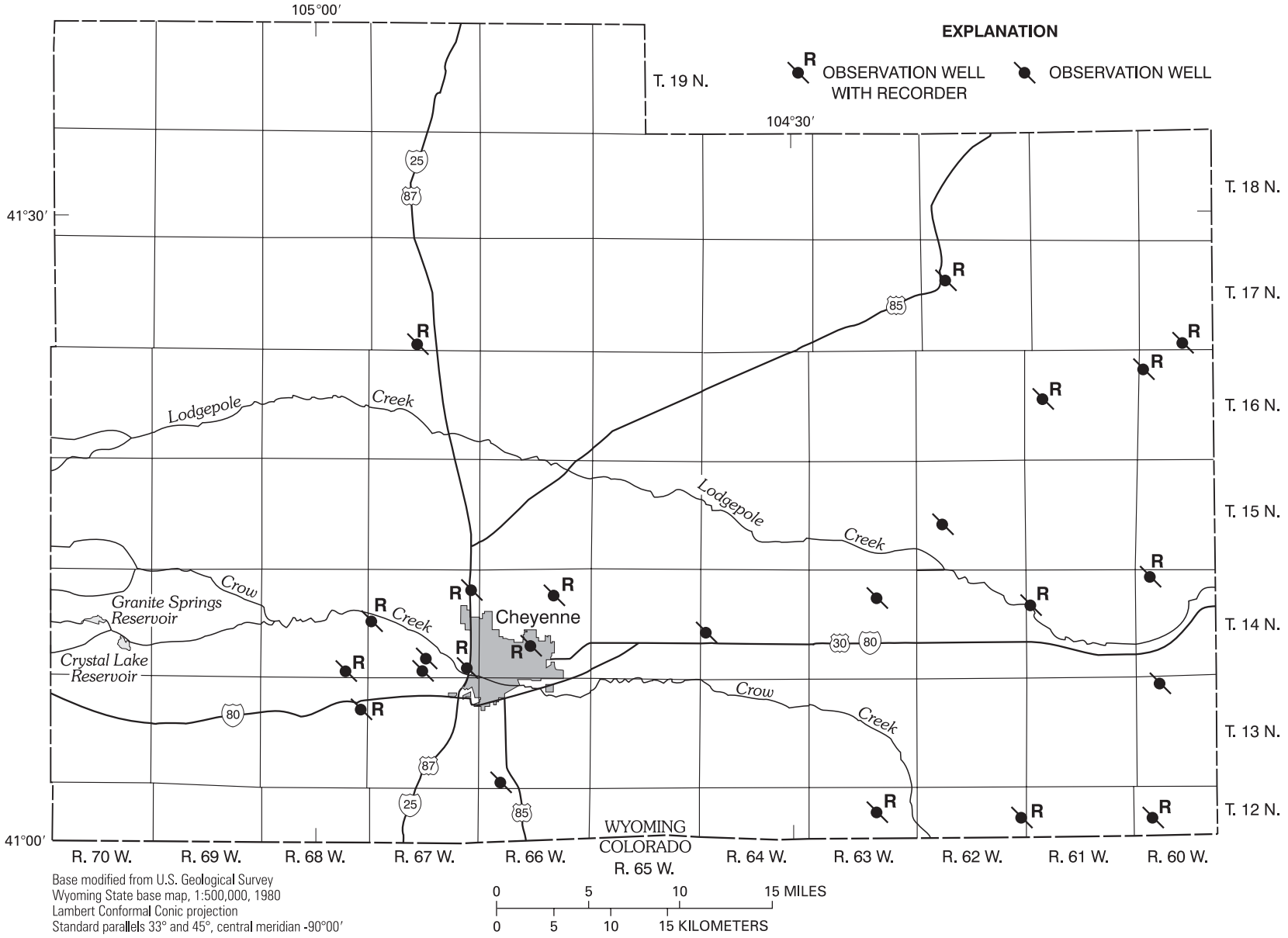


Figure 15. Location of observation wells in Laramie County, Wyoming.

LARAMIE COUNTY

IDENTIFICATION.--Station number, 410059104072401. Local number, 12-060-07ddd01. Local name, Laramie County #1.

LOCATION.--Lat 41°00'59", long 104°07'24", in $SE^1/_4$ $SE^1/_4$ $SE^1/_4$ sec.7, T.12 N., R.60 W., Hydrologic Unit 10190015.

AQUIFER.--Brule Formation.

WELL CHARACTERISTICS.--Depth of well, 120 ft below land surface.

DATUM.--Elevation of land surface is 5,176 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.70 ft above land surface.

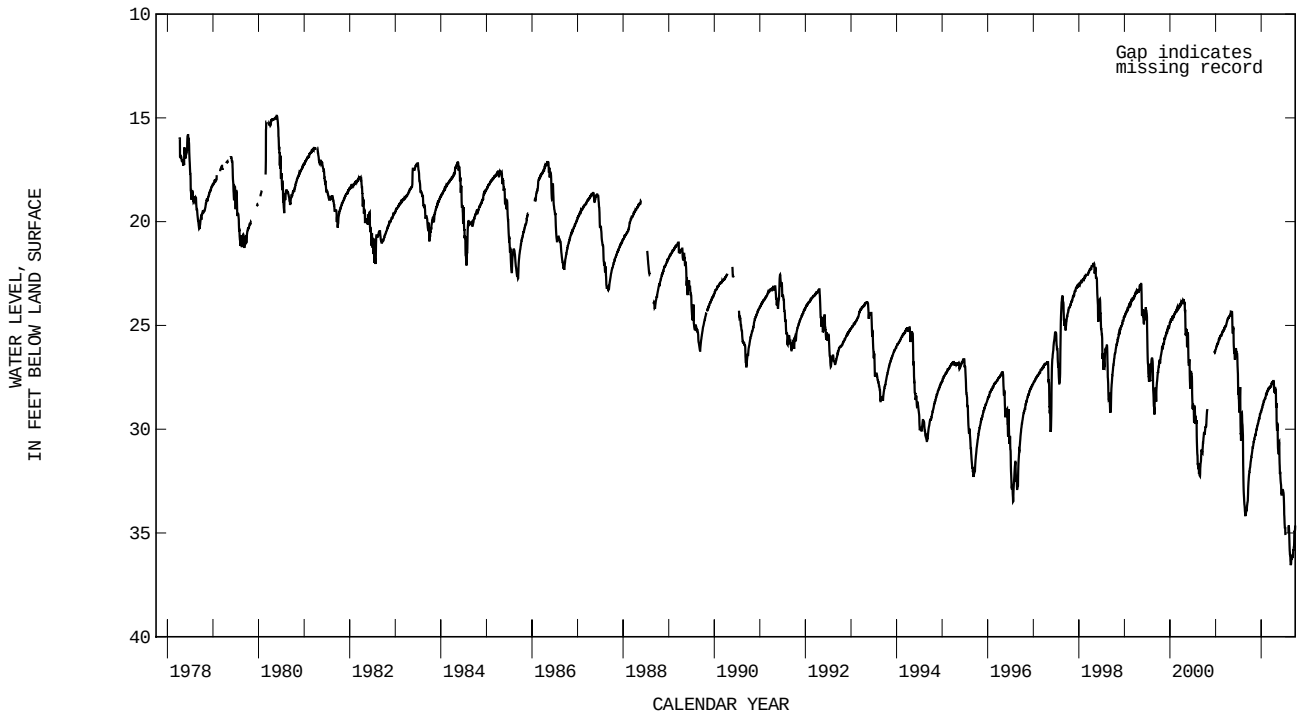
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 14.90 ft below land surface, May 24, 25, 1980; lowest, 36.63 ft below land surface, Aug. 26, 27, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	31.77	30.51	29.75	29.05	28.44	28.02	27.75	29.77	32.48	34.20	---	36.15
10	31.53	30.39	29.58	28.95	28.38	28.01	27.68	29.77	32.93	34.78	34.67	36.14
15	31.33	30.28	29.50	28.81	28.24	27.95	28.08	30.90	33.12	---	35.50	35.79
20	31.09	30.13	29.38	28.67	28.16	27.93	28.11	31.12	32.95	---	36.05	35.65
25	30.88	29.99	29.25	28.63	28.10	27.82	28.12	30.60	32.96	---	36.51	34.96
EOM	30.62	29.85	29.15	28.54	28.04	27.77	28.96	32.16	33.21	---	36.25	34.64
MAX	30.62	29.85	29.15	28.54	28.04	27.77	27.68	28.74	32.05	33.33	34.67	34.64
MIN	31.91	30.62	29.85	29.15	28.53	28.04	28.96	32.16	33.21	35.10	36.55	36.25



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 410100104160301. Local number, 12-062-13baa01. Local name, USGS southeast of Carpenter.

LOCATION.--Lat 41°01'00', long 104°16'03", in $NE^1/_4$ $NE^1/_4$ $NW^1/_4$ sec.13, T.12 N., R.62 W., Hydrologic Unit 10190009.

AQUIFER.--Terrace deposits.

WELL CHARACTERISTICS.--Depth of well, 198 ft below land surface datum.

DATUM.--Elevation of land surface is 5,315 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.70 ft above land surface.

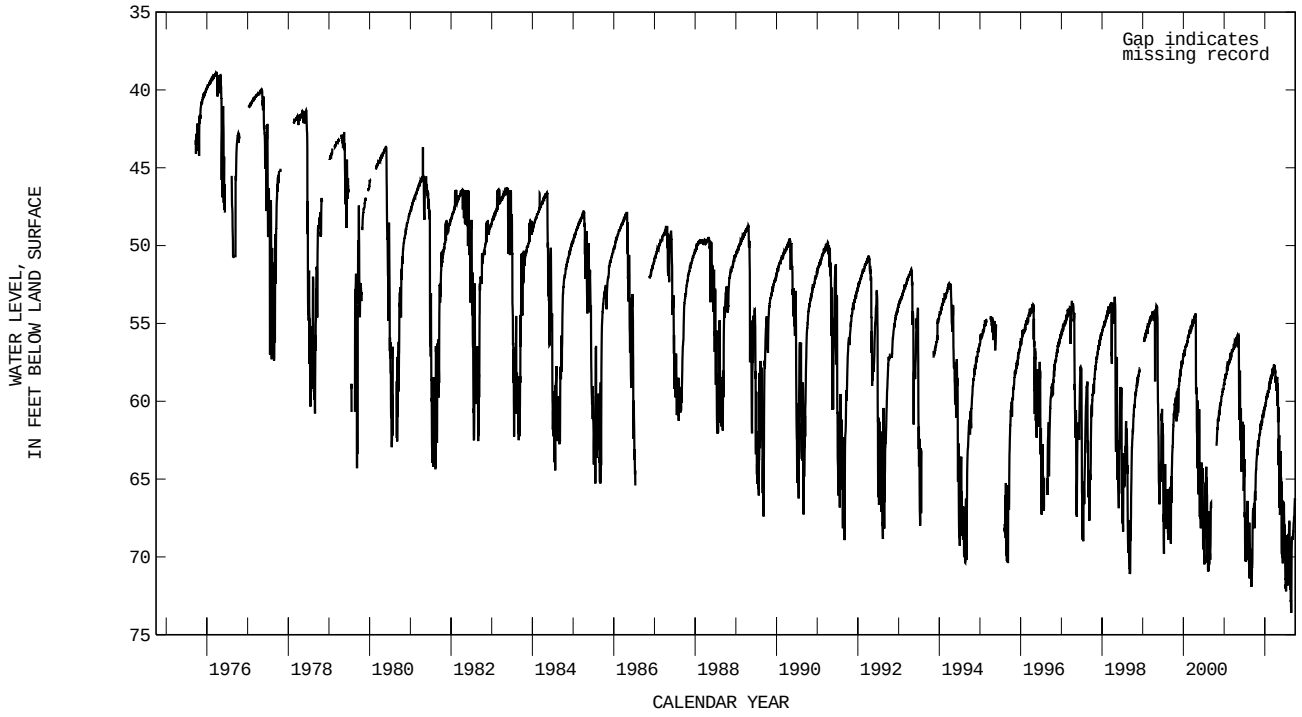
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 38.53 ft below land surface, from hand-measured data, May 19, 1975; lowest, 73.68 ft below land surface, Aug. 26, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	65.77	62.56	61.25	60.33	59.26	58.31	58.04	62.41	66.56	71.37	69.66	68.78
10	65.20	62.40	60.94	60.12	59.26	58.22	58.41	62.18	69.98	72.21	69.55	68.78
15	64.37	62.20	60.78	59.79	58.94	58.18	59.34	65.92	67.68	69.50	70.74	68.08
20	63.63	61.82	60.88	59.52	58.75	58.13	58.60	63.84	67.53	68.62	72.11	67.38
25	63.47	61.61	60.69	59.58	58.64	57.94	58.99	65.08	67.92	71.83	73.60	66.75
EOM	62.57	61.33	60.46	59.45	58.29	58.10	60.94	68.02	70.04	68.98	68.99	66.31
MAX	62.57	61.33	60.35	59.32	58.29	57.64	58.03	60.40	66.35	68.52	67.73	66.29
MIN	67.25	62.93	61.57	60.48	59.47	58.54	61.34	68.02	70.41	72.21	73.60	68.90



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 410111104223102. Local number, 12-063-15aaa02. Local name, USGS southwest of Carpenter.

LOCATION.--Lat 41°00'59", long 104°24'32", in $NE^1/_4$ $NE^1/_4$ $NE^1/_4$ sec.15, T.12 N., R.63 W., Hydrologic Unit 10190009.

AQUIFER.--Brule Formation.

WELL CHARACTERISTICS.--Depth of well, 110 ft below land surface.

DATUM.--Elevation of land surface is 5,385 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.50 ft above land surface.

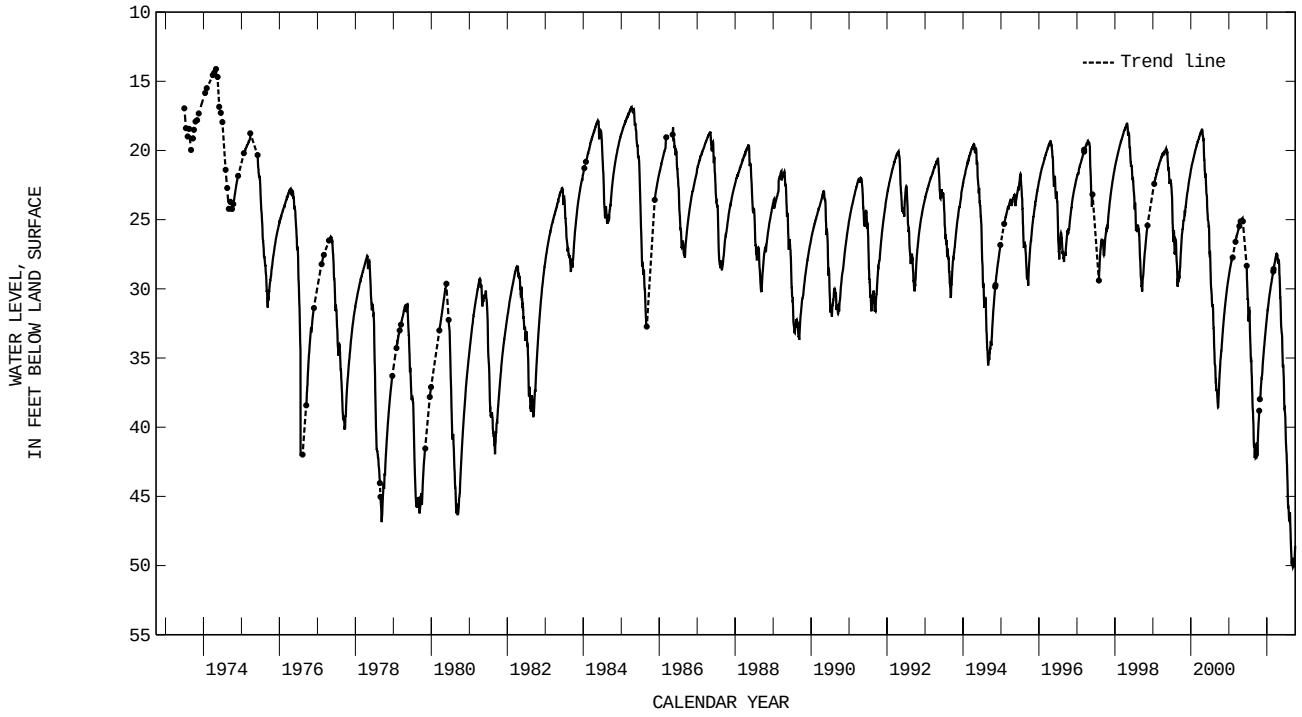
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 14.12 ft below land surface, May 1, 2, 1974; lowest, 50.12 ft below land surface, Sept. 7-9, 18-20, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	41.21	37.01	34.24	31.77	29.92	---	27.44	29.54	35.56	41.39	46.70	49.94
10	40.14	36.48	33.79	31.51	29.72	28.42	27.54	30.62	36.07	42.04	46.21	50.08
15	39.45	36.26	33.39	31.13	29.50	28.23	27.92	31.86	37.52	43.25	47.29	50.07
20	38.80	35.69	32.99	30.80	29.25	28.03	28.08	32.87	38.60	44.61	48.49	50.08
25	---	35.15	32.59	30.51	29.04	27.80	27.96	33.23	39.04	45.85	49.43	49.39
EOM	37.68	34.68	32.13	30.22	28.87	27.66	28.51	34.72	40.22	46.33	49.54	48.58
MAX	37.68	34.68	32.13	30.22	28.87	27.61	27.41	28.93	34.96	40.56	46.21	48.58
MIN	42.05	37.58	34.60	32.06	30.15	28.86	28.51	34.72	40.22	46.33	49.91	50.12



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 410703104071201. Local number, 13-060-05ccb01. Local name, Elmer Glantz.

LOCATION.--Lat 41°07'03", long 104°07'12", in $NW^1/_4$ $SW^1/_4$ $SW^1/_4$ sec.5, T.13 N., R.60 W., Hydrologic Unit 10190015.

AQUIFER.--Brule Formation.

WELL CHARACTERISTICS.--Depth of well, 100 ft below land surface.

DATUM.--Elevation of land surface is 5,125 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, at land surface.

COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

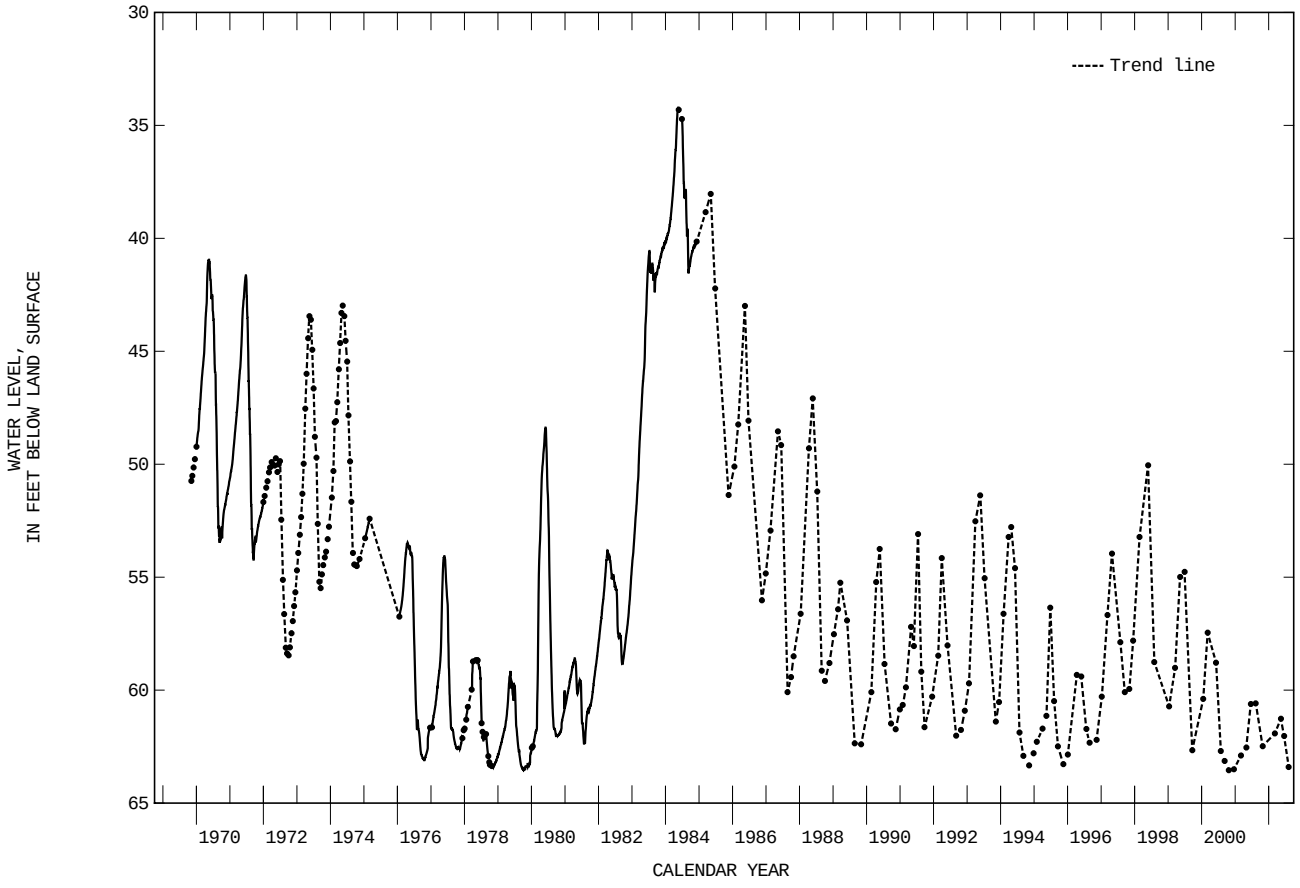
PERIOD OF RECORD.--1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 34.18 ft below land surface, May 20, 1984; lowest, 63.52 ft below land surface, Oct. 9, 12, 13, 1979.

WATER LEVELS IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	62.48	MAR 08	61.92	MAY 13	61.27	JUN 17	62.03	AUG 07	63.40

WATER YEAR 2002 HIGHEST 61.27 MAY 13, 2002 LOWEST 63.40 AUG 07, 2002



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 410324104481701. Local number, 13-066-32bbd01. Local name, Laramie County #14.

LOCATION.--Lat 41°03'24", long 104°48'17", in $SE^1/_4$ $NW^1/_4$ $NW^1/_4$ sec.32, T.13 N., R.66 W., Hydrologic Unit 10190009.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 160 ft below land surface.

DATUM.--Elevation of land surface is 6,180 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.3 ft above land surface.

COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

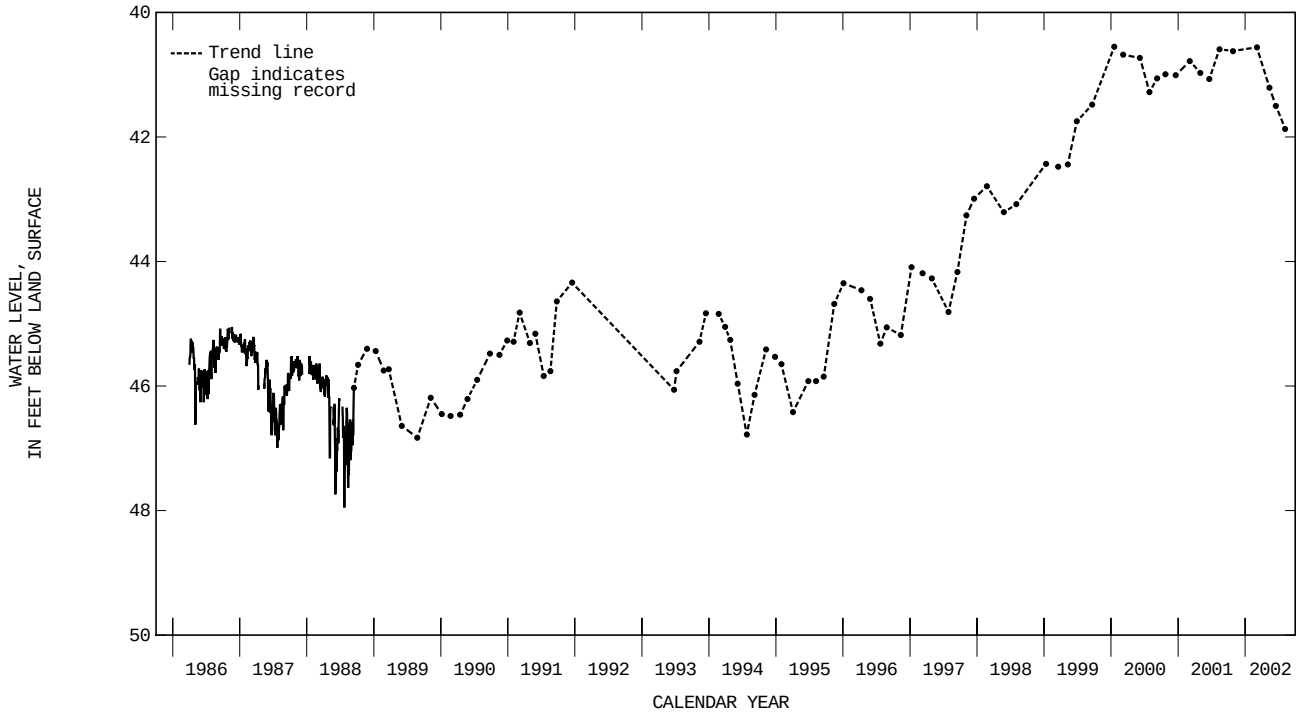
PERIOD OF RECORD.--1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 40.55 ft below land surface, from hand-measured data, Jan. 18, 2000; lowest, 47.95 ft below land surface, July 23, 1988.

WATER LEVELS IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	40.62	MAR 05	40.56	MAY 13	41.21	JUN 17	41.50	AUG 07	41.87

WATER YEAR 2002 HIGHEST 40.56 MAR 05, 2002 LOWEST 41.87 AUG 07, 2002



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 410530104574001. Local number, 13-068-13ccc01. Local name, Borie.

LOCATION.--Lat 41°05'30", long 104°57'40", in $SW^1/_4$ $SW^1/_4$ $SW^1/_4$ sec.13, T.13 N., R.68 W., Hydrologic Unit 10190009.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, unknown.

DATUM.--Elevation of land surface is 6,528 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 0.80 ft above land surface.

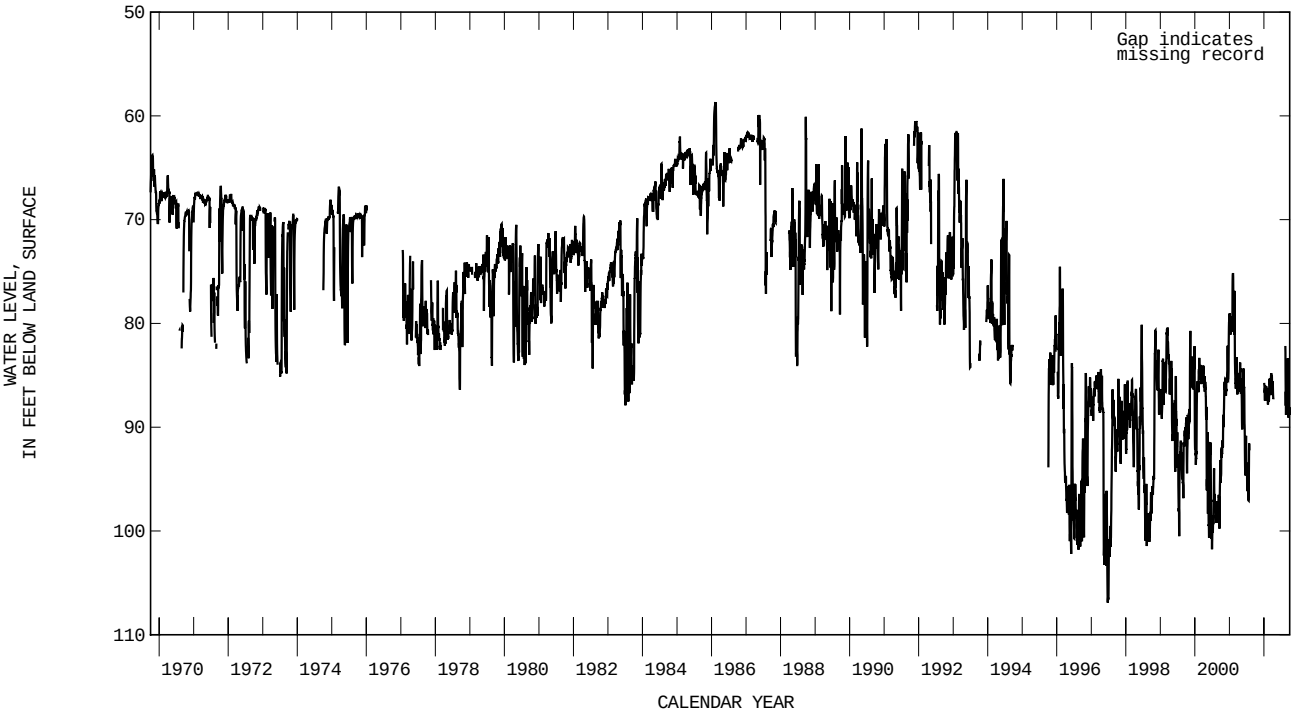
REMARKS.--Data collected by U.S. Geological Survey.

PERIOD OF RECORD.--1942 to 1950, 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 36.78 ft below land surface, from hand-measured data, Mar. 23, 1945; lowest, 106.91 ft below land surface, June 23, 1997.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	---	---	85.92	86.30	85.91	85.91	---	---	---	---	86.84
10	---	---	---	87.02	86.91	86.78	87.29	---	---	---	---	83.68
15	---	---	---	86.00	87.55	86.20	---	---	---	---	82.17	87.67
20	---	---	---	86.69	87.31	85.72	---	---	---	---	87.93	87.83
25	---	---	---	86.05	86.73	85.02	---	---	---	---	86.60	88.75
EOM	---	---	---	86.98	85.68	86.65	---	---	---	---	87.51	88.61
MAX	---	---	---	85.73	85.67	84.80	85.55	---	---	---	82.17	83.36
MIN	---	---	---	87.44	87.81	86.91	87.29	---	---	---	88.82	89.07



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 411238104070801. Local number, 14-060-05bcb01. Local name, C.C. Gross.

LOCATION.--Lat 41°12'38", long 104°07'08", in $NW^1/_4$ $SW^1/_4$ $NW^1/_4$ sec.5, T.14 N., R.60 W., Hydrologic Unit 10190015.

AQUIFER.--Brule Formation.

WELL CHARACTERISTICS.--Depth of well, 100 ft below land surface.

DATUM.--Elevation of land-surface is 5,082 ft above NGVD of 1929, from topographic map. Measuring point: bottom of shelf, 3.35 ft above land surface.

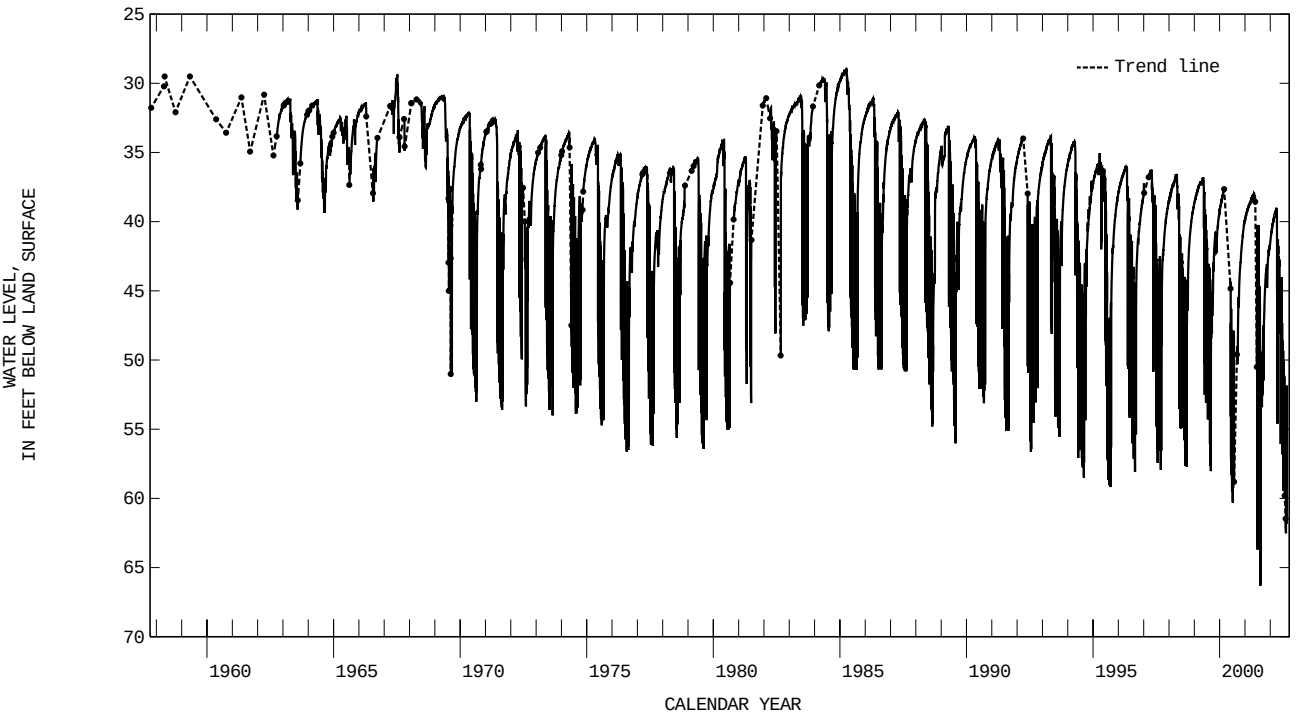
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1957 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 28.96 ft below land surface, Apr. 3, 4, 1985; lowest, 69.18 ft below land surface, Aug. 12, 2001.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	46.63	43.37	42.30	41.26	40.19	39.51	39.30	47.45	45.94	57.63	---	---
10	45.72	43.21	42.06	41.05	40.09	39.41	43.41	42.77	44.50	56.22	62.12	---
15	45.10	44.79	41.98	40.79	39.96	39.35	45.17	44.72	46.80	57.00	62.52	---
20	44.50	43.47	41.88	40.60	39.80	39.27	41.36	44.34	47.33	51.18	61.85	---
25	44.05	42.93	41.79	40.47	39.75	39.17	41.75	44.15	56.58	59.33	61.84	---
EOM	43.67	42.61	41.50	40.34	39.60	39.08	46.57	56.07	49.71	---	---	---
MAX	43.67	42.61	41.50	40.34	39.60	39.07	39.08	42.51	44.03	49.33	51.83	---
MIN	47.24	44.79	42.53	41.48	40.31	39.62	54.60	56.07	56.81	59.80	62.52	---



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 411022104141201. Local number, 14-061-18ddd01. Local name, Laramie County #2.

LOCATION.--Lat 41°10'22", long 104°14'12", in $SE^1/_4$ $SE^1/_4$ $SE^1/_4$ sec.18, T.14 N., R.61 W., Hydrologic Unit 10190015.

AQUIFER.--Brule Formation.

WELL CHARACTERISTICS.--Depth of well, 90 ft below land surface.

DATUM.--Elevation of land surface is 5,264 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.70 ft above land surface.

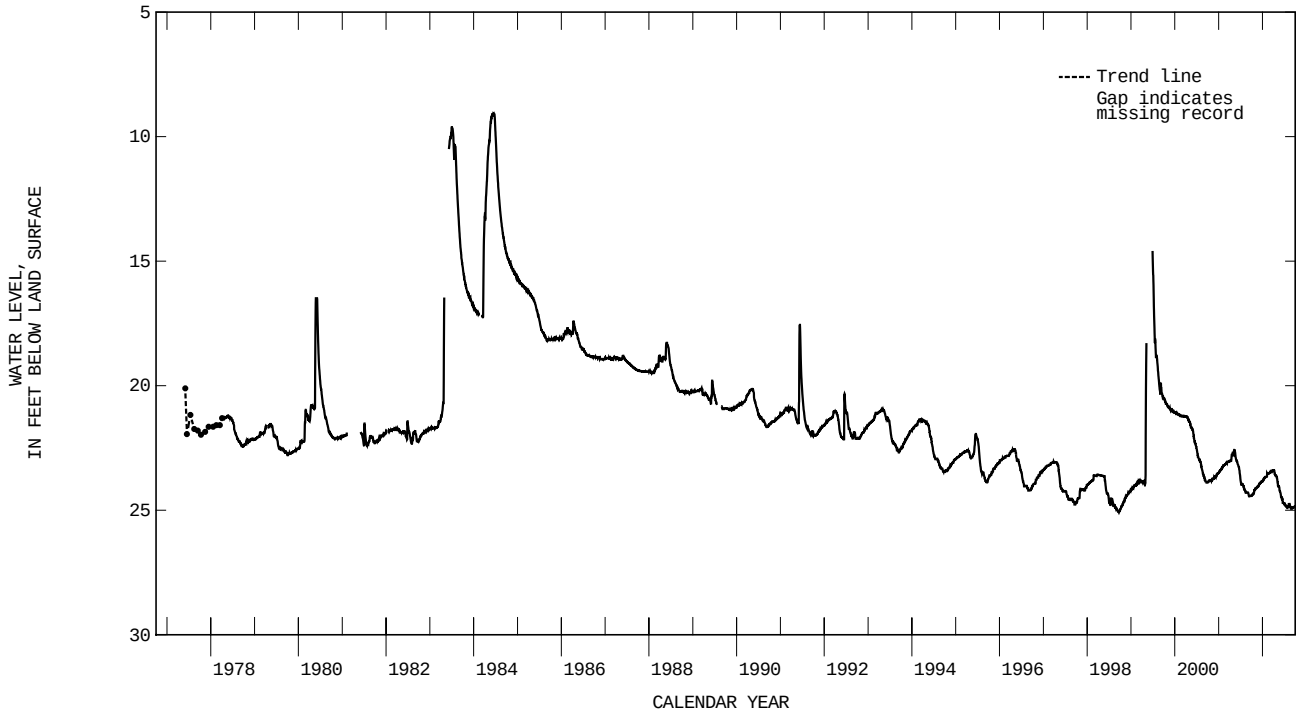
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 9.08 ft below land surface, June 18, 1984; lowest, 25.09 ft below land surface, Sept. 22, 1998.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	24.40	24.13	23.95	23.80	23.66	23.46	23.40	23.84	24.46	24.78	24.92	24.90
10	24.37	24.11	23.92	23.77	23.53	23.47	23.46	23.99	24.53	24.81	24.76	24.90
15	24.35	24.08	23.90	23.71	23.53	23.43	23.56	24.05	24.54	24.84	24.75	24.89
20	24.31	24.06	23.87	23.68	23.52	23.43	23.61	24.08	24.70	24.85	24.85	24.87
25	24.19	24.04	23.85	23.66	23.51	23.43	23.62	24.23	24.71	24.89	24.89	24.86
EOM	24.13	24.00	23.84	23.66	23.50	23.39	23.69	24.31	24.72	24.91	24.94	24.84
MAX	24.13	24.00	23.84	23.66	23.50	23.39	23.39	23.69	24.35	24.72	24.75	24.84
MIN	24.42	24.13	24.00	23.84	23.66	23.50	23.69	24.31	24.72	24.91	24.94	24.93



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 411114104242501. Local number, 14-063-15aaa01. Local name, Laramie County #3.

LOCATION.--Lat 41°11'14", long 104°24'25", in $NE^1/_4$ $NE^1/_4$ $NE^1/_4$ sec.15, T.14 N., R.63 W., Hydrologic Unit 10190015.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 165 ft below land surface.

DATUM.--Elevation of land surface is 5,489 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.3 ft above land surface.

COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

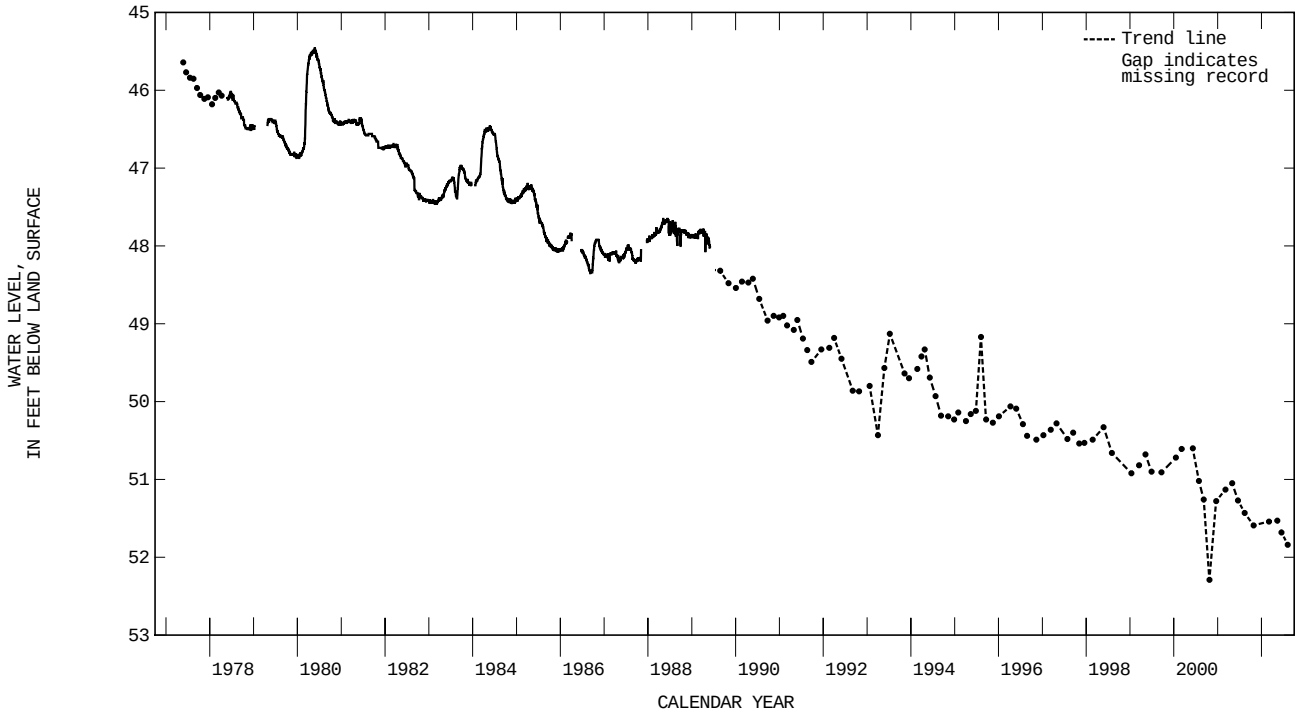
PERIOD OF RECORD.--1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 45.45 ft below land surface, May 24, 1980; lowest, 51.26 ft below land surface, from hand-measured data, Sept. 6, 2000.

WATER LEVELS IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	51.59	MAR 05	51.54	MAY 13	51.53	JUN 17	51.68	AUG 07	51.84

WATER YEAR 2002 HIGHEST 51.53 MAY 13, 2002 LOWEST 51.84 AUG 07, 2002



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 411005104355001. Local number, 14-064-19bcc01. Local name, Laramie County #9.

LOCATION.--Lat 41°10'05", long 104°35'50", in $SW^1/_4$ $SW^1/_4$ $NW^1/_4$ sec.19, T.14 N., R.64 W., Hydrologic Unit 10190015.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 180 ft below land surface.

DATUM.--Elevation of land surface is 5,880 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.5 ft above land surface.

COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological. Survey.

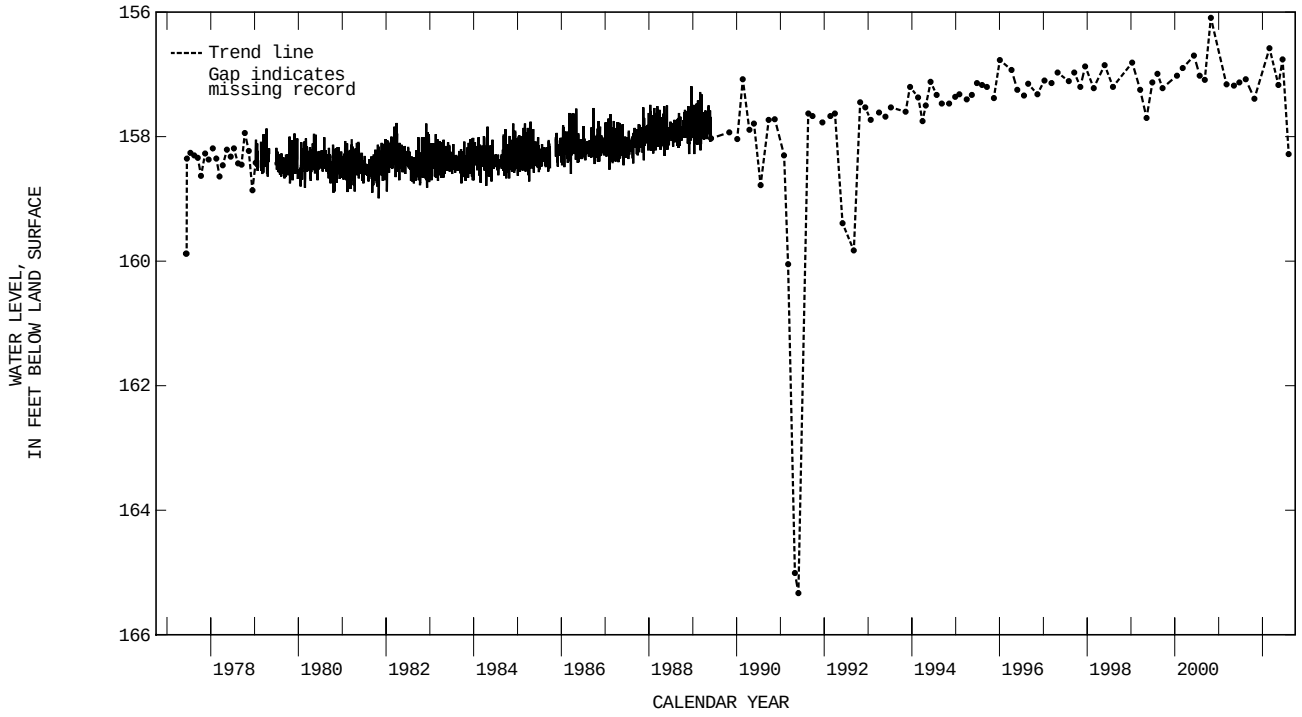
PERIOD OF RECORD.--1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 156.70 ft below land surface, from hand-measured data, June 9, 2000; lowest, 165.33 ft below land surface, from hand-measured data, May 30, 1991.

WATER LEVELS IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	157.39	FEB 28	156.58	MAY 13	157.17	JUN 17	156.76	AUG 07	158.28

WATER YEAR 2002 HIGHEST 156.58 FEB 28, 2002 LOWEST 158.28 AUG 07, 2002



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 411210104452001. Local number, 14-066-10aba01. Local name, Laramie County #8.

LOCATION.--Lat 41°12'10", long 104°45'20", in $NE^1/_4$ $NW^1/_4$ $NE^1/_4$ sec.10, T.14 N., R.66 W., Hydrologic Unit 10190015.

AQUIFER.--Ogalalla Formation.

WELL CHARACTERISTICS.--Depth of well, 190 ft below land surface.

DATUM.--Elevation of land surface is 6,090 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.40 ft above land surface.

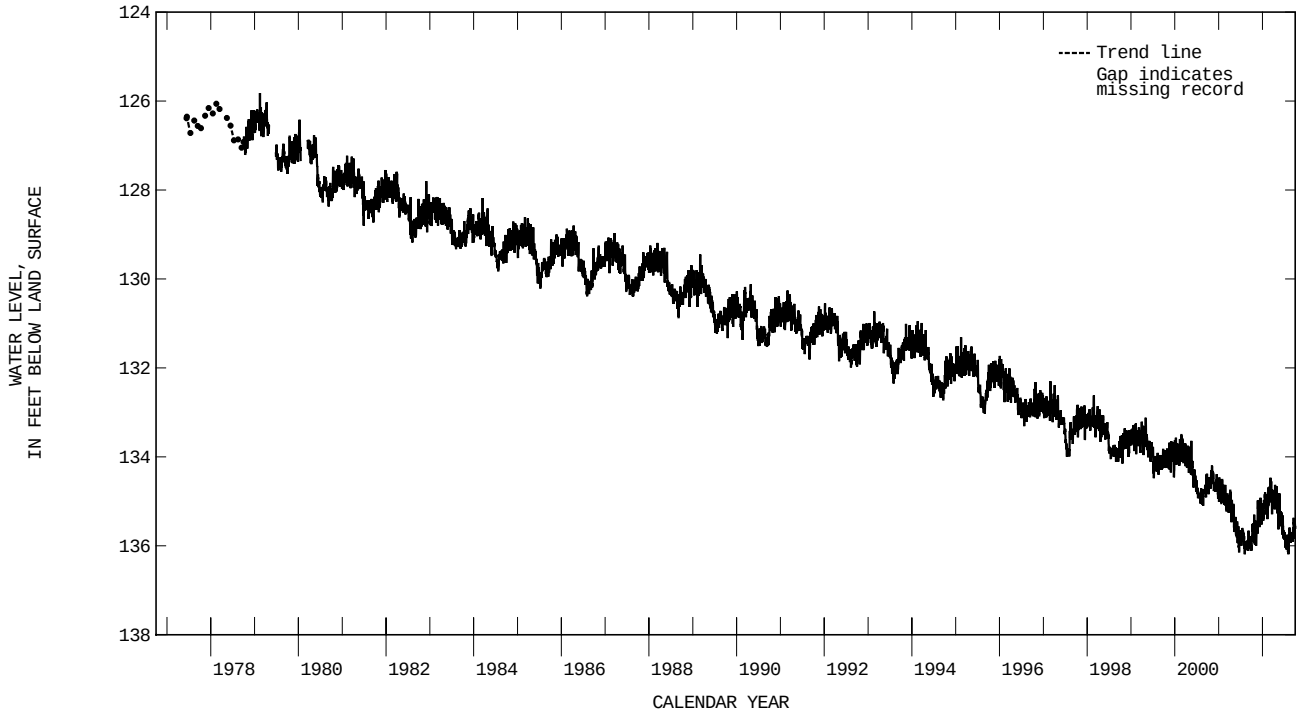
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 125.82 ft below land surface, Feb. 14, 1979; lowest, 136.32 ft below land surface, Aug. 1, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	135.87	135.76	135.19	135.38	135.21	134.86	135.17	135.16	135.45	135.74	135.97	135.78
10	135.68	135.77	135.04	135.35	135.40	134.93	135.04	135.17	135.30	136.04	135.82	135.91
15	135.72	135.63	134.92	135.02	135.14	134.86	134.63	135.21	135.64	135.82	135.66	135.84
20	135.66	135.49	135.39	134.84	134.83	135.07	134.97	135.27	135.56	135.79	135.70	135.47
25	135.79	135.10	135.47	135.15	134.96	134.96	135.09	135.24	135.82	135.98	135.93	135.70
EOM	135.43	135.05	135.32	135.11	134.67	135.00	134.90	135.47	135.75	135.99	135.87	135.55
MAX	135.30	134.98	134.92	134.80	134.67	134.47	134.63	134.82	135.22	135.69	135.59	135.37
MIN	135.97	136.00	135.58	135.44	135.40	135.29	135.18	135.63	135.84	136.08	136.19	135.91



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 410616104462401. Local number, 14-066-28adb01. Local name, Cheyenne Ogallala Well.

LOCATION.--Lat 41°06'16", long 104°46'24", in $SW^1/_4$ $NW^1/_4$ $NE^1/_4$ sec.28, T.14 N., R.66 W., Hydrologic Unit 10190009.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 265 ft below land surface.

DATUM.--Elevation of land surface is 6,041.44 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 3.00 ft above land surface.

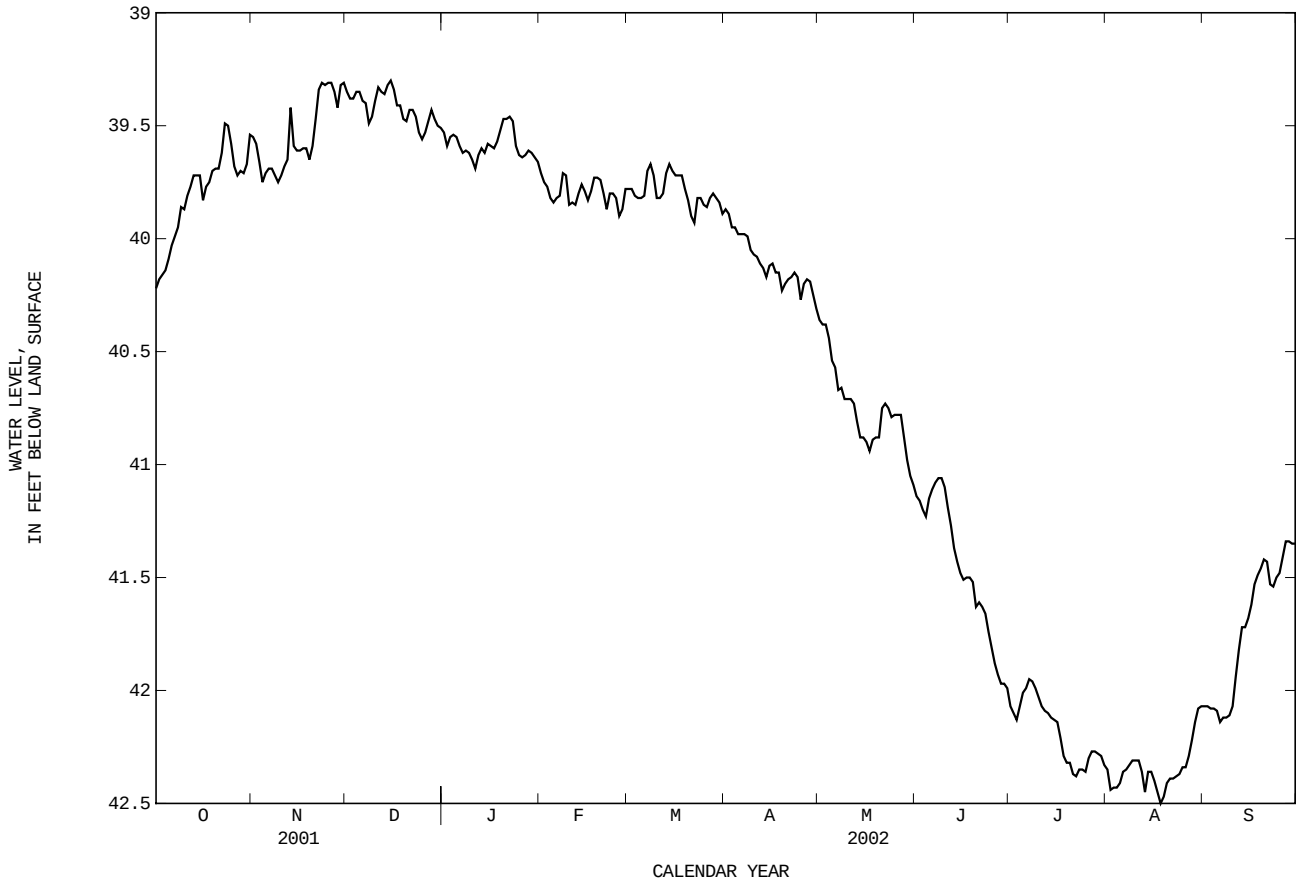
COOPERATION.--Data collected by U.S. Geological Survey.

PERIOD OF RECORD.--2000 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 39.30 ft below land surface, Dec. 15, 2001; lowest, 42.52 ft below land surface, Aug. 19, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	40.09	39.71	39.35	39.55	39.84	39.82	39.98	40.54	41.15	42.01	42.41	42.09
10	39.87	39.72	39.39	39.65	39.85	39.82	40.07	40.71	41.10	42.03	42.31	42.07
15	39.72	39.61	39.30	39.58	39.79	39.70	40.12	40.88	41.48	42.13	42.36	41.68
20	39.69	39.59	39.48	39.47	39.74	39.83	40.20	40.88	41.63	42.32	42.41	41.42
25	39.58	39.31	39.56	39.63	39.82	39.85	40.27	40.78	41.81	42.36	42.34	41.48
EOM	39.54	39.31	39.51	39.66	39.78	39.89	40.31	41.09	41.99	42.33	42.07	41.35
MAX	40.22	39.75	39.56	39.69	39.90	39.93	40.31	41.09	41.99	42.38	42.50	42.14
MIN	39.49	39.31	39.30	39.46	39.71	39.67	39.87	40.36	41.06	41.95	42.07	41.34



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 411213104501401. Local number, 14-067-12abb01. Local name, Laramie County #10.

LOCATION.--Lat 41°12'13", long 104°50'14", in $NW^1/_4$ $NW^1/_4$ $NE^1/_4$ sec.12, T.14 N., R.67 W., Hydrologic Unit 10190009.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 220 ft below land surface.

DATUM.--Elevation of land surface is 6,230 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.25 ft above land surface.

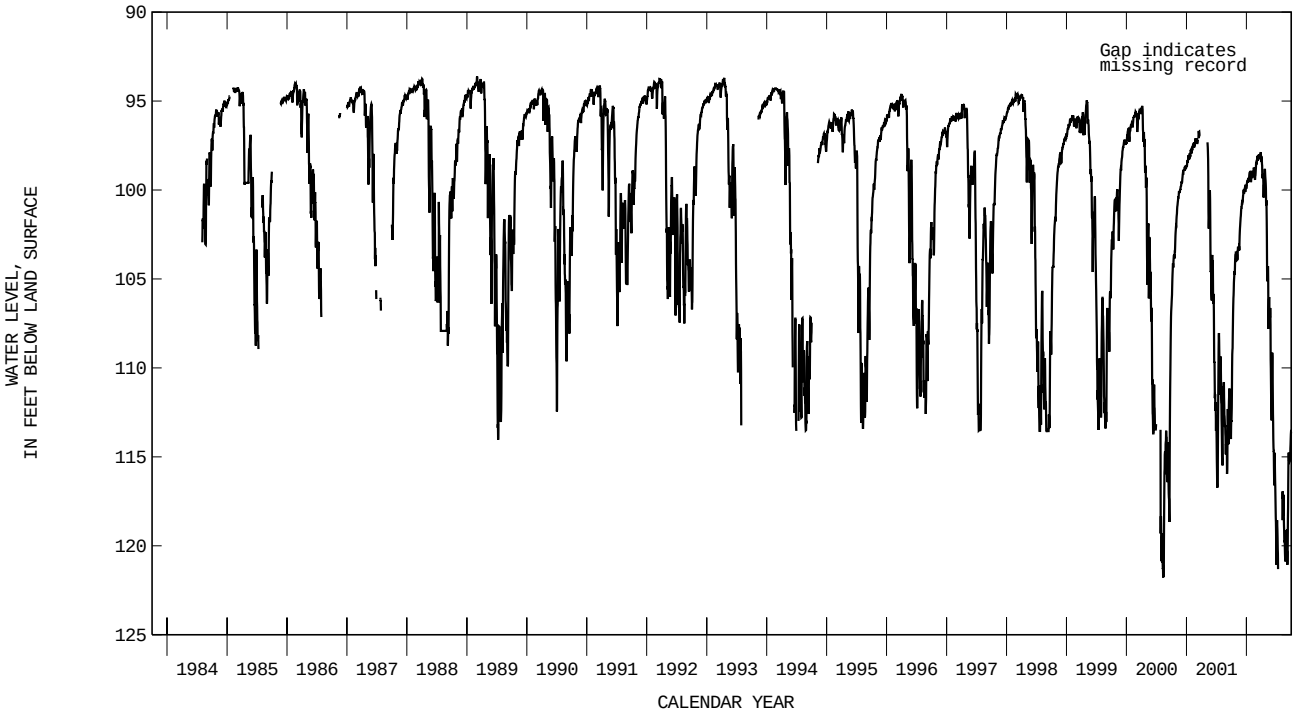
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 93.62 ft below land surface, Mar. 3, 1989; lowest, 121.78 ft below land surface, Aug. 11, 2000.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	110.01	103.93	100.68	99.52	99.26	98.41	98.54	102.75	109.99	118.76	---	120.33
10	107.56	103.19	100.42	99.48	99.07	98.26	99.21	105.07	111.51	120.19	117.35	118.49
15	105.62	103.21	99.98	99.36	98.77	98.06	100.42	107.81	114.67	---	117.20	114.76
20	104.56	102.59	100.03	99.03	99.31	98.12	99.21	106.74	115.19	---	119.80	114.92
25	103.72	101.71	100.01	98.97	99.06	98.15	99.24	106.63	116.66	---	120.67	114.52
EOM	103.52	101.03	99.86	99.26	98.54	98.40	100.73	111.90	119.28	---	119.26	113.60
MAX	103.52	101.03	99.71	98.97	98.54	97.88	98.23	100.58	109.14	118.56	116.94	113.59
MIN	113.02	103.93	100.98	99.78	99.42	98.54	100.73	111.90	119.28	121.31	120.88	121.07



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 411034104554001. Local number, 14-067-18ddc01. Local name, Bell #14.

LOCATION.--Lat 41°10'34", long 104°55'40", in SW $^1/_4$ SE $^1/_4$ SE $^1/_4$ sec.18, T.14 N., R.67 W., Hydrologic Unit 10190009.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 229 ft below land surface.

DATUM.--Elevation of land surface is 6,248 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.50 ft above land surface.

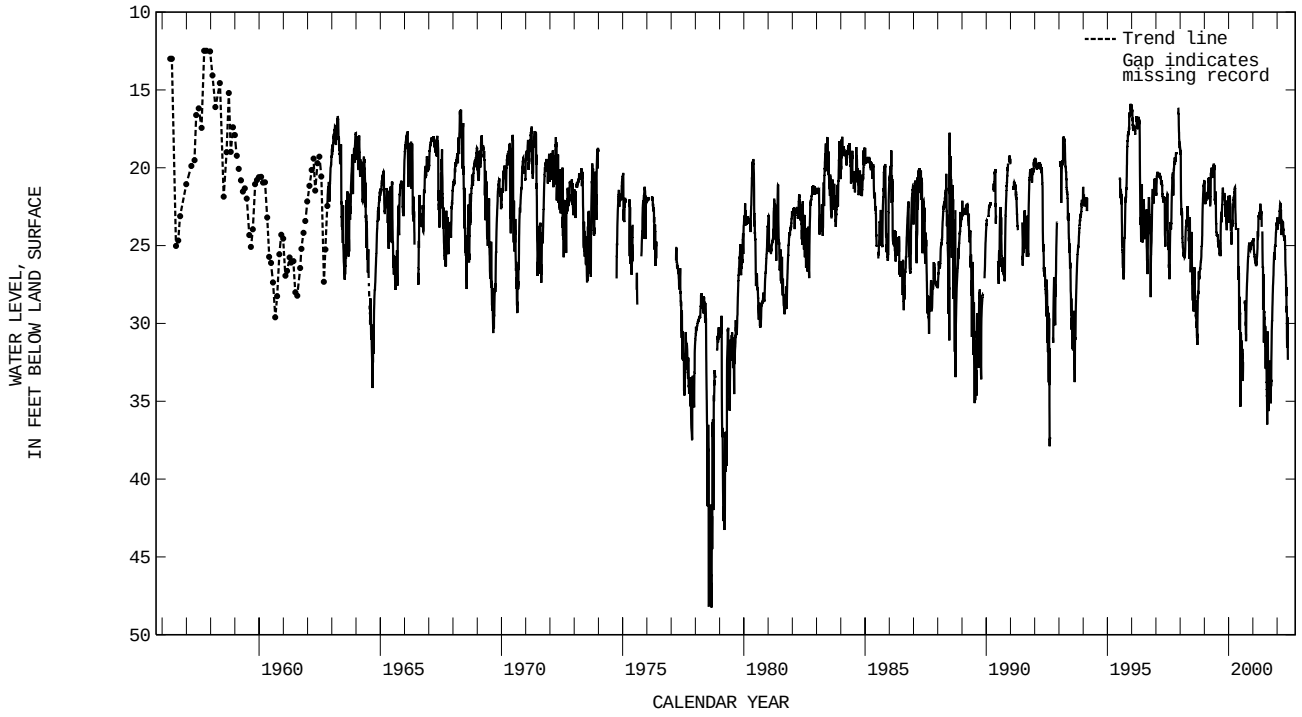
REMARKS.--Data collected by U.S. Geological Survey.

PERIOD OF RECORD.--1956 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 12.48 ft below land surface, from hand measured data, Sept. 26, Oct. 28, 1957; lowest, 48.25 ft below land surface, Aug. 31, 1978.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	32.81	27.05	25.05	23.20	23.09	24.19	24.02	26.14	30.06	---	---	---
10	31.07	26.26	24.49	23.96	22.75	23.99	24.32	26.65	31.30	---	---	---
15	29.97	25.67	24.11	23.59	22.56	24.10	24.36	27.22	---	---	---	---
20	29.37	25.44	23.72	23.35	22.37	23.59	24.60	27.80	---	---	---	---
25	28.48	25.46	23.57	23.31	22.89	23.69	24.48	28.92	---	---	---	---
EOM	27.52	25.05	23.52	23.50	22.70	23.55	24.78	31.54	---	---	---	---
MAX	27.52	25.03	23.51	23.20	22.28	23.03	23.55	25.23	29.61	---	---	---
MIN	34.04	27.49	25.07	23.97	23.57	24.32	24.78	31.54	32.34	---	---	---



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 410930104524701. Local number, 14-067-27bac01. Local name, Laramie County #13.

LOCATION.--Lat 41°09'30", long 104°52'47", in $SW^1/_4$ $NE^1/_4$ $NW^1/_4$ sec.27, T.14 N., R.67 W., Hydrologic Unit 10190009.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 140 ft below land surface.

DATUM.--Elevation of land surface is 6,180 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.8 ft above land surface.

COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

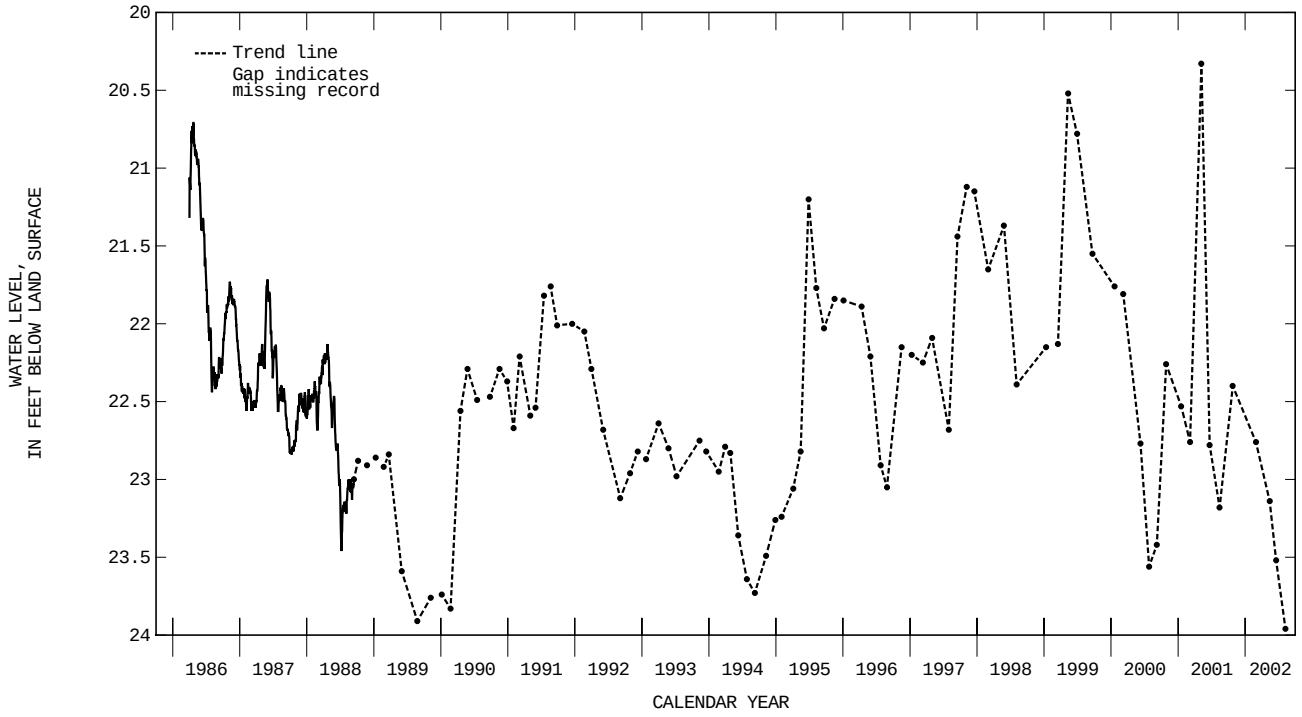
PERIOD OF RECORD.--1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 20.52 ft below land surface, from hand-measured data, May 11, 1999; lowest, 23.96 ft below land surface, Aug. 8, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	22.40	FEB 28	22.76	MAY 14	23.14	JUN 18	23.52	AUG 08	23.96

WATER YEAR 2002 HIGHEST 22.40 OCT 25, 2001 LOWEST 23.96 AUG 08, 2002



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 410838104530401. Local number, 14-067-34bbc01. Local name, Laramie County #11.

LOCATION.--Lat 41°08'38", long 104°53'04", in SW $^{1}/_{4}$ NW $^{1}/_{4}$ NW $^{1}/_{4}$ sec.34, T.14 N., R.67 W., Hydrologic Unit 10190009.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 162 ft below land surface.

DATUM.--Elevation of land surface is 6,210 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.50 ft above land surface.

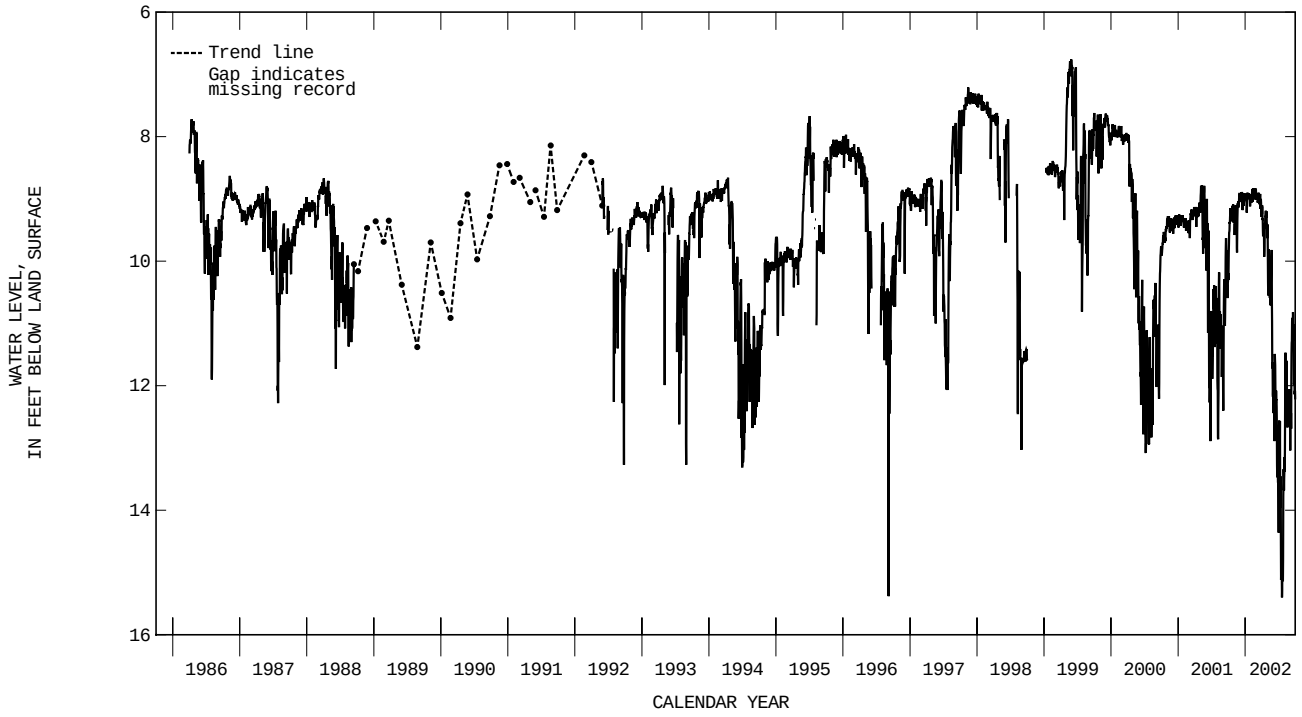
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.76 ft below land surface, May 29, 1999; lowest, 15.40 ft below land surface, July 20, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.54	9.45	8.97	9.00	9.00	9.00	9.34	10.34	12.21	12.56	13.01	12.65
10	9.29	9.15	8.97	9.14	9.05	9.05	9.48	10.30	11.94	13.65	12.23	11.48
15	9.25	9.36	8.91	8.93	8.91	8.97	9.83	10.59	12.52	15.12	11.80	10.92
20	9.30	9.19	9.03	8.91	8.92	9.02	9.29	10.46	12.22	15.40	12.39	11.19
25	---	9.10	9.05	8.95	9.01	9.14	9.30	9.82	13.31	15.14	12.52	11.99
EOM	9.13	8.92	9.01	9.03	8.85	9.29	9.63	12.14	13.39	13.68	12.06	12.22
MAX	9.09	8.92	8.89	8.90	8.83	8.90	9.12	9.41	11.49	12.56	11.47	10.82
MIN	10.30	9.86	9.18	9.22	9.06	9.29	9.93	12.14	13.56	15.40	13.48	13.04



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 410827104501601. Local number, 14-067-36acb01. Local name, Pioneer Park.

LOCATION.--Lat 41°08'27", long 104°50'16", in $NW^1/_4$ $SW^1/_4$ $NE^1/_4$ sec.36, T.14 N., R.67 W., Hydrologic Unit 10190009.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 24 ft below land surface.

DATUM.--Elevation of land surface is 6,099 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.00 ft above land surface.

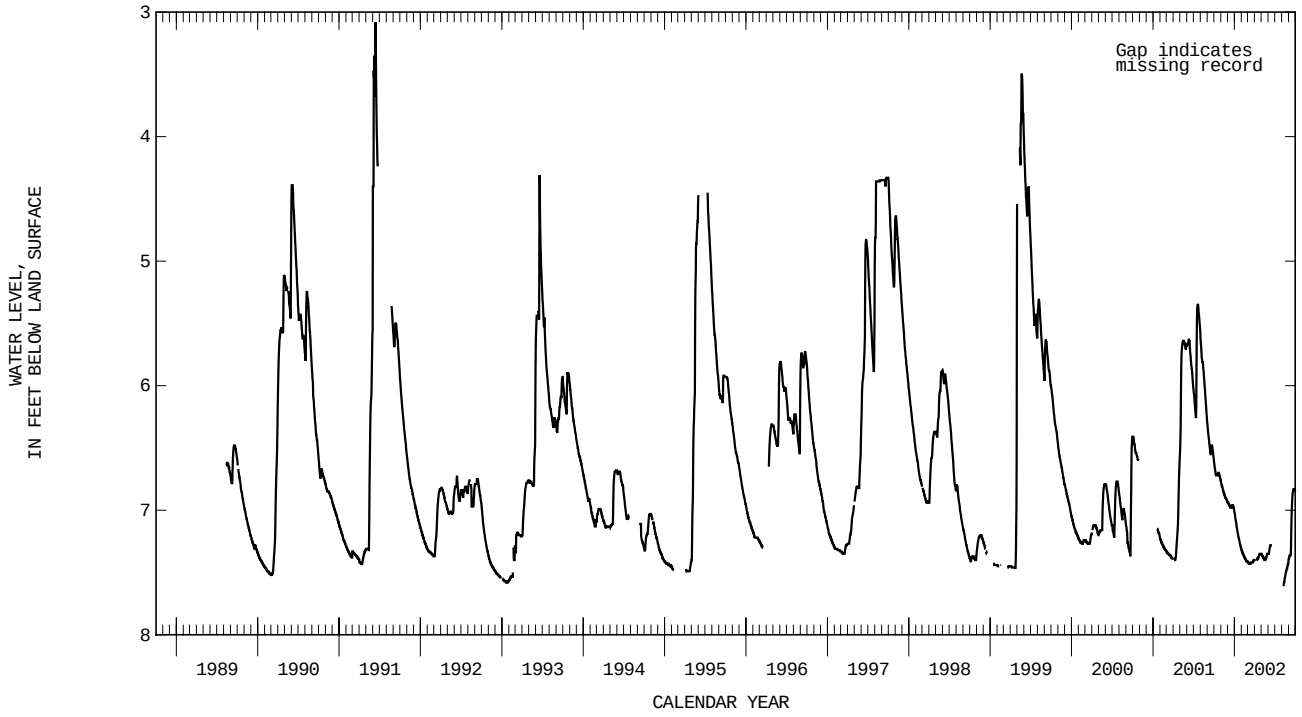
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.08 ft below land surface, June 13, 1991; lowest, 7.62 ft below land surface, Aug. 8, 9, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.67	6.80	6.95	7.07	7.34	7.42	7.40	7.36	7.33	---	---	7.37
10	6.72	6.84	6.96	7.13	7.36	7.43	7.40	7.38	7.29	---	7.59	7.36
15	6.72	6.87	6.98	7.18	7.38	7.42	7.39	7.40	7.28	---	7.54	6.98
20	6.70	6.90	6.97	7.23	7.40	7.42	7.37	7.39	---	---	7.49	6.85
25	6.72	6.91	6.96	7.27	7.41	7.41	7.35	7.37	---	---	7.47	6.83
EOM	6.76	6.93	7.01	7.31	7.41	7.40	7.35	7.35	---	---	7.40	6.85
MAX	6.61	6.77	6.94	7.02	7.32	7.40	7.35	7.35	7.28	---	7.40	6.83
MIN	6.76	6.93	7.01	7.31	7.41	7.43	7.40	7.40	7.35	---	7.61	7.39



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 410757104582302. Local number, 14-068-35ddc02. Local name, King #3.

LOCATION.--Lat 41°07'57", long 104°58'23", in $SW^1/_4$ $SE^1/_4$ $SE^1/_4$ sec.35, T.14 N., R.68 W., Hydrologic Unit 10190009.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 230 ft below land surface.

DATUM.--Elevation of land surface is 6,520 ft above NGVD of 1929, from levels. Measuring point: top of casing, at land surface.

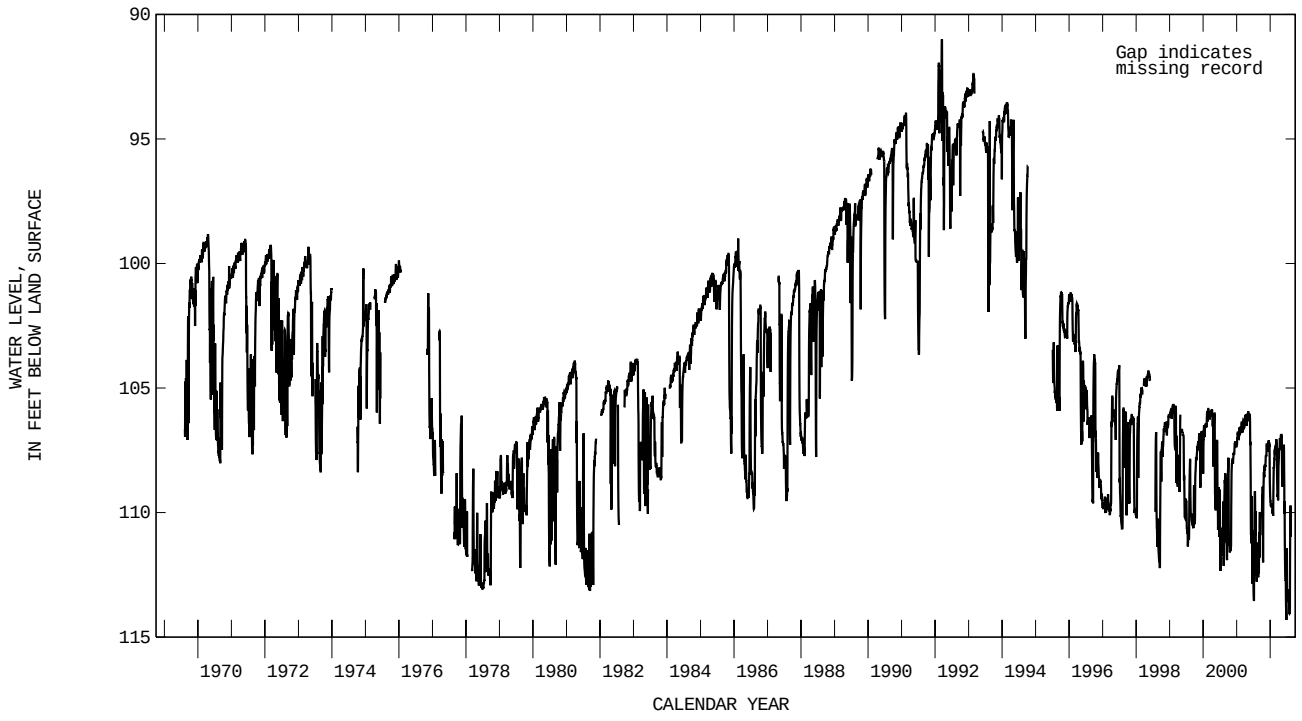
REMARKS.--Data collected by U.S. Geological Survey.

PERIOD OF RECORD.--1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 91.00 ft below land surface, Mar. 15, 1992; lowest, 114.38 ft below land surface, June 26, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	109.45	108.24	107.38	109.57	108.95	107.34	107.82	106.97	109.60	113.33	111.87	---
10	109.15	108.06	107.38	109.70	108.24	107.30	107.47	108.50	111.59	113.49	109.72	---
15	112.00	107.73	107.10	109.69	107.85	107.76	107.09	108.87	112.70	113.12	---	---
20	108.93	107.71	107.37	109.69	107.47	109.26	107.19	108.26	113.00	113.45	---	---
25	108.41	107.27	107.59	110.01	107.43	109.30	107.22	107.52	114.18	113.57	---	---
EOM	108.13	107.33	109.33	110.01	107.33	108.51	106.95	107.50	111.44	113.98	---	---
MAX	112.00	108.33	109.33	110.04	110.13	109.51	108.14	108.97	114.31	114.08	109.72	---
MIN	108.13	107.26	107.10	109.40	107.33	107.06	106.91	106.88	108.09	111.55	114.00	---



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 411531104194701. Local number, 15-062-20aaa01. Local name, Laramie County #4.

LOCATION.--Lat 41°15'31", long 104°19'47", in $NE^1/_4$ $NE^1/_4$ $NE^1/_4$ sec.20, T.15 N., R.62 W., Hydrologic Unit 10190015.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 165 ft below land surface.

DATUM.--Elevation of land surface is 5,510 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.0 ft above land surface.

COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

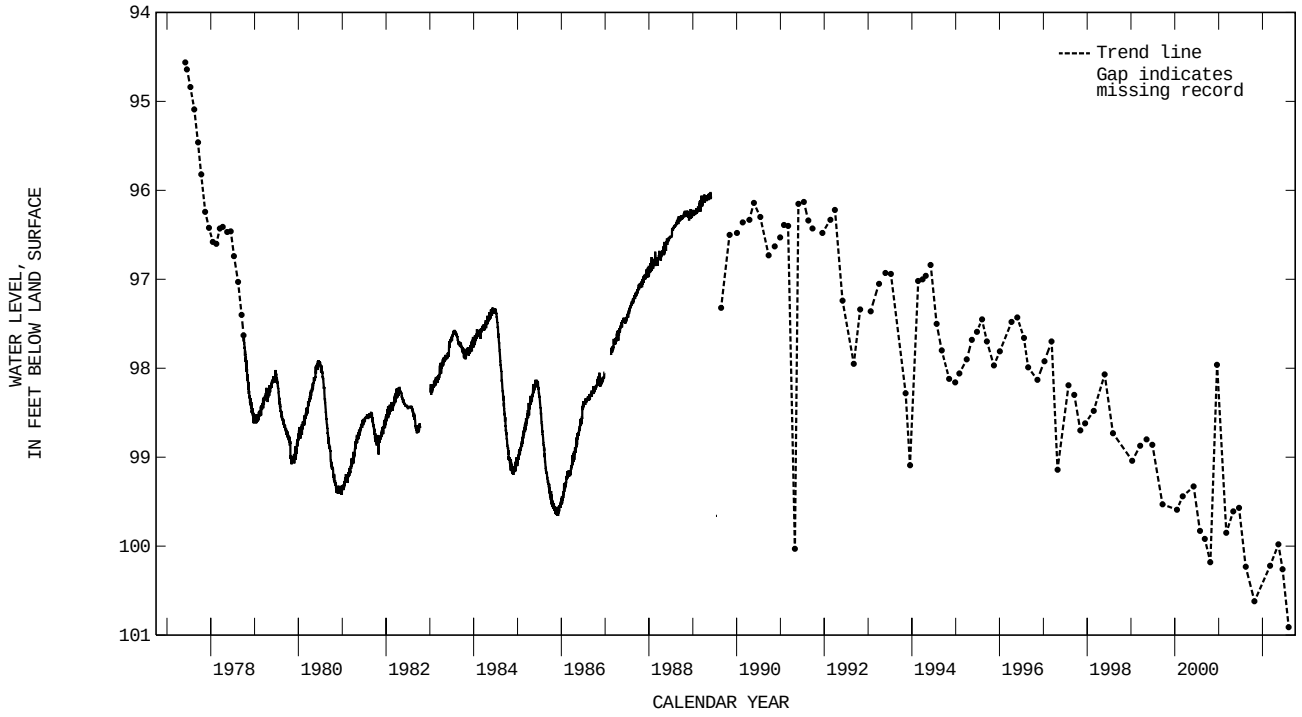
PERIOD OF RECORD.--1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 94.56 ft below land surface, from hand-measured data, June 1, 1977; lowest, 100.91 ft below land surface, from hand-measured data, Aug. 7, 2002.

WATER LEVELS IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	100.62	MAR 05	100.22	MAY 13	99.98	JUN 17	100.26	AUG 07	100.91

WATER YEAR 2002 HIGHEST 99.98 MAY 13, 2002 LOWEST 100.91 AUG 07, 2002



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 412227104081402. Local number, 16-060-07bbb02. Local name, USGS southwest of Albin.

LOCATION.--Lat 41°22'27", long 104°08'14", in $NW^1/_4$ $NW^1/_4$ $Nw^1/_4$ sec.7, T.16 N., R.60 W., Hydrologic Unit 10190016.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 215 ft below land surface.

DATUM.--Elevation of land surface is 5,310 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.10 ft above land surface.

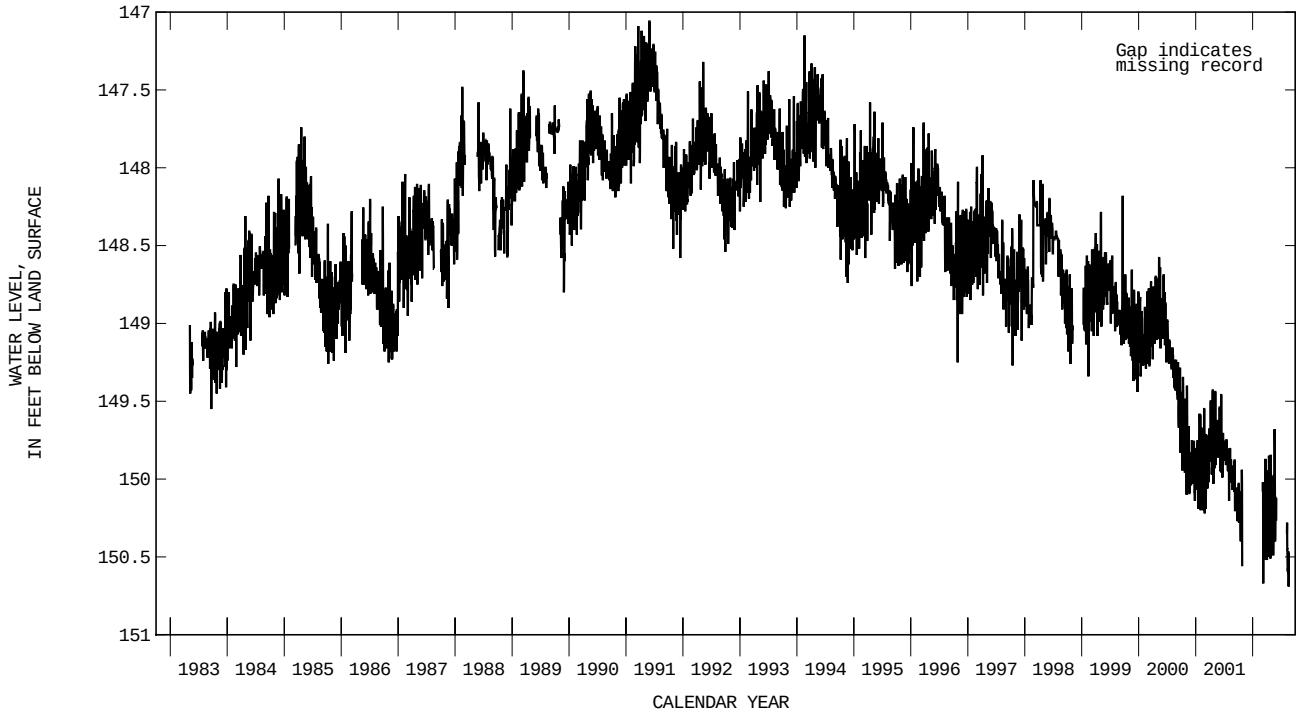
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 147.06 ft below land surface, May 30, 31, 1991; lowest, 151.14 ft below land surface, Aug. 18, 19, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	150.28	---	---	---	---	---	150.13	150.25	---	---	---	---
10	150.19	---	---	---	---	150.35	150.37	150.18	---	---	150.45	---
15	150.35	---	---	---	---	150.45	149.85	149.98	---	---	150.57	---
20	150.19	---	---	---	---	150.51	150.27	150.21	---	---	150.61	---
25	150.56	---	---	---	---	150.37	150.19	150.36	---	---	---	---
EOM	---	---	---	---	---	150.18	150.12	150.26	---	---	---	---
MAX	149.94	---	---	---	---	149.87	149.85	149.68	150.12	---	150.28	---
MIN	150.56	---	---	---	---	150.67	150.52	150.49	150.12	---	150.69	---



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 411136104125301. Local number, 16-061-17aaa01. Local name, Laramie County #5.

LOCATION.--Lat 41°11'36", long 104°12'53", in $NE^1/_4$ $NE^1/_4$ $NE^1/_4$ sec.17, T.16 N., R.61 W., Hydrologic Unit 10190016.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 285 ft below land surface.

DATUM.--Elevation of land surface is 5,451 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.30 ft above land surface.

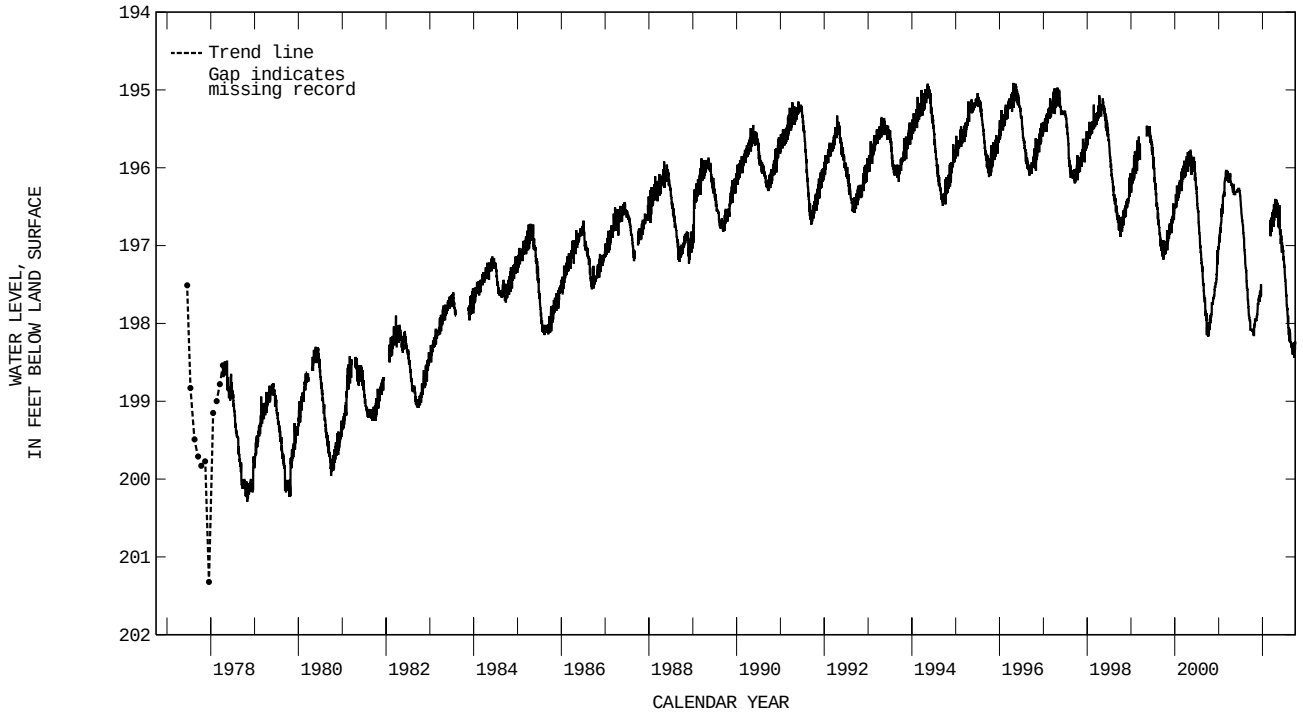
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1977 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 194.91 ft below land surface, Apr. 24, 1996; lowest, 201.32 ft below land surface, from hand-measured data, Dec. 16, 1977.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	198.09	197.95	197.65	---	---	---	196.55	196.50	196.93	197.36	198.05	198.31
10	198.10	197.96	197.60	---	---	196.68	196.59	196.56	197.04	197.45	198.06	198.34
15	198.10	197.91	197.59	---	---	196.82	196.44	196.65	---	197.58	198.15	198.33
20	198.15	197.83	197.65	---	---	196.72	196.46	196.70	197.05	197.68	198.18	198.30
25	198.04	197.75	---	---	---	196.72	196.43	196.79	197.19	197.83	198.23	198.31
EOM	197.95	197.68	---	---	---	196.54	196.47	196.86	197.25	197.93	198.31	198.27
MAX	197.95	197.68	197.50	---	---	196.54	196.40	196.45	196.87	197.25	197.90	198.23
MIN	198.15	197.97	197.71	---	---	196.88	196.76	196.86	197.25	197.93	198.31	198.44



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 412343104053101. Local number, 17-060-33cbb01. Local name, USGS south of Albin.

LOCATION.--Lat 41°23'43", long 104°05'31", in $NW^1/_4$ $NW^1/_4$ $SW^1/_4$ sec.33, T.17 N., R.60 W., Hydrologic Unit 10190016.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 275 ft below land surface.

DATUM.--Elevation of land surface is 5,280 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.00 ft above land surface.

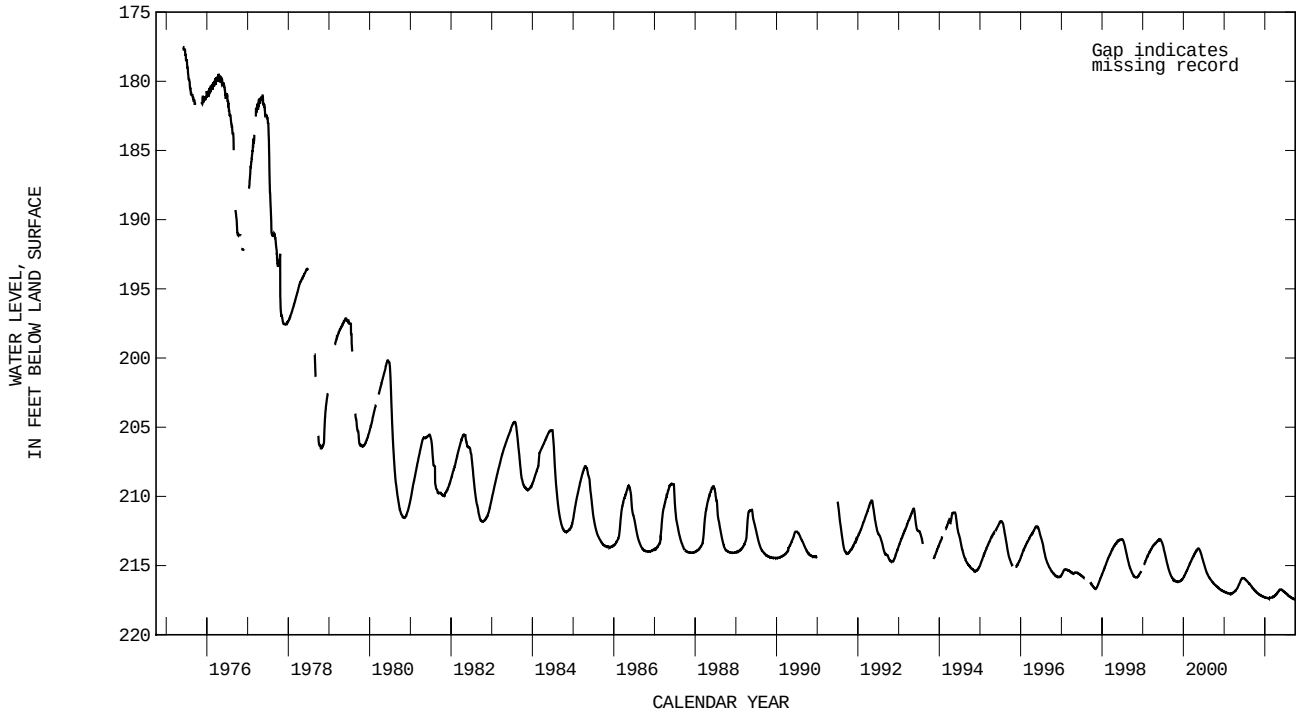
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 177.52 ft below land surface, May 30, 31, 1975; lowest, 217.46 ft below land surface, Sept. 28-30, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	216.82	217.05	217.20	217.31	217.37	217.30	217.15	216.84	216.78	216.97	217.21	217.36
10	216.87	217.09	217.22	217.32	217.37	217.30	217.10	216.79	216.80	217.01	217.22	217.38
15	216.91	217.10	217.24	217.33	217.33	217.28	217.05	216.75	216.86	217.04	217.26	217.41
20	216.94	217.14	217.26	217.34	217.32	217.26	217.00	216.74	216.87	217.08	217.29	217.42
25	216.99	217.15	217.28	217.35	217.32	217.23	216.94	216.73	216.90	217.11	217.31	217.44
EOM	217.01	217.18	217.30	217.35	217.32	217.18	216.89	216.75	216.93	217.16	217.34	217.45
MAX	216.79	217.01	217.18	217.30	217.32	217.18	216.89	216.73	216.76	216.95	217.17	217.35
MIN	217.01	217.18	217.30	217.35	217.37	217.32	217.16	216.88	216.93	217.16	217.34	217.45



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 412605104203001. Local number, 17-062-17ccc01. Local name, Laramie County #6A.

LOCATION.--Lat 41°26'05", long 104°20'30", in $SW^1/_4$ $SW^1/_4$ $SW^1/_4$ sec.17, T.17 N., R.62 W., Hydrologic Unit 10190016.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 360 ft below land surface.

DATUM.--Elevation of land surface is 5,570 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.80 ft above land surface.

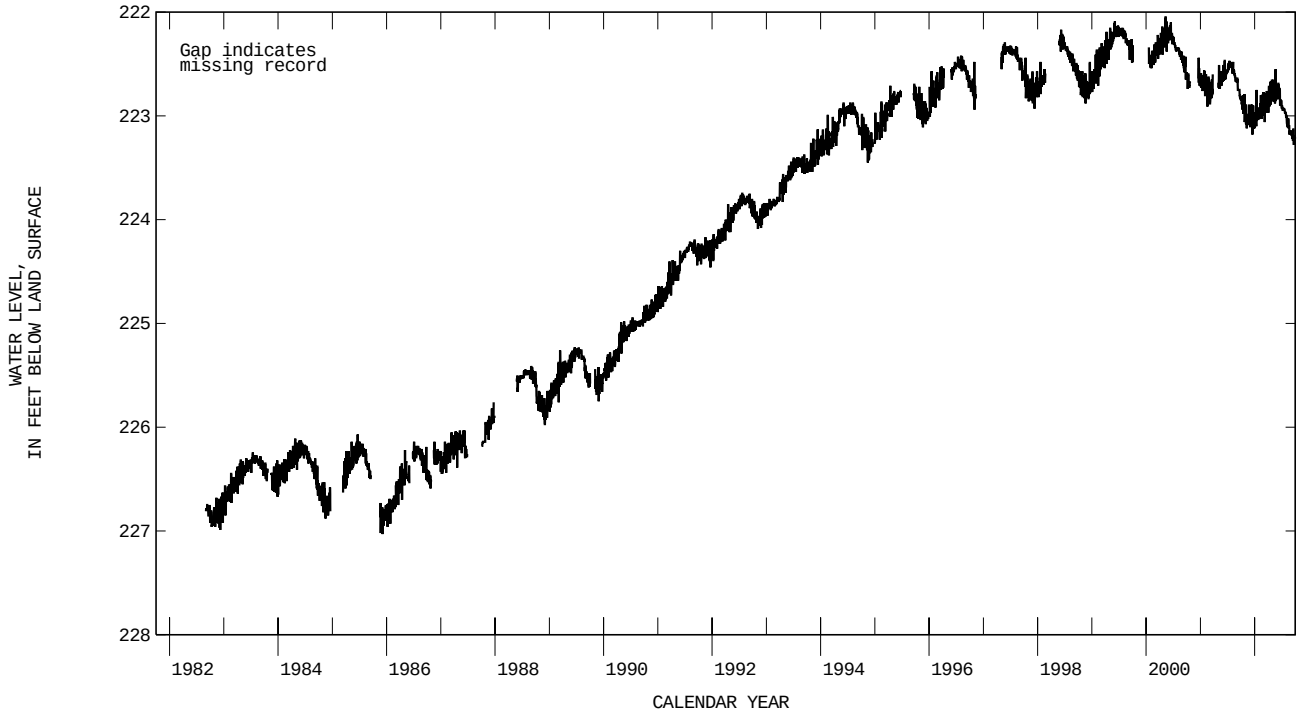
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 222.05 ft below land surface, May 10, 11, 2000; lowest, 227.03 ft below land surface, Dec. 4, 1985.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	222.89	222.99	222.98	223.06	222.99	222.88	222.83	222.75	222.82	222.91	223.07	223.18
10	222.94	223.05	222.90	223.06	222.94	222.85	222.89	222.76	222.72	222.94	223.06	223.22
15	222.98	223.03	222.97	222.92	223.03	222.97	222.71	222.75	222.75	222.94	223.03	223.24
20	222.93	223.00	223.02	222.96	222.93	222.91	222.74	222.79	222.90	222.94	223.10	223.19
25	223.06	223.01	223.09	223.00	222.95	222.94	222.71	222.83	222.85	222.97	223.15	223.21
EOM	222.89	222.92	223.10	223.01	222.77	222.81	222.72	222.80	222.86	223.01	223.17	223.22
MAX	222.79	222.90	222.89	222.75	222.77	222.76	222.66	222.55	222.69	222.91	223.00	223.13
MIN	223.06	223.12	223.18	223.10	223.03	223.06	222.97	222.88	222.90	223.01	223.18	223.28



LARAMIE COUNTY--Continued

IDENTIFICATION.--Station number, 412400104533901. Local number, 17-067-33baa01. Local name, MX-North.

LOCATION.--Lat 41°24'00", long 104°53'39", in $NE^1/_4$ $NE^1/_4$ $NW^1/_4$ sec.33, T.17 N., R.67 W., Hydrologic Unit 10190009.

AQUIFER.--Ogallala Formation.

WELL CHARACTERISTICS.--Depth of well, 200 ft below land surface.

DATUM.--Elevation of land surface is 6,425 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.40 ft above land surface.

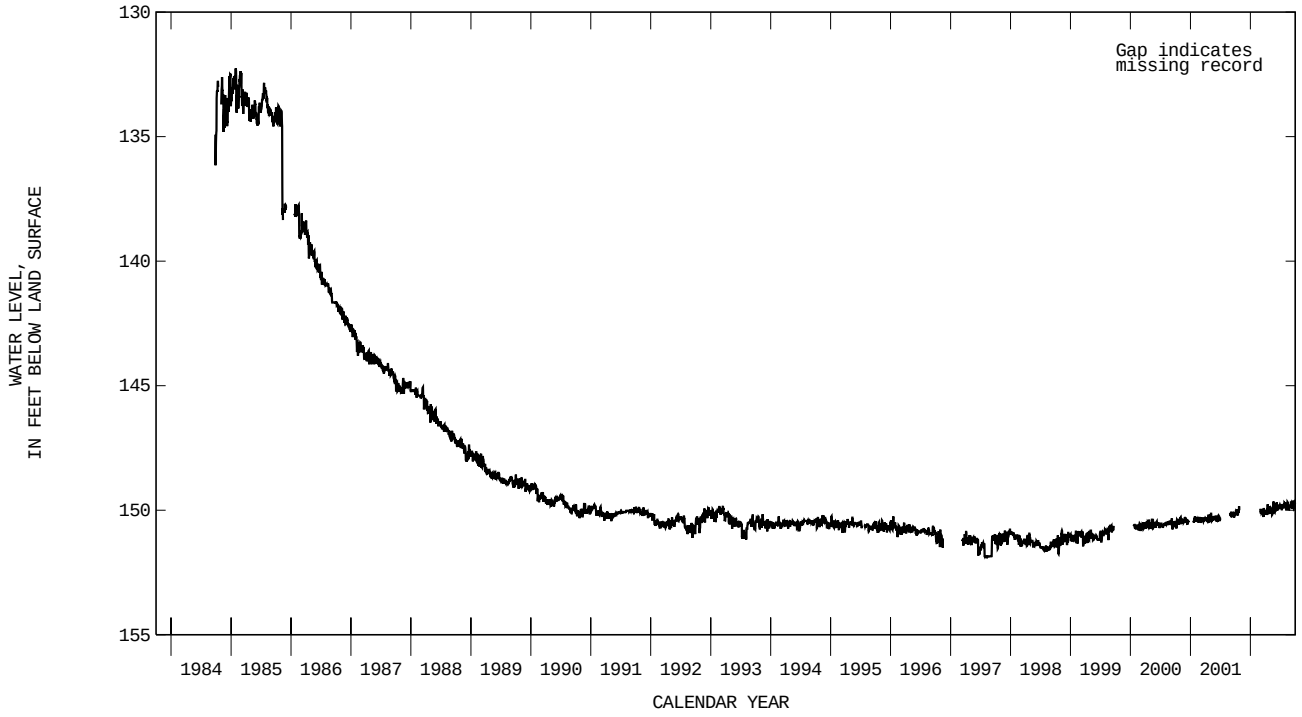
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1984 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 132.26 ft below land surface, Jan. 28, 1985; lowest, 151.87 ft below land surface, July 29, Aug 8, 11, 1997.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	150.16	---	---	---	---	150.06	150.12	150.08	149.99	149.81	149.92	149.79
10	150.10	---	---	---	---	150.11	150.14	150.07	149.72	149.94	149.84	149.93
15	150.19	---	---	---	---	150.10	149.81	150.01	149.86	149.79	149.68	149.90
20	150.07	---	---	---	---	150.24	150.06	149.87	149.93	149.78	149.82	149.72
25	---	---	---	---	---	150.13	150.09	150.05	149.92	149.83	149.92	149.86
EOM	---	---	---	---	---	150.11	149.96	150.03	149.80	149.74	149.84	149.74
MAX	149.84	---	---	---	---	149.91	149.76	149.65	149.69	149.71	149.67	149.65
MIN	150.21	---	---	---	---	150.27	150.18	150.19	150.04	150.00	150.00	149.93



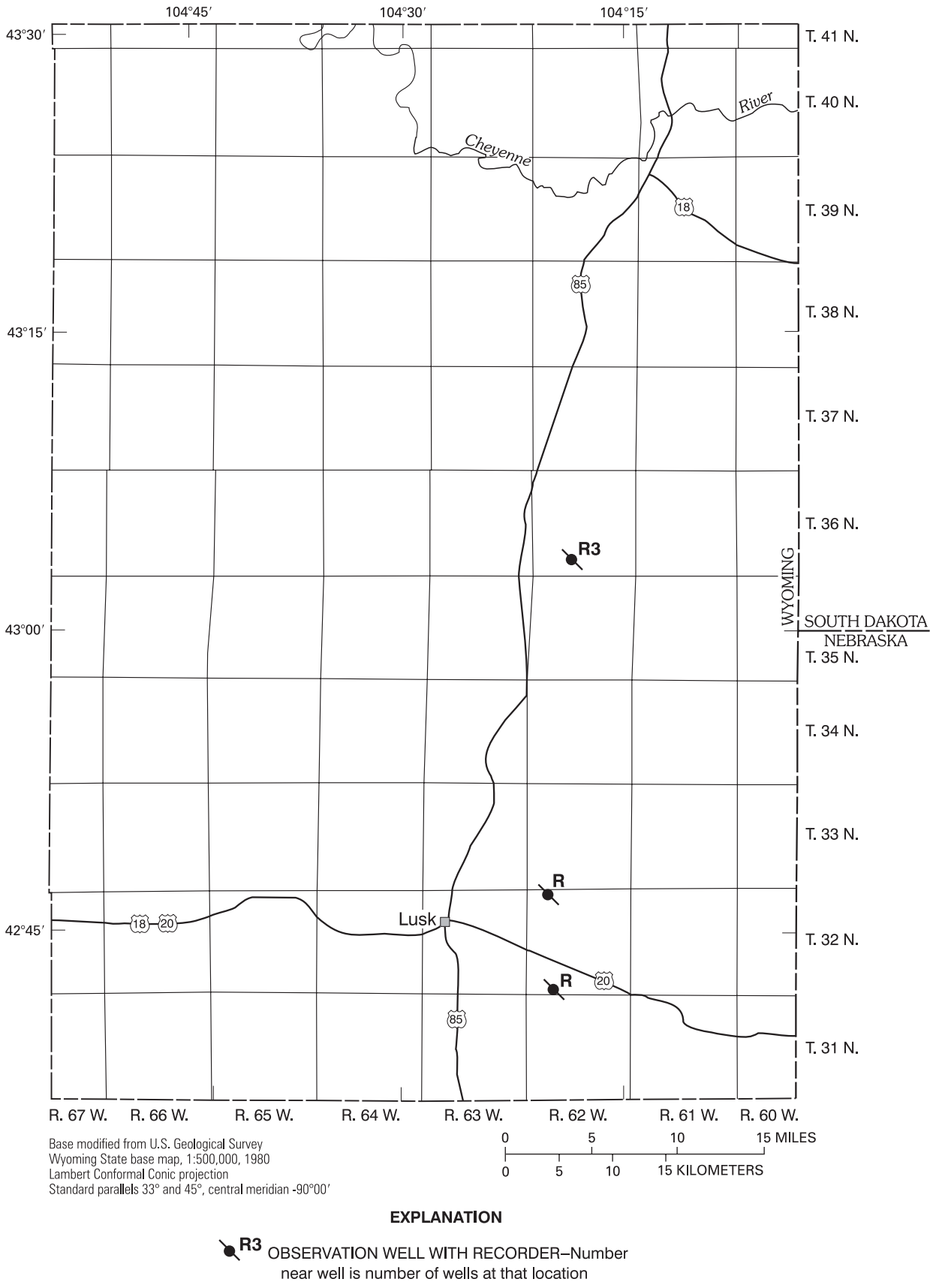


Figure 16. Location of observation wells in Niobrara County, Wyoming.

NIOBRARA COUNTY

IDENTIFICATION.--Station number, 424709104194101. Local number, 32-062-05baa01. Local name, Niobrara County #1.

LOCATION.--Lat 42°47'09", long 104°19'41", in NE $^{1}/_{4}$ NE $^{1}/_{4}$ NW $^{1}/_{4}$ sec.5, T.32 N., R.62 W., Hydrologic Unit 10150002.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 177 ft below land surface.

DATUM.--Elevation of land surface is 4,970 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.20 ft above land surface.

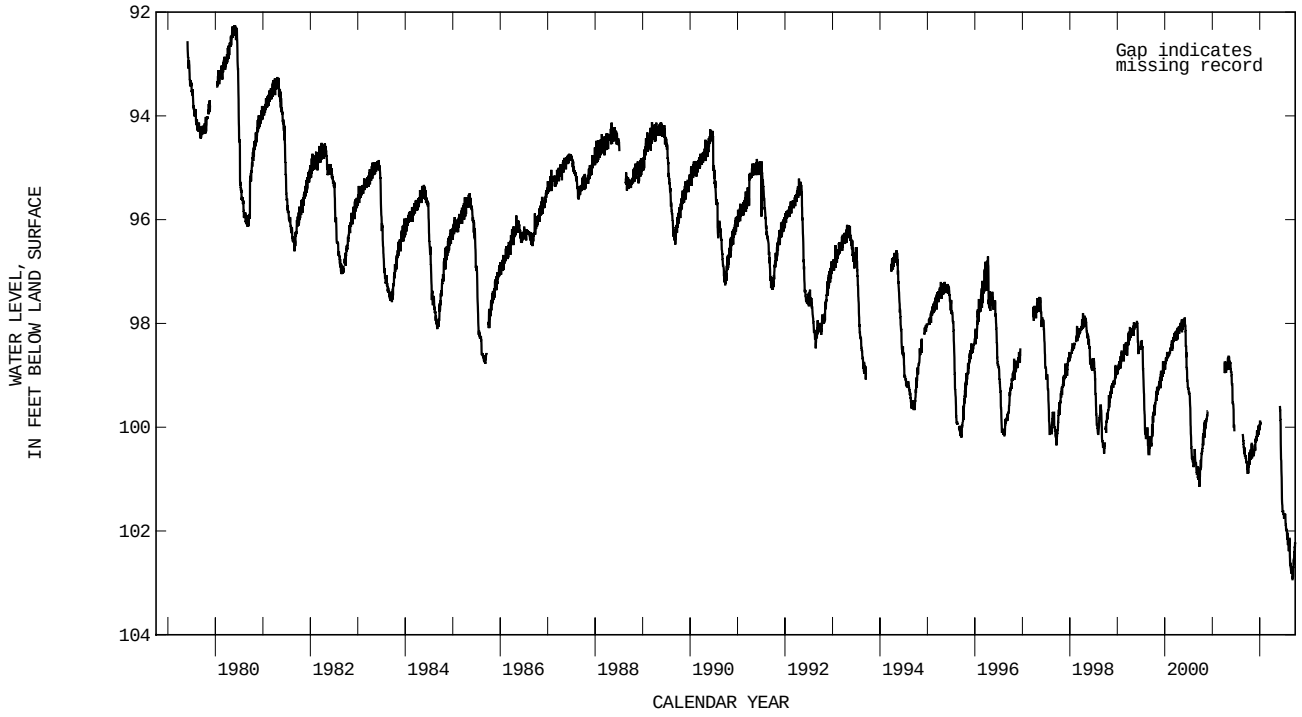
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 92.26 ft below land surface, June 1, 1980; lowest, 102.96 ft below land surface, Sept. 13, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	100.75	100.44	100.19	99.91	---	---	---	---	99.61	101.68	102.27	102.79
10	100.66	100.49	100.07	---	---	---	---	---	99.96	101.70	102.20	102.93
15	100.72	100.51	100.09	---	---	---	---	---	100.65	101.69	102.29	102.74
20	100.51	100.44	100.01	---	---	---	---	---	101.38	101.88	102.48	102.55
25	100.61	100.40	100.04	---	---	---	---	---	101.64	101.98	102.68	102.41
EOM	100.32	100.23	99.96	---	---	---	---	---	101.62	102.08	102.77	102.25
MAX	100.32	100.23	99.96	99.89	---	---	---	---	99.59	101.67	102.05	102.22
MIN	100.89	100.60	100.29	100.03	---	---	---	---	101.64	102.08	102.77	102.93



NIOBRARA COUNTY--Continued

IDENTIFICATION.--Station number, 424244104202001. Local number, 32-062-32bbb01. Local name, Node Well.

LOCATION.--Lat 42°42'44", long 104°20'20", in NW $^{1}/_{4}$ NW $^{1}/_{4}$ NW $^{1}/_{4}$ sec.32, T.32 N., R.62 W., Hydrologic Unit 10150002.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 485 ft below land surface.

DATUM.--Elevation of land surface is 4,898 ft above NGVD of 1929, from topographic map. Measuring point: bottom of shelf, 3.00 ft above land surface.

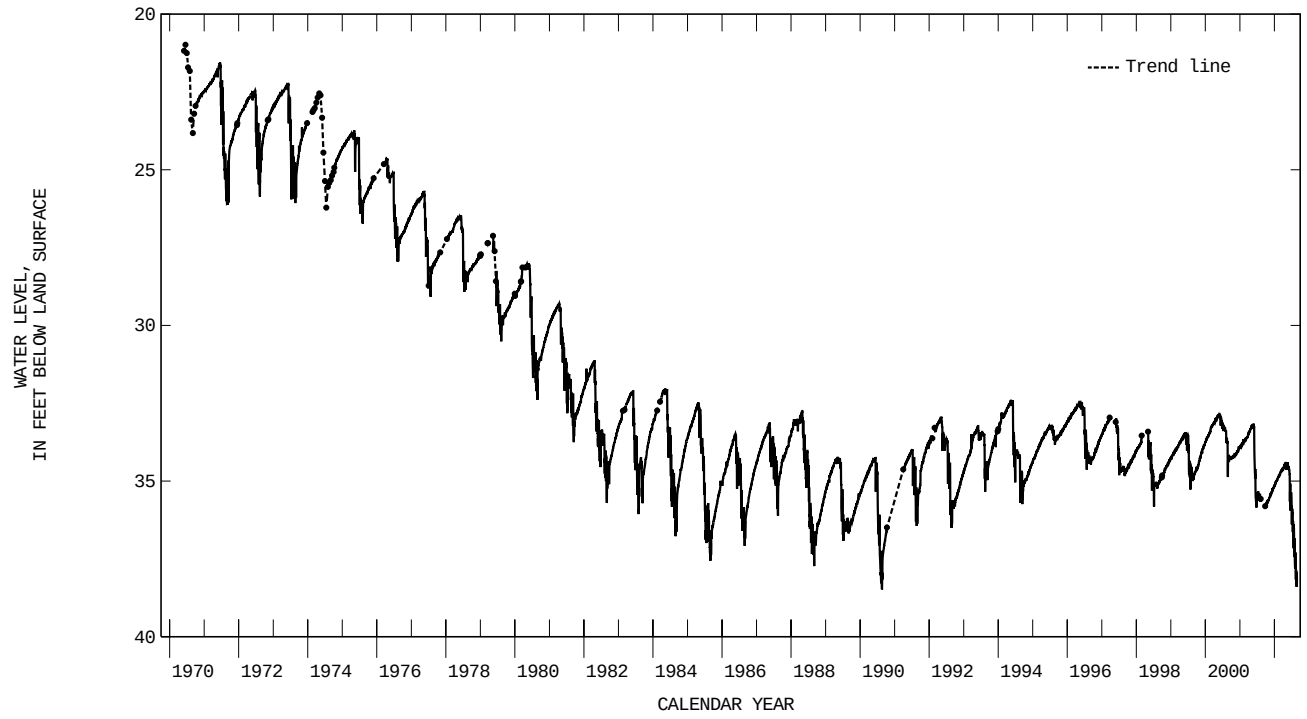
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 20.93 ft below land surface, June 23, 1970; lowest, 38.68 ft below land surface, Aug. 27, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	35.76	35.56	35.34	35.12	34.91	34.74	34.58	34.50	34.65	36.19	37.66	---
10	35.72	35.52	35.25	35.10	34.89	34.70	34.56	34.56	34.78	36.01	37.29	---
15	35.74	35.50	35.24	35.04	34.87	34.68	34.48	34.49	35.30	36.39	38.16	---
20	35.68	35.43	35.22	35.00	34.84	34.66	34.48	34.45	35.95	36.39	37.99	---
25	35.67	35.40	35.19	34.98	34.82	34.62	34.44	34.56	35.39	36.55	38.09	---
EOM	35.58	35.36	35.16	34.96	34.77	34.58	34.42	34.54	35.53	36.88	---	---
MAX	35.58	35.35	35.14	34.96	34.77	34.58	34.42	34.39	34.55	35.67	36.84	---
MIN	35.84	35.63	35.39	35.16	34.95	34.79	34.61	34.64	35.95	37.44	38.40	---



NIOBRARA COUNTY--Continued

IDENTIFICATION.--Station number, 430422104183201. Local number, 36-062-28ab01. Local name, ETSI T-2.

LOCATION.--Lat 43°04'22", long 104°18'32", in NW $^{1}/_{4}$ NE $^{1}/_{4}$ sec.28, T.36 N., R.62 W., Hydrologic Unit 10120104.

AQUIFER.--Madison Limestone.

WELL CHARACTERISTICS.--Depth of well, 3,120 ft below land surface.

DATUM.--Elevation of land surface is 4,244 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, at land surface.

REMARKS.--Data from 1974 through March 1980 are unavailable electronically. Data available in reports in the Wyoming District office. Water levels from Apr. 18 through Sept. 30 not available at time of publication.

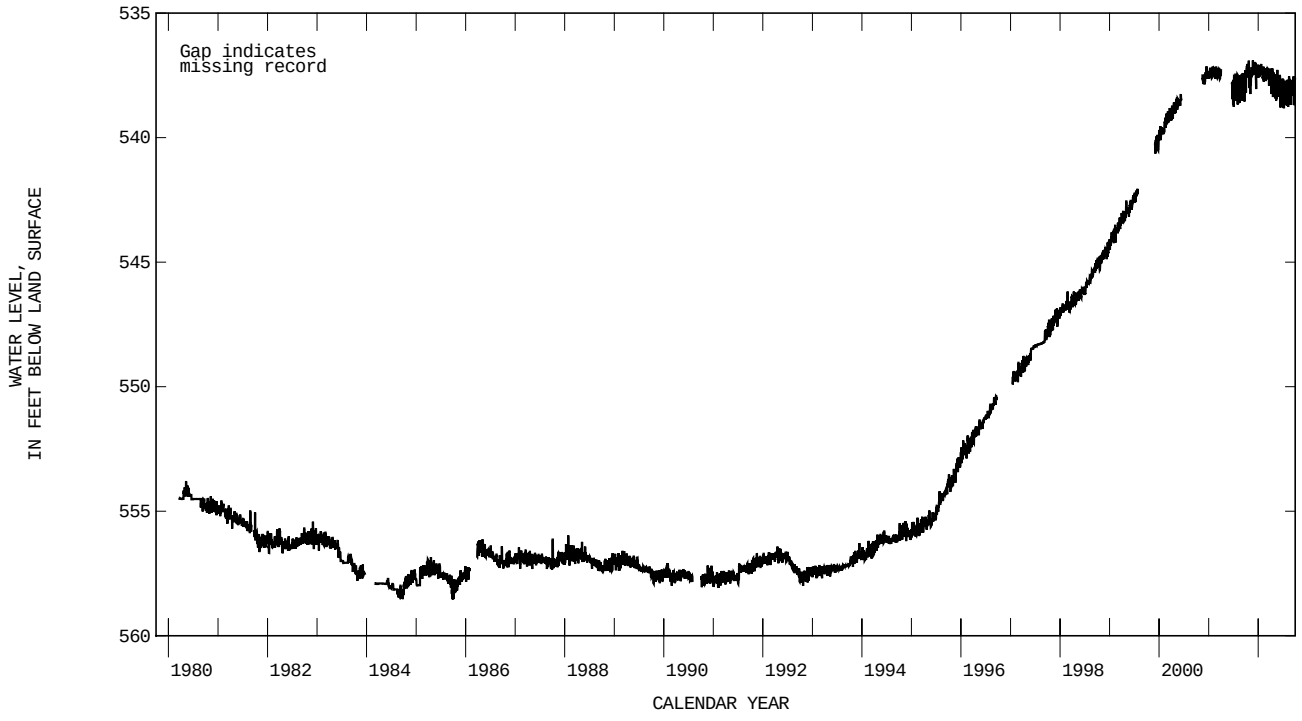
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 536.92 ft below land surface, Nov. 23, 2001; lowest, 558.54 ft below land surface, Sept. 29, 1985.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	537.40	537.33	537.23	537.43	537.57	537.41	537.78	537.56	538.34	537.70	537.95	537.72
10	537.30	537.44	537.18	537.55	537.75	537.44	537.51	538.34	537.52	538.20	537.74	538.05
15	537.53	537.38	537.72	537.32	537.61	537.50	537.28	538.16	537.84	538.66	537.75	537.79
20	537.30	537.31	537.33	537.12	537.39	537.55	538.20	537.67	537.81	537.80	538.19	537.57
25	537.84	537.09	537.51	537.26	537.73	537.56	538.24	537.72	537.82	538.63	537.97	538.70
EOM	537.48	536.99	537.45	537.50	537.28	537.35	537.61	538.24	537.66	537.69	537.92	537.59
MAX	536.91	536.90	536.99	537.04	537.15	537.19	537.22	537.28	537.48	537.69	537.54	537.54
MIN	538.19	538.25	538.05	537.60	537.75	537.91	538.37	538.51	538.79	538.82	538.77	538.70



NIOBRARA COUNTY--Continued

IDENTIFICATION.--Station number, 430422104183202. Local number, 36-062-28ab02. Local name, ETSI O-2.

LOCATION.--Lat 43°04'22", long 104°18'32", in NW $^{1}/_{4}$ NE $^{1}/_{4}$ sec.28, T.36 N., R.62 W., Hydrologic Unit 10120104.

AQUIFER.--Lakota Formation.

WELL CHARACTERISTICS.--Depth of well, 505 ft below land surface.

DATUM.--Elevation of land surface is 4,247 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, at land surface.

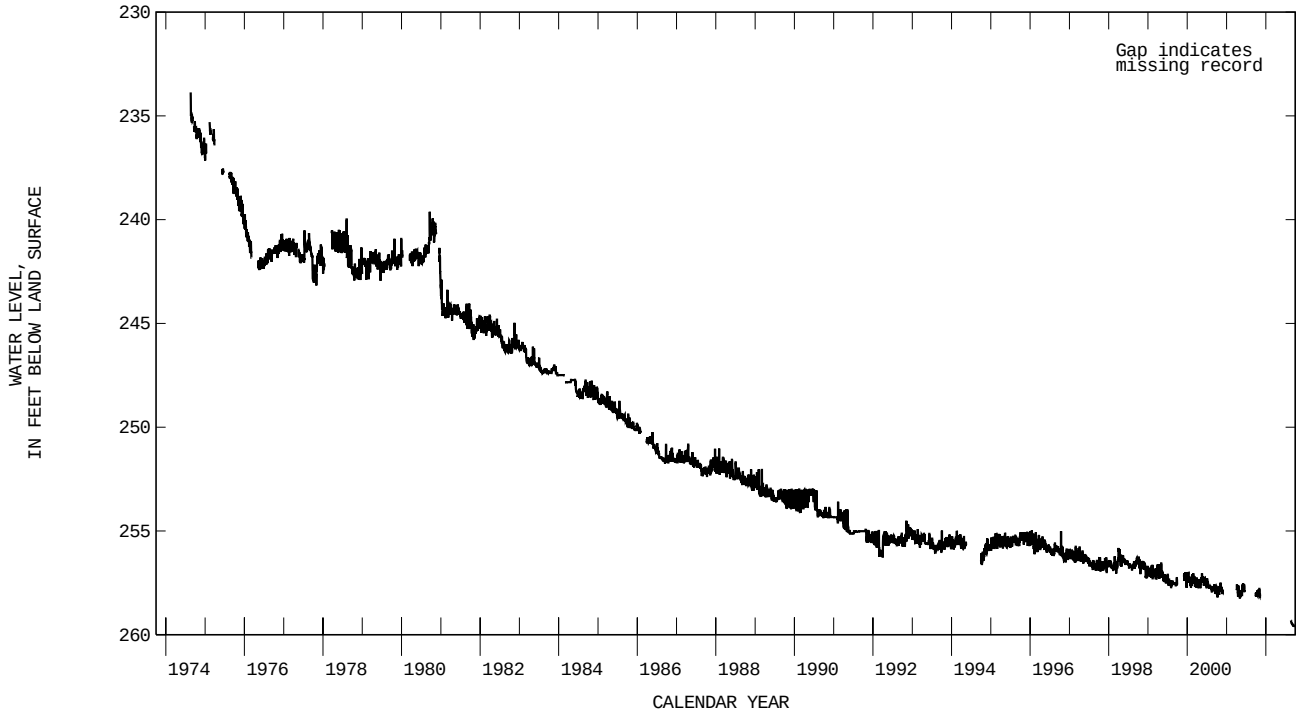
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 233.87 ft below land surface, Aug. 19, 1974; lowest, 259.62 ft below land surface, Sept. 20-30, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	258.11	258.08	---	---	---	---	---	---	---	---	---	259.51
10	258.00	258.15	---	---	---	---	---	---	---	---	---	259.55
15	258.12	---	---	---	---	---	---	---	---	---	---	259.57
20	258.10	---	---	---	---	---	---	---	---	---	---	259.57
25	258.11	---	---	---	---	---	---	---	---	---	259.41	259.58
EOM	257.79	---	---	---	---	---	---	---	---	---	259.47	259.58
MAX	257.79	257.79	---	---	---	---	---	---	---	---	259.31	259.48
MIN	258.14	258.15	---	---	---	---	---	---	---	---	259.47	259.58



NIOBRARA COUNTY--Continued

IDENTIFICATION.--Station number, 430421104200701. Local number, 36-062-28bbd01. Local name, ETSI T-1.

LOCATION.--Lat 43°04'21", long 104°20'07", in SE $^{1}/_{4}$ NW $^{1}/_{4}$ NW $^{1}/_{4}$ sec.28, T.36 N., R.62 W., Hydrologic Unit 10120104.

AQUIFER.--Minnelusa Formation.

WELL CHARACTERISTICS.--Depth of well, 1,510 ft below land surface.

DATUM.--Elevation of land surface is 5,200 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 0.45 ft above land surface.

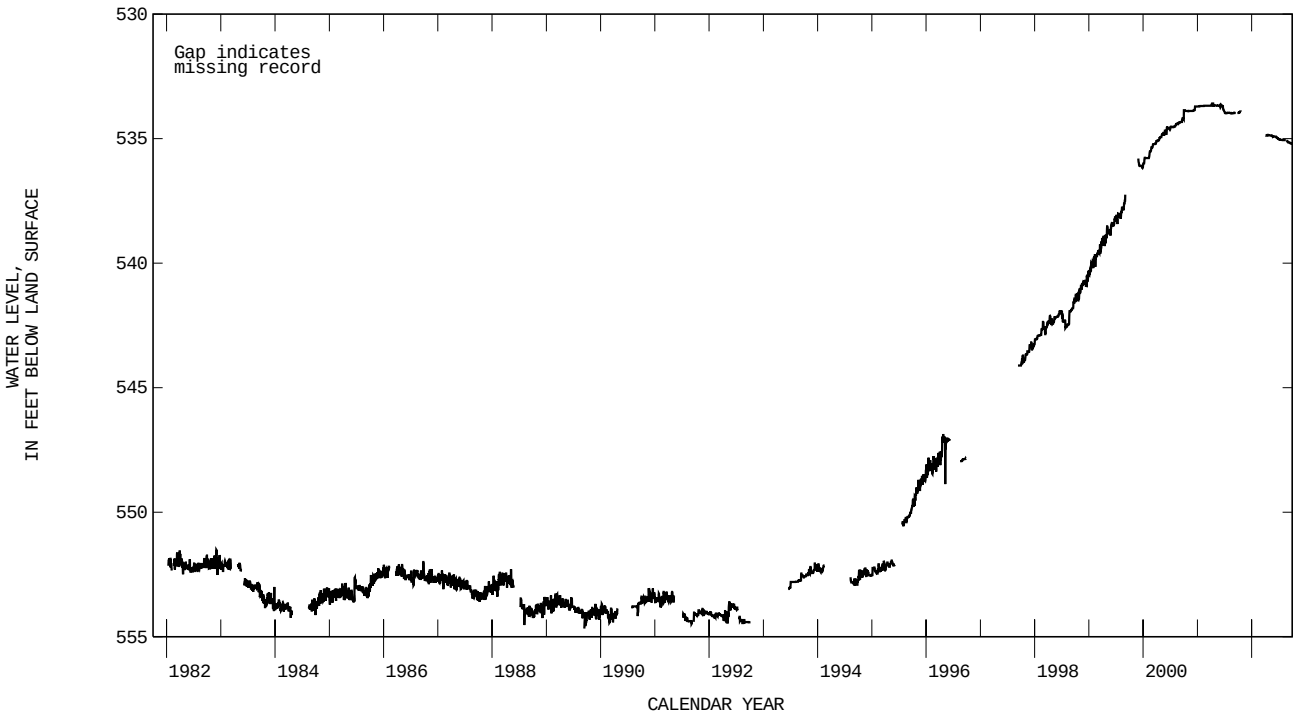
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 537.25 ft below land surface, Sept. 2, 1999; lowest, 554.67 ft below land surface, Sept. 12, 1989.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	533.96	---	---	---	---	---	534.87	534.87	534.92	535.03	535.06	535.15
10	533.94	---	---	---	---	---	534.88	534.87	534.92	535.04	535.06	535.15
15	533.91	---	---	---	---	---	534.87	534.88	534.95	535.05	535.06	535.18
20	533.91	---	---	---	---	---	534.85	534.91	534.96	535.05	---	535.18
25	---	---	---	---	---	---	534.86	534.91	534.99	535.05	535.09	535.20
EOM	---	---	---	---	---	---	534.87	534.92	535.01	535.06	535.12	535.21
MAX	533.91	---	---	---	---	---	534.85	534.87	534.92	535.02	535.06	535.13
MIN	533.97	---	---	---	---	---	534.88	534.92	535.01	535.06	535.12	535.21



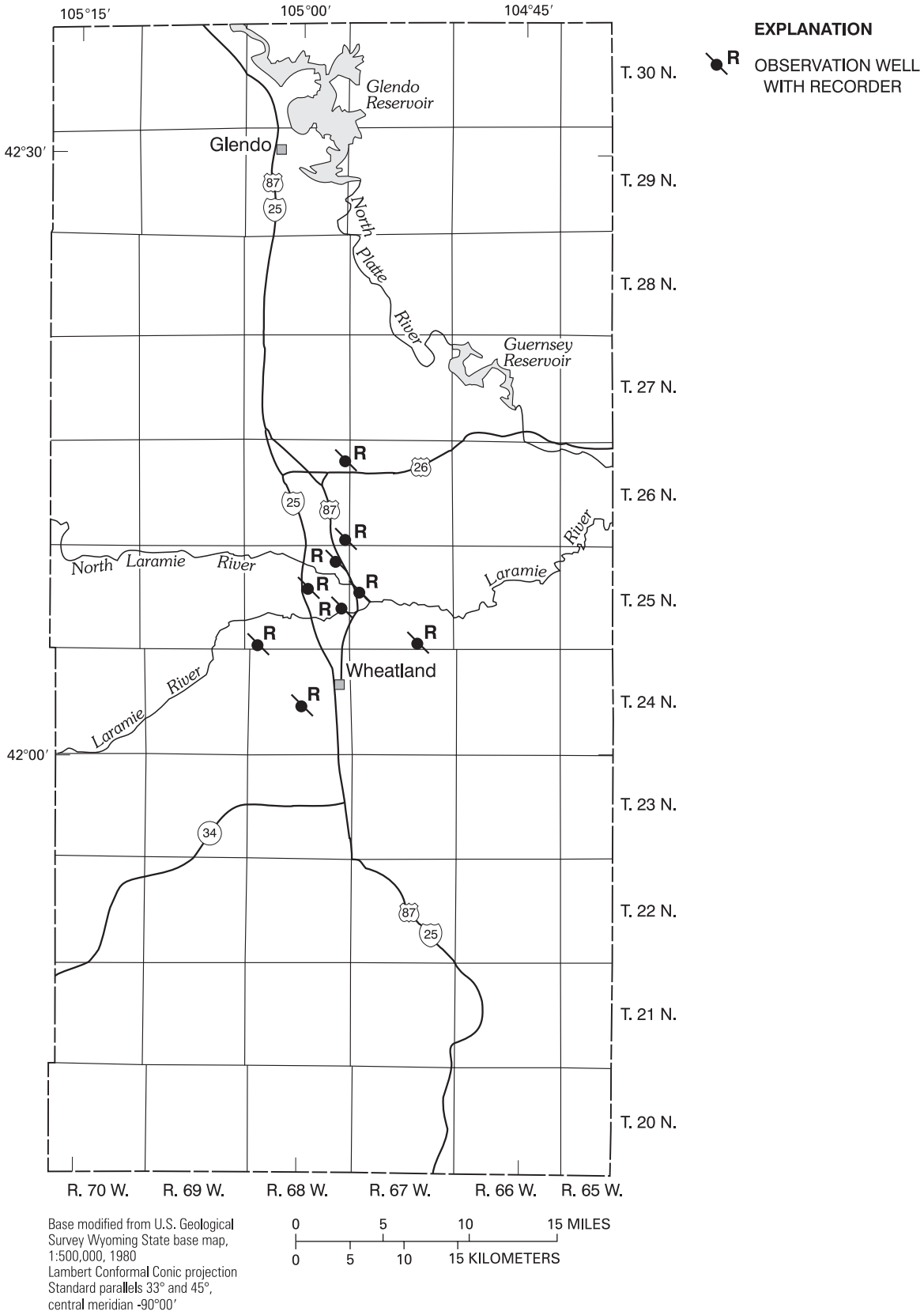


Figure 17. Location of observation wells in Platte County, Wyoming.

PLATTE COUNTY

IDENTIFICATION.--Station number, 420246104590302. Local number, 24-068-22aab02. Local name, Platte County #1A.

LOCATION.--Lat 42°02'46", long 104°59'03", in NW $^{1}/_{4}$ NE $^{1}/_{4}$ NE $^{1}/_{4}$ sec.22, T.24 N., R.68 W., Hydrologic Unit 10180011.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 200 ft below land surface.

DATUM.--Elevation of land surface is 4,860 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.35 ft above land surface.

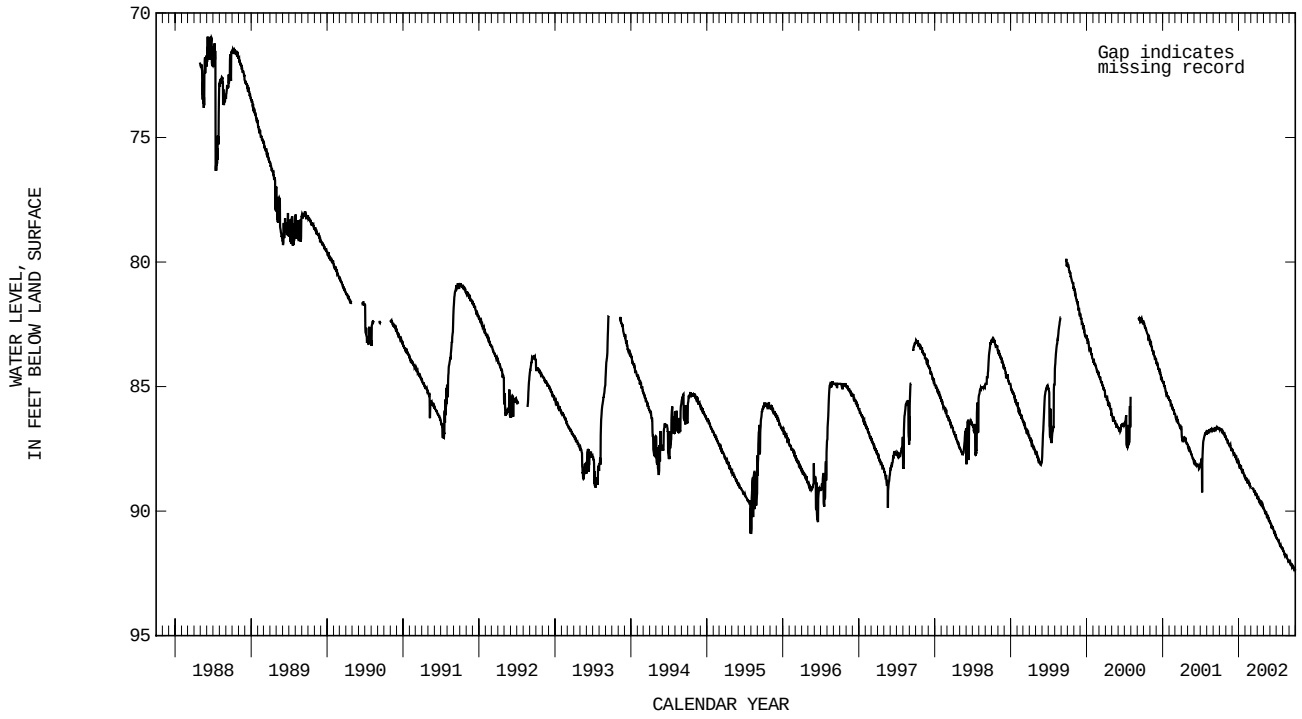
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 70.95 ft below land surface, June 5, 1988; lowest, 92.44 ft below land surface, Sept. 27-30, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	86.73	87.12	87.63	88.19	88.69	---	89.48	89.99	90.51	91.14	91.62	92.09
10	86.79	87.23	87.69	88.28	88.73	89.07	89.58	90.06	90.60	91.18	91.76	92.16
15	86.88	87.33	87.78	88.32	88.86	89.22	89.59	90.15	90.69	91.29	91.83	92.21
20	86.86	87.37	87.87	88.40	88.87	89.23	89.72	90.23	90.86	91.38	91.84	92.26
25	86.98	87.44	87.98	88.50	88.97	89.34	89.75	90.34	90.95	91.45	91.94	92.34
EOM	86.97	87.55	88.09	88.66	89.00	89.39	89.85	90.44	91.08	91.52	92.03	92.33
MAX	86.66	87.07	87.57	88.09	88.66	89.05	89.41	89.89	90.43	91.04	91.54	92.02
MIN	87.04	87.57	88.09	88.66	89.03	89.41	89.88	90.44	91.08	91.52	92.03	92.39



PLATTE COUNTY--Continued

IDENTIFICATION.--Station number, 420718104553901. Local number, 25-067-19dda01. Local name, Ed Wilhelm.

LOCATION.--Lat 42°07'18", long 104°55'39", in NE $^1/_4$ SE $^1/_4$ SE $^1/_4$ sec.19, T.25 N., R.67 W., Hydrologic Unit 10180011.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 760 ft below land surface.

DATUM.--Elevation of land surface is 4,540 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.50 ft above land surface.

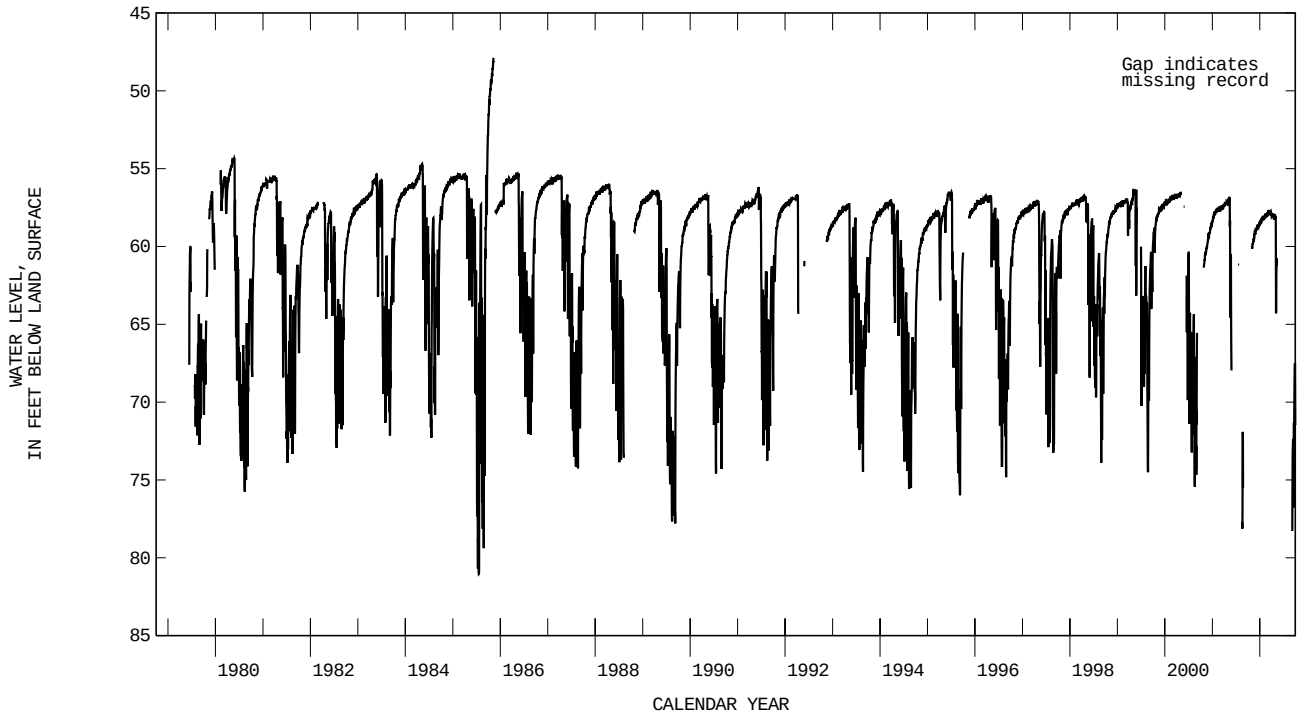
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 47.88 ft below land surface, Nov. 8, 1985; lowest, 81.04 ft below land surface, July 19, 1985.

DEPTH BELOW LAND LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	59.88	58.94	58.53	58.13	57.84	57.95	64.29	---	---	---	---
10	---	59.69	58.70	58.49	58.08	57.94	58.06	60.76	---	---	---	73.28
15	---	59.54	58.65	58.31	58.14	57.89	57.90	---	---	---	---	74.24
20	---	59.28	58.67	58.14	58.02	57.92	58.17	---	---	---	---	71.29
25	---	59.14	58.69	58.20	58.11	57.94	58.20	---	---	---	---	68.48
EOM	59.97	58.93	58.59	58.25	57.82	57.91	58.06	---	---	---	---	71.47
MAX	59.97	58.92	58.46	58.10	57.82	57.65	57.90	58.07	---	---	---	67.50
MIN	59.97	60.14	59.04	58.63	58.24	57.99	58.29	64.29	---	---	---	78.28



PLATTE COUNTY--Continued

IDENTIFICATION.--Station number, 420524104530201. Local number, 25-067-34ccd01. Local name, Platte County #2.

LOCATION.--Lat 42°05'24", long 104°53'02", in SE $^{1}/_{4}$ SW $^{1}/_{4}$ SW $^{1}/_{4}$ sec.34, T.25 N., R.67 W., Hydrologic Unit 10180011.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 380 ft below land surface.

DATUM.--Elevation of land surface is 4,620 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.60 ft above land surface.

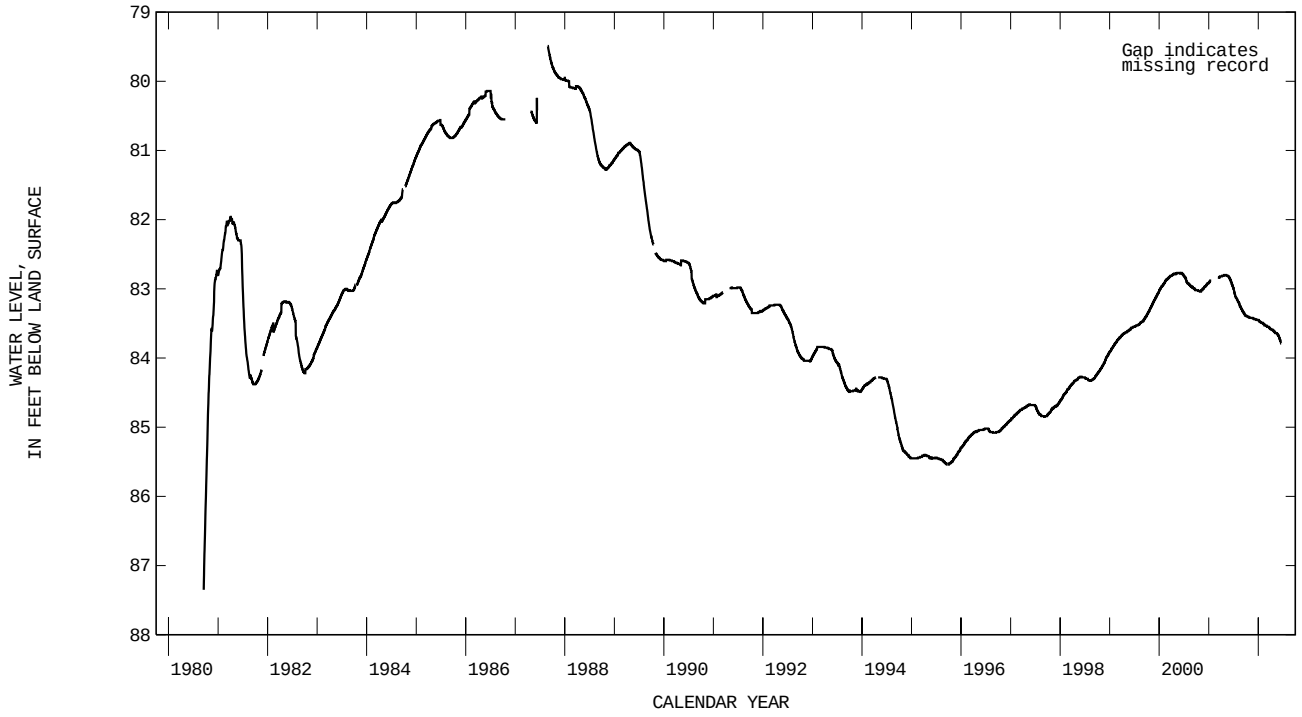
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 79.49 ft below land surface, Aug. 27, 28, 29, 1987; lowest, 87.35 ft below land surface, Sept. 16, 1980.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	83.39	83.42	83.44	83.46	83.50	83.54	83.58	83.63	83.71	---	---	---
10	83.40	83.42	83.44	83.47	83.51	83.55	83.59	83.64	83.74	---	---	---
15	83.40	83.42	83.44	83.48	83.53	83.55	83.59	83.64	83.77	---	---	---
20	83.41	83.42	83.45	83.48	83.53	83.56	83.60	83.65	---	---	---	---
25	83.41	83.43	83.45	83.49	83.53	83.57	83.61	83.66	---	---	---	---
EOM	83.42	83.43	83.45	83.49	83.53	83.58	83.62	83.68	---	---	---	---
MAX	83.39	83.42	83.43	83.45	83.49	83.53	83.58	83.62	83.69	---	---	---
MIN	83.42	83.43	83.45	83.49	83.53	83.58	83.62	83.68	83.79	---	---	---



PLATTE COUNTY--Continued

IDENTIFICATION.--Station number, 420859104565001. Local number, 25-068-12dda01. Local name, Platte County #4.

LOCATION.--Lat 42°08'59", long 104°56'50", in NE $^1/_4$ SE $^1/_4$ SE $^1/_4$ sec.12, T.25 N., R.68 W., Hydrologic Unit 10180011.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 100 ft below land surface.

DATUM.--Elevation of land surface is 4,510 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.60 ft above land surface.

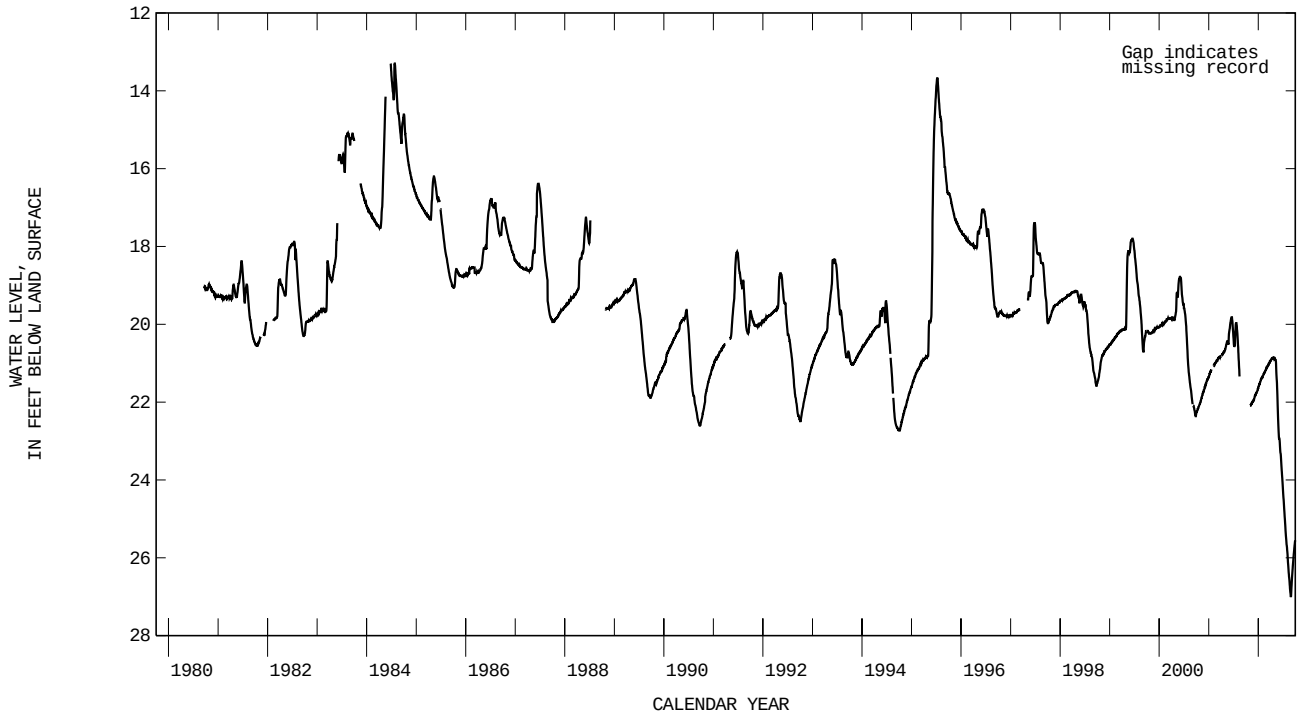
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 13.30 ft below land surface, June 25, July 25, 26, 1984; lowest, 27.02 ft below land surface, Aug. 29, 30, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	---	22.08	21.85	21.58	21.31	21.09	20.91	20.91	22.94	24.46	25.98	26.57
10	---	22.05	21.82	21.53	21.27	21.08	20.89	20.94	23.18	24.73	26.25	26.31
15	---	22.02	21.78	21.48	21.24	21.05	20.87	21.35	23.35	24.99	26.49	26.08
20	---	21.98	21.75	21.41	21.21	21.01	20.87	21.72	23.64	25.29	26.69	25.87
25	---	21.96	21.70	21.38	21.17	20.99	20.87	22.29	23.91	25.52	26.90	25.68
EOM	22.09	21.93	21.63	21.36	21.14	20.94	20.88	22.82	24.18	25.74	26.91	---
MAX	22.09	21.93	21.63	21.36	21.14	20.94	20.86	20.88	22.89	24.24	25.80	25.55
MIN	22.09	22.09	21.91	21.63	21.34	21.13	20.93	22.82	24.18	25.74	27.01	26.83



PLATTE COUNTY--Continued

IDENTIFICATION.--Station number, 420840105000401. Local number, 25-068-15bbd01. Local name, Platte County #6.

LOCATION.--Lat 42°08'40", long 105°00'04", in SE $^{1}/_{4}$ NW $^{1}/_{4}$ NW $^{1}/_{4}$ sec.15, T.25 N., R.68 W., Hydrologic Unit 10180011.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 220 ft below land surface.

DATUM.--Elevation of land surface is 4,640 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.30 ft above land surface.

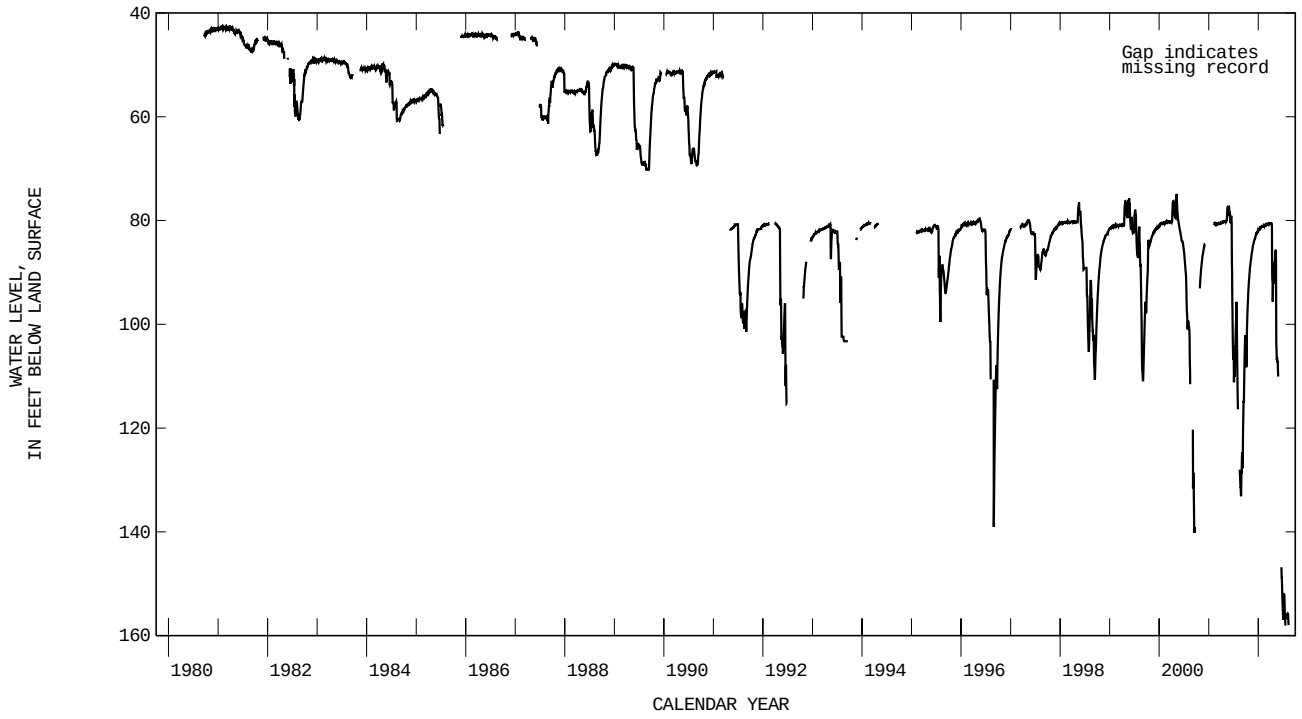
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 42.50 ft below land surface, Feb. 9, Mar. 30, 1981; lowest, 158.68 ft below land surface, Aug. 13, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	107.81	87.94	83.58	81.77	81.18	80.80	80.64	86.62	---	154.06	155.90	---
10	99.73	86.96	83.15	81.65	81.18	80.76	80.60	85.82	---	152.05	157.25	---
15	96.02	86.03	82.65	81.42	81.07	80.63	91.87	105.12	---	155.89	---	---
20	93.20	85.19	82.37	81.24	80.93	80.66	91.72	107.18	146.82	---	---	---
25	91.20	84.50	82.21	81.24	80.94	80.66	88.23	108.50	150.93	---	---	---
EOM	89.06	83.99	81.92	81.20	80.81	80.57	89.69	---	154.95	---	---	---
MAX	89.06	83.99	81.92	81.16	80.81	80.56	80.54	85.76	146.82	152.05	155.61	---
MIN	108.28	88.89	83.92	81.94	81.21	80.87	95.64	110.07	154.95	158.06	157.97	---



PLATTE COUNTY--Continued

IDENTIFICATION.--Station number, 420748104565001. Local number, 25-068-24aad01. Local name, Platte County #3.

LOCATION.--Lat 42°07'48", long 104°56'50", in SE $^1/_4$ NE $^1/_4$ NE $^1/_4$ sec.24, T.25 N., R.68 W., Hydrologic Unit 10180011.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 240 ft below land surface.

DATUM.--Elevation of land surface is 4,560 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 0.55 ft above land surface.

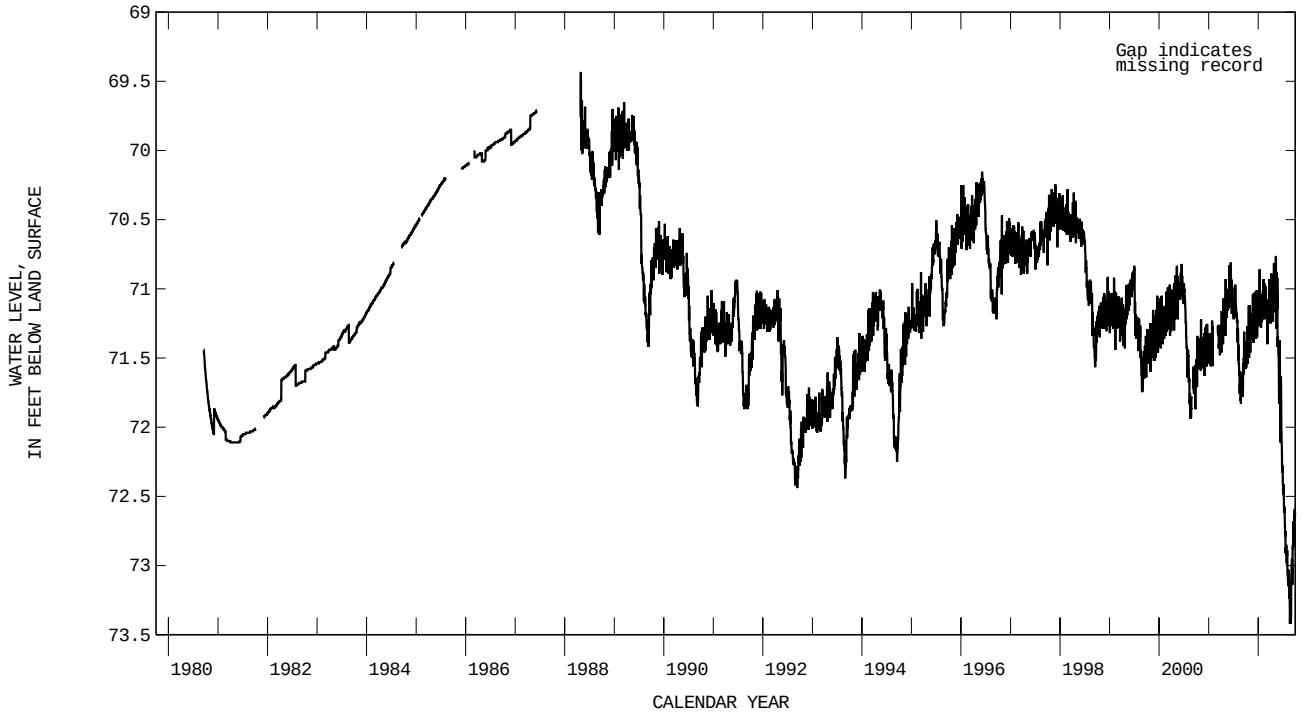
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 69.44 ft below land surface, Apr. 28, 29, 1988; lowest, 73.65 ft below land surface, Aug. 28, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	71.55	71.20	71.18	71.20	71.17	---	71.05	70.96	71.41	72.41	73.06	73.00
10	71.50	71.25	71.03	71.00	71.19	71.09	71.08	70.77	71.65	72.62	73.05	73.01
15	71.54	71.30	71.09	71.21	71.21	71.25	70.90	70.90	71.78	72.66	73.07	72.83
20	71.31	71.17	71.17	71.19	71.16	71.19	71.03	71.15	72.02	72.80	73.21	72.74
25	71.50	71.21	71.23	71.17	71.10	71.19	70.98	71.35	72.28	72.92	73.35	72.71
EOM	71.12	71.08	71.18	71.20	---	70.98	70.92	71.49	72.32	72.92	73.28	72.61
MAX	71.12	71.03	71.01	70.86	70.93	70.93	70.82	70.77	71.37	72.41	72.89	72.59
MIN	71.57	71.46	71.36	71.28	71.22	71.40	71.25	71.49	72.33	72.98	73.42	73.14



PLATTE COUNTY--Continued

IDENTIFICATION.--Station number, 420613105024401. Local number, 25-068-31aaa01. Local name, Platte County #7.

LOCATION.--Lat 42°06'13", long 105°02'44", in NE $^{1}/_{4}$ NE $^{1}/_{4}$ NE $^{1}/_{4}$ sec.31, T.25 N., R.68 W., Hydrologic Unit 10180011.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 400 ft below land surface.

DATUM.--Elevation of land surface is 4,633 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.50 ft above land surface.

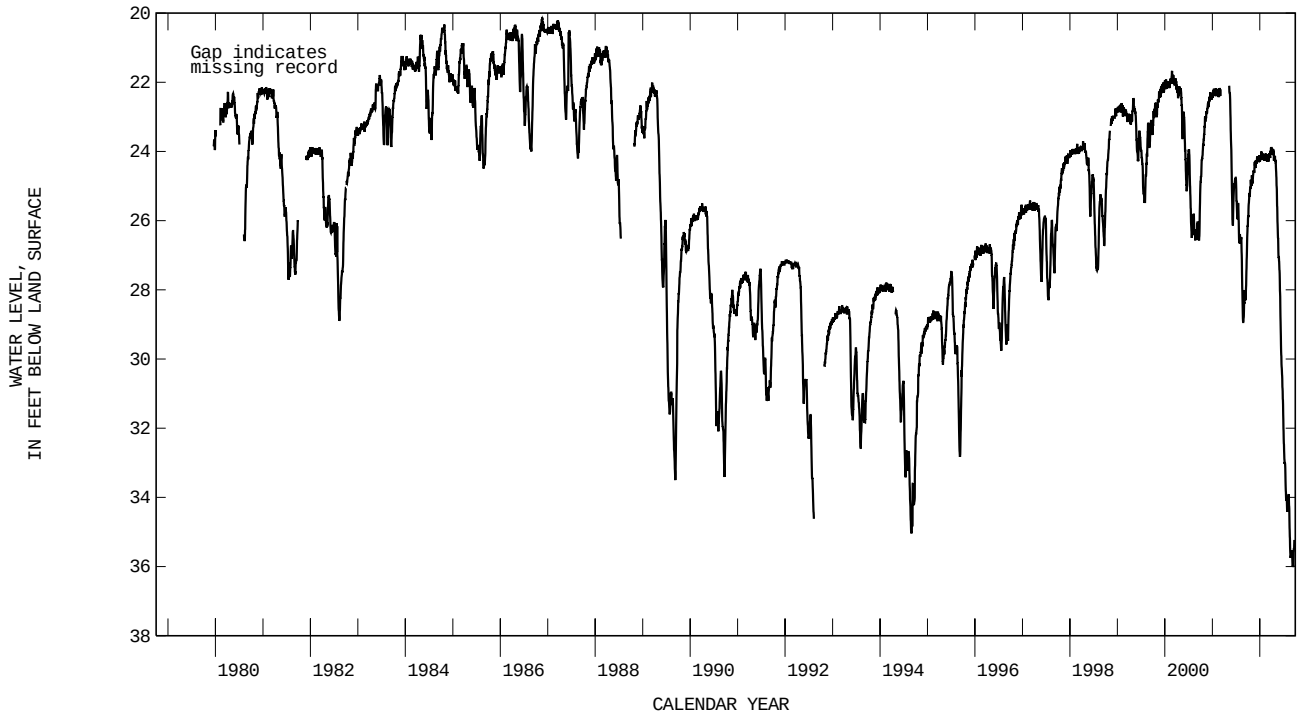
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1979 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 20.13 ft below land surface, Nov. 19, 1986; lowest, 36.05 ft below land surface, Sept. 10, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	25.69	24.79	24.30	24.23	24.21	24.16	24.02	24.54	28.09	32.47	34.08	35.65
10	25.37	24.67	24.18	24.24	24.22	24.19	24.04	25.02	29.15	33.03	33.92	36.01
15	25.31	24.57	24.18	24.11	24.23	24.16	23.97	25.76	29.91	33.15	34.34	35.92
20	25.03	24.47	24.22	24.09	24.18	24.14	24.16	26.51	30.44	33.86	35.19	35.47
25	24.96	24.36	24.27	24.16	24.30	24.08	24.23	27.05	30.93	34.07	35.75	---
EOM	24.69	24.27	24.23	24.23	24.09	23.90	24.24	27.42	31.76	34.37	35.67	---
MAX	24.69	24.26	24.11	24.00	24.06	23.89	23.90	24.28	27.44	31.99	33.91	35.23
MIN	25.96	24.93	24.34	24.30	24.30	24.29	24.29	27.42	31.76	34.41	35.75	36.01



PLATTE COUNTY--Continued

IDENTIFICATION.--Station number, 421443104574601. Local number, 26-068-12cbd01. Local name, E. Rutherford.

LOCATION.--Lat 42°14'43", long 104°57'46", in SE $^1/_4$ NW $^1/_4$ SW $^1/_4$ sec.12, T.26 N., R.68 W., Hydrologic Unit 10180011.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 320 ft below land surface.

DATUM.--Elevation of land surface is 4,860 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, at land surface.

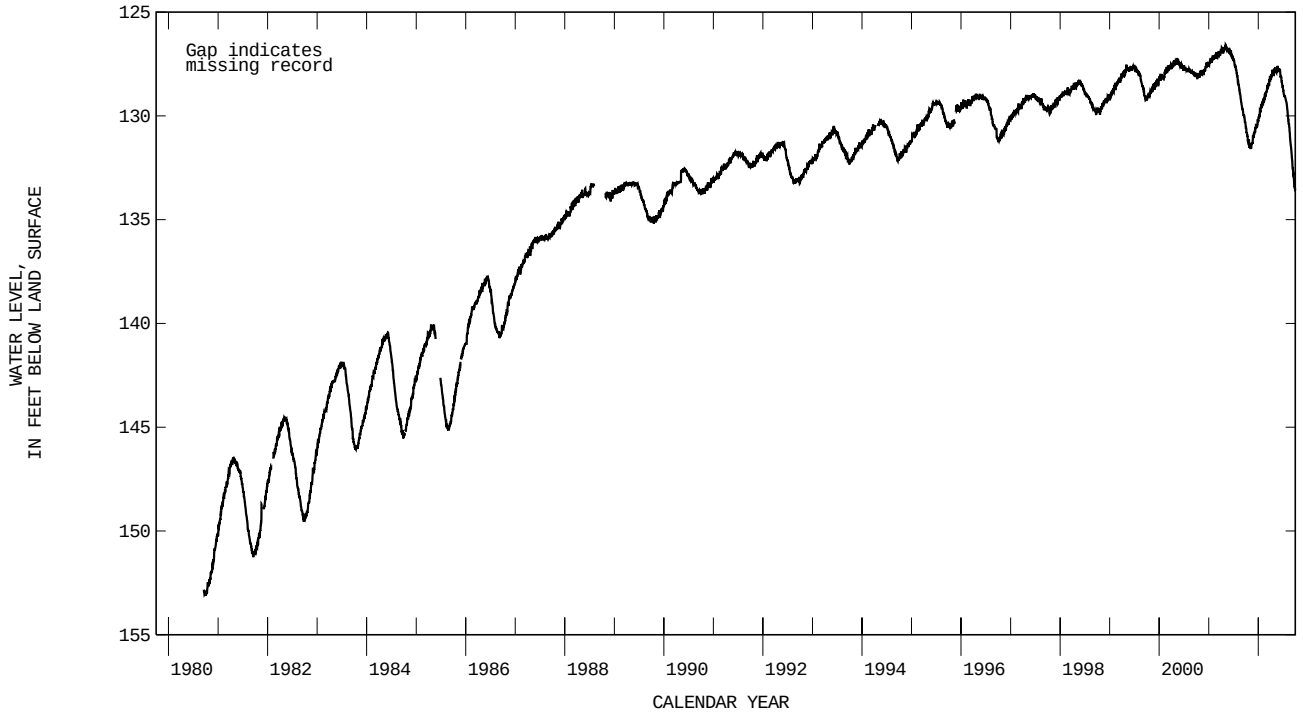
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1980 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 127.26 ft below land surface, May 10, 11, 2000; lowest, 153.11 ft below land-surface, Oct. 2, 1980.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	130.84	131.45	130.77	130.10	129.41	128.72	128.17	127.83	127.87	128.80	129.91	132.02
10	130.93	131.45	130.58	130.01	129.37	128.65	128.05	127.81	127.81	129.06	130.22	132.48
15	131.21	131.34	130.44	129.76	129.22	128.51	127.80	127.79	128.11	129.06	130.39	132.75
20	131.25	131.22	130.50	129.55	129.01	128.43	127.95	127.84	128.30	129.16	130.78	133.03
25	131.43	130.98	130.44	129.55	129.01	128.30	127.94	127.77	128.48	129.31	131.27	133.43
EOM	131.33	130.83	130.23	129.46	128.80	128.13	127.82	127.78	128.60	129.56	131.60	133.59
MAX	130.57	130.81	130.16	129.41	128.80	128.12	127.75	127.59	127.72	128.68	129.60	131.67
MIN	131.55	131.58	130.87	130.26	129.47	128.87	128.22	127.91	128.60	129.56	131.60	133.59



PLATTE COUNTY--Continued

IDENTIFICATION.--Station number, 421128104575801. Local number, 26-068-36bbb01. Local name, Platte County #5.

LOCATION.--Lat 42°11'28", long 104°57'58", in NW $^{1}/_{4}$ NW $^{1}/_{4}$ NW $^{1}/_{4}$ sec.36, T.26 N., R.68 W., Hydrologic Unit 10180011.

AQUIFER.--Arikaree Formation.

WELL CHARACTERISTICS.--Depth of well, 200 ft below land surface.

DATUM.--Elevation of land surface is 4,670 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.40 ft above land surface.

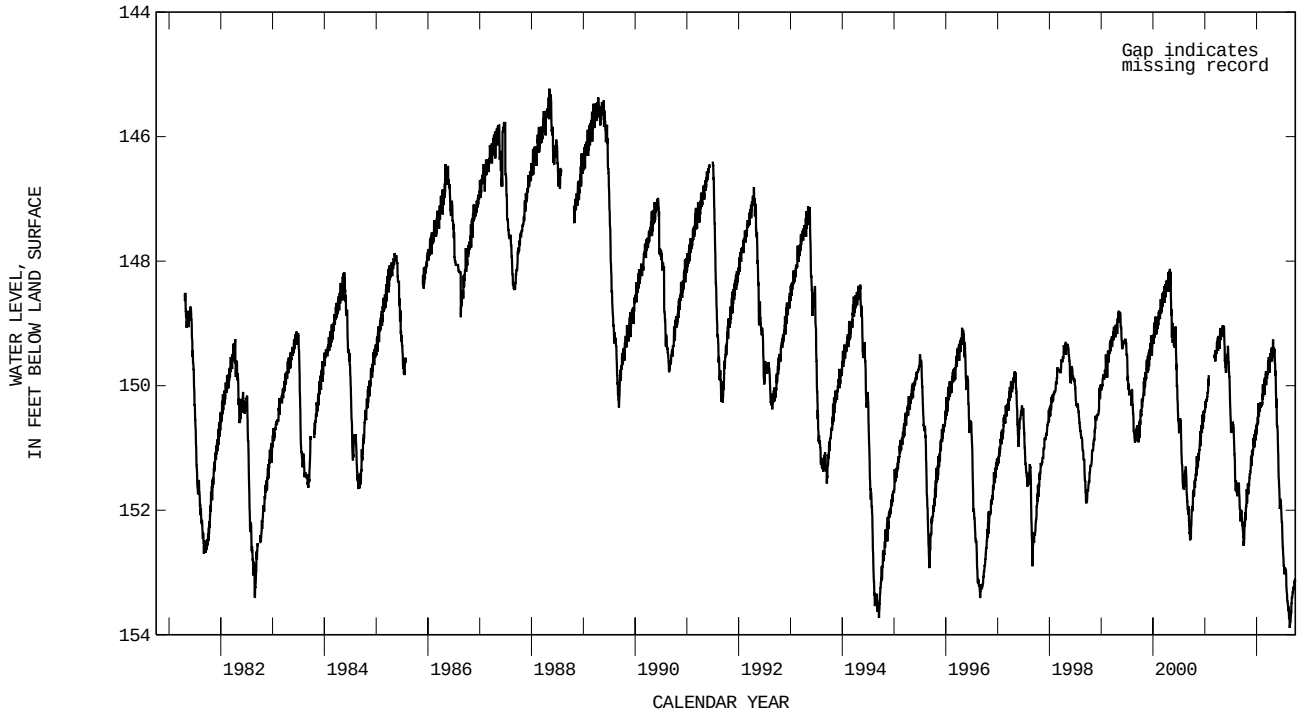
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PEROD OF RECORD.--1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 145.23 ft below land surface, May 7, 1988; lowest, 153.90 ft below land surface, Aug. 22, 2002.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	152.44	151.56	151.03	150.64	150.31	149.83	149.54	149.43	151.48	152.60	153.46	153.45
10	152.24	151.52	150.87	150.59	150.29	149.85	149.53	149.63	151.70	152.89	153.54	153.36
15	152.16	151.43	150.79	150.41	150.18	149.89	149.40	149.85	151.92	152.97	153.59	153.32
20	151.93	151.30	150.81	150.32	150.10	149.77	149.46	150.35	151.94	152.97	153.76	153.23
25	151.89	151.19	150.79	150.32	150.15	149.73	149.42	150.65	152.11	152.96	153.82	153.17
EOM	151.57	151.05	150.70	150.34	149.87	149.55	149.39	150.95	152.31	153.28	153.67	153.11
MAX	152.52	151.74	151.12	150.74	150.33	150.00	149.79	150.95	152.31	153.28	153.89	153.63
MIN	151.57	151.05	150.63	150.27	149.87	149.54	149.27	149.40	151.07	152.41	153.32	153.11



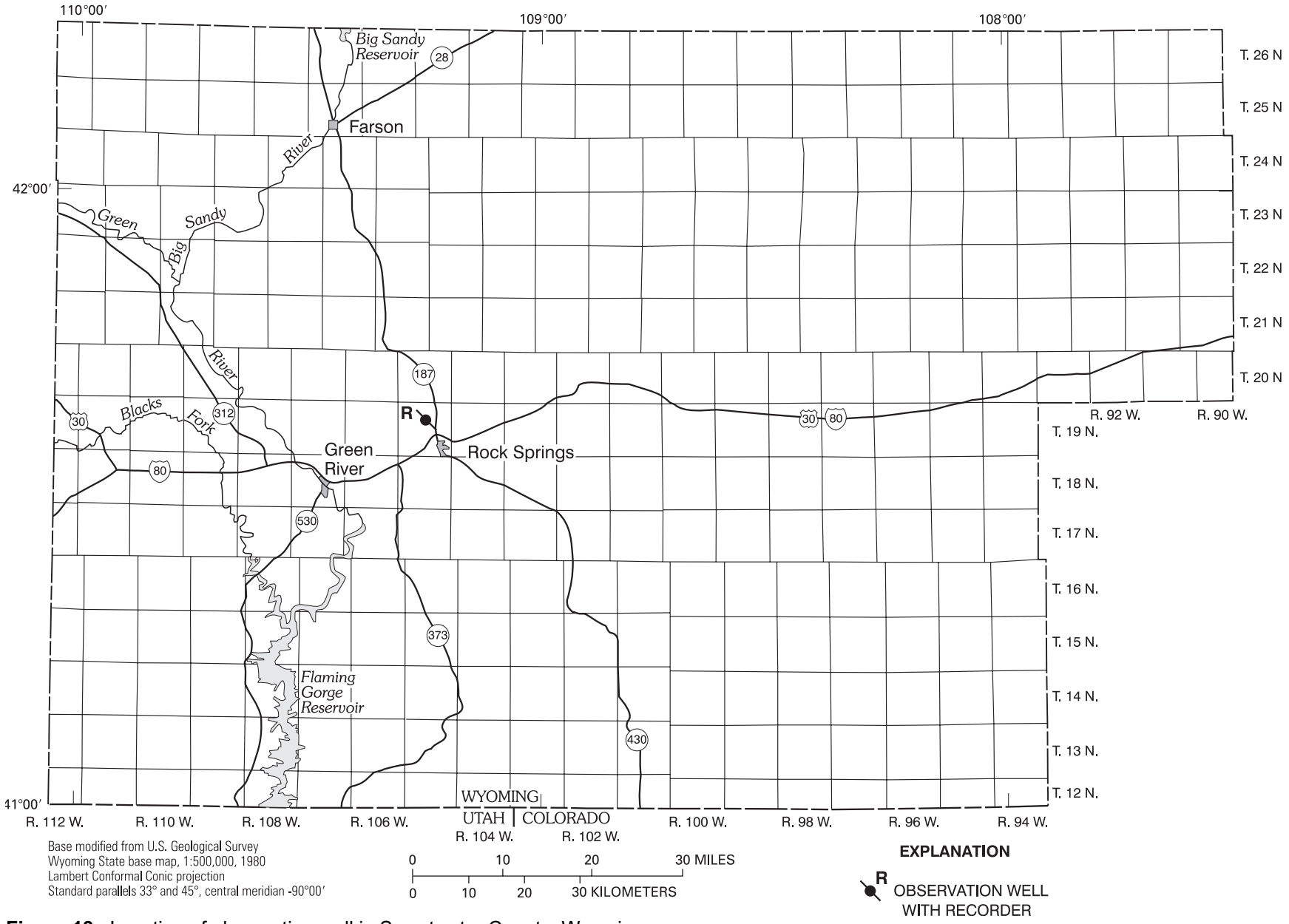


Figure 18. Location of observation well in Sweetwater County, Wyoming.

SWEETWATER COUNTY

IDENTIFICATION.--Station number, 413850109150601. Local number, 19-105-10bbb01. Local name, Rock Springs Golf Course.

LOCATION.--Lat 41°38'50", long 109°15'06", in NW $^{1}/_{4}$ NW $^{1}/_{4}$ NW $^{1}/_{4}$ sec.10, T.19 N., R.105 W., Hydrologic Unit 14040105.

AQUIFER.--Fort Union Formation.

WELL CHARACTERISTICS.--Depth of well, 240 ft below land surface.

DATUM.--Elevation of land surface is 6,430 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 0.60 ft above land surface.

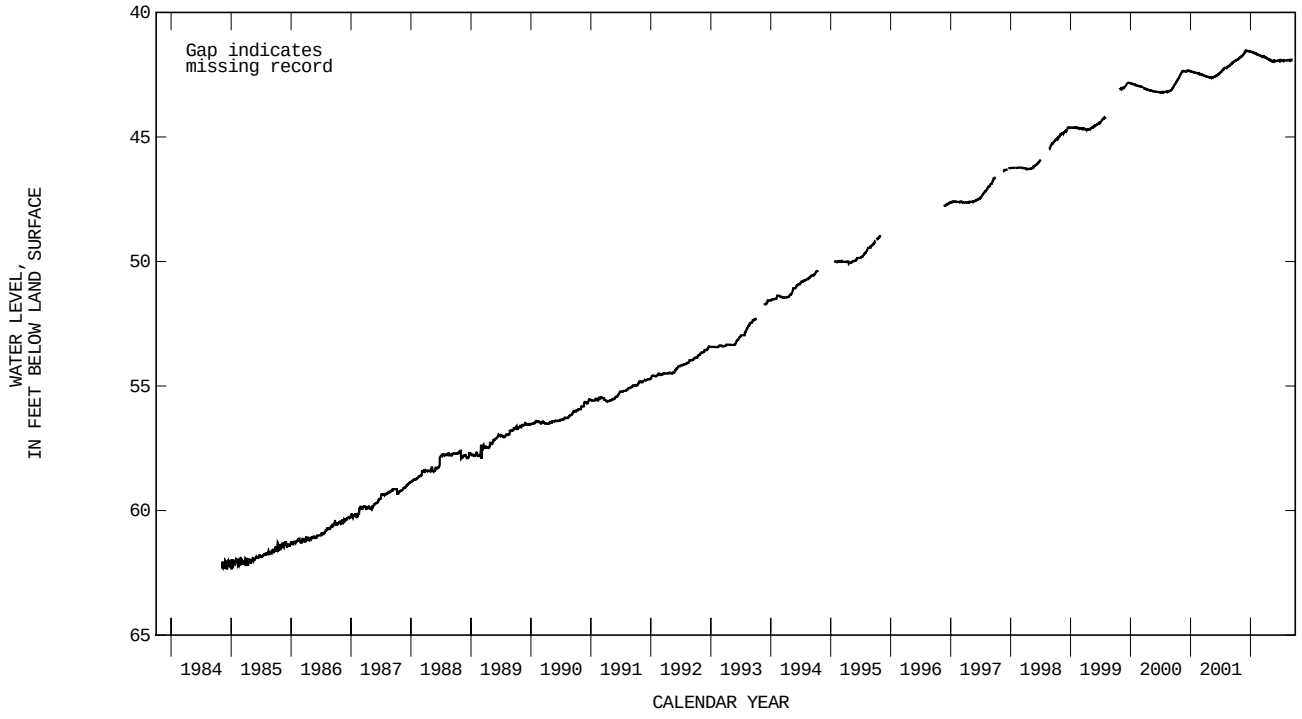
REMARKS.--Data collected by U.S. Geological Survey.

PERIOD OF RECORD.--1984-1995; 1997 to curent year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 41.54 ft below land surface, Dec. 6, 14, 15, 2001; lowest, 62.36 ft below land surface, Dec. 6, 1984, Jan. 3, 1985.

DEPTH BELOW LAND SURFACE, IN FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	41.93	41.77	41.55	41.58	41.66	41.75	41.82	41.93	41.95	41.93	41.93	41.91
10	41.91	41.75	41.55	41.59	41.68	41.76	41.84	41.95	41.94	41.94	41.93	41.91
15	41.88	41.71	41.54	41.60	41.70	41.77	41.86	41.95	41.94	41.94	41.92	---
20	41.86	41.68	41.55	41.62	41.71	41.78	41.89	41.95	41.93	41.94	41.91	---
25	41.82	41.60	41.56	41.63	41.72	41.79	41.90	41.95	41.94	41.93	41.91	---
EOM	41.79	41.56	41.57	41.65	41.73	41.80	41.91	41.95	41.93	41.93	41.91	---
MAX	41.79	41.56	41.54	41.58	41.65	41.74	41.80	41.92	41.93	41.93	41.91	41.90
MIN	41.95	41.78	41.57	41.65	41.73	41.80	41.92	41.96	41.95	41.94	41.93	41.91



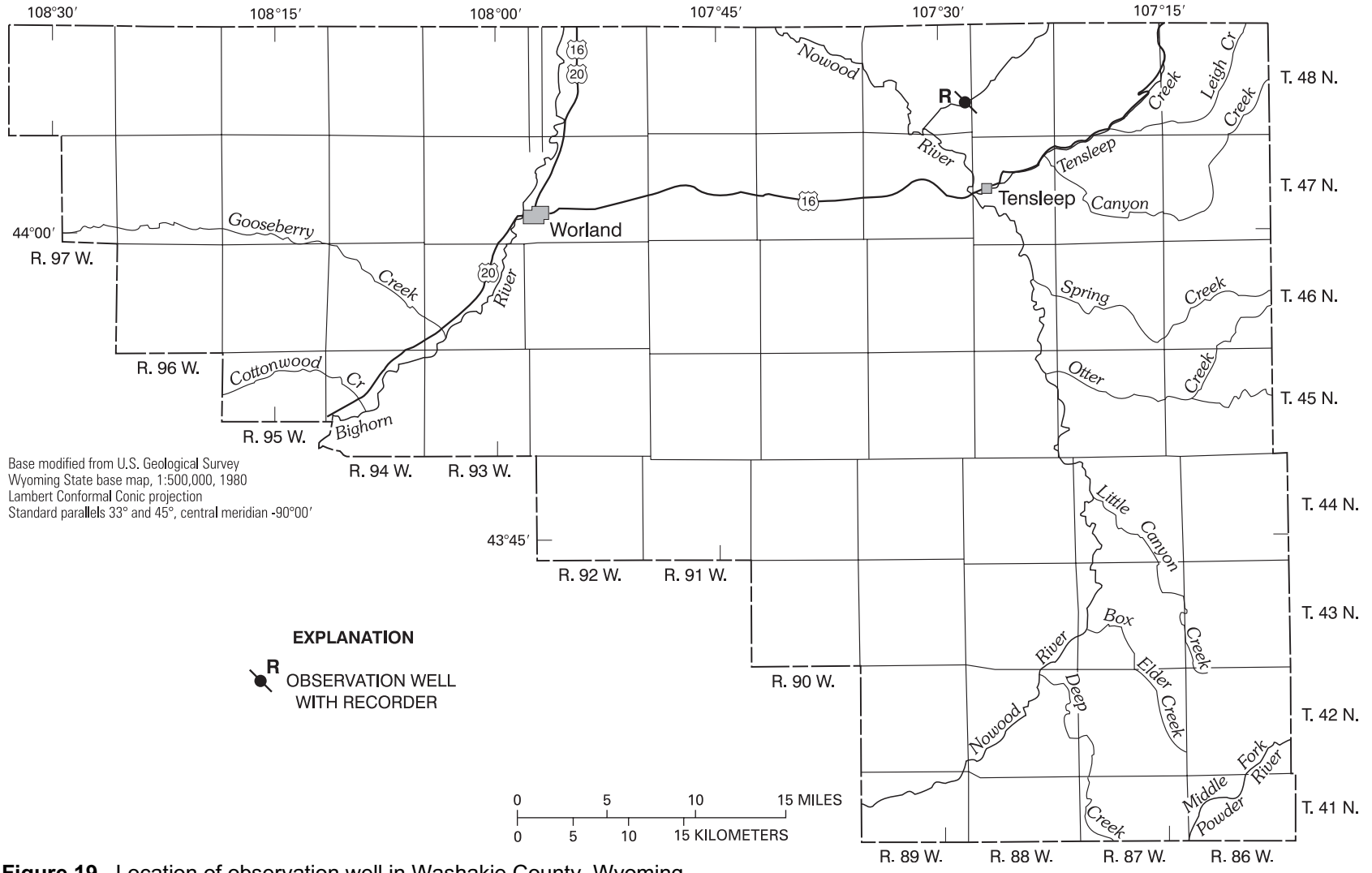


Figure 19. Location of observation well in Washakie County, Wyoming.

WASHAKIE COUNTY

IDENTIFICATION.--Station number, 440621107273801. Local number, 48-089-25ada01. Local name, Mills.

LOCATION.--Lat 44°06'21", long 107°27'38", in NE $^{1}/_{4}$ SE $^{1}/_{4}$ NE $^{1}/_{4}$ sec.25, T.48 N., R.89 W., Hydrologic Unit 10080008.

AQUIFER.--Flathead Sandstone.

WELL CHARACTERISTICS.--Depth of well, 2,290 ft below land surface.

DATUM.--Elevation of land surface is 4,560 ft above NGVD of 1929, from topographic map.

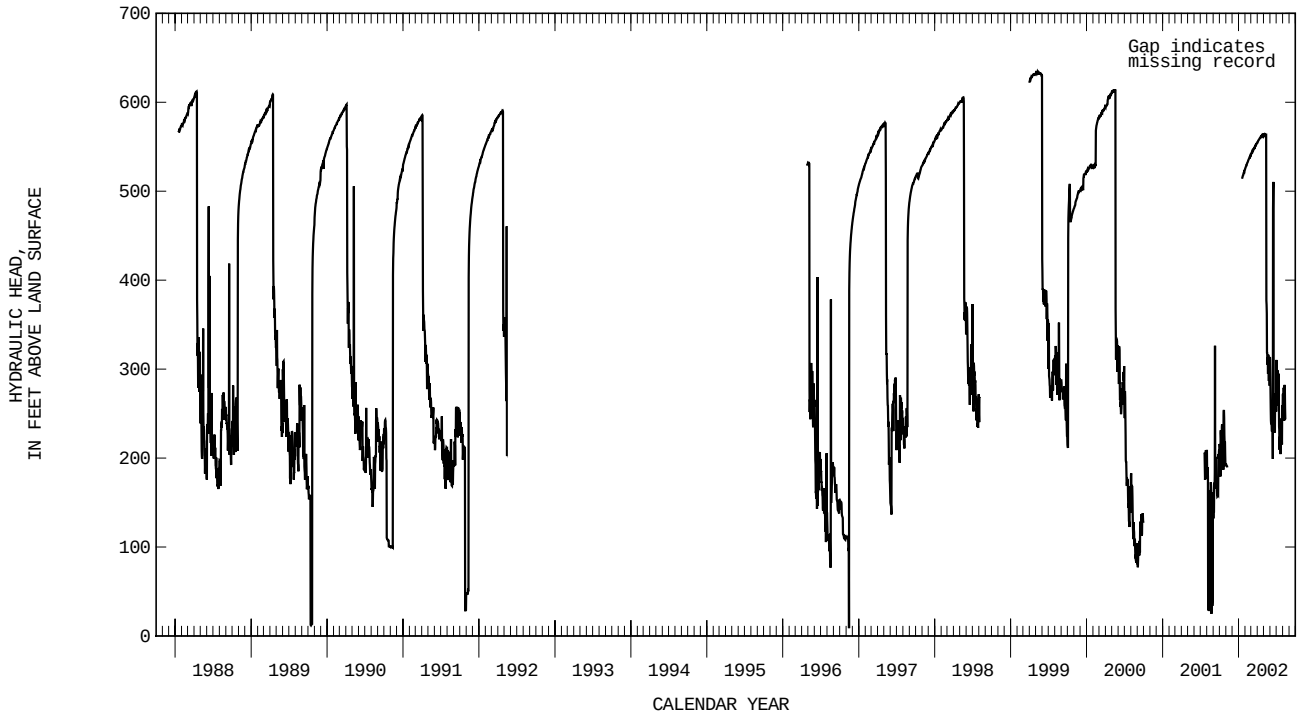
REMARKS.--Shut-in pressure was measured by pressure transducer and converted to hydraulic head above land surface for illustration purposes. Hydraulic head, in feet above land surface, was calculated by multiplying the shut-in pressure in pounds per square inch by 2.307. Hydraulic head data from May 13, 1992 to Mar. 24, 1995 were not plotted on the hydrograph because the monitoring equipment was out of calibration during this time. The data, and a more detailed explanation of the data, were published in Open-File report 96-648 "Ground-Water Levels in Wyoming, January 1986 through September 1995." Hydraulic head data from Mar. 24, 1995 to Apr. 25, 1996 were not collected. The accuracy of the hydraulic head measurements is 5.0 ft. Data collected by U.S. Geological Survey.

PERIOD OF RECORD.--1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest hydraulic head, 633.67 ft above land surface, May 5, 6, 8, 11, 1999; lowest, 8.78 ft above land surface, Nov. 14, 1996.

HYDRAULIC HEAD, IN FEET ABOVE LAND SURFACE, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002
DAILY MAXIMUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	179.34	190.95	---	---	527.94	543.86	557.00	563.89	242.17	281.99	279.12	---
10	197.09	---	---	---	531.36	545.90	558.57	563.39	229.88	259.28	282.29	---
15	215.91	---	---	---	534.08	548.17	560.14	372.46	480.57	232.17	---	---
20	247.33	---	---	516.75	536.82	549.51	561.03	313.07	233.66	215.93	---	---
25	217.39	---	---	520.64	539.31	552.01	563.29	305.13	261.82	242.25	---	---
EOM	191.96	---	---	524.29	540.45	554.72	563.71	313.67	252.26	246.12	---	---
MIN	179.34	189.47	---	514.01	525.43	541.36	554.95	281.25	199.02	204.44	219.10	184.43
MAX	254.14	191.96	---	524.29	540.69	554.72	563.72	564.13	510.44	310.33	282.29	267.86



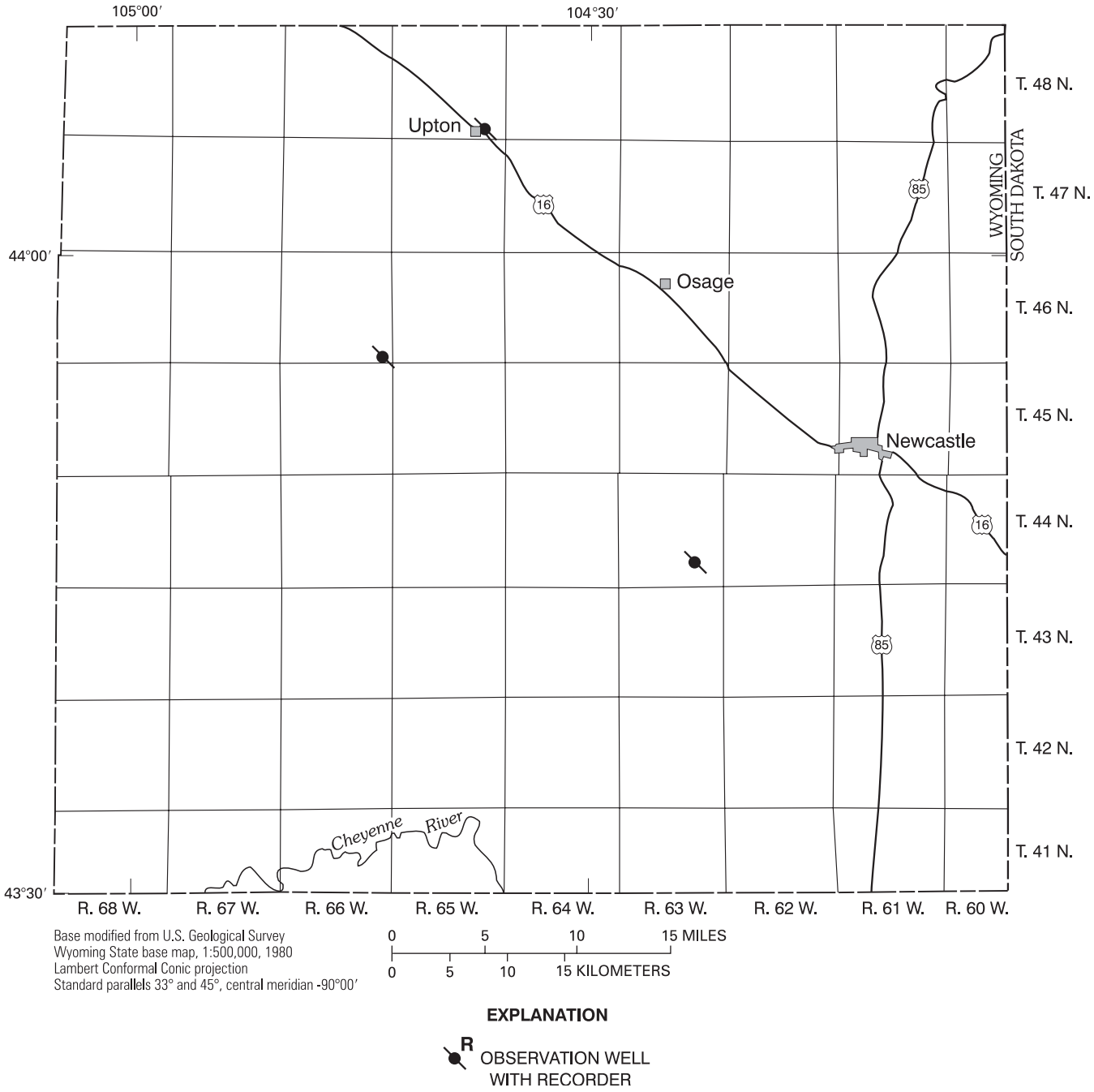


Figure 20. Location of observation wells in Weston County, Wyoming.

WESTON COUNTY

IDENTIFICATION.--Station number, 434539104233401. Local number, 44-063-26cac01. Local name, Townsend Well.

LOCATION.--Lat 43°45'39", long 104°23'34", in SW $^{1}/_{4}$ NE $^{1}/_{4}$ SW $^{1}/_{4}$ sec.26, T.44 N., R.63 W., Hydrologic Unit 10120107.

AQUIFER.--Madison (Pahasapa) Limestone.

WELL CHARACTERISTICS.--Depth of well, 6,880 ft below land surface.

DATUM.--Elevation of land surface is 3,990 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 1.5 ft above land surface.

REMARKS.--Data reflects static and pumping water levels.

COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

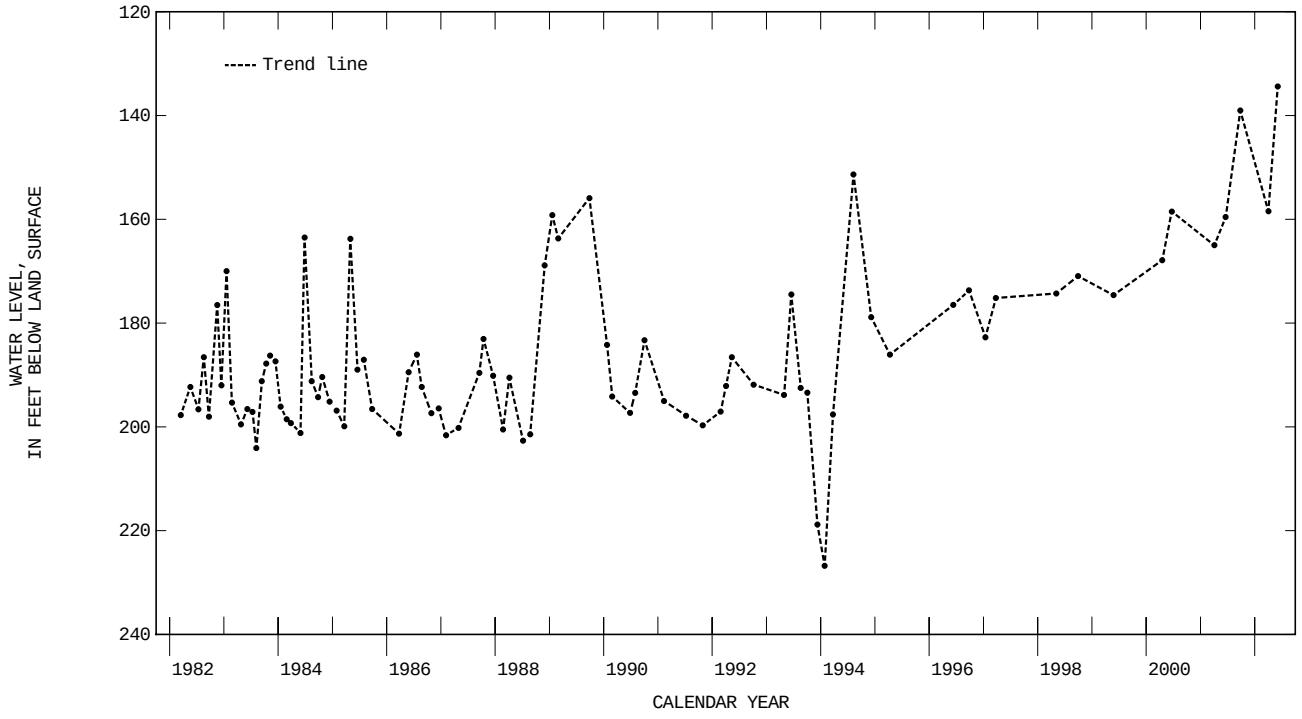
PERIOD OF RECORD.--1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 134.37 ft below land surface, from hand-measured data, June 4, 2002; lowest, 226.80 ft below land surface, from hand-measured data, Jan. 27, 1994.

WATER LEVELS IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	WATER LEVEL	DATE	WATER LEVEL
APR 02	158.46	JUN 04	134.39

WATER YEAR 2002 HIGHEST 134.39 JUN 04, 2002 LOWEST 158.46 APR 02, 2002



WESTON COUNTY--Continued

IDENTIFICATION.--Station number, 435610104433001. Local number, 46-066-25dbb01. Local name, Terra Resources.

LOCATION.--Lat 43°56'10", long 104°43'30", in NW $^1/_4$ NW $^1/_4$ SE $^1/_4$ sec.25, T.46 N., R.66 W., Hydrologic Unit 10120103.

AQUIFER.--Madison (Pahasapa) Limestone.

WELL CHARACTERISTICS.--Depth of well, 8,780 ft below land surface.

DATUM.--Elevation of land surface is 4,200 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, at land surface.

REMARKS.--Data reflects static conditions and pumping of nearby oil field water flood system.

COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

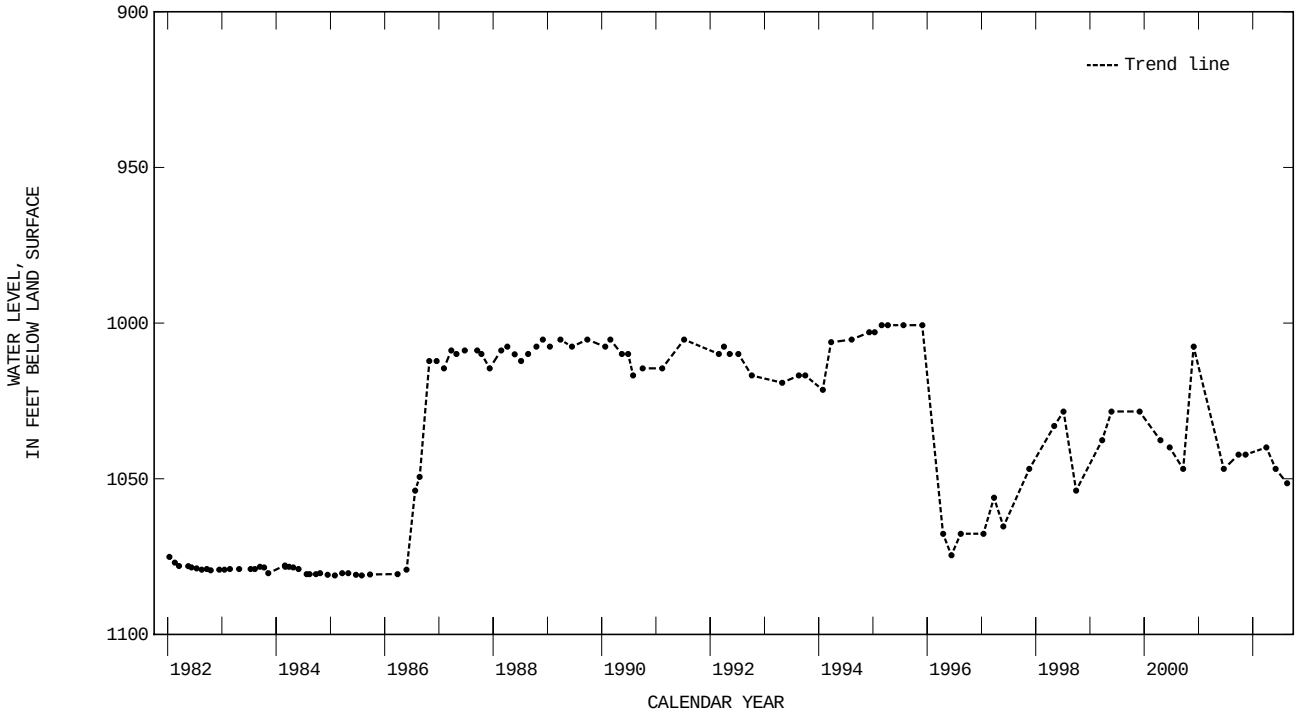
PERIOD OF RECORD.--1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1,000.67 ft below land surface, from hand-measured data, Feb. 28, Apr. 11, July 25, and Nov. 28, 1995; lowest, 1,081.06 ft below land surface, from-hand measured data, July 30, 1985.

WATER LEVELS IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 13	1042.25	APR 02	1039.94	JUN 04	1046.87	AUG 20	1051.49

WATER YEAR 2002 HIGHEST 1039.94 APR 02, 2002 LOWEST 1051.49 AUG 20, 2002



WESTON COUNTY--Continued

IDENTIFICATION.--Station number, 440530104381001. Local number, 48-065-35ccb01. Local name, Town of Upton #4.

LOCATION.--Lat 44°05'30", long 104°38'10", in NW $^{1}/_{4}$ SW $^{1}/_{4}$ SW $^{1}/_{4}$ sec.35, T.48 N., R.65 W., Hydrologic Unit 10120107.

AQUIFER.--Madison (Pahasapa) Limestone.

WELL CHARACTERISTICS.--Depth of well, 3,190 ft below land surface.

DATUM.--Elevation of land surface is 4,220 ft above NGVD of 1929, from topographic map. Measuring point: top of casing, 0.70 ft above land surface.

REMARKS.--Data reflects static and pumping water levels.

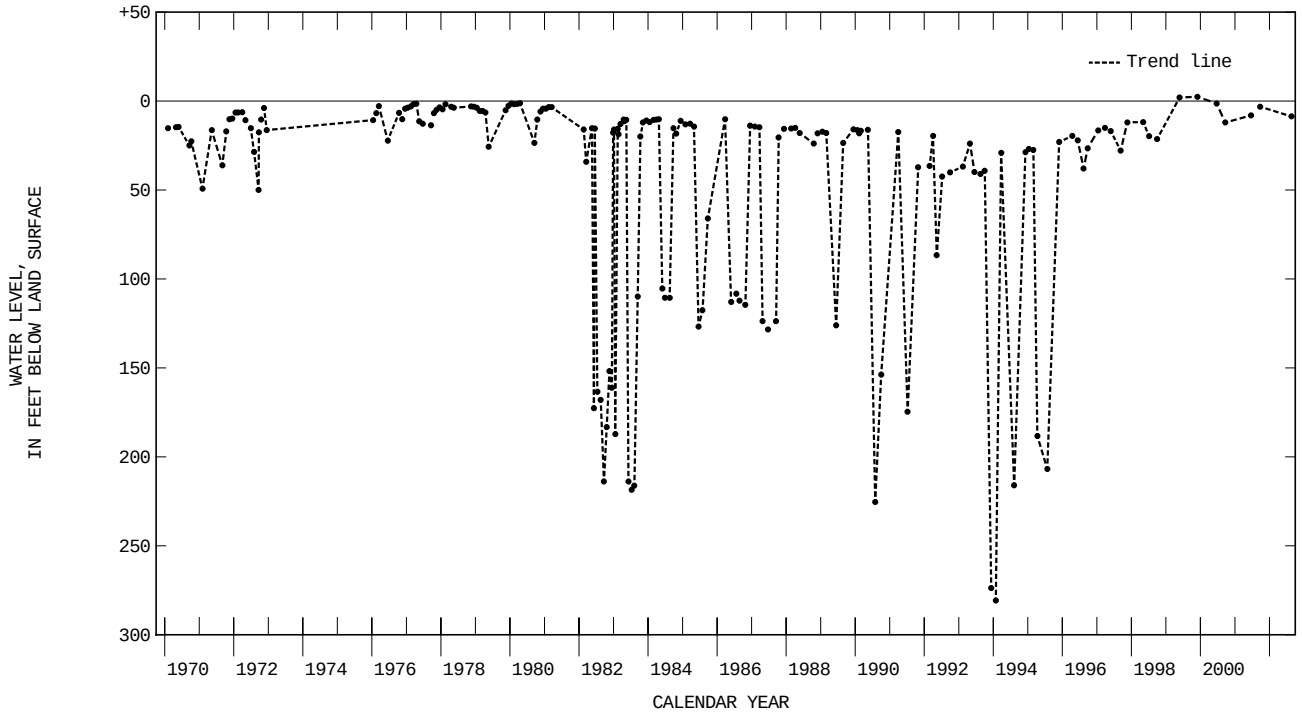
COOPERATION.--Data collected and records provided by the Wyoming State Engineer's Office and reviewed by U.S. Geological Survey.

PERIOD OF RECORD.--1970 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.40 ft above land surface, from hand-measured data, Nov. 30, 1999; lowest, 280.67 ft below land surface, from hand-measured data, Jan. 27, 1994.

WATER LEVELS IN FEET BELOW LAND SURFACE, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	WATER LEVEL
AUG 20	8.64



GOSHEN COUNTY

STATION NUMBER	LATITUDE (DEGREES)	LONGITUDE (DEGREES)	LOCAL WELL NUMBER	ALTITUDE OF LAND SURFACE (FEET)	WATER-LEVEL DATE	WATER LEVEL IN FEET BELOW LAND SURFACE
413716104203401	413716	1042034	19-062-17bbb01	4940	06-17-02	23.01
415539104033501	415539	1040335	23-060-34abb01	4070	06-17-02	4.48
415925104310801	415925	1043108	23-064-03dda01	4275	06-19-02	23.70
420845104122301	420845	1041223	25-061-17aaa01	4310	06-17-02	53.53
421328104205401	421328	1042054	26-062-18dbd01	4500	06-17-02	61.96
422347104212001	422347	1042120	28-062-18cac01	4470	06-17-02	13.26
423056104212701	423056	1042127	29-062-06cba01	4700	06-17-02	28.84
423057104212701	423057	1042127	29-062-06cba02	4700	06-17-02	29.33

LARAMIE COUNTY

STATION NUMBER	LATITUDE (DEGREES)	LONGITUDE (DEGREES)	LOCAL WELL NUMBER	ALTITUDE OF LAND SURFACE (FEET)	WATER-LEVEL DATE	WATER LEVEL IN FEET BELOW LAND SURFACE
412304104311001	412304	1043110	16-064-02bcb01	5778	06-17-02	233.13

NIOBRARA COUNTY

STATION NUMBER	LATITUDE (DEGREES)	LONGITUDE (DEGREES)	LOCAL WELL NUMBER	ALTITUDE OF LAND SURFACE (FEET)	WATER-LEVEL DATE	WATER LEVEL IN FEET BELOW LAND SURFACE
423940104031201	423939	1040310	31-060-15dbc01	4730	06-19-02	35.52
424908104085901	424908	1040859	33-061-23dcb01	5155	06-19-02	262.52

PLATTE COUNTY

STATION NUMBER	LATITUDE (DEGREES)	LONGITUDE (DEGREES)	LOCAL WELL NUMBER	ALTITUDE OF LAND SURFACE (FEET)	WATER-LEVEL DATE	WATER LEVEL IN FEET BELOW LAND SURFACE
414206104500101	414206	1045001	20-067-13dbd01	5490	06-18-02	40.23
414755104391101	414752	1043914	21-065-16aaa01	5294	06-18-02	74.26
422355105023401	422355	1050238	28-068-17cbc01	4918	06-18-02	58.04

GROUND-WATER QUALITY NEAR WASTEWATER-TREATMENT FACILITIES, GRAND TETON NATIONAL PARK

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

STATION NUMBER	GEOLOGIC UNIT	LOCAL IDENTIFIRE	Date	Time	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	DEPTH OF WELL, TOTAL (FEET) (72008)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)
433932110430801	111ALVM	43-116-25cca01	09-10-02	1515	9.47	49	6455
433939110424001	111ALVM	43-116-25dbd01	09-10-02	1255	14.56	48.6	6460
433939110425601	111ALVM	43-116-25caa01	09-10-02	1730	14.11	42.8	6462
434920110370801	111ALVM	45-115-36bcc01	09-11-02	1025	114.09	118	6860
434927110370801	111ALVM	45-115-36bcb01	09-12-02	1115	93.76	120	6888.70
435357110374102	111ALVM	45-115-02abc02	09-11-02	1345	1.73	15	6810
435357110374103	111ALVM	45-115-02abc03	09-11-02	1700	4.37	28	6810
435357110374104	111ALVM	45-115-02abc04	09-11-02	1810	4.52	45	6810
435357110374105	111ALVM	45-115-02abc05	09-12-02	1400	1.20	12.5	6810
435358110374201	111ALVM	45-115-02abc06	09-12-02	1530	2.07	13	6810
440640110401001	111ALVM	48-115-21bca01	09-13-02	1530	30.35	47.3	6838.02
440641110400101	111ALVM	48-115-21bdb02	09-13-02	1910	33.71	39.8	6845.35
440641110402101	111ALVM	48-115-21bcb01	09-13-02	1225	27.19	37.5	6836.23
440641110402102	111ALVM	48-115-21bcb02	09-13-02	1130	27.16	42.6	6836.50
440641110402103	111ALVM	48-115-21bcb03	09-13-02	1020	27.35	52.6	6836.57
440643110400101	111ALVM	48-115-21bdb01	09-13-02	1710	34.92	48.0	6844.78
440645110401101	111ALVM	48-115-21bc 02	09-12-02	1810	28.44	--	6837.06
440645110402001	111ALVM	48-115-21bc 01	09-13-02	1400	26.38	37.3	6834.24

STATION NUMBER	Date	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE AIR (DEG C) (00020)	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)
433932110430801	09-10-02	611	3.8	42	8.5	98	20.0	9.8	47	14.1	2.75
433939110424001	09-10-02	612	2.2	25	8.4	157	20.0	11.1	78	24.0	4.37
433939110425601	09-10-02	611	4.5	51	7.7	145	20.0	10.8	71	21.5	4.27
434920110370801	09-11-02	600	8.0	89	7.8	264	11.0	9.4	110	32.2	6.39
434927110370801	09-12-02	598	5.5	--	7.0	--	19.0	12.8	240	83.0	8.96
435357110374102	09-11-02	600	.2	--	6.6	--	19.5	12.2	93	27.9	5.72
435357110374103	09-11-02	600	3.4	45	7.6	508	19.5	16.5	150	44.7	9.39
435357110374104	09-11-02	600	.2	--	6.8	--	19.0	9.0	110	33.9	6.69
435357110374105	09-12-02	598	.8	--	6.7	--	18.0	12.2	98	29.4	6.02
435358110374201	09-12-02	598	.1	--	6.7	--	17.5	10.8	110	31.3	6.65
440640110401001	09-13-02	599	9.0	95	8.0	302	21.5	7.3	110	31.4	6.88
440641110400101	09-13-02	599	7.4	80	8.2	282	21.0	8.2	86	25.3	5.57
440641110402101	09-13-02	599	6.6	70	7.7	386	21.0	7.1	150	46.4	8.85
440641110402102	09-13-02	599	6.8	72	7.7	406	17.5	7.2	170	50.3	9.60
440641110402103	09-13-02	599	6.6	70	6.7	430	13.0	7.1	170	51.8	10.2
440643110400101	09-13-02	599	8.2	88	8.2	275	24.5	8.0	91	26.4	6.11
440645110401101	09-12-02	599	7.5	80	8.1	300	20.0	7.5	130	36.8	8.39
440645110402001	09-13-02	599	7.5	98	7.8	440	21.0	16.5	100	29.6	6.23

GEOLOGIC UNIT (Aquifer):

111ALVM HOLOCENE
111TRRC TERRACE DEPOSIT
124GRRV GREEN RIVER FORMATION

GROUND-WATER QUALITY NEAR WASTEWATER-TREATMENT FACILITIES, GRAND TETON NATIONAL PARK--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

STATION NUMBER	Date	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM AD-SORP-TION RATIO (00931)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	ALKA-LINITY WAT.DIS FET LAB CACO3 (MG/L) (29801)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
433932110430801	09-10-02	.71	.1	1.09	49	E.25	E.1	7.3	1.4	--	--
433939110424001	09-10-02	.82	.1	1.11	81	E.25	E.1	7.7	1.4	--	--
433939110425601	09-10-02	.69	.1	1.05	74	E.22	E.1	8.1	1.5	--	--
434920110370801	09-11-02	1.69	.5	11.6	109	9.26	.5	24.8	9.7	.23	167
434927110370801	09-12-02	4.93	2	54.1	226	79.7	.2	26.3	13.1	.60	438
435357110374102	09-11-02	8.07	3	73.2	E87	114	.2	33.0	15.7	--	--
435357110374103	09-11-02	2.75	2	47.5	170	54.4	.1	19.9	19.2	.41	300
435357110374104	09-11-02	6.99	3	64.4	E95	102	.2	34.0	19.0	--	--
435357110374105	09-12-02	7.01	3	70.8	122	108	.2	21.9	16.1	.46	338
435358110374201	09-12-02	6.25	3	60.0	115	90.2	.2	19.9	17.5	.41	304
440640110401001	09-13-02	2.63	.8	18.3	117	10.6	1.2	25.9	14.7	.25	186
440641110400101	09-13-02	2.95	1	21.8	102	11.3	1.4	27.2	18.1	.24	175
440641110402101	09-13-02	3.59	.7	18.5	154	11.6	.9	24.4	14.2	.32	236
440641110402102	09-13-02	3.59	.7	19.7	162	13.9	.9	24.9	13.7	.34	252
440641110402103	09-13-02	3.58	.7	19.8	172	13.9	.9	25.8	13.4	.36	263
440643110400101	09-13-02	2.59	.9	20.7	108	9.41	1.3	25.6	14.8	.23	172
440645110401101	09-12-02	1.90	.3	7.18	128	7.30	.5	21.7	7.0	.23	168
440645110402001	09-13-02	4.02	2	55.4	183	25.1	3.0	44.8	4.0	.38	282

STATION NUMBER	Date	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	E COLI, MTEC MF WATER (COL/ 100 ML) (31633)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	FECAL STREP, KF STRP MF, WATER (COL/ 100 ML) (31673)
433932110430801	09-10-02	<.04	.18	<.008	E.01	<1	<1	<1
433939110424001	09-10-02	<.04	.12	<.008	E.01	<1	<1	<1
433939110425601	09-10-02	<.04	.09	<.008	E.01	<1	<1	<1
434920110370801	09-11-02	<.04	1.11	<.008	.04	<1	<1	<1
434927110370801	09-12-02	<.04	6.31	.246	1.30	<1	<1	<1
435357110374102	09-11-02	5.03	<.05	E.007	.14	<1	<1	<1
435357110374103	09-11-02	.13	<.05	<.008	<.02	<1	<1	<1
435357110374104	09-11-02	5.37	<.05	<.008	.26	<1	<1	<1
435357110374105	09-12-02	4.03	<.05	.010	.16	<1	<1	<1
435358110374201	09-12-02	2.01	<.05	E.006	.13	<1	<1	<1
440640110401001	09-13-02	<.04	.88	<.008	E.02	<1	<1	<1
440641110400101	09-13-02	<.04	.12	<.008	E.01	<1	<1	<1
440641110402101	09-13-02	<.04	3.08	<.008	.58	<1	<1	<1
440641110402102	09-13-02	<.04	3.60	<.008	.67	<1	<1	<1
440641110402103	09-13-02	<.04	4.19	<.008	.64	<1	<1	<1
440643110400101	09-13-02	<.04	.12	<.008	E.01	<1	<1	<1
440645110401101	09-12-02	<.04	.14	<.008	.03	E1k	<1	<1
440645110402001	09-13-02	<.04	.09	<.008	.09	E1k	<1	<1

E -- Estimated value
k -- Counts outside acceptable range (non-ideal colony count).

PESTICIDE AND NUTRIENT SAMPLING PROGRAM

NATRONA COUNTY

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

WELL NUMBER	STATION NUMBER	GEOLOGIC UNIT	LOCAL IDENTIFIER	DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	DEPTH OF WELL, TOTAL (FEET) (72008)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)
N11	423448106402601	111ALVM	30-082-09cbd01	03-20-02	0940	21.3	40	5320
N12	423622106373601	111ALVM	31-082-35bdc01	03-20-02	1130	9.1	25	5320
N10	424921106231101	111ALVM	33-080-13cda01	03-22-02	0910	10.4	32	5125
N6	424946106223901	111ALVM	33-080-13ada01	03-22-02	1030	9.6	20	5150
N7	424946106240101	111ALVM	33-080-14aca01	03-21-02	1430	13.6	25	5120
N3	425101106185701	111ALVM	33-079-03ccc01	03-20-02	1640	7.2	14	5120
N4a	425126106193101	111ALVM	33-079-04acc02	05-14-02	1820	13.4	18	5105
N9	425134106064401	111ALVM	33-077-05bdd01	03-20-02	1115	10.0	40	5040
N2	425137106180401	111ALVM	33-079-03adb01	03-21-02	1300	12.0	15	5100
N1	425154106155101	111ALVM	34-079-36dcd01	05-15-02	0910	18.8	60	5095
N8	425400106272101	111ALVM	34-080-20add01	03-20-02	1415	17.8	24	5316.29

STATION NUMBER	DATE	OXYGEN, DIS- (MG/L) (00300)	PH WATER WHOLE FIELD (STAND- UNITS) (00400)	SPE- CIFIC CON- DUCT- (US/CM) (00095)	TEMPER- ATURE (DEG C) (00010)	NITRO- GEN, AMMONIA DIS- SOLVED AS N) (00608)	NITRO- GEN, NO2+NO3 DIS- SOLVED AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED AS N) (00613)	ORTHO- PHOS- PHATE, DIS- SOLVED AS P) (00671)	2,4-D, DIS- (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U (UG/L) (38746)
423448106402601	03-20-02	.1	7.6	920	10.0	<.04	2.13	.033	<.02	<.16	<.25
423622106373601	03-20-02	.4	7.6	512	9.0	.14	<.05	<.008	E.01	<.16	<.25
424921106231101	03-22-02	.3	7.7	1350	8.5	<.04	3.58	.084	<.02	<.16	<.25
424946106223901	03-22-02	.3	7.4	2870	10.0	<.04	17.1	<.008	.08	<.16	<.25
424946106240101	03-21-02	--	7.3	2000	10.5	<.04	6.62	.066	<.02	<.16	<.25
425101106185701	03-20-02	4.4	7.4	6360	9.5	<.04	11.9	<.008	.06	<.16	<.25
425126106193101	05-14-02	.8	7.3	1680	14.0	E.02	.56	E.006	.02	<.16	<.25
425134106064401	03-20-02	--	7.9	761	9.0	.45	<.05	<.008	<.02	<.16	<.25
425137106180401	03-21-02	--	7.3	2900	10.0	<.04	4.73	.073	<.02	<.16	<.25
425154106155101	05-15-02	5.0	7.5	6670	12.0	<.04	2.57	<.008	E.01	<.16	<.25
425400106272101	03-20-02	4.1	7.3	1270	11.5	<.04	5.13	<.008	<.02	<.16	<.25

STATION NUMBER	DATE	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDI- CARB SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	ALDICA- RB SUL- FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	ALDI- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	BRO- MACIL, WATER, DISS, REC (UG/L) (04029)	CLOPYR- ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)
423448106402601	03-20-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
423622106373601	03-20-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
424921106231101	03-22-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
424946106223901	03-22-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
424946106240101	03-21-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
425101106185701	03-20-02	<.004	<.57	<.27	<.21	.007	<.09	<.42	<.018	<.003	<.006
425126106193101	05-14-02	<.004	<.52	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
425134106064401	03-20-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
425137106180401	03-21-02	<.004	<.20	<.27	<.21	.014	<.09	<.42	<.018	<.003	E.010
425154106155101	05-15-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
425400106272101	03-20-02	<.004	<.20	<.27	<.21	.147	5.38	<.42	<.018	<.003	E.018

PESTICIDE AND NUTRIENT SAMPLING PROGRAM--Continued

NATRONA COUNTY--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

STATION NUMBER	DATE	DI-AZINON, DIS-SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	METO-LACHLOR WATER DISSOLV (UG/L) (39415)	METRI-BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	PIC-LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PRO-METON, WATER, DISS, REC (UG/L) (04037)	SI-MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU-THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34699)
423448106402601	03-20-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
423622106373601	03-20-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
424921106231101	03-22-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
424946106223901	03-22-02	<.005	<.11	<.013	<.006	<.09	E.01	<.005	<.02	<1	<1
424946106240101	03-21-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
425101106185701	03-20-02	<.005	<.11	<.013	<.006	<.09	.05	<.005	.09	<1	<1
425126106193101	05-14-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
425134106064401	03-20-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
425137106180401	03-21-02	<.005	<.11	<.013	<.006	<.09	.11	<.005	.49	<1	<1
425154106155101	05-15-02	<.005	<.11	<.013	<.006	<.09	.08	<.005	<.02	<1	<1
425400106272101	03-20-02	<.005	<.11	<.013	<.006	E.04	1.24	.041	<.02	<1	<1

E -- Estimated value

PESTICIDE AND NUTRIENT SAMPLING PROGRAM

SWEETWATER COUNTY

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

WELL NUMBER	STATION NUMBER	GEOLOGIC UNIT	LOCAL IDENTIFIER	DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	DEPTH OF WELL, TOTAL (FEET) (72008)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)
E7	413106109280001	111ALVM	18-107-22ddc01	03-30-02	1330	28.2	35	6100
E5	413131109281101	111ALVM	18-107-22acc01	03-30-02	1530	8.4	12	6080
E6	413134109274301	111ALVM	18-107-23bcc01	03-30-02	1720	7.1	15	6080
E8	413428109135201	111ALVM	18-105-02bbb01	03-28-02	1600	7.8	20	6240
E3	413454109133501	111ALVM	19-105-35bdc01	03-31-02	1450	11.4	19	6260
E11	413544109585401	111ALVM	19-111-30dad02	03-30-02	1040	7.3	85	6270
E1	413701109134901	111ALVM	19-105-23bbb01	03-31-02	1030	11.8	20	6295
E12	420302109261501	124GRRV	24-106-21bbb01	03-29-02	1530	8.0	25	6610
E9	420635109270101	124GRRV	25-106-27cbb01	03-29-02	1010	26.7	80	6590
E13	420828109243201	124GRRV	25-106-13cbb01	03-29-02	1240	8.3	85	6635
E10	421442107333501	111ALVM	26-090-11bbc01	10-05-01	1115	24.8	29	6840
		111ALVM	26-090-11bbc01	03-31-02	1900	25.4	29	6840

STATION NUMBER	DATE	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	2,4-D, DIS-SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)
413106109280001	03-30-02	.7	7.2	5640	12.0	.04	93.8	<.008	.02	<.23	<.25
413131109281101	03-30-02	.5	7.8	4610	7.5	<.04	1.09	.087	.52	<.16	<.25
413134109274301	03-30-02	.1	8.4	12000	9.0	<.04	128	1.05	.44	<.16	<.25
413428109135201	03-28-02	.5	6.8	10100	11.0	.36	<.05	.009	<.02	<.16	<.25
413454109133501	03-31-02	.2	6.9	22100	12.0	.10	44.4	.106	.08	<.16	<.25
413544109585401	03-30-02	.8	7.6	1680	8.0	.30	.06	.010	<.02	<.16	<.25
413701109134901	03-31-02	2.0	7.2	3510	11.0	.13	2.14	.041	E.01	<.22	<.25
420302109261501	03-29-02	.1	8.0	1090	7.0	<.04	1.45	E.006	.03	<.16	<.25
420635109270101	03-29-02	1.4	7.7	880	8.5	<.04	1.82	<.008	E.01	<.16	<.25
420828109243201	03-29-02	1.8	7.9	5260	8.5	.63	<.05	E.006	<.02	<.16	<.25
421442107333501	10-05-01	--	7.2	2710	8.5	.05	.13	<.008	<.02	<.16	<.25
	03-31-02	.3	7.1	2500	10.0	E.04	E.04	<.008	E.01	<.19	<.25

STATION NUMBER	DATE	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDI-CARB SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	ALDICA-RB SUL-FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	ALDI-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)	CLOPYR-ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)
413106109280001	03-30-02	<.004	<.20	<.27	<.21	<.007	<.09	<.84	<.018	<.003	<.006
413131109281101	03-30-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
413134109274301	03-30-02	<.004	<.20	<.27	<.21	<.007	<.09	<.84	<.018	<.003	<.006
413428109135201	03-28-02	<.004	<.20	<.27	<.21	<.007	<.09	--	<.018	<.003	<.006
413454109133501	03-31-02	<.004	<.20	<.27	<.21	<.007	<.09	<.84	<.018	<.003	<.006
413544109585401	03-30-02	<.004	<.20	<.27	<.21	<.007	<1.10	<.42	<.018	<.003	<.006
413701109134901	03-31-02	<.004	<.20	<.27	<.21	<.007	.10	<.42	<.018	<.003	<.006
420302109261501	03-29-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
420635109270101	03-29-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
420828109243201	03-29-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
421442107333501	10-05-01	<.002	<.20	<.27	<.21	.015	<.09	<.42	<.018	<.003	E.012
	03-31-02	<.004	<.20	<.27	<.21	.019	<.09	<.42	<.018	<.003	E.004

PESTICIDE AND NUTRIENT SAMPLING PROGRAM--Continued

SWEETWATER COUNTY--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

STATION NUMBER	DATE	DI-AZINON, DIS-SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	METO-LACHLOR WATER DISSOLV (UG/L) (39415)	METRI-BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	PIC-LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PRO-METON, WATER, DISS, REC (UG/L) (04037)	SI-MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU-THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34699)
					SWEETWATER COUNTY						
413106109280001	03-30-02	<.005	<.11	<.013	<.006	<.18	<.01	<.005	<.02	<1	<1
413131109281101	03-30-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	.05	<1	<1
413134109274301	03-30-02	<.005	<.11	<.013	<.006	<.18	<.01	<.005	<.02	<1	<1
413428109135201	03-28-02	<.005	<.11	<.013	<.006	--	<.01	<.005	<.02	<1	<1
413454109133501	03-31-02	<.005	<.11	<.013	<.006	<.18	E.01	<.005	E.01	<1	<1
413544109585401	03-30-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
413701109134901	03-31-02	<.005	<.11	<.013	<.006	<.09	.04	<.005	.03	<1	<1
420302109261501	03-29-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
420635109270101	03-29-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
420828109243201	03-29-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
421442107333501	10-05-01	<.005	<.11	<.013	<.006	<.09	<.01	<.011	<.02	<1	<1
	03-31-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1

E -- Estimated value

PESTICIDE AND NUTRIENT SAMPLING PROGRAM

TETON COUNTY

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

WELL NUMBER	STATION NUMBER	GEOLOGIC UNIT	LOCAL IDENTIFIER	DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	DEPTH OF WELL, TOTAL (FEET) (72008)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)
T12	431814110453001	111ALVM	41-116-34bba01	03-25-02	1530	33.1	40	6250
T5	432447110483901	111ALVM	40-116-19cbb01	10-04-01	1015	E10	72	6020
		111ALVM	40-116-19cbb01	03-28-02	0850	E10	72	6020
T6	432541110465401	111ALVM	40-116-17dbc01	10-03-01	0830	3.5	60	6060
		111ALVM	40-116-17dbc01	03-25-02	1200	4.0	60	6060
T3	432752110493201	111ALVM	40-11-01bab01	03-25-02	0940	6.6	69	6105
T7	432816110521601	111ALVM	41-117-34dbc01	10-04-01	0830	5.0	42	6115
		111ALVM	41-117-34dbc01	03-26-02	1700	4.9	42	6115
T11	432849110454901	111ALVM	41-116-28ddd01	10-01-01	1600	45.3	50	6280
T11a	432858110454401	111ALVM	41-116-28dda01	03-27-02	1420	10.8	16	6220
T8	433114110502401	111ALVM	41-117-13bbc01	10-02-01	1520	6.1	65	6180
		111ALVM	41-117-13bbc01	03-26-02	1500	11.8	62	6180
T9	433248110492001	111ALVM	41-117-01add01	10-03-01	1230	4.2	17.5	6238
		111ALVM	41-117-01add01	03-26-02	1010	10.7	17.5	6238
T4	433338110455801	111ALVM	42-116-33add01	10-03-01	1430	17	60	6320
		111ALVM	42-116-33add01	03-27-02	1650	14.9	60	6320
T15	433716110445201	111ALVM	42-116-10add01	05-16-02	1310	15.5	43	6390
T14	434942110242101	111ALVM	45-113-27dcc01	10-02-01	1245	E10	40	6080
		111ALVM	45-113-27dcc01	05-15-02	1650	9.3	41	6080
T13	440608110400601	111ALVM	48-115-28abc01	10-02-01	1000	7.3	14	6820
		111ALVM	48-115-28abc01	05-16-02	1000	4.7	14	6820

STATION NUMBER	DATE	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	2,4-D, DIS-SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)
431814110453001	03-25-02	3.7	7.6	593	10.0	<.04	.85	<.008	<.02	<.16	<.25
432447110483901	10-04-01	1.9	7.5	416	10.0	<.04	.12	<.008	<.02	<.16	<.25
	03-28-02	4.5	7.5	446	8.0	<.04	.21	.008	E.02	<.16	<.25
432541110465401	10-03-01	1.5	7.3	778	10.0	<.04	.49	<.008	<.02	<.16	<.25
	03-25-02	1.8	7.4	799	8.0	<.04	.39	<.008	<.02	<.16	<.25
432752110493201	03-25-02	2.7	7.6	492	9.0	<.04	.29	<.008	.04	<.16	<.25
432816110521601	10-04-01	2.1	7.8	259	9.0	<.04	.10	<.008	<.02	<.16	<.25
	03-26-02	2.8	8.0	268	8.5	<.04	.13	<.008	<.02	<.16	<.25
432849110454901	10-01-01	7.7	7.4	580	11.0	<.04	E.03	<.006	<.02	<.16	<.25
432858110454401	03-27-02	.2	7.2	628	10.0	<.04	.39	.012	.02	<.16	<.25
433338110455801	10-02-01	2.5	7.9	260	10.5	<.04	.12	<.006	<.02	<.16	<.25
	03-26-02	2.4	7.9	275	7.0	<.04	.11	<.008	<.02	<.16	<.25
433248110492001	10-03-01	.7	7.5	225	11.5	<.04	E.04	<.008	<.02	<.11	<.10
	03-26-02	3.2	7.5	267	8.0	<.04	.15	<.008	<.02	<.16	<.25
433338110455801	10-03-01	6.4	7.7	409	9.5	<.04	.08	<.008	<.02	<.11	<.10
	03-27-02	7.4	7.6	431	8.0	<.04	.07	<.008	<.02	<.16	<.25
433716110445201	05-16-02	5.0	8.0	262	11.5	<.04	.68	<.008	E.02	<.16	<.25
434942110242101	10-02-01	.2	8.0	390	8.0	<.04	E.03	<.006	<.02	<.16	<.25
	05-15-02	.1	7.5	401	9.0	<.04	<.05	E.005	E.01	<.16	<.25
440608110400601	10-02-01	.2	6.7	275	10.5	<.04	.10	<.006	<.02	<.16	<.25
	05-16-02	1.2	6.7	257	5.5	<.04	.92	<.008	<.02	<.16	<.25

PESTICIDE AND NUTRIENT SAMPLING PROGRAM--Continued

TETON COUNTY--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

STATION NUMBER	DATE	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDI-CARB SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	ALDICA-RB SUL-FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	ALDI-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)	CLOPYR-ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)
431814110453001	03-25-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
432447110483901	10-04-01	<.002	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
	03-28-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
432541110465401	10-03-01	<.002	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
	03-25-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
432752110493201	03-25-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
432816110521601	10-04-01	<.002	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
	03-26-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
432849110454901	10-01-01	<.002	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
432858110454401	03-27-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
433114110502401	10-02-01	<.002	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
	03-26-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
433248110492001	10-03-01	<.002	<.20	<.02	<.21	<.007	<.09	<.42	<.018	<.003	<.006
	03-26-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
433338110455801	10-03-01	<.002	<.20	<.02	<.21	<.007	<.09	<.42	<.018	<.003	<.006
	03-27-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
433716110445201	05-16-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
434942110242101	10-02-01	<.002	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
	05-15-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
440608110400601	10-02-01	<.002	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
	05-16-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006

STATION NUMBER	DATE	DI-AZINON, DIS-SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	METO-LACHLOR WATER DISSOLV (UG/L) (39415)	METRI-BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	PIC-LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PRO-METON, WATER, DISS, REC (UG/L) (04037)	SI-MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU-THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34699)
431814110453001	03-25-02	<.005	<.11	<.013	<.006	<.09	.02	<.005	<.02	<1	<1
432447110483901	10-04-01	<.005	<.11	<.013	<.006	<.09	<.01	<.011	<.02	<1	<1
	03-28-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
432541110465401	10-03-01	<.005	<.11	<.013	<.006	<.09	M	<.011	<.02	<1	<1
	03-25-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
432752110493201	03-25-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
432816110521601	10-04-01	<.005	<.11	<.013	<.006	<.09	<.01	<.011	<.02	<1	<1
	03-26-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
432849110454901	10-01-01	<.005	<.11	<.013	<.006	<.09	.02	<.011	<.02	<1	<1
432858110454401	03-27-02	<.005	<.11	<.013	<.006	<.09	.14	<.005	<.02	<1	<1
433114110502401	10-02-01	<.005	<.11	<.013	<.006	<.09	<.01	<.011	<.02	<1	<1
	03-26-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
433248110492001	10-03-01	<.005	<.04	<.013	<.006	<.09	<.01	<.011	<.02	<1	<1
	03-26-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
433338110455801	10-03-01	<.005	<.04	<.013	<.006	<.09	<.01	<.011	<.02	<1	<1
	03-27-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
433716110445201	05-16-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
434942110242101	10-02-01	<.005	<.11	<.013	<.006	<.09	<.01	<.011	<.02	<1	<1
	05-15-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
440608110400601	10-02-01	<.005	<.11	<.013	<.006	<.09	<.01	<.011	<.02	<1	<1
	05-16-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1

E -- Estimated value
M -- Presence verified, not quantified

PESTICIDE AND NUTRIENT SAMPLING PROGRAM

UINTA COUNTY

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

WELL NUMBER	STATION NUMBER	GEOLOGIC UNIT	LOCAL IDENTIFIER	DATE	TIME	DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET) (72019)	DEPTH OF WELL, TOTAL (FEET) (72008)	ELEV. OF LAND SURFACE DATUM (FT. ABOVE NGVD) (72000)
U5	410241110523801	111ALVM	12-119-06dbd02	09-17-02	1045	--	35	7540
U3	410411110074101	111ALVM	13-113-34aab01	09-18-02	0900	4.0	45	7400
U4	410647110503101	111ALVM	13-119-09dcc01	09-17-02	0845	8.5	23	7350
U8	411332110235301	111ALVM	14-115-05aca01	09-18-02	1230	3.5	50	7060
U7	411400111000801	111ALVM	15-121-31cba01	09-20-02	0800	18.0	24	6755
U11	411544110573801	111ALVM	15-120-21cbd02	09-17-02	1500	24.2	51	6770
U9	411614110202801	111ALVM	15-115-23abd01	09-18-02	1500	8.5	13	6810
U2	411643110583401	111ALVM	15-120-17bdd01	09-19-02	1700	7.8	35	6710
U12	411926110214201	111ALVM	16-115-34acd01	09-19-02	1215	E5.0	E50	6650
U10	411937110172801	111ALVM	16-114-32bdb01	09-19-02	0830	6.3	13	6700
U6	412035111001801	111ALVM	16-121-25aaa01	09-17-02	1515	12.6	50	6580
U1	412315111010301	111ALVM	16-121-01cdc01	09-19-02	1500	E5.0	50	6510

STATION NUMBER	DATE	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)	2,4-D, DIS-SOLVED (UG/L) (39732)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)
410241110523801	09-17-02	.1	7.2	613	12.0	<.04	<.05	<.008	<.02	<.16	<.25
410411110074101	09-18-02	.1	8.4	1100	7.0	.41	<.05	<.008	E.01	<.16	<.25
410647110503101	09-17-02	.3	7.3	458	10.5	<.04	.29	<.008	<.02	<.16	<.25
411332110235301	09-18-02	.1	8.4	506	9.0	.05	<.05	<.008	<.02	<.16	<.25
411400111000801	09-20-02	1.5	7.1	730	11.5	<.04	.52	E.006	<.02	<.16	<.25
411544110573801	09-17-02	4.2	7.4	737	10.5	<.04	2.55	<.008	.03	<.16	<.25
411614110202801	09-18-02	.4	7.0	930	14.5	<.04	E.04	<.008	E.01	<.16	<.25
411643110583401	09-19-02	.2	7.1	532	10.5	<.04	<.05	<.008	<.02	<.16	<.25
411926110214201	09-19-02	5.5	7.6	3720	9.0	.68	<.05	E.005	<.02	<.16	<.25
411937110172801	09-19-02	.5	7.1	16400	16.5	<.04	8.74	.031	.04	<.16	<.25
412035111001801	09-17-02	1.0	7.6	720	10.0	<.04	.62	<.008	E.01	<.16	<.25
412315111010301	09-19-02	5.6	7.2	815	9.0	E.04	<.05	<.008	<.02	<.16	<.25

NUMBER	DATE	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDI-CARB SULFONE WAT,FLT GF 0.7U REC (UG/L) (49313)	ALDICA-RB SUL-FOXIDE, WAT,FLT GF 0.7U REC (UG/L) (49314)	ALDI-CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)	CLOPYR-ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)
410241110523801	09-17-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
410411110074101	09-18-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
410647110503101	09-17-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
411332110235301	09-18-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
411400111000801	09-20-02	<.004	<.20	<.27	<.21	<.007	<.11	<.42	<.018	<.003	<.006
411544110573801	09-17-02	<.004	<.20	<.27	<.21	E.005	<.25	<.42	<.018	<.003	<.006
411614110202801	09-18-02	<.004	<.20	<.27	<.21	E.006	<.09	<.42	<.018	<.003	<.006
411643110583401	09-19-02	<.004	<.20	<.27	<.21	.013	<.09	<.42	<.018	<.003	E.003
411926110214201	09-19-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
411937110172801	09-19-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
412035111001801	09-17-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006
412315111010301	09-19-02	<.004	<.20	<.27	<.21	<.007	<.09	<.42	<.018	<.003	<.006

PESTICIDE AND NUTRIENT SAMPLING PROGRAM--Continued

UINTA COUNTY--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

STATION NUMBER	DATE	DI-AZINON, DIS-SOLVED (UG/L) (39572)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	METO-LACHLOR WATER DISSOLV (UG/L) (39415)	METRI-BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	PIC-LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	PRO-METON, WATER, DISS, REC (UG/L) (04037)	SI-MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU-THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	CIS 1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34704)	TRANS-1,3-DI-CHLORO-PROPENE TOTAL (UG/L) (34699)
410241110523801	09-17-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
410411110074101	09-18-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
410647110503101	09-17-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
411332110235301	09-18-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
411400111000801	09-20-02	<.005	<.11	<.013	<.006	<.09	M	<.005	<.02	<1	<1
411544110573801	09-17-02	<.005	<.11	<.013	<.006	<.09	.10	.058	E.01	<1	<1
411614110202801	09-18-02	<.005	<.11	<.013	<.006	<.09	.04	<.005	<.02	<1	<1
411643110583401	09-19-02	<.005	<.11	<.013	<.006	<.09	.36	<.005	<.02	<1	<1
411926110214201	09-19-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1
411937110172801	09-19-02	<.005	<.11	<.013	<.006	<.09	1.05	<.005	<.02	<1	<1
412035111001801	09-17-02	<.005	<.11	<.013	<.006	<.09	.03	<.005	<.02	<1	<1
412315111010301	09-19-02	<.005	<.11	<.013	<.006	<.09	<.01	<.005	<.02	<1	<1

E -- Estimated value
M -- Presence verified, not quantified

SUPPLEMENTARY DATA FOR PESTICIDE AND NUTRIENT SAMPLING PROGRAM, DETECTIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

NATRONA COUNTY

STATION NUMBER	DATE	Time	TETRA-CHLORO-ETHYL-ENE TOTAL (UG/L) (34475)
4250101106185701	03-20-02	1640	9

SWEETWATER COUNTY

STATION NUMBER	DATE	Time	XYLENE WATER UNFLTRD REC (UG/L) (81551)	STYRENE TOTAL (UG/L) (77128)	TOLUENE TOTAL (UG/L) (34010)
4135544109585401	03-30-02	1040	11	6	15

TETON COUNTY

STATION NUMBER	DATE	Time	ACETONE WHOLE TOTAL (UG/L) (81552
432752110493201	03-25-02	0940	20

SUPPLEMENTARY DATA FOR PESTICIDE AND NUTRIENT SAMPLING PROGRAM

These organic compounds are not pesticides of focus for the Pesticide and Nutrient Sampling Program (tabled on pages 119-125), but are included in the analytical methods employed by the program. With the exception of the five compounds listed in bold, no detections of these compounds were found in the counties sampled in Water Year 2002. The five compounds in bold each had one detection, and the results are tabled on page 126.

PARAMETER CODE	COMPOUND NAME	MINIMUM REPORTING LEVEL
45617	1,2-DICHLOROETHENE, WATER, WHOLE, RECOVERABLE, UG/L	1
39742	2,4,5-T, DISSOLVED (UG/L)	0.07
82660	2,6-DIETHYLANILINE, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.006
49308	3-HYDROXYCARBOFURAN, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.11
49260	ACETOCHLOR, WATER, FILTERED, RECOVERABLE, (UG/L)	0.006
49315	ACIFLUORFEN, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.05
34253	ALPHA BHC (UG/L)	0.005
82673	BENFLURALIN, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.01
38711	BENTAZON, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.05
49311	BROMOXYNIL, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.07
04028	BUTYLATE, WATER, DISSOLVED, RECOVERABLE, UG/L	0.002
49310	CARBARYL, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.08
82680	CARBARYL, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.041
49309	CARBOFURAN, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.15
82674	CARBOFURAN, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.02
61188	CHLORAMBEN, METHYL ESTER, WATER, FILTERED, RECOVERABLE, (UG/L)	0.21
49306	CHLOROTHALONIL, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.25
38933	CHLORPYRIFOS DISSOLVED, UG/L	0.005
49304	DACTHAL, MONO-ACID, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.07
49303	DICHLOBENIL, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.09
49302	DICHLORPROP, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.12
39381	DIELDRIN, DISSOLVED (UG/L)	0.005
49301	DINOSEB, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.1
82677	DISULFOTON, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.02
49300	DIURON, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.12
49299	DNOC, WATER, FILTERED, GF, 0.7 U, REC, (UG/L)	0.25
82668	EPTC, WATER, FILTERED, LASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.002
82663	ETHALFLURALIN, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.009
82672	ETHOPROP, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.005
49297	FENURON, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.07
38811	FLUOMETURON, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.06
04095	FONOFOS, WATER, DISSOLVED, RECOVERABLE, UG/L	0.003
39341	LINDANE, DISSOLVED (UG/L)	0.004
38478	LINURON, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.06
82666	LINURON, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.035
39532	MALATHION, DISSOLVED (UG/L)	0.027
38482	MCPA, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.2
38487	MCPB, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.26
38501	METHIOCARB, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.07
49296	METHOMYL, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.22
82686	METHYL AZINPHOS, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.05
82667	METHYL PARATHION, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.006
82671	MOLINATE, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.002
82684	NAPROPAMIDE, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.007
49294	NEBURON, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.07
49293	NORFLURAZON, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.04
49292	ORYZALIN, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.28
38866	OXAMYL, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.16
34653	P,P' DDE DISSOLVED (UG/L)	0.003
39542	PARATHION, DISSOLVED (UG/L)	0.01
82669	PEBULATE, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.004
82683	PENDIMETHALIN, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.022
82687	PERMETHRIN, CIS, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.006
82664	PHORATE, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.011
82676	PRONAMIDE, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.004
04024	PROPACHLOR, WATER, DISSOLVED, RECOVERABLE, UG/L	0.01
82679	PROPANIL, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.011
82685	PROPARGITE, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.02
49236	PROPHAM, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.22
38538	PROPOXUR, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.12
39762	SILVEX, DISSOLVED (UG/L)	0.03
82665	TERBACIL, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.034
82675	TERBUFOS, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.02

PARAMETER CODE	COMPOUND NAME	MINIMUM REPORTING LEVEL
04022	TERBUTHYLAZINE, WATER, DISSOLVED, RECOVERABLE, UG/L	
82681	THIOBENCARB, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.005
82678	TRIALLATE, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.002
49235	TRICLOPYR, WATER, FILTERED, GF, 0.7 U, RECOVERABLE, (UG/L)	0.07
82661	TRIFLURALIN, WATER, FILTERED, GLASS FIBER, 0.7 U, RECOVERABLE, UG/L	0.009
81551	**XYLENE, WATER, UNFILTERED, RECOVERABLE, UG/L**	**1**
34506	1,1,1-TRICHLOROETHANE TOTAL (UG/L)	1
34511	1,1,2-TRICHLOROETHANE TOTAL (UG/L)	1
34496	1,1-DICHLOROETHANE TOTAL (UG/L)	1
34501	1,1-DICHLOROETHYLENE TOTAL (UG/L)	1
32103	1,2-DICHLOROETHANE TOTAL (UG/L)	1
34541	1,2-DICHLOROPROPANE TOTAL (UG/L)	1
34546	TRANS-1,2-DICHLOROETHENE, TOTAL, IN WATER (UG/L)	0.5
77103	2-HEXANONE, WATER, WHOLE, TOTAL, (UG/L)	5
81552	**ACETONE, WATER, WHOLE, TOTAL, (UG/L)**	**10**
34030	BENZENE, TOTAL (UG/L)	1
32104	BROMOFORM TOTAL (UG/L)	1
77041	CARBON DISULFIDE, WATER, WHOLE, TOTAL, (UG/L)	1
32102	CARBON TETRACHLORIDE, WATER, UNFILTERED, RECOVERABLE, (UG/L)	1
34301	CHLOROBENZENE TOTAL (UG/L)	1
32105	CHLORODIBROMOMETHANE TOTAL (UG/L)	1
34311	CHLOROETHANE TOTAL (UG/L)	2
32106	CHLOROFORM TOTAL (UG/L)	1
77093	CIS-1,2-DICHLOROETHENE, WATER, WHOLE, TOTAL, UG/L	1
32101	BROMODICHLOROMETHANE, WATER, UNFILTERED, RECOVERABLE, (UG/L)	1
34516	ETHANE, 1,1,2,2-TETRACHLORO-, WATER, UNFILTERED, RECOVERABLE, UG/L	1
34371	ETHYLBENZENE TOTAL (UG/L)	1
34413	METHYLBROMIDE TOTAL (UG/L)	2
34418	METHYLCHLORIDE, TOTAL (UG/L)	2
34423	METHYLENE CHLORIDE, WATER, UNFILTERED, RECOVERABLE, (UG/L)	1
81595	METHYLETHYLKETONE, WATER, WHOLE, TOTAL, (UG/L)	5
78133	METHYL ISOBUTYL KETONE, WATER, WHOLE, TOTAL, (UG/L)	5
77128	**STYRENE, TOTAL (UG/L)**	**1**
34475	**TETRACHLOROETHYLENE TOTAL (UG/L)**	**1**
34010	**TOLUENE, TOTAL (UG/L)**	**1**
39180	TRICHLOROETHYLENE TOTAL (UG/L)	1

[1] The minimum reporting level (MRL) is the lowest concentration for which a chemical can be quantified by the analytical method. In practice, the MRL is affected by many variables associated with the sample, sampling, preservation, shipping, and laboratory conditions. Actual MRL values occasionally vary from sample to sample.

NUTRIENT SAMPLING PROGRAM

GOSHEN COUNTY

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

STATION NUMBER	GEOLOGIC UNIT	LOCAL WELL NUMBER	DATE	TIME	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)
420344104110001	111ALVM	24-061-10cca01	12-27-01	1615	656	5.3	61
	111ALVM	24-061-10cca01	04-05-02	1145	581	4.2	55
420422104132201	111ALVM	24-061-08bba01	12-27-01	1445	653	6.9	77
	111ALVM	24-061-08bba01	04-05-02	1415	580	4.9	61
420457104121001	111TRRC	24-061-04bdc02	12-27-01	1400	653	6.5	72
	111TRRC	24-061-04bdc02	04-05-02	1235	580	4.8	61
420459104105601	111TRRC	24-061-03bdc01	12-27-01	1110	656	6.6	76
	111TRRC	24-061-03bdc01	04-05-02	0830	580	5.3	69
420521104121701	111TRRC	25-061-33ccc01	12-27-01	1225	653	7.8	86
	111TRRC	25-061-33ccc01	04-04-02	1635	578	5.7	72
420621104155301	111TRRC	25-062-26dda01	12-27-01	1530	650	7.9	88
	111TRRC	25-062-26dda01	04-04-02	1740	578	6.0	76
420743104232501	111ALVM	25-063-23abc01	12-28-01	0935	649	.1	2
	111ALVM	25-063-23abc01	04-05-02	1035	581	2.4	30
420836104223501	111ALVM	25-063-13bbd01	12-28-01	0820	650	6.6	73
	111ALVM	25-063-13bbd01	04-05-02	0940	580	4.9	61
420849104151001	111TRRC	25-062-12dcc01	12-27-01	1310	650	8.4	90
	111TRRC	25-062-12dcc01	04-05-02	1330	581	6.3	81
421219104310401	111ALVM	26-064-22ddd01	12-28-01	1045	650	5.6	62
	111ALVM	26-064-22ddd01	04-05-02	1500	580	4.7	58

STATION NUMBER	DATE	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	ORTHO-PHOS-PHATE, DIS-SOLVED (MG/L AS P) (00671)
420344104110001	12-27-01	6.9	1200	--	14.5	<.04	12.9	<.008	.05
	04-05-02	7.2	1060	15.0	14.9	<.04	12.1	<.008	.05
420422104132201	12-27-01	7.1	956	4.5	13.0	<.04	10.6	<.008	.12
	04-05-02	7.3	828	14.0	12.7	<.04	7.74	<.008	.08
420457104121001	12-27-01	7.1	1020	3.0	13.0	<.04	14.2	<.008	.03
	04-05-02	7.3	875	13.0	13.8	<.04	12.5	<.008	.03
420459104105601	12-27-01	6.9	1130	3.0	14.5	<.04	11.2	<.008	.02
	04-05-02	7.2	974	.5	14.8	<.04	19.2	<.008	.02
420521104121701	12-27-01	7.2	839	3.0	13.0	<.04	6.07	<.008	.03
	04-04-02	7.3	724	13.0	13.3	<.04	5.50	<.008	.03
420621104155301	12-27-01	7.2	964	--	13.0	<.04	10.5	<.008	.02
	04-04-02	7.4	839	12.0	13.4	<.04	9.81	<.008	.02
420743104232501	12-28-01	7.0	834	5.0	13.0	<.04	5.68	.009	.02
	04-05-02	7.3	786	8.0	13.3	<.04	4.39	<.008	.03
420836104223501	12-28-01	7.1	1080	--	12.5	<.04	10.6	<.008	.03
	04-05-02	7.5	887	3.0	12.8	<.04	8.74	<.008	.03
420849104151001	12-27-01	7.6	557	--	11.5	<.04	5.97	<.008	E.01
	04-05-02	7.8	508	14.0	14.1	<.04	6.62	<.008	E.02
421219104310401	12-28-01	6.9	1010	5.0	12.5	<.04	7.71	<.008	.03
	04-05-02	7.2	871	14.0	12.0	<.04	6.32	<.008	.03

E -- Estimated value

CONVERSION FACTORS

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

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$°F = (1.8 \times °C) + 32$$

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