HYDROLOGIC DATA FROM ROAN CREEK AND PARACHUTE CREEK BASINS, NORTHWESTERN COLORADO

By D. Briane Adams, Kimball E. Goddard, Ralph O. Patt, and Kenneth C. Galyean

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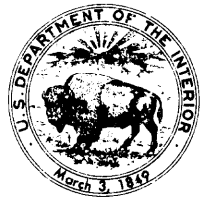

Grand Junction, Colorado
1986

UNITED STATES DEPARTMENT OF THE INTERIOR

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GEOLOGICAL SURVEY

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C O N T E N T S

ILLUSTRATIONS

[Plates in Pocket]

CONTENTS

TABLES

CONTENTS

GLOSSARY

acre-foot.--The quantity of water required to cover 1 acre to a depth of 1 foot, equivalent to 43,560 cubic feet or about 326,000 gallons.

aquifer.--A geologic formation, group of formations, or part of a formation that contain sufficient saturated permeable material to yield significant quantities of water to wells and springs.

benthic invertebrate.--An animal without a backbone that lives in or on the bottom of an aquatic environment.

chemical quality.--The concentration of solutes (any substance dissolved in water), and certain properties or characteristics, such as hardness, sodium-adsorption ratio, percent sodium, and specific conductance.

confined aquifer.--An aquifer in which ground water is confined under pressure greater than atmospheric by overlying, relatively impermeable strata. Water level in a well penetrating a confined aquifer will be above the upper boundary of the aquifer.

confining bed.--A rock unit above or below an aquifer that is much less permeable than the aquifer and restrains ground water flow to and from adjoining units.

discharge.--The volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given time.

instantaneous discharge.--The discharge at a particular instant.

dissolved.--Material in a representative water sample that passes through a 0.45-micrometer membrane filter. The sample may include some very small (colloidal) suspended particles, as well as the amount of substance present in true chemical solution.

downstream order and station number.--Order and number of streamflow-gaging stations, listed in downstream direction along the main stream. Stations on tributaries are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all mainstream stations are listed in a similar manner.

drainage area.--That area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point.

ground water.--Water in the saturated zone.

hardness.--Concentration of calcium and magnesium expressed as equivalent calcium.

partial-record station.--A site where limited streamflow or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

sediment.--Solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus.

sodium adsorption ratio (SAR).--The expression of relative activity of sodium ions in exchange reactions with soil, an index of sodium or alkali hazard to the soil. This ratio should be known especially for water used for irrigating farmland.

solute.--Any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

specific conductance.--A measure of the ability of water to conduct an electrical current, expressed in micromhos per centimeter at 25° Celsius. Specific conductance is related to the number and specific chemical types of ions in solution and can be used for approximating the dissolved-solids content of water.

streamflow.--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," because streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

suspended, recoverable.--The amount of a given constituent that is in solution, after the part of a representative water-suspended 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.

suspended, total.--Total amount of a given constituent in the part of a representative water-suspended sediment that is retained on a 0.45-micrometer membrane filter.

transmissivity.--The rate at which water is transmitted through a unit width of aquifer under a unit-hydraulic gradient.

water year.--In the U.S. Geological Survey, the 12-month period, October 1 through September 30. The water year is designated by the calender year in which it ends, including 9 of the 12 months. Thus, the year ending September 30, 1981, is called the "1981 water year."

CONVERSION FACTORS

Multiply inch-pound unit	*By*	*To obtain metric unit*
acre-foot (acre-ft)	0.001233	cubic hectometer
cubic foot per second (ft^3/s)	0.02832	cubic meter per second
foot (ft)	0.3048	meter
gallon per minute (gal/min)	0.06309	liter per second
mile (mi)	1.609	kilometer
square foot (ft^2)	0.09290	square meter
square mile (mi^2)	2.590	square kilometer

To convert degree Fahrenheit (°F) to degree Celsius (°C), use the following formula: °C = (°F-32) 5/9.

The following terms and abbreviations also are used in this report:
micromho per centimeter at 25 degrees Celsius (µmho/cm at 25°C)
milligram per liter (mg/L)
microgram per liter (µg/L)

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ABSTRACT

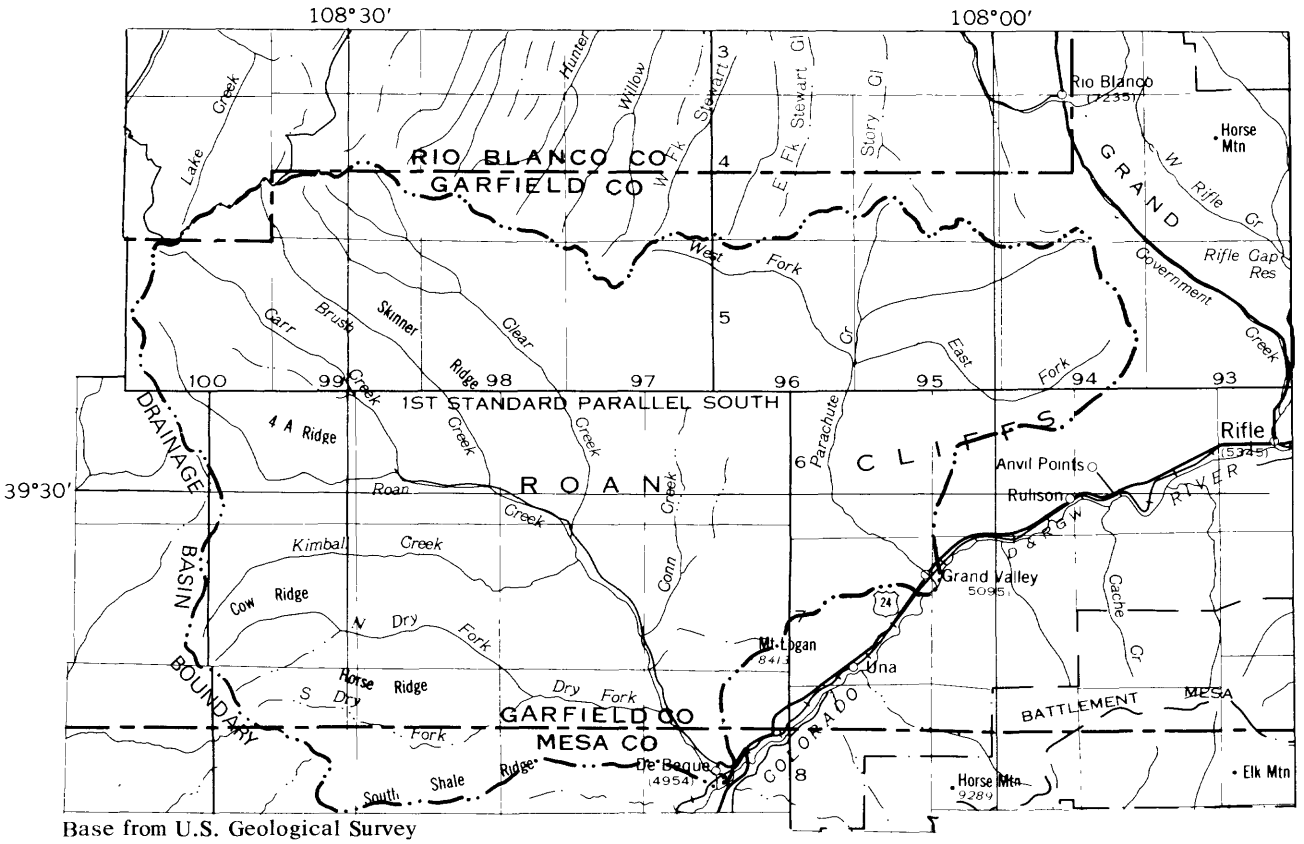
Hydrologic data obtained from a comprehensive study of the Roan Creek and Parachute Creek basins are presented in this report. The purpose of this study was to inventory and appraise the predevelopment hydrologic conditions in these basins. The study was conducted from October 1975 through September 1981 and was one of several studies of oil-shale areas in the Western United States conducted by the U.S. Geological Survey. Data collected prior to October 1975 also are presented, and references to other reports covering this area are given. Data collected include information from 58 wells, 286 springs, 14 streamflow-gaging stations, and 24 miscellaneous surface-water sites. Surface-water discharge, chemical quality, and sediment data from streamflow-gaging stations in the basin are published in other reports listed in the references. Data-collection methods and laboratory-analysis techniques used are described or referenced in this report.

INTRODUCTION

Oil-shale development and its associated needs and impacts have prompted widespread interest among a variety of individuals and groups. The orderly development of this resource requires a wide range of social and scientific information. These needs include information concerning the available water resources that might be a factor limiting the immediate development of the oil-shale resources of an area.

The Roan Creek and Parachute Creek basins of northwestern Colorado have large deposits of oil shale. The purpose of this study was to inventory and summarize the data on the predevelopment hydrologic conditions in these basins. The U.S. Geological Survey began this investigation in October 1975 and concluded its study in September 1981. This report is a compilation of the hydrologic data collected during this study.

The study area encompasses the drainages of Roan and Parachute Creeks and is approximately 710 square miles (fig. 1). Most of the study area is in Garfield County in northwestern Colorado, but small parts lie in Mesa and Rio Blanco Counties. Rocks exposed in the study area range in age from Paleocene to Holocene. The ground water of the area primarily is governed by the geology of the Uinta and Green River Formations of Eocene age and valley alluvium of Quaternary age, because these formations contain the principal aquifers.



Base from U.S. Geological Survey
State base map, 1969

0 5 10 15 MILES
0 5 10 15 KILOMETERS

Figure 1.--Map showing location of study area.

Surface-water discharge, chemical quality, and sediment data collected at streamflow-gaging stations in the area are published in other reports of the U.S. Geological Survey and are listed in the "Selected References" section of this report. R. O. Patt and others, (1982) compiled data on the water resources of the 52,500-acre Naval Oil Shale Reserves, which coincide with part of the area of this study. Their compilation also includes climatic data. Large amounts of data also have been collected throughout the basin by oil-shale or related companies and their contractors. The availability of these data is determined by the individual companies and their contractors.

Data-collection sampling and data analyses were done according to U.S. Geological Survey procedures and are reported in the "Techniques of Water Resources Investigations" series. Publications in this series are listed in the section on "Selected References." Appreciation is extended to the many oil-shale companies, landowners, and individuals who allowed access to their properties to collect these data.

DESCRIPTION OF DATA

Surface Water

Surface-water data collected in the Roan Creek and Parachute Creek basins consist of discharge measurements, water-quality analyses, water-temperature and specific-conductance measurements, suspended-sediment concentrations, and benthic-invertebrate taxa and densities. The frequency of discharge measurement at 12 streamflow-gaging stations and the numbers referring to publications reporting these measurements are listed in table 1. The period of streamflow record for each station is given in table 2. Data from two streamflow-gaging stations in the area, 09094000 Roan Creek at Simmons Ranch near Highmore and 09094100 Carr Creek at Altenbern Ranch near Highmore, are not included, because data were only collected sporadically from these stations during 1935-37. Variation of the average monthly streamflow for the 12 streamflow-gaging stations operated in the basins is shown in figure 2.

Samples of water for chemical analyses were collected from eight streamflow-gaging stations. These stations and the numbers of the references containing the results of these analyses are listed in table 1. A sample of water for chemical analysis was also collected at each of the 24 miscellaneous surface-water sites reported in table 6, in the "Supplemental Hydrologic Data" section at the end of this report. Daily water-temperature and specific-conductance data are available for five stations, monthly water-temperature and specific-conductance data for one station, and daily or monthly suspended-sediment data for six stations. Variation of average monthly mean specific conductance at the five stations is shown in figure 3. Frequency of measurement or collection and numbers of the references to these data are listed in table 1. Data on benthic invertebrates collected at nine sites are listed in table 7, in the "Supplemental Hydrologic Data" section. This table also contains field-measurement water quantity and quality data collected at the time of sampling.

Table 1.--*Frequency of collection (daily and monthly) and sources of published surface-water data collected at streamflow-gaging stations*

[D=daily, M=monthly. Numbers refer to data sources listed in "Selected References."]

Site number on plate 1	U.S. Geological Survey streamflow-gaging station		Discharge	Water quality	Temperature and specific conductance	Suspended sediment
	Number	Name				
1	09092800	West Fork Parachute Creek at Parachute-----	D 11-12	--	--	--
2	09092830	Northwater Creek near Anvil Points---------	D 22-26	M 22-26	--	M 23-24
3	09092850	East Middle Fork Parachute Creek near Rio Blanco----------	D 22-26	M 22-26	D 22-26	D 23-26
4	09092960	East Fork Parachute Creek near Anvil Points	D 22-26	M 22-26	--	--
5	09092970	East Fork Parachute Creek near Rulison-----	D 22-26	M 22-26	D 22-26	D 22-26
6	09092980	Ben Good Creek near Rulison----------	D 22-26	M 23-26	--	--
7	09093000	Parachute Creek near Parachute----------	D 10-16,20-26	M 20-26	D 20-26	D,M 21-26
8	09093500	Parachute Creek at Parachute----------	D 10-11,20-26	M 20-26	D 20-26	D 20-26
9	09094200	Roan Creek above Clear Creek near DeBeque--	D 12-15	--	--	--
10	09094400	Clear Creek near DeBeque----------	D 13-15	--	--	--
11	09095000	Roan Creek near DeBeque----------	D 10,12-26	M 22-26	D 22-26	D 22-26
12	09095400	Dry Fork near DeBeque----------	D 20-26	--	M 22-26	--

Table 2.--*Drainage area and period of discharge record of U.S. Geological Survey streamflow-gaging stations*

Site number on plate 1	Station number	Name	Drainage area (square miles)	Period of record
1	09092800	West Fork Parachute Creek near Grand Valley (now Parachute).	48.1	Oct. 1957 to Sept. 1962
2	09092830	Northwater Creek near Anvil Points.	12.6	Oct. 1976 to present
3	09092850	East Middle Fork Parachute Creek near Rio Blanco.	22.1	Oct. 1976 to present
4	09092960	East Fork Parachute Creek near Anvil Points.	14.5	Oct. 1967 to present
5	09092970	East Fork Parachute Creek near Rulison.	20.4	Oct. 1976 to present
6	09092980	Ben Good Creek near Rulison----	4.04	Nov. 1976 to present
7	09093000	Parachute Creek near Parachute (formerly Grand Valley).	141	Oct. 1948 to Sept. 1954, Oct. 1964 to Sept. 1970, Apr. 1975 to present
8	09093500	Parachute Creek at Parachute (formerly Grand Valley).	198	Apr. 1921 to Sept. 1927, Oct. 1948 to Sept. 1954, Oct. 1974 to present
9	09094200	Roan Creek above Clear Creek, near DeBeque.	151	Oct. 1962 to Sept. 1968
10	09094400	Clear Creek near DeBeque-------	111	July 1966 to Sept. 1968
11	09095000	Roan Creek near DeBeque--------	321	Apr. 1921 to Sept. 1926, Oct. 1962 to Sept. 1972, Oct. 1974 to present
12	09095400	Dry Fork near DeBeque----------	109	Oct. 1974 to present

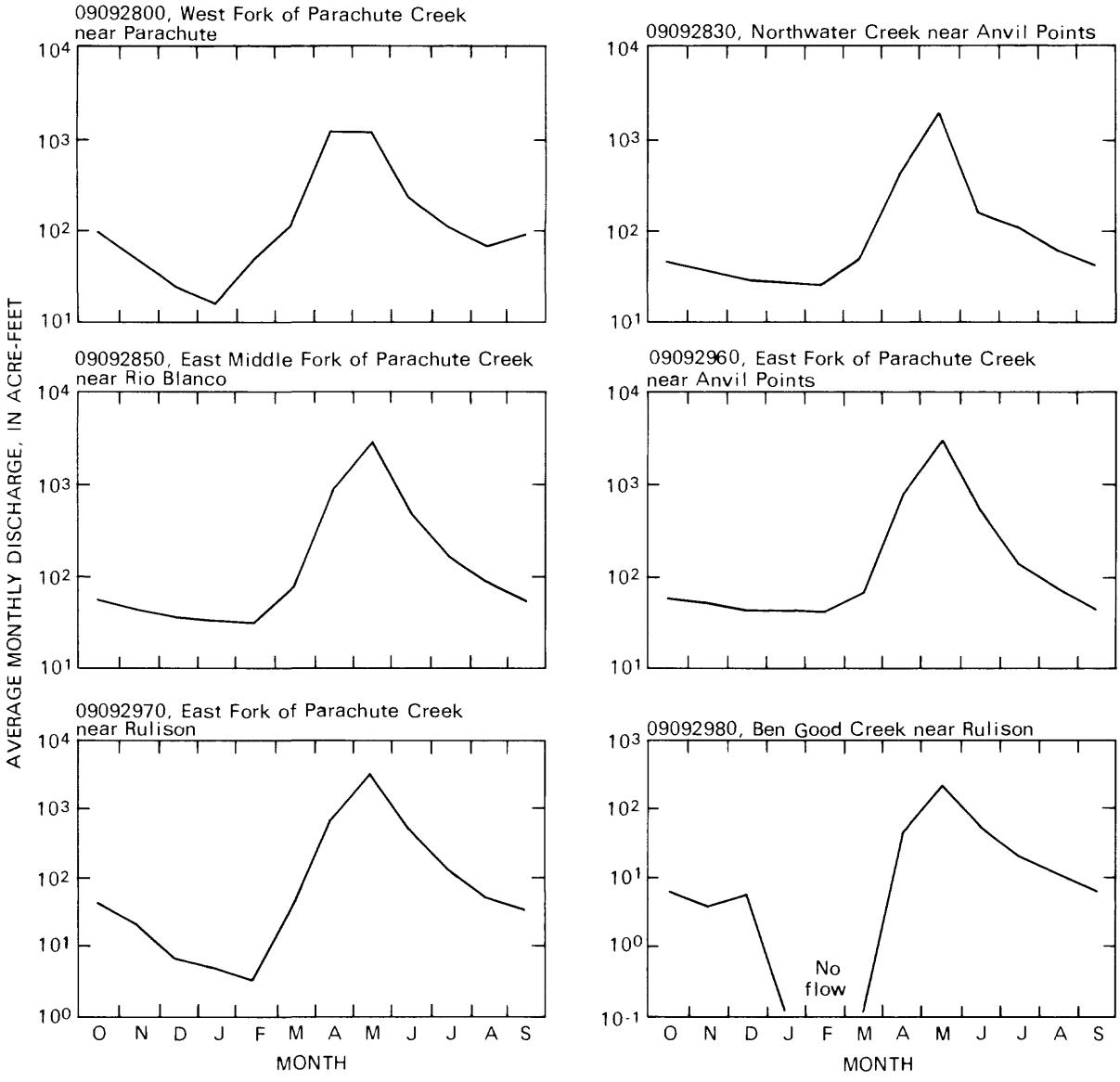


Figure 2.--Average monthly hydrographs for the streamflow-gaging stations in Roan Creek and Parachute Creek basins.

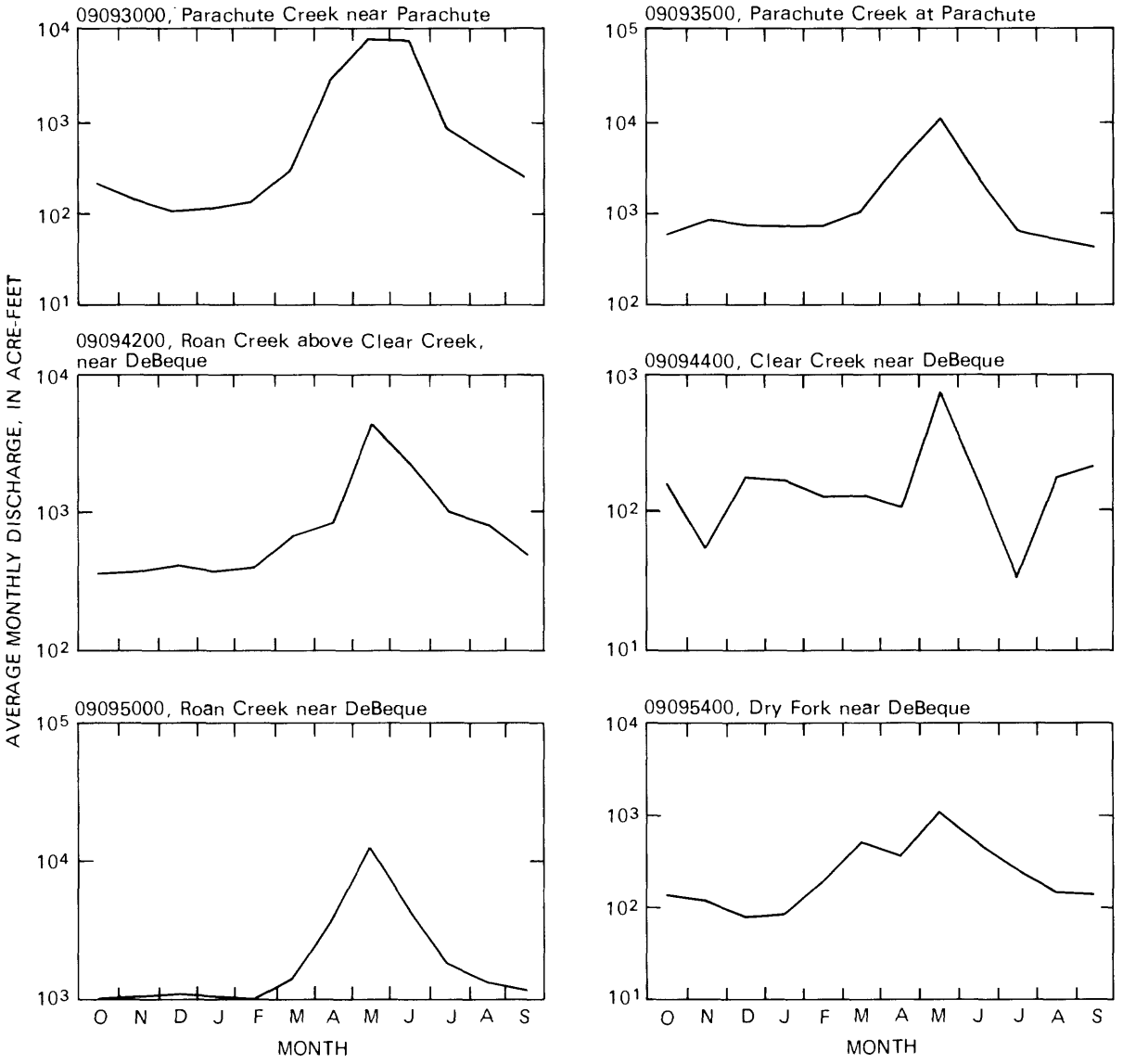


Figure 2.--Average monthly hydrographs for the streamflow-gaging stations in Roan Creek and Parachute Creek basins--Continued.

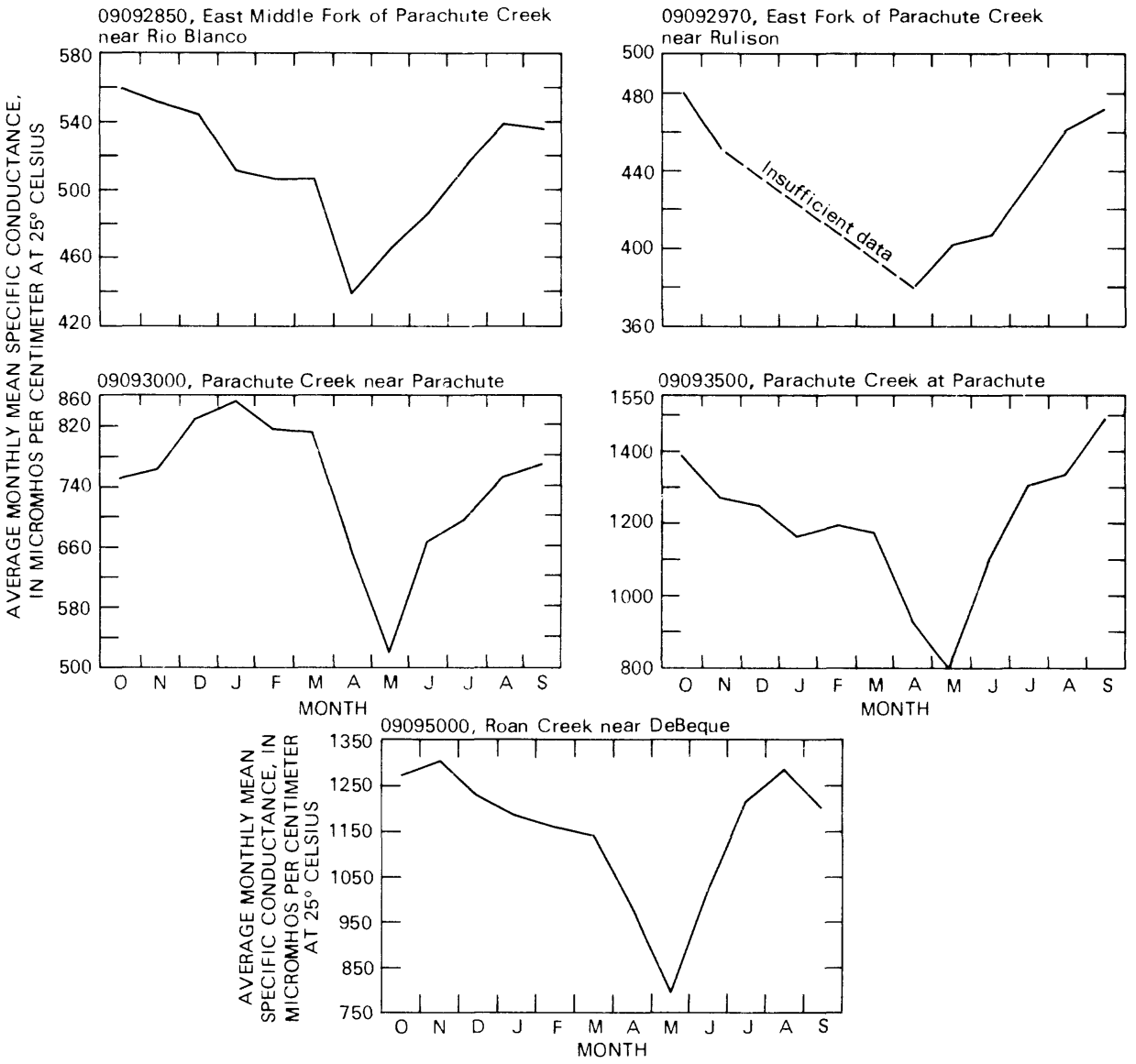


Figure 3.--Average monthly mean specific conductivity at five streamflow-gaging stations in Roan Creek and Parachute Creek basins.

The location of all surface-water stations and sites in the Roan Creek and Parachute Creek basins for which data are available is shown on plate 1. Station and site numbers shown on the plate correspond with those in tables 1, 2, 6, and 7.

Ground Water

Ground-water data collected from springs and wells in the Roan Creek and Parachute Creek basins consist of inventory and water-quality analyses data. Included in this section are inventory data for 286 springs (table 8) and 58 wells (table 9) and chemical analyses of water from 63 springs (table 10) and 20 wells (table 11). Tables 8, 9, 10, and 11 are in the "Supplemental Hydrologic Data" section at the end of this report. The inventory data include location, altitude, date, discharge, and field values of specific conductance, pH, and temperature.

Records of selected test wells are listed in table 12 in the "Supplemental Hydrologic Data" section, and additional information in graphic form is presented in the section on "Supplemental Well Data" in figures 6-35. The types and amount of data differ among the test wells. Types of data reported include location, surface elevation, date drilled, total depth, depth to geologic markers, casing diameter and depth, water level, aquifer transmissivity, and thickness. Additional information on well logs and water levels are presented in the "Supplemental Well Data" section, figures 6-35 for many of the wells.

Test wells in the study area penetrated silty sandstones and siltstones of the Uinta Formation of Eocene age and underlying kerogenous marlstones of the Parachute Creek Member of the Green River Formation of Eocene age (table 3). The Mahogany zone, or Mahogany ledge where it is exposed, is a stratigraphic layer rich in oil shale (more than 30 gallons per ton) in the upper part of the Parachute Creek Member. Where penetrated by the test holes, the Mahogany zone is about 140 feet thick and is a relatively impermeable confining bed. Water-saturated bedrock above the Mahogany zone is known as the upper aquifer(s), and the water-saturated bedrock below the Mahogany zone is confined and is known as the lower aquifer(s) (fig. 4).

Test wells drilled in the alluvium in the Roan Creek valley reached the Wasatch Formation of Eocene age at about 50 feet (fig. 4). Depths to the saturated zone or water table in the alluvium ranged from 10 to 40 feet and averaged about 20 feet.

The locations of springs are shown on plate 2, and the locations of wells are shown on plate 3. The spring numbers on plate 2 correspond to site numbers shown in the first column of tables 8 and 10. The well numbers on plate 3 correspond to site numbers shown in the first column of tables 9, 11, and 12. The system of numbering springs and wells in Colorado is shown in figure 5.

Table 3.--*Stratigraphic column of Tertiary (Eocene) and Quaternary rocks, Roan Creek and Parachute Creek basins*

[Modified from Coffin and others, 1971]

Geologic age	Geologic unit and thickness (feet)	Lithologic unit and thickness (feet)	
Quaternary	Alluvium and lake deposits (0-80)	Sand and gravel. Clay; generally organic. In the study area the alluvium is in the eroded valley on the Wasatch Formation.	
Tertiary (Eocene)	Uinta Formation (0-1,250)	Sandstone, silty, coarse to fine-grained; poorly sorted, and siltstone with some barren marlstone. Fractured in lower part. Little or no primary porosity.	
	Parachute Creek Member (500-1,700)	Kerogenous dolomitic marlstone containing some thin ash beds. Can be divided into the following four zones:	
		Zone 4 (<500)	Marlstone containing little oil shale. Fractured.
		Zone 3 Mahogany zone (100-200)	Oil shale. Fractured except where deeply buried.
		Zone 2 Leached or low resistivity zone (<200-700)	Oil shale. Fractured; more porous and permeable than the underlying or overlying zones. Low resistivity on electric logs.
		Zone 1 High resistivity zone (1,100 or less)	Oil shale and sodium minerals. Slightly fractured. Thickest in north-central part of basin; thin elsewhere.
	Anvil Points Member (0-1,800)	Shale, sandstone, and barren marlstone with minor amounts of siltstone and algal and oolitic marlstone. A basin-edge facies which grades into the Garden Gulch and Douglas Creek Members.	
	Garden Gulch (0-900)	Shale and barren marlstone with local thin beds of sandstone and limestone. A basin-edge facies best developed in the southern part of the basin.	
	Douglas Creek Member (0-800)	Sandstone with some limestone and shale.	
	Wasatch Formation (300-5,000)	Clay, shale, lenticular sandstone; locally, beds of conglomerate and limestone. Beds of clay and shale are the main constituents of the formation. Contains gypsum.	

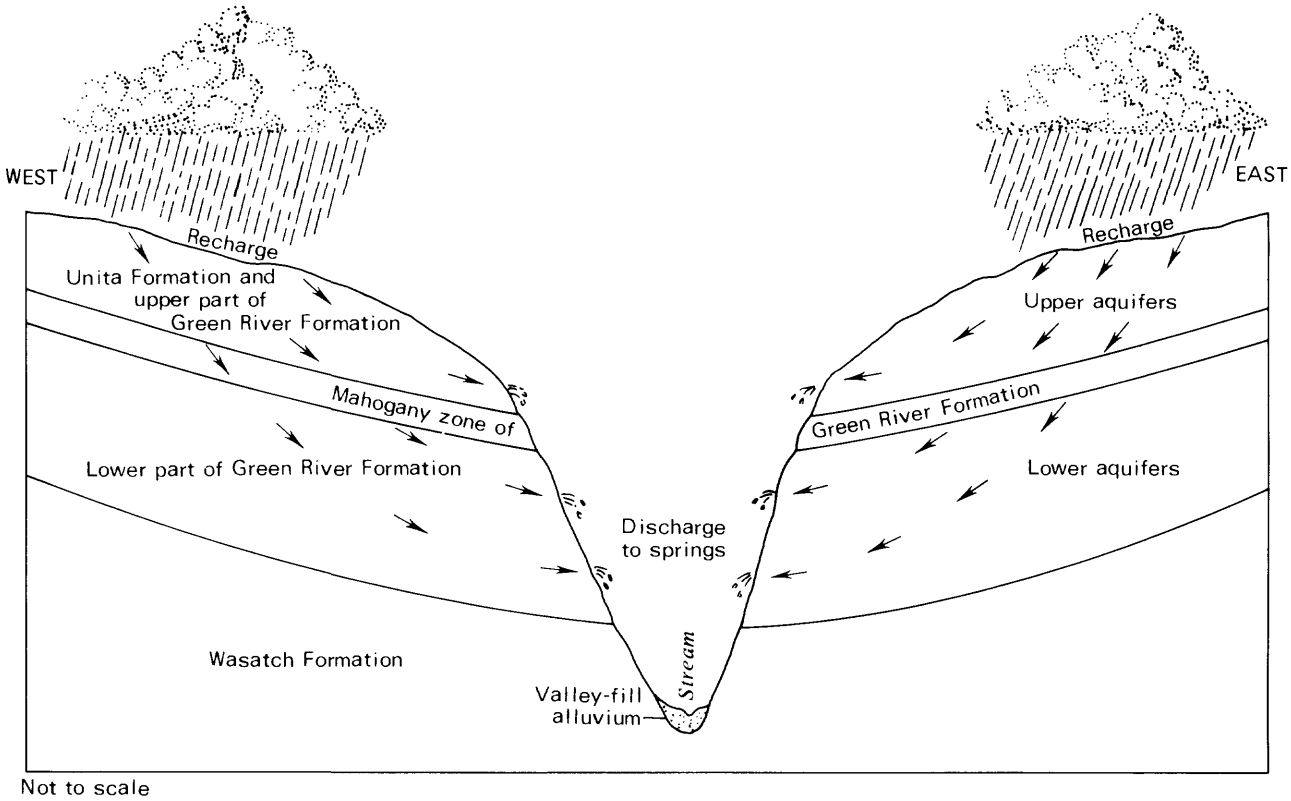


Figure 4.--Schematic section showing geologic formations and ground-water flow system in the Roan Creek and Parachute Creek drainage basins.

WATER-QUALITY STANDARDS

Because the water within the study area may be used for multiple purposes, selected standards established by the U.S. Environmental Protection Agency (1975, 1976, 1977) and water-quality standards proposed by the Colorado Department of Health (1977b) for domestic supplies, fisheries, and agricultural uses are listed in table 4. A crop-tolerance rating by Hem (1970), based on the boron concentration of agricultural-irrigation waters, is given in table 5. These tables are included in this report so that the reader can compare the chemical analyses presented with established standards to determine possible ways of using the waters from different sources within the basins. Additional information concerning the standards can be obtained from the references.

Table 4.--*Water-quality standards for water use in Colorado*

[Value given is the maximum allowed unless otherwise specified; mg/L, milligram per liter; µg/L, microgram per liter]

Water-quality property or constituent	National[1] and proposed Colorado[2] drinking water regulations	Proposed Colorado water-quality standards[3]		
		Water supply[4]	Aquatic life[5]	Agriculture[6]
Physiochemical properties				
Temperature (°C)	----	----	[7]20	----
pH (standard units)	[8]6.5≤pH≤9.0	[9]5.0≤pH≤9.0	6.5≤pH≤9.0	----
Dissolved oxygen (mg/L)	----	----	[10]6.0	----
Major inorganic constituents (mg/L)				
Magnesium	----	125	----	----
Chloride	[8]250	250	----	----
Fluoride	[11,12]1.4-2.4	[12]1.3-2.0	----	----
Nitrate (as N)	[11]10	10	----	[13]100
Sulfate	[8]250	250	----	----
Total dissolved solids	[8]500	----	----	----
Trace elements (µg/L)				
Aluminum	----	----	[14]100	----
Arsenic	[11]50	50	50	100
Barium	[11]1,000	1,000	----	----
Beryllium	----	----	10	100
Boron	----	----	----	750
Cadmium	[11]10	10	.4	10
Chromium	[11]50	50	100	100
Copper	[8]1,000	1,000	10	200
Iron	[8]300	[14]300	[15]1,000	----
Lead	[11]50	50	4	100
Manganese	[8]50	[14]50	1,000	200
Mercury	[11]2	2	.05	----
Molybdenum	----	----	----	150
Nickel	----	----	50	200
Selenium	[11]10	10	50	20
Silver	[11]50	50	.1	----
Thallium	----	----	15	----
Uranium	----	5,000	30	5,000
Zinc	[8]5,000	5,000	50	2,000
Organic constituents (µg/L)				
Polychlorinated biphenyl (PCB)	----	----	.001	----
Phenol	----	1	1	----

Table 4.--*Water-quality standards for water use in Colorado*--Continued

Water-quality property or constituent	National[1] and proposed Colorado[2] drinking water regulations	Proposed Colorado water-quality standards[3]		
		Water supply[4]	Aquatic life[5]	Agriculture[6]
	Miscellaneous properties or constituents			
Ammonia (mg/L as N)-------	----	[16]0.5	[17]0.02	----
Chlorine (total residual; mg/L)-------------------	----	----	[18].002	----
Color (color units)-------	[8]15	----	----	----
Cyanide (mg/L)------------	----	.2	.005	0.2
Foaming agents (mg/L)-----	[8].5	----	----	----
Nitrite (mg/L as N)-------	----	1.0	[19].05	10
Odor (threshold odor number)-----------------	[8]3	----	----	----
Sulfide as H_2S (mg/L)-----	[8].05	.05	.002	----
Turbidity (TU)------------	[11,20]1	[21]1.0	----	----

[1]U.S. Environmental Protection Agency, 1975, 1976, 1977.

[2]Colorado Department of Health, 1977*a*.

[3]Colorado Department of Health, 1977*b*.

[4]Includes uncontaminated ground water and ground and surface water requiring disinfection or standard treatment (raw water).

[5]Includes cold-water biota (inhabitants, including trout, of waters where temperatures do not normally exceed 20°C) and warm water biota (inhabitants of waters where temperatures normally exceed 20°C). Trace-element standards apply to waters having total hardness from 0 to 100 mg/L as $CaCO_3$; standards for waters of greater hardness may be equal or greater. Total trace-element concentrations are given, unless otherwise specified.

[6]Includes irrigation and stock watering.

[7]Applies only to cold-water biota; standard for warm-water biota is 30°C. In addition, a maximum 3°C increase over a minimum 4-hour period lasting for 12 hours maximum from naturally occurring temperatures shall be allowed.

[8]Secondary maximum contaminant level. These "* * * are not Federally enforceable and are intended as guidelines for the States * * *" (U.S. Environmental Protection Agency, 1977).

[9]Applies only to ground and surface water requiring disinfection or standard treatment (raw water).

[10]Minimum allowed concentration. Applies only to cold-water biota; standard for warm-water biota is 5.0 mg/L. In addition, a 7.0 mg/L standard during periods of spawning of cold-water fish may be set on a case by case basis.

[11]Interim primary maximum contaminant level. Applies to all systems providing piped water for human consumption, "* * * if such system has at least fifteen service connections or regularly serves at least twenty-five individuals." (U.S. Environmental Protection Agency, 1975, 1976). Proposed primary drinking-water regulations (Colorado Department of Health, 1977*a*).

[12]The exact fluoride standard applicable is dependent on "* * * the annual average of the maximum daily air temperatures for the location in which the community water system is situated * * *" (U.S. Environmental Protection Agency, 1975).

[13]Includes nitrite as N.

[14]Refers to soluble form.

[15]Refers to total concentration.

[16]Recommended standard because of effect on chlorination.

[17]Nonionized. Applies only to cold-water biota; standard for warm-water biota is 0.10 mg/L.

[18]Applies only to cold-water biota; standard for warm-water biota is 0.01 mg/L.

[19]Applies only to cold-water biota; standard for warm-water biota is 0.5 mg/L.

[20]A value of 5 or fewer TU is allowed if it does not interfere with disinfection or microbiological determinations.

[21]Applies only to uncontaminated ground water.

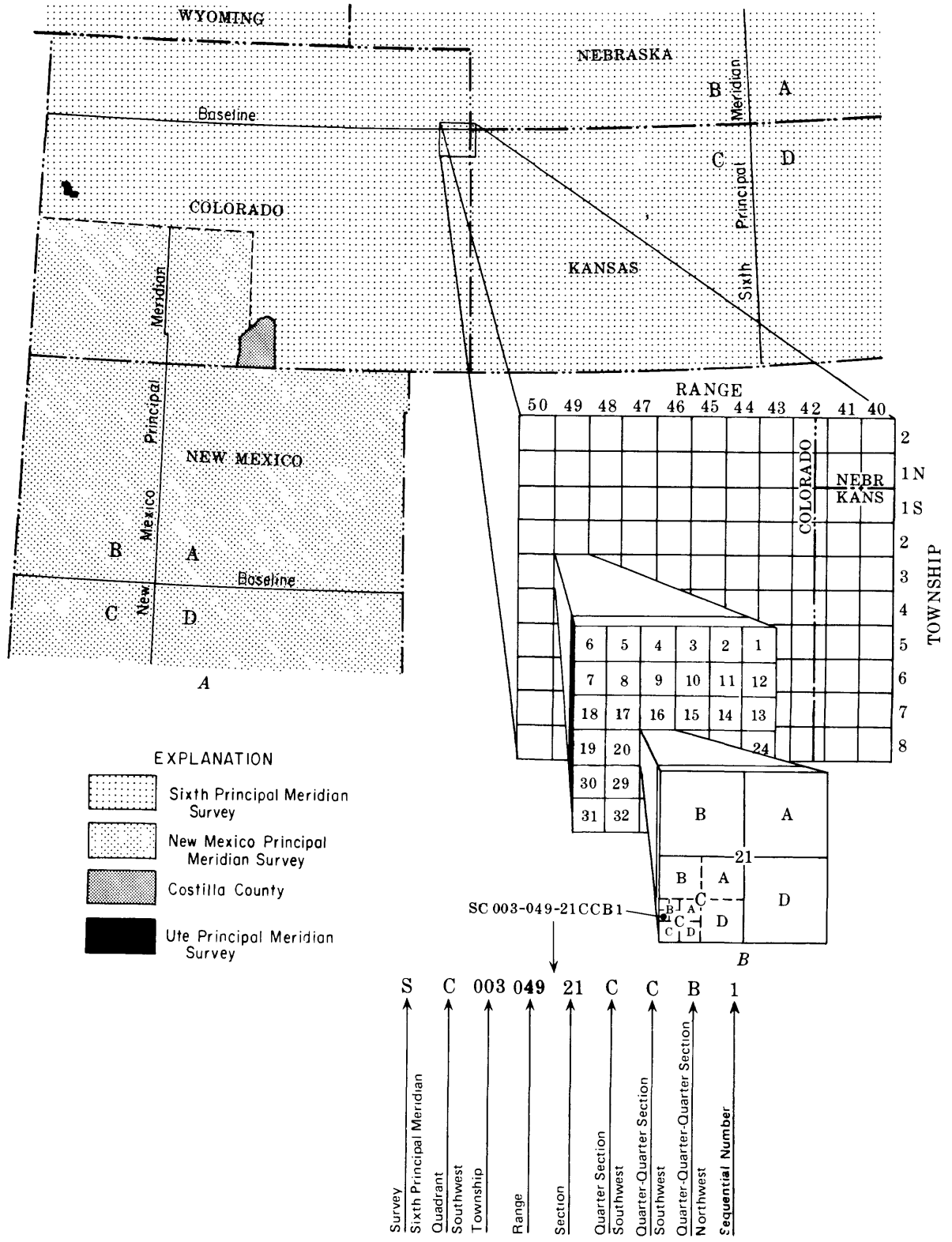


Figure 5.--Diagram showing system of numbering springs and wells in Colorado.

Table 5.--*Rating of irrigation water for various crops on the basis of boron concentration in the water*

[After Hem, 1970, p. 329]

Classes of water		Sensitive crops (milligrams per liter)	Semitolerant crops (milligrams per liter	Tolerant crops (milligrams per liter)
Rating	Grade			
1	Excellent----	<0.33	<0.67	<1.00
2	Good---------	.33-.67	.67-1.33	1.00-2.00
3	Permissible--	.67-1.00	1.33-2.00	2.00-3.00
4	Doubtful-----	1.00-1.25	2.00-2.50	3.00-3.75
5	Unsuitable---	>1.25	>2.50	>3.75
		Crop types		
		Apricot	Bell pepper	Carrot
		Peach	Pumpkin	Lettuce
		Cherry	Oat	Cabbage
		Apple	Milo	Turnip
		Pear	Corn	Onion
		Plum	Wheat	Alfalfa
		Navy bean	Barley	Garden beet
			Tomato	Asparagus
			Potato	
			Sunflower	

SELECTED REFERENCES

1. Coffin, D. L., Welder, F. A., and Glanzman, R. K., 1971, Geohydrology of the Piceance Creek structural basin between the White and Colorado Rivers, northwestern Colorado: U.S. Geological Survey Hydrologic Investigations Atlas HA-370.
2. Colorado Department of Health, 1977*a*, Preliminary drinking water regulations (proposed July 19, 1977; corrected after August 31, 1977, hearing): Colorado Department of Health, Denver, Colo., 59 p.
3. _____1977*b*, Proposed water quality standards for Colorado (draft no. 9; November 17, 1977): Colorado Department of Health, Denver, Colo., 51 p.
4. Greeson, P. E., Ehlke, T. A., Irwin, G. A., Lium, B. W., and Slack, K. V., 1977, Methods for collection and analyses of aquatic biological and microbiological samples: U.S. Geological Survey Techniques of Water Resources Investigations, Book 5, Chapter A4, 332 p.
5. Hem, J. D., 1970, Study and interpretation of chemical characteristics of natural water (2nd ed.): U.S. Geological Survey Water Supply Paper 1473, 363 p.

6. Patt, R. O., Adams, D. B., and Collins, D. L., 1982, Hydrologic data from the Naval Oil Shale Reserves, Parachute Creek basin, northwestern Colorado, 1975-79: U.S. Geological Survey Open-File Report 82-696, 134 p.
7. Taylor, O. J., 1982, Three-dimensional mathematical model for simulating the hydrologic system in Piceance basin, Colorado: U.S. Geological Survey Water-Resources Investigations, Open-File Report 82-637, 35 p.
8. U.S. Environmental Protection Agency, 1975, National interim primary drinking water regulations: Federal Register, v. 40, no. 248, p. 59566-59588.
9. _____1976, Interim primary drinking water regulations--promulgation of regulations on radionuclides: Federal Register, v. 41, no. 133, p. 38402-28409.
10. _____1977, National secondary drinking water regulations--proposed regulations: Federal Register, v. 42, no. 62, p. 17144-17146.
11. U.S. Geological Survey, 1954, Compilation of records of surface waters of the United States through September 1950, part 9, Colorado River basin: U.S. Geological Survey Water Supply Paper 1313, p. 124-127.
12. _____1964, Compilation of records of surface waters of the United States, October 1950 to September 1960, part 9, Colorado River basin: U.S. Geological Survey Water Supply Paper 1733, p. 100-101.
13. _____1970, Surface water supply of the United States 1961-65, part 9, Colorado River basin above Green River: U.S. Geological Survey Water Supply Paper 1924, p. 252-258.
14. _____1967, Water resources data for Colorado, water year 1966, part 1, Surface water records: United States Department of the Interior, Geological Survey, CO-66-1, p. 234-237.
15. _____1968, Water resources data for Colorado, water year 1967, part 1, Surface water records: United States Department of the Interior, Geological Survey, CO-67-1, p. 250, 252-255.
16. _____1969, Water resources data for Colorado, water year 1968, part 1, Surface water records: United States Department of the Interior, Geological Survey, CO-68-1, p. 256, 258-260.
17. _____1970, Water resources data for Colorado, water year 1969, part 1, Surface water records: United States Department of the Interior, Geological Survey, CO-69-1, p. 259, 261.
18. _____1971, Water resources data for Colorado, water year 1970, part 1, Surface water records: United States Department of the Interior, Geological Survey, CO-70-1, p. 256, 258.
19. _____1972, Water resources data for Colorado, water year 1971, part 1, Surface water records: United States Department of the Interior, Geological Survey, CO-71-1, p. 259.
20. _____1973, Water resources data for Colorado, water year 1972, part 1, Surface water records: United States Department of the Interior, Geological Survey, CO-72-1, p. 256.
21. _____1976, Water resources data for Colorado, water year 1975, v. 2, Colorado River basin: U.S. Geological Survey Water-Data Report CO-75-2, p. 143-144, 146-147.
22. _____1977, Water resources data for Colorado, water year 1976, v. 2, Colorado River basin: U.S. Geological Survey Water-Data Report CO-76-2, p. 178-190, 199-208.

23. _____1978, Water resources data for Colorado, water year 1977, v. 2, Colorado River basin above Dolores River: U.S. Geological Survey Water-Data Report CO-77-2, p. 164-189, 194-200.
24. _____1979, Water resources data for Colorado, water year 1978, v. 2, Colorado River basin above Dolores River: U.S. Geological Survey Water-Data Report CO-78-2, p. 173-210, 216-225, 380.
25. _____1980, Water resources data for Colorado, water year 1979, v. 2, Colorado River basin above Dolores River: U.S. Geological Survey Water-Data Report CO-79-2, p. 178-211, 216-223, 351-355, 384.
26. _____1981, Water resources data for Colorado, water year 1980, v. 2, Colorado River basin above Dolores River: U.S. Geological Survey Water-Data Report CO-80-2, p. 174-204, 210-220.
27. _____1982, Water resources data for Colorado, water year 1981, v. 2, Colorado River basin above Dolores River: U.S. Geological Survey Water-Data Report CO-81-2, p. 167-195, 200-207.
28. Weeks, J. B., Leavesley, G. H., Welder, F. A., and Saulnier, G. J., Jr., 1974, Simulated effect of oil-shale development on the hydrology of Piceance basin, Colorado: U.S. Geological Survey Professional Paper 908, 84 p.

SUPPLEMENTAL HYDROLOGIC DATA

ABBREVIATIONS

ft^3/s	cubic foot per second
°C	degree Celsius
ft	foot
ft^2/day	foot squared per day
gal/min	gallon per minute
in.	inches
mg/L	milligram per liter
µg/L	microgram per liter
µmhos	micromhos
ND	not detected
pl.	plate
Seq. no.	sequence number

Table 6.--*Analyses of water-quality samples collected at miscellaneous surface-water sites*

Site number on plate 1	Station number	Latitude	Longitude	Seq. no.	Date of sample	Stream-flow, instan-taneous (ft^3/s)	Spe-cific con-duc-tance (µmhos)	pH (units)	Temper-ature (°C)	Hard-ness (mg/L)	Hard-ness, noncar-bonate (mg/L)	Calcium dis-, solved (mg/L)
1	391953108125000	39°19'52"	108°13'03"	00	77-12-07	2.3	2,700	--	3.0	1,000	564	150
2	392348108154801	39°23'48"	108°15'48"	01	78-03-09	.10	2,750	8.3	13.0	1,200	1,020	280
3	392501108295700	39°25'01"	108°29'57"	00	75-08-06	.80	920	8.1	16.5	390	38	79
4	392552108152200	39°25'52"	108°15'22"	00	75-08-06	1.9	1,300	7.9	13.0	540	124	83
5	392558108151500	39°25'58"	108°15'15"	00	75-08-06	.02	3,300	8.2	23.0	1,100	650	110
6	392712108200701	39°27'12"	108°20'07"	01	74-11-14	--	2,280	8.4	8.0	640	83	91
7	392912108193200	39°29'12"	108°19'32"	00	74-11-14	--	610	8.8	9.0	330	0	64
8	393015108232700	39°30'15"	108°23'27"	00	74-11-14	--	565	9.0	9.0	300	0	55
9	393042108274000	39°30'42"	108°27'40"	00	74-11-14	--	590	8.1	7.0	340	0	59
10	393042108274300	39°30'42"	108°27'43"	00	74-11-14	--	610	8.2	3.0	320	3	56
11	393113107550301	39°31'13"	107°55'03"	01	78-06-02	.20	1,490	8.6	18.0	500	256	84
					79-04-10	E1.0	1,950	--	7.0	750	532	160
					79-07-06	.00	2,000	8.5	19.5	580	367	94
12	393126107551001	39°31'26"	107°55'10"	01	79-04-10	E.10	3,600	--	10.0	1,300	702	260
13	393128107554901	39°31'28"	107°55'49"	01	78-06-02	.30	1,000	8.7	20.5	320	113	53
14	393131107555501	39°31'31"	107°55'55"	01	78-06-02	.05	3,350	8.9	23.8	570	34	64
15	393133107551201	39°31'33"	107°55'12"	01	78-06-02	.20	1,200	8.6	20.5	430	244	66
					79-04-10	.80	1,750	--	7.0	710	487	150
					79-07-06	.01	1,300	8.5	14.5	450	265	70
16	393536107542800	39°35'36"	107°54'28"	00	75-09-17	.10	500	8.5	12.5	240	0	61
17	393656108573201	39°36'56"	107°57'32"	01	78-09-26	.26	485	8.6	13.5	220	0	57
18	393710108022401	39°37'10"	108°02'24"	01	78-09-26	--	595	8.5	13.0	240	0	57
19	393719108004100	39°37'19"	108°00'41"	00	75-09-17	1.1	520	8.7	16.0	220	0	53
20	393720108004000	39°37'20"	108°00'40"	00	75-09-17	.52	560	8.7	15.5	220	0	51
21	393752108123300	39°37'52"	108°12'33"	00	77-04-20	2.0	560	8.1	9.0	240	0	56
22	393752108251100	39°37'52"	108°25'11"	00	77-04-20	.37	560	8.5	4.0	250	0	54
23	393809108131000	39°38'09"	108°13'10"	00	75-09-17	--	675	8.2	15.0	250	0	57
24	393842108330301	39°38'42"	108°33'03"	01	77-04-20	.81	490	8.2	6.0	230	0	53

Table 6.--*Analyses of water-quality samples collected at miscellaneous surface-water sites*--Continued

Site number on plate 1	Station number	Date of sample	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L)	Bicarbonate, field (mg/L)	Alkalinity, field (mg/L)	Carbon dioxide, dissolved (mg/L)	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)
1	391953108125000	77-12-07	160	400	46	5.5	5.0	570	470	--	1,300	28
2	392348108154801	78-03-09	110	310	37	4.1	14	170	140	1.4	1,500	16
3	392501108295700	75-08-06	48	66	27	1.5	1.0	440	357	5.5	150	2.2
4	392552108152200	75-08-06	80	120	33	2.3	3.8	500	413	10	300	9.0
5	392558108151500	75-08-06	210	430	45	5.6	7.9	600	490	6.0	1,400	18
6	392712108200701	74-11-14	100	340	53	6.0	4.1	680	557	4.3	760	10
7	392912108193200	74-11-14	41	70	31	1.7	2.2	420	341	1.0	110	12
8	393015108232700	74-11-14	39	67	33	1.7	2.8	400	328	.6	97	7.2
9	393042108274000	74-11-14	46	73	32	1.8	2.9	420	348	5.4	130	4.8
10	393042108274300	74-11-14	44	76	34	1.9	3.0	390	318	3.9	150	4.0
11	393113107550301	78-06-02	69	150	39	3.0	5.0	270	240	1.1	490	11
		79-04-10	85	140	29	2.3	6.4	270	220	--	840	5.3
		79-07-06	83	210	44	3.9	11	--	210	1.3	820	8.9
12	393126107551001	79-04-10	150	420	42	5.3	11	700	570	--	1,500	11
13	393128107554901	78-06-02	46	98	40	2.4	2.0	230	210	.7	270	2.3
14	393131107555501	78-06-02	100	680	72	13	10	530	540	1.1	1,300	5.3
15	393133107551201	78-06-02	65	100	33	2.1	3.0	210	190	.8	410	1.9
		79-04-10	80	180	36	3.0	5.7	--	220	--	800	2.7
		79-07-06	68	130	38	2.7	3.9	--	190	1.1	490	1.9
16	393536107542800	75-09-17	21	21	16	.6	1.0	320	261	1.6	15	1.6
17	393656108573201	78-09-26	19	26	20	.8	.4	290	240	1.2	21	1.4
18	393710108022401	78-09-26	23	43	28	1.3	.8	330	270	1.7	49	2.4
19	393719108004100	75-09-17	21	33	25	1.0	.7	290	246	.9	29	1.7
20	393720108004000	75-09-17	23	41	29	1.2	1.0	300	252	.9	46	2.5
21	393752108123300	77-04-20	25	47	30	1.4	1.3	320	260	4.0	76	2.5
22	393752108251100	77-04-20	27	48	30	1.4	.8	340	280	1.7	67	3.5
23	393809108131000	75-09-17	25	50	31	1.4	.8	340	276	3.4	70	1.0
24	393842108330301	77-04-20	23	33	24	1.0	.6	280	230	2.8	52	1.8

Table 6.--*Analyses of water-quality samples collected at miscellaneous surface-water sites*--Continued

Site number on plate 1	Station number	Date of sample	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Solids, dissolved (tons per day)	Solids, dissolved (tons per acre-ft)	Nitrogen, NO_2+NO_3 dissolved (mg/L)	Phosphorus, ortho, dissolved (mg/L)	Phosphate, ortho, dissolved (mg/L)	Aluminum, total recoverable (µg/L)	Aluminum, dissolved (µg/L)
1	391953108125000	77-12-07	.70	14	2,340	14.7	3.2	.54	<.010	.00	--	--
2	392348108154801	78-03-09	.90	11	2,330	.63	3.2	9.3	<.010	.00	14,000	80
3	392501108295700	75-08-06	.30	20	580	1.3	.79	.10	.010	.03	--	--
4	392552108152200	75-08-06	.60	19	863	4.4	1.2	1.1	.010	.03	--	--
5	392558108151500	75-08-06	.80	7.9	2,480	.13	3.4	.02	.010	.03	--	--
6	392712108200701	74-11-14	.40	13	1,650	--	2.2	.58	.030	.09	--	--
7	392912108193200	74-11-14	.80	17	522	--	.71	.89	.020	.06	--	--
8	393015108232700	74-11-14	.90	17	483	--	.66	.39	<.010	.00	--	--
9	393042108274000	74-11-14	.60	16	541	--	.74	.76	.020	.06	--	--
10	393042108274300	74-11-14	.20	15	539	--	.73	.18	.010	.03	--	--
11	393113107550301	78-06-02	1.0	14	983	.53	1.3	3.7	.010	.03	10,000	<100
		79-04-10	.80	9.7	1,380	3.8	1.9	4.8	<.010	.00	50	20
		79-07-06	--	--	--	.02	2.1	--	--	--	--	--
12	393126107551001	79-04-10	2.6	11	2,710	.80	4.0	2.5	<.010	.00	2,200	600
13	393128107554901	78-06-02	.60	14	627	.51	.85	2.3	.010	.03	--	<100
14	393131107555501	78-06-02	4.9	9.7	2,570	.35	3.5	4.9	.010	.03	--	10
15	393133107551201	78-06-02	1.0	15	793	.43	1.1	3.7	.010	.03	--	30
		79-04-10	.70	9.8	1,360	2.9	1.9	4.6	.070	.21	--	100
		79-07-06	--	--	--	.02	1.3	--	--	--	--	--
16	393536107542800	75-09-17	.10	17	295	.08	.40	.12	.030	.09	--	--
17	393656108573201	78-09-26	.10	16	284	.20	.39	.31	--	--	--	--
18	393710108022401	78-09-26	.40	17	360	--	.49	.05	--	--	--	--
19	393719108004100	75-09-17	.20	16	308	.90	.42	.06	.030	.09	--	--
20	393720108004000	75-09-17	.20	18	341	.48	.46	.02	.010	.03	--	--
21	393752108123300	77-04-20	.20	16	383	2.1	.52	.20	.010	.03	--	<100
22	393752108251100	77-04-20	.40	10	380	.38	.51	.16	.010	.03	--	<100
23	393809108131000	75-09-17	.20	17	388	--	.53	.08	.010	.03	--	<100
24	393842108330301	77-04-20	.30	13	315	.69	.43	.81	.010	.03	--	<100

Table 6.--*Analyses of water-quality samples collected at miscellaneous surface-water sites*--Continued

Site number on plate 1	Station number	Date of sample	Boron, dissolved (µg/L)	Cadmium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Lithium, dissolved (µg/L)	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Zinc, dissolved (µg/L)
1	391953108125000	77-12-07	--	--	--	30	--	--	--	--	--
2	392348108154801	78-03-09	260	--	--	40	13	280	--	24	--
3	392501108295700	75-08-06	60	ND	ND	<10	ND	20	<.5	2	<20
4	392552108152200	75-08-06	160	ND	<2	20	2	50	<.5	19	ND
5	392558108151500	75-08-06	510	ND	4	<10	3	200	<.5	1	<20
6	392712108200701	74-11-14	290	ND	ND	60	<2	40	<.5	7	20
7	392912108193200	74-11-14	190	ND	<2	40	2	50	<.5	1	<20
8	393015108232700	74-11-14	240	<2	2	20	ND	50	<.5	1	20
9	393042108274000	74-11-14	170	ND	ND	40	4	<10	<.5	1	20
10	393042108274300	74-11-14	120	ND	<2	<10	2	<10	<.5	1	<20
11	393113107550301	78-06-02	330	3	--	40	4	70	--	10	<20
		79-04-10	250	3	3	30	14	110	<.1	14	20
		79-07-06	390	--	--	--	--	130	<.1	10	--
12	393126107551001	79-04-10	980	2	4	40	17	180	<.1	7	30
13	393128107554901	78-06-02	140	2	--	<10	2	40	--	6	<20
14	393131107555501	78-06-02	1,600	2	--	40	ND	120	--	12	<20
15	393133107551201	78-06-02	310	<2	--	20	ND	50	--	10	<20
		79-04-10	240	4	3	20	42	90	<.1	15	<20
		79-07-06	340	--	--	--	--	50	<.1	11	--
16	393536107542800	75-09-17	<20	ND	<2	20	ND	<10	<.5	<1	ND
17	393656108573201	78-09-26	<20	ND	ND	20	3	9	<.1	1	ND
18	393710108022401	78-09-26	50	ND	ND	50	<2	9	<.1	1	ND
19	393719108004100	75-09-17	30	ND	ND	<10	ND	<10	<.5	<1	ND
20	393720108004000	75-09-17	40	ND	ND	<10	ND	<10	<.5	<1	<20
21	393752108123300	77-04-20	30	ND	ND	80	ND	<10	<.5	<1	ND
22	393752108251100	77-04-20	850	<2	<2	60	<2	<10	<.5	1	ND
23	393809108131000	75-09-17	50	<2	4	20	<2	<10	<.5	<1	<20
24	393842108330301	77-04-20	40	ND	<2	60	ND	<10	<.5	1	ND

Table 6.--*Analyses of water-quality samples collected at miscellaneous surface-water sites*--Continued

Site number on plate 1	Station number	Date of sample	Manganese, dissolved (µg/L)	Strontium, total recoverable (µg/L)	Strontium, dissolved (µg/L)
1	391953108125000	77-12-07	80	--	--
2	392348108154801	78-03-09	20	4,600	3,000
3	392501108295700	75-08-06	<10	--	--
4	392552108152200	75-08-06	<10	--	--
5	392558108151500	75-08-06	20	--	--
6	392712108200701	74-11-14	<10	--	--
7	392912108193200	74-11-14	<10	--	--
8	393015108232700	74-11-14	<10	--	--
9	393042108274000	74-11-14	<10	--	--
10	393042108274300	74-11-14	<10	--	--
11	393113107550301	78-06-02	30	1,200	1,500
		79-04-10	20	2,100	1,900
		79-07-06	--	--	--
12	393126107551001	79-04-10	100	3,200	3,200
13	393128107554901	78-06-02	<10	--	960
14	393131107555501	78-06-02	<10	--	1,700
15	393133107551201	78-06-02	<10	--	1,300
		79-04-10	<10	--	1,800
		79-07-06	--	--	--
16	393536107542800	75-09-17	<10	--	560
17	393656108573201	78-09-26	<10	--	720
18	393710108022401	78-09-26	<10	--	970
19	393719108004100	75-09-17	<10	--	820
20	393720108004000	75-09-17	<10	--	740
21	393752108123300	77-04-20	110	--	950
22	393752108251100	77-04-20	<10	--	780
23	393809108131000	75-09-17	<10	--	1,000
24	393842108330301	77-04-20	<10	--	600

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*

[Densities are rounded to standard significant figures (Greeson and others, 1977)]

TAXA	West Fork Parachute Creek, site 1 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. [1]1977	Nov. 1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA								
INSECTA								
Coleoptera (Beetles)								
Helphorus sp.	---	---	---	---	---	---	---	4
Optioservus sp.	18	---	4	---	---	---	4	---
Diptera (True flies)								
Arcto-conchapelopia sp.	---	---	11	4	25	---	7	---
Calopsectra sp.	7	---	---	---	---	---	---	---
Corynoneura sp.	11	---	---	7	110	---	32	7
Cricotopus sp. 1	3,100	---	18	120	---	---	22	110
C. sp. 2	18	---	---	14	---	---	---	---
C. sp. 4	---	---	---	---	---	---	---	90
Diamesa sp. 1	200	---	240	100	---	---	---	100
D. sp. 2	---	---	---	4	---	---	---	22
Dicranota sp.	---	---	---	---	---	---	---	4
Dixa sp.	---	---	---	---	---	---	---	4
Empididae	---	---	---	---	---	---	---	32
Eukiefferiella sp. 1	---	---	18	---	68	---	11	29
E. sp. 2	18	---	---	---	---	---	14	---
E. sp. 3	---	---	100	---	---	---	7	25
E. sp. 4	---	---	43	---	4	---	---	---
Euparyphus sp.	4	---	---	---	---	---	22	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	West Fork Parachute Creek, site 1 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. [1]1977	Nov. 1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)--Continued								
Hemerodromia sp.	75	---	---	---	---	---	---	---
Hexatoma sp.	29	---	4	---	29	4	4	18
Limnophora aequifrons	---	---	---	---	---	---	25	---
L. sp. 1	---	---	11	---	14	---	25	---
L. sp. 2	---	---	22	---	---	---	---	---
Metriocnemus sp.	---	---	---	---	---	---	---	65
Micropsectra sp.	---	---	11	4	---	---	---	---
Odontomesa sp.	18	---	---	---	---	---	---	---
Orthocladius sp. 1	---	---	---	72	4	---	7	4
Palpomyia sp.	---	---	---	7	14	---	---	---
Pentaneura sp.	54	---	---	---	---	---	---	---
Pericoma sp.	---	---	---	---	---	---	11	---
Podonominae	---	---	22	---	---	---	---	---
Polypedilum sp.	---	---	4	4	---	---	---	---
Prosimulium sp.	4,100	---	100	7	---	---	---	---
Simulium sp.	---	---	---	---	5,000	4	380	1,300
Syndiamesa orientalis	72	---	---	---	---	---	---	---
Tanytarsus sp.	---	---	---	---	---	---	---	4
Thienemanniella sp.	---	---	---	---	---	---	---	25
Tipula sp.	7	---	---	---	---	---	---	4

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	West Fork Parachute Creek, site 1 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. [1]1977	Nov. 1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Ephemeroptera (Mayflies)								
Baetis sp.	---	---	65	---	5,500	---	1,600	2,600
Cinygmula sp.	18	---	---	---	---	---	---	150
Epeorus grandis	22	---	---	---	---	4	---	220
Ephemerella sp.	29	---	---	---	---	---	---	90
Paraleptophlebia sp.	---	---	---	---	11	---	---	---
Plecoptera (Stoneflies)								
Amphinemura banksi	---	---	14	---	---	---	---	---
Capnia sp.	---	---	---	---	130	---	---	---
Chloroperlidae	150	---	65	4	---	---	---	210
Isoperla fusca	---	---	---	---	---	---	---	160
I. quinquepunctata	18	---	---	---	36	---	4	14
I. sp.	---	---	---	---	29	---	---	---
Paracapnia angulata	---	---	---	---	---	---	320	---
Prostoia besametsa	---	---	---	---	---	---	---	18
Pteronarcella badia	---	---	---	---	18	---	---	---
Zapada cinctipes	---	---	---	---	---	---	4	---
Trichoptera (Caddisflies)								
Brachycentrus americanus	---	---	---	---	4	---	7	4
Glossosoma sp.	120	---	---	---	---	---	---	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	West Fork Parachute Creek, site 1 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. [1]1977	Nov. 1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Trichoptera (Caddisflies)--Continued								
Hydropsyche sp. 1	4	---	---	---	11	---	---	14
Rhyacophila acropedes	14	---	---	---	4	---	---	4
Total	8,100	---	750	350	11,000	12	2,500	5,300
Number of taxa	23	---	17	12	18	3	19	28
Water-quality measurements								
Temperature (° Celsius)	10.0	11.5	5.5	10.0	6.5	8.0	7.0	11.0
Specific conductance (micromhos per centimeter at 25° Celsius)	800	1,060	1,000	840	640	725	810	1,340
pH (units)	8.3	7.8	8.4	8.2	8.4	8.4	8.2	8.2
Dissolved oxygen (milligrams per liter)	7.8	---	8.0	8.7	10.4	---	9.8	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Middle Fork Parachute Creek, site 2 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA								
ARACHNOIDEA								
Hydracarina (Water mites)								
Sperchonidae----------	4	---	---	---	---	---	---	---
INSECTA								
Coleoptera (Beetles)								
Agabus sp.----------	---	---	---	4	---	---	---	---
Optioservus sp.----------	14	---	---	---	18	---	50	7
Zaitzevia sp.----------	---	---	---	---	---	---	11	---
Diptera (True flies)								
Antocha sp.----------	---	---	---	---	4	---	---	---
Arcto-conchapelopia sp.-------	---	---	---	---	22	---	7	---
Calopsectra sp.----------	18	---	---	---	---	---	---	---
Corynoneura sp.----------	11	---	---	---	---	---	39	22
Cricotopus sp. 1----------	360	---	---	61	---	---	4	---
C. sp. 2----------	---	---	---	7	---	---	11	140
C. sp. 4----------	---	---	---	---	---	---	---	150
Diamesa sp. 1----------	---	---	---	14	---	---	---	7
D. sp. 2	39	---	---	7	---	---	---	61
Dicranota sp.----------	---	---	---	4	4	---	11	25
Empididae----------	---	---	---	4	---	---	---	---
Eukiefferiella sp. 1----------	39	---	---	7	22	---	75	210
E. sp. 2----------	---	---	---	---	---	---	7	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Middle Fork Parachute Creek, site 2 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)--Continued								
E. sp. 3	---	---	---	---	---	---	---	190
E. sp. 6	---	---	---	22	---	---	---	---
Euparyphus sp.	7	---	---	---	---	---	4	14
Helius sp.	---	---	---	---	---	---	22	---
Hemerodromia sp.	4	---	---	---	---	---	---	---
Hexatoma sp.	7	---	---	---	---	---	32	4
Limnophila sp. 2	---	---	---	---	22	---	---	---
Limnophora sp.	11	---	---	---	---	---	---	4
Micropsectra sp.	---	---	---	4	---	---	4	7
Odontomesa sp.	270	---	---	---	---	---	---	---
Orthocladius sp. 1	---	---	---	---	---	---	4	---
O. sp. 3	---	---	---	---	---	---	---	4
Pentaneura sp.	32	---	---	---	---	---	---	---
Pericoma sp.	---	---	---	---	7	---	7	---
Polypedilum sp.	---	---	---	---	---	---	4	---
Procladius sp.	4	---	---	---	---	---	---	---
Prosimulium sp.	---	---	---	440	---	---	---	---
Protoplasa sp.	---	---	---	---	---	---	4	---
Simulium sp.	11	---	---	7	390	---	510	110
Syndiamesa orientalis	83	4	---	---	---	---	---	36
Thienemanniella sp.	---	---	---	4	---	---	---	7

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Middle Fork Parachute Creek, site 2 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)--Continued								
Tipula sp.	22	---	---	---	4	---	4	47
Ephemeroptera (Mayflies)								
Baetis sp.	---	---	---	14	1,800	4	6,300	660
Cinygmula sp.	310	---	---	7	72	11	97	3,800
Epeorus sp.	110	---	---	---	---	---	---	1,500
Ephemerella flavina	29	---	---	---	---	---	---	---
E. sp.	32	---	---	---	---	---	---	---
Paraleptophlebia sp.	---	---	---	---	18	---	---	4
Rhithrogena sp.	---	---	---	7	---	---	---	---
Tricorythodes fallax	---	---	---	---	---	---	7	---
Plecoptera (Stoneflies)								
Capnia sp.	---	---	---	---	72	---	---	---
Chloroperlidae	200	7	---	7	---	---	7	110
Isoperla fusca	---	---	---	---	---	4	---	340
I. quinquepunctata	61	---	---	4	---	---	110	---
I. sp. 1	---	---	---	---	---	---	---	120
I. sp. 2	---	---	---	---	---	---	4	---
Nemoura catactae	4	---	---	---	---	---	---	---
Paracapnia angulata	---	---	---	---	---	---	240	---
Perlesta placida	---	---	---	---	---	---	7	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Middle Fork Parachute Creek, site 2 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Plecoptera (Stoneflies)--Continued								
Prostoia besametsa	---	---	---	---	---	---	---	7
Pteronarcella badia	---	4	---	4	4	---	18	14
Utacapnia sp.	---	---	---	---	---	---	---	4
Zapada cinctipes	---	---	---	---	29	---	47	---
Trichoptera (Caddisflies)								
Brachycentrus americanus	140	---	---	---	11	---	---	50
Glossosoma sp.	130	---	---	---	---	---	7	4
Hydropsyche sp. 1	---	---	---	---	---	4	18	4
Lepidostoma sp.	32	---	---	---	---	---	36	---
Neothremma sp.	7	---	---	---	---	---	---	---
Rhyacophila acropedes	4	---	---	---	---	---	7	4
Total	2,000	15	---	630	2,500	23	7,700	7,700
Number of taxa	29	3	---	19	16	4	33	32

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Middle Fork Parachute Creek, site 2 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
Water-quality measurements								
Temperature (° Celsius)	9.5	14.0	6.0	10.0	8.0	7.5	10.0	11.5
Specific conductance (micromhos per centimeter at 25° Celsius)	890	1,020	970	680	840	580	915	850
pH (units)	8.4	8.3	8.2	8.5	8.3	8.4	8.1	8.3
Dissolved oxygen (milligrams per liter)	6.4	8.4	8.5	8.9	9.2	---	9.7	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	East Fork Parachute Creek, site 3 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA								
ARACHNOIDEA								
Hydracarina (Water mites)								
Sperchonidae	4	---	---	---	---	---	---	---
INSECTA								
Coleoptera (Beetles)								
Helichus sp.	---	---	---	---	---	---	---	4
Hygrotus sp.	---	---	---	---	---	4	---	---
Optioservus sp.	---	---	---	---	11	---	4	---
Diptera (True flies)								
Arcto-conchapelopia sp.	---	---	---	---	32	---	7	11
Atrichopogon sp.	---	---	---	4	---	---	---	---
Calopsectra sp.	630	---	---	---	---	---	---	---
Corynoneura sp.	110	---	---	---	25	---	57	120
Cricotopus sp. 1	2,900	---	---	11	---	---	---	---
C. sp. 2	---	---	---	---	---	---	---	22
C. sp. 4	---	---	---	---	---	---	---	68
C. sp. 5	---	---	---	---	---	---	---	50
Diamesa sp. 2	57	---	---	---	---	--	---	---
Dicranota sp.	---	---	---	---	22	---	4	54
Dixa sp.	---	---	---	---	---	---	4	---
Empididae	---	---	---	---	7	4	---	14
Eukiefferiella sp. 1	54	---	---	---	---	---	7	---
E. sp. 2	---	---	---	---	---	---	18	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	East Fork Parachute Creek, site 3 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)--Continued								
E. sp. 3	---	---	---	---	---	---	---	54
E. sp. 6	---	---	---	7	---	---	---	---
Euparyphus sp.	4	---	---	---	4	---	4	7
Hemerodromia sp.	54	---	---	---	---	---	---	---
Hexatoma sp. 1	14	4	---	---	25	---	22	18
Limnophila sp.	---	---	---	7	---	---	---	---
Limnophora sp.	4	---	---	---	---	---	4	---
Metriocnemus sp.	---	---	---	---	---	---	11	---
Micropsectra sp.	---	---	---	---	---	---	---	47
Odontomesa sp.	7	---	---	---	---	---	---	---
Orthocladinae	93	---	---	---	---	---	---	---
Palpomyia sp.	4	---	---	4	---	---	---	---
Pentaneura sp.	18	4	---	---	---	---	---	---
Pericoma sp.	---	---	---	---	11	4	11	---
Prosimulium sp.	---	---	---	93	---	---	---	---
Simulium sp.	180	---	---	---	1,000	---	980	240
Syndiamesa orientalis	---	4	---	---	---	---	---	47
Thienemanniella sp.	---	---	---	4	---	---	---	29
Tipula sp.	---	---	---	---	4	---	11	4
Ephemeroptera (Mayflies)								
Ameletus sp.	---	---	---	---	---	---	---	14
Baetis sp.	32	75	---	72	2,200	---	2,900	820

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	East Fork Parachute Creek, site 3 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Ephemeroptera (Mayflies)--Continued								
Cinygmula sp.	4	4	---	47	29	---	130	3,800
Drunella sp.	---	---	---	---	---	---	---	4
Epeorus grandis	---	---	---	14	---	---	---	4,300
E. sp.	4	---	---	---	---	---	4	---
Ephemerella margarita	---	---	---	---	---	---	---	22
E. prosepina	---	22	---	---	---	---	---	---
E. sp.	---	4	---	25	---	---	---	---
Paraleptophlebia sp.	---	18	---	---	90	---	---	810
Parameletus sp.	---	---	---	---	---	---	---	810
Plecoptera (Stoneflies)								
Capnia sp.	---	---	---	---	90	---	---	---
Chloroperlidae	---	25	---	7	---	---	4	47
Isoperla fusca	---	---	---	---	---	---	---	290
I. quinquepunctata	---	---	---	7	---	---	310	---
I. sp.	---	---	---	---	97	---	---	18
Nemoura venusta	---	7	---	---	---	---	---	---
Paracapnia angulata	---	---	---	---	---	---	65	---
Perlesta placida	---	---	---	---	4	---	---	---
Pictetia expansa	---	---	---	---	7	---	---	---
Pteronarcella badia	---	18	---	---	32	4	4	11
Zapada cinctipes	79	---	---	---	7	---	18	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	East Fork Parachute Creek, site 3 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Trichoptera (Caddisflies)								
Brachycentrus americanus------	11	7	---	---	4	---	---	---
Glossosoma sp.----------	---	---	---	---	29	---	---	22
Hesperophylax sp.----------	---	---	---	---	4	---	---	---
Hydropsyche sp. 1----------	---	---	---	---	47	---	---	---
H. sp. 2----------	---	14	---	---	---	---	---	---
Rhyacophila acropedes---------	---	---	---	---	---	---	18	800
R. sp.----------	---	---	---	---	---	---	---	7
R. uao----------	---	---	---	4	---	---	---	---
Total----------	4,300	210	---	310	3,800	16	4,600	13,000
Number of taxa	20	13	---	14	23	4	23	31
Water-Quality Measurements								
Temperature (° Celsius)	11.0	13.0	0.0	9.0	6.5	5.0	6.0	9.0
Specific conductance (micromhos per centimeter at 25° Celsius)	640	665	860	700	640	480	710	710
pH (units)	8.6	8.6	8.1	8.4	8.5	8.4	8.4	8.5
Dissolved oxygen (milligrams per liter)	9.4	9.2	---	9.0	10.4	---	10.1	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Parachute Creek at Parachute, Colorado, site 4 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. [1]1977	Nov. 1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
ANNELIDA								
OLIGOCHAETA								
Plesiopora								
Tubifex tubifex	11	---	---	---	---	---	---	---
T. sp.	---	---	---	---	---	---	---	86
ARTHROPODA								
ARACHNOIDEA								
Hydracarina (Water mites)								
Sperchon sp.	---	---	---	---	---	---	11	43
INSECTA								
Coleoptera (Beetles)								
Agabus sp.	4	---	---	---	---	---	---	---
Optioservus sp.	---	---	---	---	4	---	4	---
Diptera (True flies)								
Arcto-conchapelopia sp.	---	---	---	---	86	---	39	11
Calopsectra sp.	4	---	---	---	---	---	---	---
Corynoneura sp.	14	---	---	---	---	---	---	---
Cricotopus sp. 1	110	---	72	---	93	---	39	14
Cryptochironomus sp.	11	---	---	---	14	---	4	---
Diamesa sp. 1	---	---	360	---	---	---	---	---
Dicranota sp.	---	---	---	---	---	---	---	22
Einfeldia sp.	---	---	---	---	---	---	4	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Parachute Creek at Parachute, Colorado, site 4 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)--Continued								
Empididae	---	---	---	---	14	---	---	11
Eukiefferiella sp. 1	---	---	22	---	---	---	---	4
E. sp. 2	---	---	4	---	---	---	---	---
E. sp. 3	---	---	---	---	---	---	29	36
Helius sp.	---	---	---	---	---	---	4	---
Hemerodromia sp.	32	---	---	---	---	---	---	11
*Hexatoma sp.*1	---	---	---	---	4	---	25	4
Micropsectra sp.	---	---	39	---	---	---	11	---
Odontomesa sp.	14	---	---	---	---	---	4	---
Orthocladius sp. 1	---	---	---	---	32	---	---	72
O. sp. 2	---	---	---	---	---	---	---	200
Palpomyia sp.	39	---	---	---	---	---	---	---
Pentaneura sp.	47	---	---	---	---	---	---	---
Polymeda sp.	---	---	---	4	---	---	---	---
Polypedilum sp.	---	---	---	---	---	---	7	---
Prosimulium sp.	---	---	2,100	---	---	---	---	---
Simulium sp.	25	---	---	---	22	---	310	11
Stilobezzia sp.	---	---	---	4	---	---	---	---
Tanytarsus sp.	11	---	---	---	---	---	---	---
Tipula sp.	4	---	---	---	---	---	---	11

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Parachute Creek at Parachute, Colorado, site 4 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Ephemeroptera (Mayflies)								
Baetis sp. 1	61	---	29	18	90	---	720	880
B. sp. 2	---	---	---	---	---	---	---	11
Cinygmula sp.	22	---	---	---	---	---	---	---
Epeorus grandis	---	---	---	---	---	---	---	7
E. sp.	4	---	---	---	---	---	---	---
Ephemerella sp.	---	---	---	---	---	---	---	11
Plecoptera (Stoneflies)								
Chloroperlidae	4	---	---	---	---	---	---	---
Isoperla fusca	---	---	4	---	---	---	---	---
I. quinquepunctata	---	---	---	---	---	---	83	230
I. sp. 1	---	---	---	---	25	---	---	---
Paracapnia angulata	---	---	---	---	---	---	4	---
Pteronarcella badia	---	---	---	---	---	---	11	22
Trichoptera (Caddisflies)								
Hydropsyche sp. 1	---	---	11	---	50	---	450	22
H. sp. 2	---	---	---	---	---	---	---	39
Total	420	---	2,600	26	430	---	1,800	1,800
Number of taxa	17	---	9	3	11	---	18	22

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Parachute Creek at Parachute, Colorado, site 4 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
Water-quality measurements								
Temperature (° Celsius)	15.0	11.5	0.0	17.0	11.0	8.0	12.0	15.0
Specific conductance (micromhos per centimeter at 25° Celsius)	2,040	1,060	1,400	980	1,575	575	1,550	1,120
pH (units)	8.4	7.8	8.3	8.4	8.4	8.2	8.4	8.5
Dissolved oxygen (milligrams per liter)	8.9	---	12.5	7.8	9.4	---	8.7	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Clear Creek, site 5 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA								
INSECTA								
Coleoptera (Beetles)								
Agabus sp.	7	---	---	---	---	---	---	---
Optioservus sp.	14	---	---	---	---	---	---	7
Diptera (True flies)								
Arcto-conchapelopia	---	---	---	7	18	---	14	---
Corynoneura sp.	---	---	---	---	---	---	310	140
Cricotopus sp. 1	---	---	---	---	---	---	4	---
C. sp. 2	---	---	---	---	---	---	7	11
C. sp. 4	---	---	---	---	---	4	---	110
Diamesa sp. 1	---	---	---	---	---	4	---	---
D. sp. 2	---	---	---	---	---	---	---	83
Dicranota sp.	---	---	---	---	---	---	29	22
Empididae	---	---	---	---	4	---	---	---
Eukiefferiella sp. 1	---	---	---	---	---	---	11	47
E. sp. 2	---	---	---	---	---	---	7	---
E. sp. 3	---	---	---	---	---	---	4	75
E. sp. 5	---	---	---	11	---	---	---	---
E. sp. 7	---	---	---	---	---	---	---	110
Euparyphus sp.	---	---	---	---	---	---	11	---
Helius sp.	---	---	---	---	---	---	39	---
Hexatoma sp. 1	---	29	---	---	---	4	47	14
Limnophila sp. 2	---	---	---	---	---	4	---	7

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Clear Creek, site 5 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)--Continued								
Limonia sp.	---	---	---	---	14	---	---	---
Metriocnemus sp.	---	---	---	---	---	---	4	230
Micropsectra sp.	---	---	---	---	---	---	---	110
Orthocladius sp. 1	---	---	---	11	---	---	4	---
O. sp. 2	---	---	---	---	---	---	---	7
Pericoma sp.	---	---	---	---	---	---	11	---
Psectrotanypus sp.	---	---	---	---	---	---	4	---
Simulium sp.	---	---	---	---	---	---	1,900	68
Tabanus sp.	---	4	---	---	---	---	---	---
Thienemanniella sp.	---	---	---	---	---	---	---	32
Tipula sp.	---	4	---	---	---	---	7	36
Ephemeroptera (Mayflies)								
Baetis sp.	7	4	---	43	290	18	2,400	970
Cinygmula sp.	11	---	---	---	---	---	---	11
Epeorus grandis	---	---	---	---	---	---	---	130
Ephemerella mollita	---	---	---	---	---	22	---	---
E. sp.	---	---	---	---	---	---	---	650
Paraleptophlebia sp.	61	---	---	---	18	7	---	200
Tricorythodes fallax	7	---	---	---	---	---	---	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Clear Creek, site 5 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Plecoptera (Stoneflies)								
Chloroperlidae	---	4	---	---	---	---	7	4
Isoperla fusca	---	---	---	---	---	---	---	32
I. quinquepunctata	32	---	---	---	---	---	410	520
I. sp.	---	---	---	---	43	---	---	---
Paracapnia angulata	---	---	---	---	---	---	2,700	---
Pteronarcella badia	25	---	---	---	---	---	25	25
Taenionema nigripenne	---	---	---	---	130	---	---	---
Zapada cinctipes	---	---	---	---	---	---	11	---
Trichoptera (Caddisflies)								
Brachycentrus americanus	11	---	---	---	25	11	54	14
Glossosoma sp.	---	---	---	---	---	4	---	---
Hesperophylax sp.	11	---	---	4	---	---	---	83
Hydropsyche sp. 1	29	---	---	---	18	---	320	14
Lepidostoma sp.	---	---	---	---	---	---	90	---
Rhyacophila acropedes	---	---	---	---	4	---	---	---
Total	220	45	---	76	560	78	8,400	3,800
Number of taxa	11	5	---	5	10	9	26	29

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Clear Creek, site 5 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
Water-quality measurements								
Temperature (° Celsius)	12.0	10.5	---	10.5	9.5	3.5	9.0	8.0
Specific conductance (micromhos per centimeter at 25° Celsius)	870	925	---	890	900	590	950	870
pH (units)	8.6	8.5	---	8.1	8.4	8.7	8.4	8.6
Dissolved oxygen (milligrams per liter)	9.9	9.3	---	8.5	9.6	10.4	10.2	10.3

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Roan Creek, site 6 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. 1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
ARTHROPODA								
ARACHNOIDEA								
Hydracarina (Water mites)								
Sperchonidae	14	---	---	---	---	---	---	---
Sperchon sp.	---	---	---	---	7	---	7	---
INSECTA								
Coleoptera (Beetles)								
Optioservus sp.	75	---	7	---	100	---	32	11
Diptera (True flies)								
Arcto-conchapelopia sp.	---	---	54	---	54	---	25	---
Atherix variegata	---	---	---	---	11	---	7	---
Calopsectra sp.	11	---	---	---	---	---	---	---
Cricotopus sp. 1	50	---	54	4	4	---	620	---
C. sp. 2	---	---	---	---	---	---	54	---
C. sp. 3	---	---	---	---	4	---	---	---
C. sp. 4	---	---	---	---	---	---	---	4
Cryptochironomus sp.	---	---	---	---	---	---	4	---
Diamesa sp. 1	---	---	110	---	---	---	---	---
Empididae	---	---	---	---	11	---	---	---
Eukiefferiella sp. 1	100	---	29	---	4	---	7	25
E. sp. 2	---	---	---	---	---	---	25	---
E. sp. 3	---	---	150	---	---	---	72	32
E. sp. 5	·	---	54	---	---	---	---	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Roan Creek, site 6 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. 1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)--Continued								
Euparyphus sp.	---	---	---	7	---	---	---	---
Hemerodromia sp.	4	---	---	---	---	---	---	---
Hexatoma sp. 1	4	4	7	---	7	---	36	11
H. sp. 2	---	---	---	---	11	---	---	---
Limnophila sp. 1	---	---	---	4	---	---	---	---
L. sp. 2	---	---	---	---	---	---	11	---
Limonia sp.	---	---	---	---	---	---	4	---
Metriocnemus sp.	---	---	---	---	---	---	4	---
Odontomesa sp.	430	---	---	---	---	---	---	---
Orthocladius sp. 1	---	---	---	---	---	---	---	36
Palpomyia sp.	22	---	---	---	---	---	---	---
Pentaneura sp.	79	---	---	---	---	---	---	---
Polypedilum sp.	---	---	11	4	---	---	4	---
Prosimulium sp.	---	---	1,500	7	---	---	---	---
Rheotanytarsus sp.	---	---	18	---	---	---	---	---
Simulium sp.	270	---	---	---	4	---	380	7
Tanytarsus sp.	25	---	---	---	---	---	---	---
Thienemanniella sp.	---	---	---	---	---	---	---	4
Tipula sp.	11	---	4	---	18	---	---	7

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Roan Creek, site 6 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. 1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Ephemeroptera (Mayflies)								
Baetis sp.	110	4	1,500	75	480	---	860	200
Epeorus sp.	4	---	---	---	---	---	---	---
Ephemerella inermis	---	---	---	---	---	---	7	---
E. sp.	140	---	4	11	65	---	1,700	760
Paraleptophlebia sp.	72	---	---	---	120	---	97	14
Parameletus sp.	4	---	---	---	---	---	---	---
Tricorythodes fallax	110	---	18	---	83	---	14	---
Odonata (Dragonflies and damselflies)								
Ophiogomphus severus	4	---	---	---	47	---	---	---
O. specularis	4	---	---	---	---	---	---	---
Plecoptera (Stoneflies)								
Arcynopteryx sp.	4	---	---	---	---	---	---	---
Chloroperlidae	7	---	4	---	---	---	14	4
Isoperla quinquepunctata	18	---	---	4	32	---	930	100
Pictetia expansa	---	---	7	---	---	---	---	---
Pteronarcella badia	18	---	11	---	---	---	14	7
Taenionema nigripenne	---	---	---	---	14	---	---	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Roan Creek, site 6 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. 1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Trichoptera (Caddisflies)								
Brachycentrus americanus------	22	---	4	---	25	---	11	4
Hydropsyche sp. 1----------	50	---	29	---	180	---	740	29
Hydroptila sp.----------	---	---	---	---	7	---	---	---
Rhyacophila acropedes--------	---	---	---	---	4	---	---	---
Total----------	1,700	8	3,600	120	1,300	---	5,700	1,300
Numbera of taxa------	27	2	20	8	23	---	26	17
Water-quality measurements								
Temperature (° Celsius)	11.5	14.0	0.0	12.5	11.0	5.5	12.5	8.5
Specific conductance (micromhos per centimeter at 25° Celsius)	1,150	1,200	1,280	885	1,260	725	1,380	860
pH (units)	8.4	8.4	8.3	8.4	8.2	8.5	8.4	8.3
Dissolved oxygen (milligrams per liter)	9.3	9.0	10.8	8.4	9.5	8.8	11.2	9.2

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Kimball Creek, site 7 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. 1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA								
ARACHNOIDEA								
Hydracarina (Water mites)								
Sperchonidae	68	---	---	---	---	---	---	---
Sperchon sp.	---	---	---	---	14	---	86	---
CRUSTACEA								
Amphipoda (Scuds)								
Hyalella azteca	---	---	---	---	65	---	---	---
INSECTA								
Coleoptera (Beetles)								
Agabus sp.	7	---	---	---	---	---	---	---
Helphorus sp.	32	---	---	---	---	---	4	---
Diptera (True flies)								
Arcto-conchapelopia sp.	---	---	---	---	11	4	22	---
Calopsectra sp.	25	---	---	---	---	---	---	---
Cricotopus sp. 1	150	---	11	---	---	---	150	32
C. sp. 2	---	---	---	---	---	---	18	---
Cryptochironomus sp.	---	4	---	4	---	---	---	---
Diamesa sp. 1	---	---	72	---	---	---	---	---
Dicranota sp.	---	---	---	---	---	---	7	---
Empididae	---	---	---	---	---	---	11	---
Eukiefferiella sp. 1	54	---	39	---	---	---	18	4

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Kimball Creek, site 7 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. 1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)--Continued								
E. sp. 2	39	---	---	7	---	---	18	---
E. sp. 3	---	---	---	---	---	---	90	---
E. sp. 5	---	---	---	32	---	---	---	4
Hextoma sp. 1	---	---	---	---	---	---	11	7
Hydrobaeninae	32	---	---	---	---	---	---	---
Metriocnemus sp.	---	---	---	---	---	---	7	---
Micropsectra sp.	---	---	---	---	---	---	4	---
Odontomesa sp.	---	---	---	---	---	---	7	---
Orthocladius sp. 1	---	---	---	---	---	---	---	11
Palpomyia sp.	240	---	---	25	---	---	---	---
Pentaneura sp.	25	7	---	---	---	---	---	---
Prosimulium sp.	---	---	32	25	---	---	---	---
Simulium sp.	22	---	---	---	90	---	470	---
Tabanus sp.	---	4	---	---	---	---	---	---
Thienemanniella sp.	---	---	---	4	---	---	---	---
Tipula sp.	32	---	---	14	---	---	---	4
Ephemeroptera (Mayflies)								
Baetis sp.	330	61	68	390	370	---	890	100
Ephemerella sp.	4	---	---	---	---	---	---	4
Tricorythodes fallax	11	29	---	---	18	---	---	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Kimball Creek, site 7 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. 1977	June 1978	Oct. 1978	May 1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Hemiptera (True bugs)								
Trepobates sp.	---	---	---	---	---	---	4	---
Plecoptera (Stoneflies)								
Isoperla quinquepunctata	---	---	---	---	---	---	400	---
I. sp.	---	---	---	---	22	---	---	---
Trichoptera (Caddisflies)								
Hydropsyche sp.	32	47	25	7	36	---	1,400	4
Hydroptila sp.	---	---	---	---	4	---	---	---
Total	1,100	150	250	510	630	4	3,600	170
Number of taxa	16	6	6	9	9	1	19	9
Water-quality measurements								
Temperature (° Celsius)	18.0	13.5	1.5	16.0	11.0	7.0	14.5	9.0
Specific conductance (micromhos per centimeter at 25° Celsius)	1,340	2,530	2,730	1,950	2,420	1,000	2,430	1,360
pH (units)	8.4	8.5	8.5	8.4	8.4	8.5	8.4	8.4
Dissolved oxygen (milligrams per liter)	7.5	10.0	10.6	8.0	10.6	9.5	9.2	9.4

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Conn Creek, site 8 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. 1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
ANNELIDA								
OLIGOCHAETA								
Plesiopora								
Tubifex tubifex	18	---	---	---	---	---	---	---
ARTHROPODA								
INSECTA								
Coleoptera (Beetles)								
Agabus sp.	7	4	---	---	---	---	---	---
Diptera (True flies)								
Arcto-conchapelopia	---	---	7	---	11	---	11	---
Calopsectra sp.	---	4	---	---	---	---	---	---
Chrysops sp.	---	---	7	---	---	---	---	---
Corynoneura sp.	---	---	---	---	---	---	220	---
Cricotopus sp. 1	14	7	---	---	---	---	25	11
Cryptochironomus sp.	18	11	---	---	---	---	---	---
Dicranota sp.	---	---	---	---	---	---	4	---
Dixa sp.	---	---	---	---	---	---	18	---
Empididae	---	---	---	---	---	---	25	---
Eukiefferiella sp. 1	7	7	---	---	---	---	---	---
E. sp. 2	72	7	---	---	---	---	400	---
E. sp. 3	---	---	4	---	---	---	65	---
Helius sp.	---	---	---	---	---	---	25	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Conn Creek, site 8 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. 1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)--Continued								
Hemerodromia sp.	7	---	---	---	---	---	---	---
Hexatoma sp. 1	4	4	---	---	11	---	4	---
Limnophila sp. 2	---	---	---	---	7	---	---	---
Limnophora aequifrons	---	---	---	---	---	---	14	---
Micropsectra sp.	---	---	---	---	---	---	11	---
Odontomesa sp.	4	---	---	---	---	---	---	---
Orthocladinae	11	---	---	---	---	---	---	---
Orthocladius sp. 1	---	---	---	---	---	---	4	---
Palpomyia sp.	36	4	---	---	11	---	---	---
Pentanuera sp.	14	4	---	---	---	---	---	---
Pericoma sp.	---	---	---	---	---	---	22	---
Polypedilum sp.	---	---	---	---	7	---	---	---
Procladius sp.	---	4	---	---	---	---	---	---
Prosimulium sp.	---	---	39	32	---	---	---	---
Psectrotanypus sp.	---	---	---	---	---	---	7	---
Simulium sp.	18	230	---	---	57	---	2,500	400
Tipula sp.	25	---	---	---	---	---	---	---
Ephemeroptera (Mayflies)								
Baetis sp.	370	230	61	120	860	---	990	1,100
Ephemerella sp.	---	---	---	4	---	---	---	---
Tricorythodes fallax	---	11	---	---	---	---	---	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Conn Creek, site 8 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. 1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Hemiptera (True bugs)								
Gerris sp.	---	---	---	4	---	---	---	---
Odonata (Dragonflies and damselflies)								
Hyponeura lugens	---	11	---	---	---	---	---	---
Plecoptera (Stoneflies)								
Perlodidae								
Isoperla quinquepunctata	11	22	---	---	---	---	---	---
I. sp.	---	---	---	---	11	---	---	---
Paracapnia angulata	---	---	---	---	---	---	4	---
Pictetia expansa	---	---	18	---	---	---	---	---
Trichoptera (Caddisflies)								
Heteroplectron sp.	11	---	---	---	---	---	---	---
Hydropsyche sp. 1	7	14	4	4	75	---	7	---
H. sp. 2	---	22	---	---	---	---	---	---
Hydroptila sp.	---	---	---	---	---	---	4	---
Total	650	600	140	160	1,100	---	4,400	1,500
Number of taxa	18	17	7	5	9	---	20	3

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Conn Creek, site 8 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. 1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
Water-quality measurements								
Temperature (° Celsius)	18.0	12.5	2.5	15.0	11.5	8.5	8.0	13.5
Specific conductance (micromhos per centimeter at 25° Celsius)	1,340	1,350	1,390	1,440	1,170	950	1,380	1,250
pH (units)	8.4	8.6	8.5	8.3	8.4	8.5	8.3	8.3
Dissolved oxygen (milligrams per liter)	7.5	10.0	11.2	---	8.8	6.5	9.2	9.9

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Dry Fork, site 9 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. [1]1977	Nov. 1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
ARTHROPODA								
ARACHNOIDEA								
Hydracarina (Water mites)								
Sperchon sp.	---	---	---	4	---	---	---	---
INSECTA								
Coleoptera (Beetles)								
Agabus sp.	11	---	---	11	---	---	---	---
Deronectes sp.	54	---	---	---	---	---	---	---
Diptera (True flies)								
Arcto-conchapelopia sp.	---	---	---	---	14	---	18	---
Calopsectra sp.	4	---	---	---	---	---	---	---
Corynoneura sp.	57	---	---	---	---	---	---	---
Cricotopus sp. 1	---	---	18	14	---	---	47	---
C. sp. 2	---	---	---	---	---	---	47	---
C. sp. 3	---	---	---	---	---	---	4	---
Cryptochironomus sp.	14	---	---	---	---	---	4	---
Diamesa sp. 1	---	---	47	---	---	---	---	---
Empididae	---	---	---	---	---	---	18	---
*Eukiefferiella sp.*1	390	---	---	---	---	---	4	---
E. sp. 2	430	---	---	4	---	---	520	---
E. sp. 3	---	---	---	---	---	---	11	4
E. sp. 5	---	---	22	79	---	---	---	---
Limnophora sp. 1	---	---	14	4	---	---	---	---
Metriocnemus sp.	---	---	---	---	---	---	4	4

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Dry Fork, site 9 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Diptera (True flies)--Continued								
Microtendipes sp.	---	---	---	4	---	---	---	---
Odontomesa sp.	270	---	---	---	---	---	---	---
Orthocladius sp. 1	---	---	---	7	---	---	22	---
Palpomyia sp.	14	---	---	4	---	---	---	---
Pentaneura sp.	14	---	---	---	---	---	---	---
Polypedilum sp.	---	---	---	4	4	---	---	---
Prosimulium sp.	---	---	7	97	---	---	---	---
Simulium sp.	14	---	---	---	25	---	110	---
Tanytarsus sp.	4	---	---	---	---	---	---	---
Tipula sp.	4	---	---	---	---	---	---	---
Ephemeroptera (Mayflies)								
Baetis sp.	510	---	7	170	150	---	130	4
Ephemerella sp.	---	---	---	---	---	---	4	---
Tricorythodes fallax	18	---	---	---	---	---	---	---
Plecoptera (Stoneflies)								
Isoperla quinquepunctata	---	---	---	---	---	---	4	25
Paracapnia angulata	---	---	---	---	---	---	4	---
Pictetia expansa	---	---	7	---	---	---	---	---

Table 7.--*Taxa and densities of benthic invertebrates, per square meter, collected from sites in Roan Creek and Parachute Creek basins*--Continued

TAXA	Dry Fork, site 9 (shown on pl. 1)							
	Sampling Date							
PHYLUM CLASS Order Family *Genus species*	May 1977	Sept. 1977	Nov. [1]1977	June 1978	Oct. 1978	May [1]1979	Oct. 1979	Apr. 1980
ARTHROPODA--Continued								
INSECTA--Continued								
Trichoptera (Caddisflies)								
Brachycentrus americanus------	4	---	---	---	---	---	---	---
Hydropsyche sp. 1----------	14	---	---	---	130	---	550	---
Total----------	1,800	---	120	400	320	---	1,500	37
Number of taxa-------	17	---	7	12	5	---	17	4
Water-quality measurements								
Temperature (° Celsius)	22.0	19.0	8.0	28.0	13.5	9.0	10.5	15.0
Specific conductance (micromhos per centimeter at 25° Celsius)	3,115	3,200	4,200	2,180	2,800	1,450	1,780	1,450
pH (units)	8.4	8.3	8.0	8.6	8.6	8.5	8.6	8.5
Dissolved oxygen (milligrams per liter)	8.2	8.6	10.0	7.4	8.9	7.5	9.0	10.8

[1]No benthic invertebrate samples collected.

Table 8.--*Discharge and field measurements of the quality of water from springs*

Site number on plate 2	Local identifier	Latitude	Longitude	Seq. no.	Date of Sample	Elevation of land surface	Flow rate, instantaneous (gal/min)	Specific conductance (μmhos)	pH (units)	Temperature (°C)
1	SC00409531DAA1	39°39'30"	108°05'24"	01	78-09-27	7,640	13	880	7.8	7.0
2	SC00409830ABC1	39°39'43"	108°25'55"	01	78-11-01	7,960	1.0	720	7.5	9.0
3	SC00409830CCA1	39°40'03"	108°26'19"	01	77-06-01	8,040	1.5	650	7.6	8.0
4	SC00409830DAC1	39°39'19"	108°25'34"	01	77-06-10	7,880	1.5	950	7.6	7.5
5	SC00409831BAD1	39°39'44"	108°25'58"	01	77-06-10	7,980	1.5	705	7.6	5.5
6	SC00409835DCC1	39°39'03"	108°21'20"	01	77-07-18	8,030	.5	750	7.6	11.0
7	SC00409919ADA1	39°41'22"	108°32'08"	01	77-06-08	8,430	1.0	775	7.1	8.0
8	SC00409920CAD1	39°41'00"	108°31'01"	01	77-06-08	8,300	3.0	700	7.3	6.5
9	SC00409920CBC1	39°41'03"	108°32'03"	01	77-06-08	8,300	6.0	775	7.1	7.0
10	SC00409925DAB1	39°40'17"	108°26'42"	01	78-11-01	8,120	2.0	810	7.7	8.0
11	SC00409928ABA1	39°40'42"	108°30'13"	01	77-06-09	8,190	1.0	710	7.6	6.5
12	SC00409928ACA1	39°40'30"	108°30'12"	01	77-06-09	8,150	12	740	7.3	7.0
13	SC00410032DAD1	39°39'15"	108°37'57"	01	78-08-01	8,740	--	740	8.3	15.0
14	SC00509329DBA1	39°35'03"	107°50'59"	01	78-07-18	6,560	4.5	900	7.9	17.0
15	SC00509403ACC1	39°38'41"	107°55'40"	01	79-08-07	8,580	.2	530	8.0	12.0
16	SC00509403BBB1	39°39'03"	107°56'11"	01	79-08-10	8,440	.1	660	8.0	9.0
17	SC00509403CCC1	39°38'11"	107°56'08"	01	79-08-07	8,430	2.0	510	8.0	6.0
18	SC00509403CCC2	39°38'14"	107°56'12"	01	79-08-07	8,400	1.5	500	7.9	6.5
19	SC00509404CBA1	39°38'33"	107°57'06"	01	79-08-08	8,250	2.0	500	7.9	8.0
20	SC00509404DAB1	39°38'33"	107°56'34"	01	79-08-10	8,270	1.5	400	7.6	8.0
21	SC00509406CAC1	39°38'28"	107°59'15"	01	79-08-08	8,200	2.5	520	7.9	8.0
22	SC00509407AAA1	39°38'08"	107°58'36"	01	79-08-07	8,020	12	510	7.8	8.0
23	SC00509407DCB1	39°37'27"	107°58'58"	01	79-08-06	8,490	.1	420	7.4	10.0
24	SC00509407DDA1	39°37'29"	107°58'33"	01	79-08-06	8,400	.1	445	7.6	8.0
25	SC00509408DDD1	39°37'22"	107°57'22"	01	79-08-09	8,310	1.5	460	7.8	8.0
26	SC00509409ABB1	39°38'09"	107°56'31"	01	79-08-07	8,570	1.5	405	7.9	7.0
27	SC00509409DCA1	39°37'29"	107°56'31"	01	79-08-09	8,530	.1	500	8.1	8.0
28	SC00509409DDD1	39°37'21"	107°56'22"	01	79-08-09	8,480	2.0	510	7.8	8.0
29	SC00509414ABB1	39°37'13"	107°54'32"	01	75-09-18	8,840	--	580	7.7	9.5
30	SC00509414BAD1	39°37'06"	107°54'39"	01	77-06-14	8,850	6.0	500	7.5	8.0
31	SC00509414CBB1	39°36'46"	107°55'03"	01	77-06-14	8,680	6.0	500	7.5	7.0
32	SC00509415AAC1	39°37'13"	107°55'19"	01	79-08-08	8,745	1.0	410	7.6	7.5
33	SC00509415BCA1	39°37'03"	107°56'00"	01	79-08-09	8,550	1.0	465	7.7	8.0
34	SC00509415CDC1	39°36'31"	107°55'52"	01	79-07-20	8,580	2.0	425	7.3	8.0
35	SC00509415DDA1	39°36'36"	107°55'07"	01	79-08-09	8,900	2.0	490	7.5	7.0
36	SC00509416ACD1	39°36'53"	107°56'37"	01	77-06-14	8,350	2.0	450	7.3	5.0
37	SC00509416BDC1	39°36'54"	107°56'57"	01	77-06-14	8,320	22	500	7.5	8.5
38	SC00509416CCB1	39°36'37"	107°57'14"	01	79-08-09	8,440	2.0	465	7.9	7.0
39	SC00509416CDA1	39°36'32"	107°56'50"	01	79-08-09	8,555	.2	400	8.1	8.0
40	SC00509417AAA1	39°37'10"	107°57'24"	01	79-08-09	8,310	1.0	470	7.8	8.0

Table 8.--*Discharge and field measurements of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Latitude	Longitude	Seq. no.	Date of Sample	Elevation of land surface	Flow rate, instantaneous (gal/min)	Specific conductance (μmhos)	pH (units)	Temperature (°C)
41	SC00509417ABB1	39°37'15"	107°57'54"	01	77-06-14	8,420	3.0	410	7.4	5.5
42	SC00509417BBC1	39°37'05"	107°58'21"	01	79-08-09	8,400	.1	500	7.9	9.0
43	SC00509418DAC1	39°36'42"	107°58'43"	01	79-08-09	8,240	.1	520	7.9	10.0
44	SC00509418DDC1	39°36'24"	107°58'42"	01	77-06-16	8,180	--	500	7.3	7.0
45	SC00509419BCC1	39°35'50"	107°58'52"	01	77-12-07	8,360	1.0	540	8.0	4.0
46	SC00509419BCC2	39°36'04"	107°59'31"	01	77-12-08	8,260	.1	470	7.8	4.0
47	SC00509420ABB1	39°36'17"	107°57'51"	01	78-09-26	8,270	1.0	450	7.5	10.0
48	SC00509420BAA1	39°36'23"	107°58'02"	01	77-06-15	8,240	1.0	665	7.2	8.0
49	SC00509420BAD1	39°36'14"	107°58'19"	01	77-12-07	8,240	3.0	560	7.8	4.0
50	SC00509420BCA1	39°36'08"	107°58'15"	01	77-06-16	8,260	1.0	500	7.3	6.0
51	SC00509420CAB1	39°35'58"	107°58'07"	01	77-06-15	8,330	5.0	490	7.3	6.5
					78-09-26	8,330	10	520	8.3	12.0
52	SC00509420CAC1	39°35'51"	107°58'21"	01	77-12-07	8,370	1.0	470	7.9	5.5
53	SC00509421DBB1	39°35'50"	107°56'14"	01	79-07-19	8,620	2.5	500	7.3	7.0
54	SC00509422ABD1	39°36'13"	107°55'31"	01	79-07-20	8,720	1.0	395	7.5	5.0
55	SC00509422BCD1	39°36'05"	107°55'58"	01	77-06-15	8,740	2.0	430	7.9	5.0
56	SC00509422CCD1	39°35'34"	107°56'03"	01	79-07-16	8,810	4.2	440	7.7	7.0
57	SC00509423CCA1	39°35'40"	107°55'00"	01	79-09-11	8,940	--	--	--	--
58	SC00509423CCC1	39°35'37"	107°55'00"	01	77-06-16	8,840	3.0	445	7.2	6.0
59	SC00509423DBB1	39°35'55"	107°54'30"	01	79-07-16	8,900	2.1	440	7.4	8.0
60	SC00509424CBB1	39°35'56"	107°53'57"	01	79-07-16	8,920	1.1	400	7.3	13.5
61	SC00509425CBA1	39°35'01"	107°53'48"	01	79-07-24	9,040	.1	500	8.1	11.0
62	SC00509426ABA1	39°35'30"	107°54'21"	01	79-07-27	8,840	.5	450	7.4	10.0
63	SC00509426DCA1	39°34'51"	107°54'22"	01	79-07-27	8,720	1.0	500	7.9	7.5
64	SC00509426DDD1	39°34'43"	107°54'01"	01	79-07-27	8,850	1.0	465	7.6	7.5
65	SC00509428BDC1	39°35'07"	107°56'57"	01	78-09-25	8,670	1.0	410	7.7	7.0
66	SC00509429ABA1	39°35'30"	107°57'39"	01	77-06-15	8,550	5.0	450	7.1	5.0
67	SC00509429ABB1	39°35'31"	107°57'48"	01	77-06-15	8,500	2.0	380	7.0	4.5
68	SC00509429DDA1	39°34'46"	107°57'25"	01	79-07-19	8,608	2.5	420	7.3	6.5
69	SC00509431CDA1	39°33'59"	107°59'10"	01	79-07-17	8,320	7.5	475	7.4	6.5
70	SC00509431DCB1	39°33'59"	107°58'54"	01	79-07-17	8,340	1.0	470	7.5	7.0
71	SC00509432CAA1	39°34'12"	107°57'55"	01	79-07-17	8,600	12	450	7.7	6.0
72	SC00509432DAC1	39°34'03"	107°57'35"	01	79-07-17	8,565	1.0	500	7.4	10.0
73	SC00509433ACD1	39°34'18"	107°56'38"	01	78-09-25	8,235	6.0	600	7.6	7.0
74	SC00509434DDD1	39°33'39"	107°55'12"	01	79-07-24	8,760	3.0	460	7.5	8.0
75	SC00509435ACC1	39°34'10"	107°54'27"	01	79-07-24	9,070	2.0	345	8.0	8.5
76	SC00509435BBC1	39°34'33"	107°55'07"	01	79-07-25	8,040	20	495	7.4	6.5
77	SC00509435BDB1	39°34'25"	107°54'41"	01	79-07-24	9,000	3.0	440	7.8	7.0
78	SC00509502BAA1	39°39'04"	108°01'19"	01	79-08-08	7,955	.1	510	7.9	8.0
79	SC00509503ADA1	39°38'43"	108°01'53"	01	79-08-07	7,880	3.0	600	8.0	8.0
80	SC00509503CAA1	39°38'30"	108°02'27"	01	79-08-08	7,880	2.5	525	8.0	9.0

Table 8.--*Discharge and field measurements of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Latitude	Longitude	Seq. no.	Date of Sample	Elevation of land surface	Flow rate, instantaneous (gal/min)	Specific conductance (µmhos)	pH (units)	Temperature (°C)
81	SC00509510ABA1	39°38'04"	108°02'10"	01	79-08-08	7,695	4.0	865	7.5	8.0
82	SC00509510CBC1	39°37'35"	108°02'52"	01	79-08-08	7,770	2.0	630	8.1	9.0
83	SC00509512BBB1	39°38'04"	108°00'35"	01	79-08-07	8,000	1.0	525	8.2	7.0
84	SC00509514BCD1	39°36'56"	108°01'34"	01	79-07-17	7,870	3.0	450	7.5	7.5
85	SC00509514DAD1	39°36'43"	108°00'51"	01	79-07-17	8,070	4.0	370	7.5	6.0
86	SC00509514DAD2	39°36'41"	108°00'50"	01	79-07-17	8,080	3.0	430	7.5	6.0
87	SC00509515BDC1	39°36'53"	108°02'35"	01	79-07-18	7,800	.5	610	7.4	6.5
88	SC00509520DBA1	39°35'55"	108°04'22"	01	79-07-18	7,660	2.0	725	7.6	6.5
89	SC00509521CAD1	39°35'49"	108°03'38"	01	79-07-18	7,740	3.5	660	7.6	8.5
90	SC00509521DBA1	39°35'52"	108°03'20"	01	79-07-18	7,540	20	740	7.6	8.5
91	SC00509524ABA1	39°36'19"	107°59'57"	01	77-12-08	8,160	.1	540	7.7	4.0
92	SC00509525BDC1	39°35'08"	108°00'19"	01	79-07-17	8,220	1.0	410	7.5	12.5
93	SC00509536BAD1	39°34'30"	108°00'09"	01	79-07-17	8,110	25	500	7.4	8.5
94	SC00509536BDB1	39°34'25"	108°00'21"	01	79-07-17	8,080	19	500	7.4	9.0
95	SC00509536CAA1	39°34'08"	108°00'07"	01	79-07-17	8,140	1.1	490	7.3	8.0
96	SC00509604CBD1	39°38'27"	108°10'45"	01	77-07-26	7,790	2.5	840	7.9	8.0
97	SC00509604CBD2	39°38'28"	108°10'48"	01	77-07-26	7,820	.1	800	7.7	8.0
98	SC00509605CCB1	39°38'21"	108°11'57"	01	77-07-27	7,860	1.0	900	7.5	8.0
99	SC00509605CCB2	39°38'24"	108°11'58"	01	77-07-27	7,860	.1	830	7.7	11.0
100	SC00509605CCD1	39°38'13"	108°11'56"	01	77-02-15	7,800	2.5	900	7.8	6.0
101	SC00509605DDB1	39°38'19"	108°11'11"	01	77-02-16	7,790	19	950	7.4	7.5
102	SC00509606DCB1	39°38'24"	108°12'31"	01	77-07-27	7,940	.1	1,000	7.5	9.0
103	SC00509608AAA1	39°38'08"	108°11'02"	01	77-02-16	7,640	1.5	1,080	7.2	7.0
104	SC00509608ABB1	39°38'12"	108°11'31"	01	77-02-15	7,810	1.0	1,010	7.6	6.
105	SC00509608BAA1	39°38'08"	108°11'31"	01	77-02-15	7,780	2.0	950	7.8	4.0
106	SC00509608BAD1	39°38'03"	108°11'32"	01	77-02-15	7,720	1.0	1,080	7.6	6.5
107	SC00509608BBD1	39°38'01"	108°11'54"	01	77-02-15	7,800	9.0	1,000	7.6	4.5
108	SC00509608DAC1	39°37'35"	108°11'30"	01	77-02-17	7,720	2.0	775	7.7	5.0
109	SC00509617BAB1	39°37'20"	108°11'45"	01	77-02-17	7,840	3.0	750	7.8	5.0
110	SC00509629CDC1	39°34'48"	108°11'42"	01	77-08-05	7,950	2.5	625	7.6	8.0
111	SC00509631DBA1	39°34'14"	108°12'23"	01	77-08-05	8,090	3.0	580	7.6	7.0
112	SC00509632ABA1	39°34'40"	108°11'22"	01	77-08-05	7,880	.5	740	7.4	7.5
113	SC00509632ABC1	39°34'35"	108°11'26"	01	77-08-05	7,910	.5	740	7.4	7.5
114	SC00509632CCC1	39°33'53"	108°12'02"	01	77-02-09	8,060	2.0	550	7.8	3.5
115	SC00509632CCC2	39°33'56"	108°11'59"	01	77-02-10	8,060	8.0	580	7.7	5.0
116	SC00509633ACA1	39°34'30"	108°10'09"	01	77-06-20	7,820	2.0	565	7.6	4.5
117	SC00509633CAB1	39°34'12"	108°10'39"	01	77-06-20	7,960	7.5	600	7.8	6.5
118	SC00509633CCB1	39°34'00"	108°10'56"	01	77-06-20	8,020	6.0	540	7.1	6.5
119	SC00509701CBC1	39°38'26"	108°14'07"	01	77-01-20	7,820	16	580	7.8	7.0
120	SC00509708CBD1	39°37'34"	108°18'28"	01	77-07-18	8,150	12	675	7.3	7.0

Table 8.--*Discharge and field measurements of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Latitude	Longitude	Seq. no.	Date of Sample	Elevation of land surface	Flow rate, instantaneous (gal/min)	Specific conductance (µmhos)	pH (units)	Temperature (°C)
121	SC00509711CBB1	39°37'41"	108°15'07"	01	77-02-17	7,960	4.0	650	7.8	6.0
122	SC00509712DAD1	39°37'34"	108°13'06"	01	77-01-20	7,760	.2	800	7.5	10.0
123	SC00509724CDC1	39°35'35"	108°13'45"	01	77-01-21	8,040	7.0	625	8.0	6.0
124	SC00509724CDD1	39°35'35"	108°13'42"	01	77-01-21	8,040	2.0	625	7.8	5.0
125	SC00509724DCC1	39°35'35"	108°13'35"	01	77-01-21	8,020	4.0	590	8.1	7.0
126	SC00509724DCD1	39°35'36"	108°13'23"	01	77-01-21	7,990	30	600	7.9	4.5
127	SC00509725ABB1	39°35'30"	108°13'33"	01	77-07-21	8,040	2.0	660	7.8	5.5
128	SC00509725BCB1	39°35'13"	108°14'08"	01	77-01-21	8,220	3.0	700	7.8	4.5
129	SC00509805BBB1	39°38'56"	108°25'18"	01	77-06-10	7,800	3.0	810	7.9	7.0
130	SC00509834BDB1	39°34'23"	108°22'41"	01	76-09-02	7,660	6.0	650	8.0	15.5
131	SC00509905ADC1	39°38'38"	108°31'07"	01	76-09-01	8,005	--	630	8.1	13.5
132	SC00509905ADC2	39°38'37"	108°31'11"	01	78-10-31	8,005	8.0	685	7.8	6.0
133	SC00509905ADD1	39°38'38"	108°31'02"	01	77-04-20	7,990	4.5	540	7.6	10.5
134	SC00509907CAC1	39°37'30"	108°32'49"	01	78-08-03	8,110	1.0	670	7.7	10.5
135	SC00509907CBC1	39°37'28"	108°33'08"	01	78-08-03	8,270	.5	510	7.8	13.0
136	SC00509914ADB1	39°37'01"	108°27'47"	01	78-10-31	7,860	2.0	535	8.1	7.0
137	SC00509914ADD1	39°36'54"	108°27'37"	01	76-09-02	7,840	5.0	580	8.4	12.5
138	SC00509917BDC1	39°36'50"	108°31'45"	01	78-08-03	8,010	.1	700	7.7	11.0
139	SC00509919ACB1	39°36'08"	108°32'40"	01	78-08-03	8,140	.1	690	8.0	8.0
140	SC00509921CCC1	39°35'32"	108°30'56"	01	76-08-31	8,060	--	690	8.0	9.0
					77-07-06	8,060	.5	750	7.7	9.0
					78-08-02	8,060	2.2	715	8.0	9.0
141	SC00509927CBC1	39°34'52"	108°29'51"	01	78-08-02	8,000	3.0	950	8.0	7.5
142	SC00509927DAB1	39°35'04"	108°29'00"	01	77-07-07	8,020	2.0	620	7.8	8.0
					78-08-02	8,020	--	605	7.9	9.0
143	SC00509928ACB1	39°35'13"	108°30'18"	01	77-07-07	8,000	.5	975	7.6	9.0
144	SC00509928ACB2	39°35'14"	108°30'19"	01	77-07-07	8,010	1.5	950	7.7	9.0
					78-08-02	8,010	3.0	1,040	8.0	8.0
145	SC00509928DAD1	39°34'53"	108°29'53"	01	77-07-07	8,010	1.0	1,080	7.9	7.5
146	SC00509934DAA1	39°34'10"	108°28'34"	01	78-08-02	7,960	--	720	8.0	9.0
147	SC00509936CDB1	39°33'35"	108°27'13"	01	77-07-12	7,830	.1	765	7.9	--
148	SC00510001CBC1	39°38'23"	108°34'19"	01	76-08-31	8,300	--	555	7.7	9.0
					77-07-05	8,300	1.0	580	7.4	9.5
149	SC00510001CDA1	39°38'18"	108°33'53"	01	78-08-03	8,300	.5	550	7.8	12.0
150	SC00510001DBA1	39°38'31"	108°33'36"	01	77-07-05	8,230	1.0	560	7.8	6.0
151	SC00510008CAC1	39°37'33"	108°38'28"	01	78-06-22	8,760	10	510	7.6	6.0
152	SC00510008DDD1	39°37'22"	108°37'51"	01	77-07-13	8,675	2.0	510	7.3	7.0
					78-06-23	8,675	6.0	425	7.8	5.0
153	SC00510012ABD1	39°37'55"	108°33'48"	01	77-07-05	8,350	.1	500	7.6	7.5
					78-08-03	8,350	.1	460	7.9	8.0

Table 8.--*Discharge and field measurements of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Latitude	Longitude	Seq. no.	Date of Sample	Elevation of land surface	Flow rate, instantaneous (gal/min)	Specific conductance (μmhos)	pH (units)	Temperature (°C)
154	SC00510015BCC1	39°36'52"	108°36'29"	01	77-07-20	8,520	1.0	560	7.6	6.5
					78-07-20	8,520	4.0	520	7.7	5.0
155	SC00510015CAD1	39°36'37"	108°36'04"	01	78-07-20	8,420	2.0	550	7.6	8.0
156	SC00510016BDA1	39°37'00"	108°37'18"	01	78-06-23	8,600	10	610	7.8	6.0
157	SC00510021AAD1	39°36'16"	108°36'39"	01	77-07-20	8,550	.1	620	7.6	10.0
					78-07-20	8,550	1.0	575	8.0	8.0
158	SC00510022CAA1	39°35'52"	108°36'12"	01	77-07-20	8,460	1.0	660	7.6	6.5
					78-07-25	8,460	1.0	550	7.9	8.0
159	SC00510023DCC1	39°35'36"	108°34'55"	01	77-07-22	8,240	1.0	680	7.4	6.5
					78-07-25	8,240	2.0	670	7.8	7.0
160	SC00510026AAD1	39°35'24"	108°34'30"	01	78-07-25	8,200	.5	650	8.0	6.0
161	SC00510027BCA1	39°35'18"	108°36'22"	01	78-07-20	8,470	3.0	620	7.6	6.0
162	SC00510027DAD1	39°34'57"	108°35'35"	01	77-07-28	8,445	.1	610	7.3	11.0
					78-07-21	8,445	1.0	585	7.6	7.0
163	SC00510028AAB1	39°35'26"	108°36'50"	01	76-09-04	8,595	2.0	575	7.9	19.0
164	SC00510028ADA1	39°35'23"	108°36'37"	01	77-07-25	8,650	.1	545	7.3	9.0
165	SC00510028ADD1	39°35'06"	108°36'38"	01	78-07-20	8,560	4.0	480	7.8	6.0
166	SC00510028BDD1	39°35'06"	108°37'16"	01	77-07-28	8,620	.8	880	7.4	8.0
					78-07-21	8,620	2.0	735	7.6	6.5
167	SC00510028DDC1	39°34'39"	108°36'52"	01	78-07-21	8,605	4.0	445	7.8	8.0
168	SC00510034DDD1	39°33'48"	108°35'35"	01	77-08-08	8,430	.5	750	7.7	8.5
					78-07-28	8,430	2.0	675	7.8	6.0
169	SC00510035BDD1	39°34'17"	108°34'58"	01	77-08-08	8,430	.1	680	7.3	10.0
170	SC00510035DAC1	39°34'02"	108°34'34"	01	78-07-28	8,380	.5	575	7.6	11.5
171	SC00510036CCD1	39°33'51"	108°34'14"	01	78-07-28	8,320	2.0	500	7.8	7.5
172	SC00510124DDD1	39°36'13"	108°39'58"	01	78-06-20	8,280	8.0	505	7.7	7.5
173	SC00609406BAB1	39°33'43"	107°55'59"	01	79-07-25	8,840	.1	390	7.6	6.5
174	SC00609406CBA1	39°33'14"	107°56'02"	01	79-07-25	8,880	.5	415	7.6	7.0
175	SC00609406DCB1	39°32'59"	107°55'38"	01	79-07-25	8,810	4.5	750	7.3	7.0
176	SC00609407BBA1	39°32'45"	107°56'03"	01	79-09-07	8,640	--	--	--	--
177	SC00609501CCA1	39°33'00"	107°57'15"	01	79-07-24	8,400	10	540	7.1	7.0
178	SC00609501CCB1	39°32'56"	107°57'21"	01	79-07-25	8,240	.5	480	8.1	6.5
179	SC00609501DAD1	39°33'03"	107°56'21"	01	79-07-24	8,830	.5	445	7.6	11.0
180	SC00609501DCA1	39°32'51"	107°56'40"	01	79-07-24	8,630	1.0	520	7.1	7.0
181	SC00609504AAA1	39°33'47"	107°59'43"	01	79-07-17	8,200	.2	520	7.3	9.0
182	SC00609511ADD1	39°32'22"	107°57'25"	01	79-07-24	8,635	2.0	480	7.4	4.0
183	SC00609511ADD2	39°32'25"	107°57'24"	01	75-09-18	8,630	4.5	500	8.1	14.5
184	SC00609606ACA1	39°33'38"	108°04'44"	01	77-06-22	7,990	2.0	580	7.3	7.5
185	SC00609618CAB1	39°31'17"	108°09'12"	01	77-07-14	8,100	.1	710	7.2	13.0
186	SC00609701AAC1	39°33'23"	108°09'40"	01	77-06-22	8,020	2.0	580	7.3	7.5
187	SC00609701BBB1	39°33'29"	108°10'36"	01	77-06-21	8,060	5.0	500	7.2	7.0

Table 8.--*Discharge and field measurements of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Latitude	Longitude	Seq. no.	Date of Sample	Elevation of land surface	Flow rate, instantaneous (gal/min)	Specific conductance (μmhos)	pH (units)	Temperature (°C)
188	SC00609702ABB1	39°33'49"	108°11'12"	01	77-06-20	8,070	4.5	580	7.3	7.0
189	SC00609702BAC1	39°33'42"	108°11'29"	01	77-06-20	8,100	1.5	555	7.5	7.0
190	SC00609702CBD1	39°32'56"	108°11'35"	01	77-06-21	8,220	2.0	555	7.4	5.5
191	SC00609702CBD2	39°32'58"	108°11'29"	01	77-06-21	8,190	3.0	530	7.5	4.5
192	SC00609703ABA1	39°33'47"	108°12'10"	01	77-02-09	8,080	3.0	560	7.7	5.0
193	SC00609703ABA2	39°33'51"	108°12'06"	01	77-02-09	8,060	5.0	560	7.8	5.0
194	SC00609703ADC1	39°33'12"	108°11'57"	01	77-06-20	8,220	5.0	510	7.3	7.0
195	SC00609703BAB1	39°33'33"	108°12'29"	01	77-02-09	8,080	--	500	8.1	6.0
196	SC00609703BBC1	39°33'19"	108°12'50"	01	77-02-09	8,340	1.0	480	7.5	5.0
197	SC00609704ADA1	39°33'19"	108°12'55"	01	77-02-10	8,445	.5	485	7.7	5.0
198	SC00609704DCA1	39°32'49"	108°13'18"	01	77-02-10	8,220	10	560	7.8	7.0
199	SC00609705BBD1	39°33'23"	108°14'52"	01	77-01-24	8,150	3.0	700	7.8	4.5
200	SC00609709BAA1	39°32'35"	108°13'28"	01	77-02-10	8,230	2.0	510	7.8	5.0
201	SC00609709CDD1	39°31'52"	108°13'32"	01	77-06-22	8,160	.1	570	7.4	10.5
202	SC00609710BCB1	39°32'23"	108°12'48"	01	77-06-22	8,150	2.0	560	7.6	6.0
203	SC00609711BCA1	39°32'24"	108°11'31"	01	77-06-23	8,210	2.5	520	8.0	7.0
204	SC00609711BCB1	39°32'27"	108°11'43"	01	77-06-23	8,240	.1	580	7.7	7.0
205	SC00609711CCA1	39°32'02"	108°11'32"	01	77-06-23	8,170	1.0	550	7.8	8.0
206	SC00609711CCB1	39°31'57"	108°11'38"	01	77-06-23	8,190	2.0	520	7.7	6.5
207	SC00609712BCC1	39°32'17"	108°10'32"	01	77-06-21	8,110	4.5	565	7.4	7.0
208	SC00609713CAB1	39°31'18"	108°10'20"	01	77-07-15	8,150	.5	500	7.2	7.5
209	SC00609713CBC1	39°31'10"	108°10'33"	01	77-07-15	8,240	1.0	520	7.4	6.0
210	SC00609714CCA1	39°31'09"	108°11'32"	01	77-06-28	8,230	2.0	600	7.9	6.0
211	SC00609715BAA1	39°31'46"	108°12'24"	01	77-06-23	8,260	1.0	610	7.6	8.5
212	SC00609715CDC1	39°30'58"	108°12'31"	01	77-06-28	8,220	3.0	550	7.9	8.0
213	SC00609719DCD1	39°30'08"	108°15'27"	01	77-08-03	7,760	1.0	790	7.3	10.0
214	SC00609722ACA1	39°30'37"	108°12'04"	01	77-06-28	8,230	5.0	560	8.0	5.5
215	SC00609722BAB1	39°30'57"	108°12'30"	01	77-06-28	8,220	7.0	560	7.9	5.5
216	SC00609722BDB1	39°30'43"	108°12'34"	01	77-06-28	8,180	1.0	540	7.7	8.0
217	SC00609722BDC1	39°30'36"	108°12'33"	01	77-06-29	8,150	2.0	550	7.4	6.5
218	SC00609722DBB1	39°30'28"	108°12'18"	01	77-06-28	8,160	1.0	570	7.8	8.0
219	SC00609723ADC1	39°30'33"	108°10'53"	01	77-06-29	8,190	1.3	620	7.2	9.0
220	SC00609723DBA1	39°30'31"	108°10'56"	01	79-06-29	8,230	1.0	425	7.4	8.0
221	SC00609724BDD1	39°30'31"	108°10'14"	01	77-07-14	8,150	.5	530	7.7	12.0
222	SC00609725ACD1	39°29'40"	108°09'49"	01	77-06-30	8,015	4.0	530	7.4	5.5
223	SC00609726CBB1	39°29'38"	108°11'42"	01	79-06-29	8,130	.5	750	7.4	8.0
224	SC00609726DBB1	39°29'37"	108°11'08"	01	77-06-29	8,100	.5	600	7.4	8.0
225	SC00609728AAA1	39°30'04"	108°13'00"	01	77-06-29	8,080	.1	900	7.3	14.5
226	SC00609730CAB1	39°29'32"	108°15'57"	01	77-08-03	7,710	1.0	670	7.4	8.0
227	SC00609731BCC1	39°29'07"	108°16'05"	01	77-08-03	7,830	.5	675	7.7	13.0

Table 8.--*Discharge and field measurements of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Latitude	Longitude	Seq. no.	Date of Sample	Elevation of land surface	Flow rate, instantaneous (gal/min)	Specific conductance (μmhos)	pH (units)	Temperature (°C)
228	SC00609736DCA1	39°29'01"	108°09'54"	01	79-06-30	8,110	1.5	555	7.6	7.0
229	SC00609824CCB1	39°30'50"	108°17'09"	01	77-08-03	7,600	.5	700	7.7	6.5
230	SC00609826AAA1	39°30'36"	108°17'20"	01	77-08-02	7,720	15	700	7.6	10.0
231	SC00609836BBD1	39°29'44"	108°17'12"	01	77-08-02	7,800	1.5	675	7.4	8.0
232	SC00609909ABA1	39°33'13"	108°26'36"	01	76-09-01	7,990	1.0	630	8.2	9.0
233	SC00609915CBC1	39°31'51"	108°26'10"	01	77-07-08	7,860	.5	660	7.4	9.0
234	SC00609916BBA1	39°32'22"	108°27'03"	01	77-07-08	7,950	1.5	820	7.8	8.0
235	SC00609930BAD1	39°30'35"	108°29'07"	01	76-09-04	6,060	4.0	1,330	7.4	15.0
236	SC00609931DBB1	39°29'22"	108°28'57"	01	78-06-21	8,060	3.0	640	7.7	8.5
237	SC00609932CCB1	39°29'10"	108°28'18"	01	75-09-12	8,060	4.5	580	7.5	11.0
					78-06-28	8,060	10	630	7.7	8.5
238	SC00609932DDA1	39°29'07"	108°27'27"	01	78-06-21	8,770	.2	660	7.7	12.0
239	SC00610005CCA1	39°33'28"	108°34'56"	01	78-07-28	8,410	3.0	770	8.1	9.0
240	SC00610005CCB1	39°33'29"	108°35'06"	01	77-07-29	8,420	1.0	800	7.7	7.0
241	SC00610009CAD1	39°32'41"	108°33'29"	01	77-08-08	8,250	.5	700	7.2	18.0
					78-07-27	8,250	.6	570	7.7	13.0
242	SC00610010DCC1	39°32'33"	108°32'21"	01	78-07-26	8,220	2.0	590	7.8	8.0
243	SC00610011DCC1	39°32'34"	108°31'10"	01	78-07-26	8,115	3.0	585	7.8	7.5
244	SC00610012CCD1	39°32'28"	108°30'34"	01	78-07-26	8,060	22	520	8.2	--
245	SC00610014AAB1	39°32'23"	108°30'57"	01	78-07-26	8,100	.5	500	8.0	12.0
246	SC00610014BBB1	39°32'26"	108°31'47"	01	78-07-26	8,100	2.0	575	7.7	12.0
247	SC00610016ABA1	39°32'25"	108°33'17"	01	77-08-08	8,230	.5	510	7.9	8.0
248	SC00610016ABC1	39°32'20"	108°33'23"	01	77-08-08	8,290	1.0	500	7.2	6.0
					78-07-26	8,290	1.5	510	7.7	6.0
249	SC00610016CAD1	39°31'53"	108°33'35"	01	77-08-08	8,360	.5	640	7.9	11.0
					78-07-27	8,360	1.5	670	8.0	14.0
250	SC00610031CAA1	39°29'23"	108°35'48"	01	78-06-20	8,520	6.0	430	7.6	7.0
251	SC00610031CDD1	39°29'04"	108°35'45"	01	78-06-20	8,405	6.0	430	7.6	7.0
252	SC00610031DCC1	39°29'04"	108°35'43"	01	78-06-22	8,365	8.0	460	7.5	7.0
253	SC00610033ADB1	39°29'37"	108°33'08"	01	78-06-21	8,220	2.0	650	7.8	6.5
254	SC00610033ADB2	39°29'38"	108°33'08"	01	78-06-21	8,220	2.0	590	7.7	7.0
255	SC00610034CBC1	39°29'17"	108°32'53"	01	78-06-21	8,210	12	500	7.8	6.0
256	SC00610034CDB1	39°29'08"	108°32'35"	01	78-06-21	8,140	2.0	595	7.8	7.0
257	SC00610035CAD1	39°29'13"	108°31'17"	01	78-06-21	8,110	8.0	485	7.7	6.0
258	SC00610036CAA1	39°29'25"	108°30'13"	01	78-06-21	8,070	.5	--	--	--
259	SC00610036DBD1	39°29'17"	108°30'00"	01	78-06-21	8,120	5.0	600	7.7	10.0
260	SC00610111DCC1	39°32'32"	108°37'47"	01	78-06-20	8,115	3.0	510	7.8	7.5
261	SC00610124ACA1	39°31'21"	108°36'32"	01	75-09-13	8,485	4.5	510	7.9	12.0
					78-06-20	8,485	1.0	540	7.7	8.5
262	SC00709701ACC1	39°28'34"	108°09'57"	01	79-06-30	8,150	.1	610	7.6	7.5

Table 8.--*Discharge and field measurements of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Latitude	Longitude	Seq. no.	Date of Sample	Elevation of land surface	Flow rate, instantaneous (gal/min)	Specific conductance (μmhos)	pH (units)	Temperature (°C)
263	SC00709701DCA1	39°28'10"	108°10'03"	01	77-06-30	8,150	1.0	625	7.7	8.0
264	SC00709705BAB1	39°28'50"	108°14'51"	01	76-09-04	5,905	130	1,010	7.3	10.0
265	SC00709705BDB1	39°28'37"	108°14'49"	01	77-08-02	5,880	.9	875	--	8.7
					77-09-06	5,880	.1	850	7.2	10.0
266	SC00709712BAD1	39°27'50"	108°10'11"	01	79-06-30	8,150	.1	625	7.4	9.0
267	SC00709712CAD1	39°27'25"	108°10'25"	01	77-06-30	8,090	2.0	570	7.6	7.5
268	SC00709713BAC1	39°27'03"	108°10'15"	01	77-06-30	8,240	2.5	490	7.5	9.0
269	SC00709714ADC1	39°26'47"	108°10'54"	01	75-08-08	8,330	4.5	480	7.4	11.5
270	SC00709714DDB1	39°26'25"	108°10'53"	01	77-08-01	8,660	--	380	--	17.5
271	SC00709927ACD1	39°25'08"	108°25'31"	01.	75-08-06	6,190	4.5	1,180	7.5	12.0
					77-08-02	6,190	4.5	900	--	11.5
					77-09-06	6,190	--	1,100	7.2	11.5
272	SC00710005BCC1	39°28'38"	108°35'07"	01	78-06-21	8,270	4.0	595	7.7	6.5
273	SC00710008DDB1	39°27'27"	108°34'16"	01	78-07-13	6,870	150	780	7.6	9.0
274	SC00710009ACD1	39°27'41"	108°33'12"	01	76-09-03	6,797	40	980	7.7	10.0
					78-07-13	6,797	20	820	7.6	9.0
275	SC00710101DBA1	39°28'32"	108°36'34"	01	78-06-22	8,380	.3	545	7.7	7.0
276	SC00809707CCA1	39°22'09"	108°15'56"	01	75-08-05	5,110	4.5	4,400	7.4	12.0
277	SC00809806BCB1	39°23'28"	108°22'33"	01	78-07-12	5,840	1.0	2,120	8.8	12.0
278	SC00809807AAB1	39°22'47"	108°21'45"	01	75-08-07	5,605	27	3,300	7.3	10.0
279	SC00809907CCB1	39°22'10"	108°30'03"	01	75-08-05	6,780	9.0	2,000	7.7	10.5
280	SC00809916DCD1	39°21'10"	108°26'06"	01	78-07-07	6,180	1.5	2,340	7.3	13.5
281	SC00809927ADB1	39°20'02"	108°24'44"	01	78-07-06	7,070	--	2,270	7.8	17.0
282	SC00810008CCC1	39°22'28"	108°34'37"	01	78-07-11	7,120	.1	1,480	7.6	10.0
283	SC00810009BDA1	39°22'38"	108°33'04"	01	78-07-11	7,170	.3	1,280	7.7	17.0
284	SC00810010DCB1	39°22'13"	108°31'48"	01	78-07-11	7,080	.5	1,420	7.8	8.0
285	SC00810011DAA1	39°22'27"	108°30'18"	01	77-09-02	6,740	--	1,300	6.8	10.8
286	SC00810012DCB1	39°22'15"	108°29'58"	01	78-07-07	6,645	1.3	1,360	7.6	11.0

Table 9.--*Water levels and field measurements of the quality of water in wells*

Site number on plate 3	Local identifier	Latitude	Longitude	Seq. no.	Date of sample	Elevation of land surface	Depth below land surface (water level) (ft)	Specific conductance (µmhos)	pH (units)	Temperature (°C)
1	SC00509408ACC1	39°37'46"	107°57'48"	01	77-10-16	8,815	--	500	--	10.5
					77-10-17	8,815	--	590	8.7	12.0
					77-10-17	8,815	--	1,250	8.7	13.0
					77-10-19	8,815	--	750	8.5	14.0
					77-10-23	8,815	--	670	--	16.5
2	SC00509419DDD1	39°35'32"	107°58'37"	01	77-10-30	8,775	--	490	8.4	10.0
					77-10-30	8,775	--	500	8.8	11.0
3	SC00509421CDC1	39°35'33"	107°56'57"	01	77-10-08	8,980	--	540	9.2	6.0
					77-10-12	8,980	--	660	9.3	13.0
4	SC00509501BDC1	39°38'36"	108°00'24"	01	77-10-23	8,598	--	460	8.3	7.0
					77-10-25	8,598	--	800	8.2	15.0
					77-10-27	8,598	--	1,550	8.4	17.0
5	SC00509514CBD1	39°36'37"	108°01'43"	01	77-09-25	8,380	--	700	8.5	10.0
					77-09-25	8,380	--	750	9.2	13.0
					77-09-28	8,380	--	700	8.5	10.0
					77-10-03	8,380	--	870	8.4	18.0
6	SC00509530CCC1	39°34'42"	108°06'29"	01	79-04-23	8,380	--	925	7.3	18.0
7	SC00509530CCC2	39°34'39"	108°06'28"	01	79-04-23	5,790	4.45	--	--	--
8	SC00509536DCA1	39°34'01"	107°59'55"	01	77-10-07	8,605	--	700	8.1	13.5
9	SC00509703ACB1	39°38'40"	108°15'45"	01	79-07-23	8,120	187.50	--	--	--
					79-09-19	8,120	186.90	--	--	--
10	SC00509704BBD1	39°38'50"	108°17'22"	01	75-08-12	7,778	--	1,550	7.9	22.0
11	SC00509712CDB1	39°37'22"	108°13'44"	01	79-07-06	7,851	87.80	--	--	--
					79-09-18	7,851	87.40	--	--	--
12	SC00509714CCA1	39°36'34"	108°14'07"	01	77-07-12	8,120	147.70	--	--	--
13	SC00509716ACC1	39°36'54"	108°16'52"	01	79-07-06	8,251	128.80	--	--	--
					79-09-18	8,251	128.10	--	--	--
14	SC00509716DCA1	39°36'31"	108°16'44"	01	79-07-23	8,651	841.10	--	--	--
					79-09-26	8,651	840.50	--	--	--
15	SC00509717ACB1	39°36'55"	108°18'09"	01	79-07-06	8,185	174.20	--	--	--
					79-09-18	8,185	174.20	--	--	--
16	SC00509725ABA1	39°35'28"	108°13'23"	01	79-07-03	8,240	63.61	--	--	--
					79-08-01	8,240	63.60	--	--	--
					79-09-19	8,240	63.60	--	--	--
17	SC00509727ABD1	39°35'22"	108°15'39"	01	79-09-18	8,616	568.10	--	--	--
					79-09-28	8,616	575.00	--	--	--
18	SC00509727ABD2	39°35'22"	108°15'39"	02	77-07-05	8,612	620.00	--	--	--
19	SC00509732ACA1	39°34'22"	108°17'52"	01	79-07-23	7,760	253.20	--	--	--
					79-09-18	7,760	253.10	--	--	--
20	SC00509735BCB1	39°34'18"	108°15'10"	01	79-07-23	8,060	27.90	--	--	--
					79-09-19	8,060	28.60	--	--	--
21	SC00609629DAA1	39°29'36"	108°07'25"	01	69-03-20	5,440	--	1,260	7.4	14.0
					70-04-12	5,440	--	--	--	13.9
					70-05-30	5,440	--	--	--	13.9
22	SC00609827CAB1	39°30'09"	108°19'16"	01	77-08-18	5,800	--	425	7.4	15.0
					77-09-06	5,800	--	220	7.7	14.8

Table 9.--*Water levels and field measurements of the quality of water in wells*--Continued

Site number on plate 3	Local identifier	Latitude	Longitude	Seq. no.	Date of sample	Elevation of land surface	Depth below land surface (water level) (ft)	Specific conductance (µmhos)	pH (units)	Temperature (°C)
23	SC00609830CCB1	39°30'00"	108°22'50"	01	77-08-02	5,675	--	2,000	--	12.0
24	SC00609831ABD1	39°29'41"	108°22'08"	01	79-04-18	5,605	--	1,820	7.0	9.5
25	SC00609833DCC1	39°28'59"	108°19'21"	01	77-08-02	5,500	--	800	--	11.3
					77-09-06	5,500	--	1,250	7.5	12.5
26	SC00609833DDD1	39°28'59"	108°19'39"	01	79-04-25	5,485	--	975	7.2	20.0
27	SC00609834BDC1	39°29'23"	108°19'14"	01	79-04-25	5,560	--	1,230	7.1	12.0
28	SC00609907BAC1	39°33'11"	108°29'14"	01	77-08-02	6,180	--	700	--	12.0
					77-09-06	6,180	--	750	7.2	12.5
					79-04-18	6,180	--	800	7.6	9.0
29	SC00609917BCA1	39°32'09"	108°28'13"	01	79-04-18	6,100	17.34	1,000	7.4	13.0
30	SC00609925CBA1	39°30'11"	108°23'42"	01	79-04-18	5,715	--	1,600	7.5	9.0
31	SC00609925CBA2	39°30'13"	108°23'42"	01	79-04-18	5,705	--	1,120	7.6	9.0
32	SC00709602BDB1	39°28'13"	108°04'44"	01	79-04-24	5,190	28.26	--	--	--
					79-04-24	5,190	--	1,700	7.5	15.5
33	SC00709602DBB1	39°27'58"	108°04'33"	01	69-03-20	5,190	--	1,870	7.4	16.0
					79-04-23	5,190	--	1,800	7.4	18.0
34	SC00709612BBB1	39°27'32"	108°04'00"	01	69-03-20	5,140	--	1,870	7.4	16.0
					79-04-23	5,140	18.07	1,430	7.1	23.0
35	SC00709731CCB1	39°23'52"	108°16'06"	01	79-04-19	5,180	30.00	1,550	7.4	15.0
36	SC00709814CAB1	39°26'44"	108°18'07"	01	79-04-18	5,370	21.10	3,800	7.5	15.0
37	SC00709818DBA1	39°26'46"	108°22'07"	01	79-04-17	5,810	38.21	--	--	--
38	SC00709825ADC1	39°25'05"	108°16'26"	01	79-04-18	5,245	19.18	1,800	7.5	14.0
39	SC00709913DBD1	39°26'39"	108°23'15"	01	79-04-17	5,860	4.68	--	--	--
40	SC00709914ADA1	39°26'53"	108°24'01"	01	79-04-17	5,930	10.36	--	--	--
41	SC00809707ACC1	39°22'31"	108°15'32"	01	79-04-19	5,100	--	3,000	7.1	17.0
42	SC00809717BDC1	39°21'38"	108°14'45"	01	78-07-06	5,048	16.08	--	--	--
43	SC00809717CBA1	39°21'29"	108°14'57"	01	78-07-06	5,058	26.36	--	--	--
					78-11-15	5,058	--	4,500	7.2	13.5
					79-05-15	5,058	--	4,500	7.2	14.0
44	SC00809717CBA2	39°21'31"	108°14'54"	01	78-07-06	5,049	19.95	--	--	--
45	SC00809717CBA3	39°21'34"	108°14'50"	01	78-07-06	5,043	11.51	--	--	--
46	SC00809717CBA4	39°21'32	108°14'53"	01	79-05-18	5,045	--	2,900	7.2	10.0
					79-05-18	5,045	--	2,900	7.2	10.0
47	SC00809717CBA5	39°21'32"	108°14'52"	02	78-12-14	5,044	14.46	--	--	--
48	SC00809717CBA6	39°21'32"	108°14'53"	02	78-12-14	5,045	15.56	--	--	--
49	SC00809717CBA7	39°21'31"	108°14'51"	01	78-12-14	5,045	19.02	--	--	--
50	SC00809717CBA8	39°21'29"	108°14'57"	02	78-07-06	5,056	25.97	--	--	--
51	SC00809717CBA9	39°21'32"	108°14'52"	01	78-07-06	5,044	14.53	--	--	--
52	SC00809717CBB1	39°21'31"	108°14'59"	01	78-07-06	5,054	26.89	--	--	--
53	SC00809717CBC1	39°21'25"	108°15'01"	01	78-07-06	5,066	40.57	--	--	--
54	SC00809717CBC2	39°21'27"	108°14'59"	01	78-07-06	5,062	32.21	--	--	--
55	SC00809717CBD1	39°21'28"	108°14'57"	01	78-07-06	5,055	26.39	--	--	--
56	SC00809718AAB1	39°21'54"	108°15'14"	01	78-07-06	5,072	34.96	--	--	--
57	SC00809732ADD1	39°19'05"	108°13'59"	01	79-04-19	4,945	33.17	4,100	7.7	19.0
58	SC00809807AAD1	39°22'42"	108°21'37"	01	77-08-02	5,610	--	2,100	--	17.5
					77-09-06	5,610	--	1,200	7.2	18.0

Table 10.--*Analyses of the quality of water from springs*

Site number on plate 2	Local identifier	Latitude	Longitude	Seq. no.	Date of sample	Flow rate, instantaneous (gal/min)	Specific conductance (μmhos)	pH (units)	Temperature (°C)	Hardness (mg/L)	Hardness, noncarbonate (mg/L)
1	SC00409531DAA1	39°39'30"	108°05'24"	01	78-09-27	13	880	7.8	7.0	350	69
13	SC00410032DAD1	39°39'15"	108°37'57"	01	78-08-01	--	740	8.3	15.0	330	84
14	SC00509329DBA1	39°35'03"	107°50'59"	01	78-07-18	4.5	900	7.9	17.0	320	0
22	SC00509407AAA1	39°38'08"	107°58'36"	01	79-08-07	12	510	7.8	8.0	200	27
29	SC00509414ABB1	39°37'13"	107°54'32"	01	75-09-18	--	580	7.7	9.5	260	0
57	SC00509423CCA1	39°35'40"	107°55'00"	01	79-09-11	--	--	--	--	170	0
73	SC00509433ACD1	39°34'18"	107°56'38"	01	78-09-25	6.0	600	7.6	7.0	280	0
77	SC00509435BDB1	39°34'25"	107°54'41"	01	79-07-24	3.0	440	7.8	7.0	160	0
79	SC00509503ADA1	39°38'43"	108°01'53"	01	79-08-07	3.0	600	8.0	8.0	350	99
81	SC00509510ABA1	39°38'04"	108°02'10"	01	79-08-08	4.0	865	7.5	8.0	350	149
88	SC00509520DBA1	39°35'55"	108°04'22"	01	79-07-18	2.0	725	7.6	6.5	250	0
130	SC00509834BDB1	39°34'23"	108°22'41"	01	76-09-02	6.0	650	8.0	15.5	270	0
131	SC00509905ADC1	39°38'38"	108°31'07"	01	76-09-01	--	630	8.1	13.5	250	48
132	SC00509905ADC2	39°38'37"	108°31'11"	01	78-10-31	8.0	685	7.8	6.0	300	41
133	SC00509905ADD1	39°38'38"	108°31'02"	01	77-04-20	4.5	540	7.6	10.5	250	20
137	SC00509914ADD1	39°36'54"	108°27'37"	01	76-09-02	5.0	580	8.4	12.5	250	0
139	SC00509919ACB1	39°36'08"	108°32'40"	01	78-08-03	.1	690	8.0	8.0	290	19
140	SC00509921CCC1	39°35'32"	108°30'56"	01	76-08-31	--	690	8.0	9.0	290	0
142	SC00509927DAB1	39°35'04"	108°29'00"	01	78-08-02	--	605	7.9	9.0	260	0
144	SC00509928ACB2	39°35'14"	108°30'19"	01	78-08-02	3.0	1,040	8.0	8.0	430	151
146	SC00509934DAA1	39°34'10"	108°28'34"	01	78-08-02	--	720	8.0	9.0	290	0
148	SC00510001CBC1	39°38'23"	108°34'19"	01	76-08-31	--	555	7.7	9.0	260	0
151	SC00510008CAC1	39°37'33"	108°38'28"	01	78-06-22	10	510	7.6	6.0	270	0
153	SC00510012ABD1	39°37'55"	108°33'48"	01	78-08-03	.1	460	7.9	8.0	220	0
159	SC00510023DCC1	39°35'36"	108°34'55"	01	78-07-25	2.0	670	7.8	7.0	300	0
161	SC00510027BCA1	39°35'18"	108°36'22"	01	78-07-20	3.0	620	7.6	6.0	290	0
163	SC00510028AAB1	39°35'26"	108°36'50"	01	76-09-04	2.0	575	7.9	19.0	270	0
167	SC00510028DDC1	39°34'39"	108°36'52"	01	78-07-21	4.0	445	7.8	8.0	200	8
168	SC00510034DDD1	39°33'48"	108°35'35"	01	78-07-28	2.0	675	7.8	6.0	300	6
170	SC00510035DAC1	39°34'02"	108°34'34"	01	78-07-28	.5	575	7.6	11.5	260	0
172	SC00510124DDD1	39°36'13"	108°39'58"	01	78-06-20	8.0	505	7.7	7.5	260	0
174	SC00609406CBA1	39°33'14"	107°56'02"	01	79-07-25	.5	415	7.6	7.0	150	0
175	SC00609406DCB1	39°32'59"	107°55'38"	01	79-07-25	4.5	750	7.3	7.0	300	32
176	SC00609407BBA1	39°32'45"	107°56'03"	01	79-09-07	--	--	--	--	290	0
177	SC00609501CCA1	39°33'00"	107°57'15"	01	79-07-24	10	540	7.1	7.0	230	0
183	SC00609511ADD2	39°32'25"	107°57'24"	01	75-09-18	4.5	500	8.1	14.5	210	0
232	SC00609909ABA1	39°33'13"	108°26'36"	01	76-09-01	1.0	630	8.2	9.0	280	0
235	SC00609930BAD1	39°30'35"	108°29'07"	01	76-09-04	4.0	1,330	7.4	15.0	420	0
237	SC00609932CCB1	39°29'10"	108°28'18"	01	75-09-12	4.5	580	7.5	11.0	270	5
245	SC00610014AAB1	39°32'23"	108°30'57"	01	78-07-26	.5	500	8.0	12.0	220	0

Table 10.--*Analyses of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Date of sample	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L)	Bicarbonate, field (mg/L)	Alkalinity, field (mg/L)	Carbon dioxide, dissolved (mg/L)
1	SC00409531DAA1	78-09-27	76	38	66	29	1.6	.5	340	280	8.6
13	SC00410032DAD1	78-08-01	92	25	23	13	.6	.6	300	250	2.4
14	SC00509329DBA1	78-07-18	68	36	83	36	2.1	1.4	400	330	8.0
22	SC00509407AAA1	79-08-07	49	18	12	12	.4	.8	--	170	5.2
29	SC00509414ABB1	75-09-18	63	24	30	20	.8	.6	350	284	11
57	SC00509423CCA1	79-09-11	45	14	32	29	1.1	.4	--	220	--
73	SC00509433ACD1	78-09-25	67	27	24	16	.6	.3	360	300	16
77	SC00509435BDB1	79-07-24	42	14	24	24	.8	.6	--	200	6.1
79	SC00509503ADA1	79-08-07	77	38	3.0	2	.0	.6	--	250	4.8
81	SC00509510ABA1	79-08-08	77	38	4.0	2	.0	.4	--	200	14
88	SC00509520DBA1	79-07-18	47	32	71	38	2.0	.8	--	270	13
130	SC00509834BDB1	76-09-02	63	27	42	25	1.1	1.4	330	273	5.3
131	SC00509905ADC1	76-09-01	59	24	37	25	1.1	1.2	240	199	3.1
132	SC00509905ADC2	78-10-31	77	26	40	22	1.0	.6	320	260	8.1
133	SC00509905ADD1	77-04-20	55	27	40	26	1.1	.8	280	230	11
137	SC00509914ADD1	76-09-02	60	23	42	27	1.2	1.5	320	262	2.0
139	SC00509919ACB1	78-08-03	64	31	45	25	1.2	.6	330	270	5.2
140	SC00509921CCC1	76-08-31	63	32	49	27	1.3	.5	350	290	5.6
142	SC00509927DAB1	78-08-02	60	26	37	24	1.0	.8	320	260	6.4
144	SC00509928ACB2	78-08-02	86	52	68	26	1.5	.8	340	280	5.4
146	SC00509934DAA1	78-08-02	68	30	55	29	1.4	.6	370	300	5.9
148	SC00510001CBC1	76-08-31	69	21	23	16	.6	.4	340	276	11
151	SC00510008CAC1	78-06-22	75	20	16	11	.4	.2	370	300	15
153	SC00510012ABD1	78-08-03	54	20	20	17	.6	.4	270	220	5.4
159	SC00510023DCC1	78-07-25	72	28	34	20	.9	.4	380	310	9.6
161	SC00510027BCA1	78-07-20	70	27	28	18	.7	.3	--	--	15
163	SC00510028AAB1	76-09-04	71	23	24	16	.7	4.0	340	281	6.8
167	SC00510028DDC1	78-07-21	51	17	19	17	.6	.2	230	190	5.8
168	SC00510034DDD1	78-07-28	72	28	39	22	1.0	.5	350	290	8.8
170	SC00510035DAC1	78-07-28	69	22	24	17	.7	.6	330	270	13
172	SC00510124DDD1	78-06-20	71	20	12	9	.3	.2	340	280	11
174	SC00609406CBA1	79-07-25	41	12	23	25	.8	.4	--	180	8.7
175	SC00609406DCB1	79-07-25	73	29	16	10	.4	.2	--	270	26
176	SC00609407BBA1	79-09-07	75	25	17	11	.4	.2	--	290	--
177	SC00609501CCA1	79-07-24	55	22	24	19	.7	.3	--	260	40
183	SC00609511ADD2	75-09-18	52	19	32	25	1.0	1.0	280	231	3.6
232	SC00609909ABA1	76-09-01	67	26	41	24	1.1	.7	350	287	3.5
235	SC00609930BAD1	76-09-04	57	68	140	42	3.0	3.7	570	465	36
237	SC00609932CCB1	75-09-12	56	31	42	25	1.1	.5	320	263	16
245	SC00610014AAB1	78-07-26	56	20	25	20	.8	.5	290	240	4.6

Table 10.--*Analyses of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Date of sample	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Solids, dissolved (tons per day)	Solids, dissolved (tons per acre-ft)	Nitrogen, NO_2+NO_3, dissolved (mg/L)	Phosphorus, ortho, dissolved (mg/L)
1	SC00409531DAA1	78-09-27	200	5.3	.10	20	575	--	.78	.65	--
13	SC00410032DAD1	78-08-01	24	70	.10	21	404	--	.55	1.7	--
14	SC00509329DBA1	78-07-18	100	3.4	.30	19	509	01	.69	1.0	--
22	SC00509407AAA1	79-08-07	36	2.9	.20	8.8	230	--	.31	.31	--
29	SC00509414ABB1	75-09-18	25	2.2	.10	20	336	--	.46	1.3	.020
57	SC00509423CCA1	79-09-11	13	1.2	.10	22	260	--	.35	.74	.050
73	SC00509433ACD1	78-09-25	22	--	--	--	--	--	--	--	--
77	SC00509435BDB1	79-07-24	27	2.0	.10	19	249	--	.34	1.3	--
79	SC00509503ADA1	79-08-07	88	4.1	.20	2.3	363	--	.49	.88	--
81	SC00509510ABA1	79-08-08	130	3.4	.20	22	395	--	.54	<.10	--
88	SC00509520DBA1	79-07-18	120	7.5	.20	20	460	--	.63	1.5	--
130	SC00509834BDB1	76-09-02	75	3.3	.20	17	394	--	.53	.66	.050
131	SC00509905ADC1	76-09-01	88	3.0	.20	17	350	--	.47	1.2	.030
132	SC00509905ADC2	78-10-31	110	4.5	.10	17	434	--	.59	1.5	--
133	SC00509905ADD1	77-04-20	94	3.3	.10	14	373	00	.51	1.1	.010
137	SC00509914ADD1	76-09-02	70	2.7	.10	18	375	--	.51	.12	<.010
139	SC00509919ACB1	78-08-03	82	5.2	.10	18	410	--	.56	1.7	--
140	SC00509921CCC1	76-08-31	87	4.0	.20	18	428	--	.58	2.0	.050
142	SC00509927DAB1	78-08-02	47	4.4	.10	19	353	--	.48	1.7	--
144	SC00509928ACB2	78-08-02	250	11	.10	18	655	--	.89	4.4	--
146	SC00509934DAA1	78-08-02	85	5.3	.10	17	444	--	.60	.56	--
148	SC00510001CBC1	76-08-31	32	1.3	.20	17	330	--	.45	.68	.030
151	SC00510008CAC1	78-06-22	15	.9	.10	19	329	--	.45	--	--
153	SC00510012ABD1	78-08-03	20	1.4	.10	16	266	--	.36	.91	--
159	SC00510023DCC1	78-07-25	43	1.9	.10	20	387	--	.53	.84	--
161	SC00510027BCA1	78-07-20	33	1.6	.10	19	360	--	.49	.86	--
163	SC00510028AAB1	76-09-04	31	3.6	.30	19	345	--	.47	.91	.020
167	SC00510028DDC1	78-07-21	24	1.7	.10	16	243	--	.33	3.1	--
168	SC00510034DDD1	78-07-28	48	2.7	.10	18	381	--	.52	1.5	--
170	SC00510035DAC1	78-07-28	32	1.3	.10	20	332	--	.45	.48	--
172	SC00510124DDD1	78-06-20	15	1.3	.10	17	305	--	.41	--	--
174	SC00609406CBA1	79-07-25	23	2.8	.10	22	232	.00	.32	3.9	--
175	SC00609406DCB1	79-07-25	36	1.8	.10	15	333	.00	.45	2.0	--
176	SC00609407BBA1	79-09-07	33	1.4	.20	18	344	--	.47	1.2	<.010
177	SC00609501CCA1	79-07-24	22	1.7	.20	19	300	.02	.41	1.3	--
183	SC00609511ADD2	75-09-18	34	1.3	.10	22	301	.00	.41	.06	<.010
232	SC00609909ABA1	76-09-01	61	4.3	.20	18	391	--	.53	1.5	.030
235	SC00609930BAD1	76-09-04	250	7.0	.40	21	827	--	1.1	.80	.020
237	SC00609932CCB1	75-09-12	70	3.2	.20	21	382	--	.52	1.8	.040
245	SC00610014AAB1	78-07-26	23	2.4	.10	17	287	--	.39	.97	--

Table 10.--*Analyses of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Date of sample	Phosphate, ortho, dissolved (mg/L)	Aluminum, dissolved (µg/L)	Arsenic, dissolved (µg/L)	Boron, dissolved (µg/L)	Cadmium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Lithium, dissolved (µg/L)
1	SC00409531DAA1	78-09-27	--	--	2	60	0	0	20	6	20
13	SC00410032DAD1	78-08-01	--	--	7	30	<2	3	20	3	<10
14	SC00509329DBA1	78-07-18	--	<100	3	120	<2	3	<10	5	20
22	SC00509407AAA1	79-08-07	--	--	--	--	--	--	<10	--	--
29	SC00509414ABB1	75-09-18	.06	--	10	30	ND	2	20	ND	<10
57	SC00509423CCA1	79-09-11	.15	--	5	--	<2	--	<10	ND	--
73	SC00509433ACD1	78-09-25	--	--	2	40	<2	2	<10	<2	6
77	SC00509435BDB1	79-07-24	--	--	--	--	--	--	<10	--	--
79	SC00509503ADA1	79-08-07	--	--	--	--	--	--	<10	--	--
81	SC00509510ABA1	79-08-08	--	--	--	--	--	--	20	--	--
88	SC00509520DBA1	79-07-18	--	--	--	--	--	--	<10	--	--
130	SC00509834BDB1	76-09-02	.15	--	6	40	ND	ND	20	<2	<10
131	SC00509905ADC1	76-09-01	.09	--	5	40	ND	ND	20	<2	<10
132	SC00509905ADC2	78-10-31	--	--	5	30	8	<2	<10	93	<10
133	SC00509905ADD1	77-04-20	.03	10	2	40	<2	ND	60	ND	<10
137	SC00509914ADD1	76-09-02	.00	--	5	40	ND	<2	20	ND	<10
139	SC00509919ACB1	78-08-03	--	--	7	40	<2	3	30	10	20
140	SC00509921CCC1	76-08-31	.15	--	13	50	ND	2	<10	<2	<10
142	SC00509927DAB1	78-08-02	--	--	6	30	ND	<2	<10	ND	<10
144	SC00509928ACB2	78-08-02	--	--	8	60	ND	3	20	3	20
146	SC00509934DAA1	78-08-02	--	--	7	50	ND	2	<10	ND	20
148	SC00510001CBC1	76-08-31	.09	--	5	<20	ND	<2	<10	2	<10
151	SC00510008CAC1	78-06-22	--	20	7	30	ND	ND	<10	7	2
153	SC00510012ABD1	78-08-03	--	--	4	30	ND	<2	20	ND	5
159	SC00510023DCC1	78-07-25	--	--	9	40	ND	2	<10	3	<10
161	SC00510027BCA1	78-07-20	--	0	8	30	2	1	0	9	0
163	SC00510028AAB1	76-09-04	.06	--	7	70	ND	<2	90	ND	<10
167	SC00510028DDC1	78-07-21	--	<100	6	<20	<2	<2	<10	7	<10
168	SC00510034DDD1	78-07-28	--	--	8	40	ND	2	20	ND	6
170	SC00510035DAC1	78-07-28	--	--	9	40	ND	<2	30	2	<10
172	SC00510124DDD1	78-06-20	--	20	4	40	ND	<2	<10	6	<10
174	SC00609406CBA1	79-07-25	--	--	--	--	--	--	<10	--	--
175	SC00609406DCB1	79-07-25	--	--	--	--	--	--	<10	--	--
176	SC00609407BBA1	79-09-07	.00	--	2	--	<2	--	<10	ND	--
177	SC00609501CCA1	79-07-24	--	--	--	--	--	--	20	--	--
183	SC00609511ADD2	75-09-18	.00	--	6	<20	ND	ND	40	ND	<10
232	SC00609909ABA1	76-09-01	.09	--	6	40	ND	<2	<10	ND	<10
235	SC00609930BAD1	76-09-04	.06	--	2	250	ND	4	<10	<2	30
237	SC00609932CCB1	75-09-12	.12	--	7	60	0	2	0	4	10
245	SC00610014AAB1	78-07-26	--	--	5	40	ND	<2	50	2	6

Table 10.--*Analyses of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Date of sample	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Zinc, dissolved (µg/L)	Manganese, dissolved (µg/L)	Strontium, dissolved (µg/L)
1	SC00409531DAA1	78-09-27	.0	1	0	0	1900
13	SC00410032DAD1	78-08-01	<.1	<1	ND	<10	740
14	SC00509329DBA1	78-07-18	--	2	40	<10	670
22	SC00509407AAA1	79-08-07	--	--	--	1	--
29	SC00509414ABB1	75-09-18	<.5	1	<20	130	550
57	SC00509423CCA1	79-09-11	<.1	<1	--	3	--
73	SC00509433ACD1	78-09-25	<.1	1	<3	<1	630
77	SC00509435BDB1	79-07-24	--	--	--	<1	--
79	SC00509503ADA1	79-08-07	--	--	--	<10	--
81	SC00509510ABA1	79-08-08	--	--	--	<10	--
88	SC00509520DBA1	79-07-18	--	--	--	<1	--
130	SC00509834BDB1	76-09-02	<.5	1	ND	120	650
131	SC00509905ADC1	76-09-01	<.5	1	ND	60	810
132	SC00509905ADC2	78-10-31	<.1	3	ND	<10	900
133	SC00509905ADD1	77-04-20	<.5	1	ND	40	880
137	SC00509914ADD1	76-09-02	<.5	1	ND	70	710
139	SC00509919ACB1	78-08-03	<.1	2	<20	<10	1100
140	SC00509921CCC1	76-08-31	<.5	2	ND	<10	690
142	SC00509927DAB1	78-08-02	<.1	1	ND	<10	830
144	SC00509928ACB2	78-08-02	<.1	9	ND	<10	1200
146	SC00509934DAA1	78-08-02	<.1	2	<20	<10	800
148	SC00510001CBC1	76-08-31	<.5	<1	ND	<10	580
151	SC00510008CAC1	78-06-22	--	1	5	<10	550
153	SC00510012ABD1	78-08-03	<.1	1	ND	<10	800
159	SC00510023DCC1	78-07-25	<.1	1	ND	<10	800
161	SC00510027BCA1	78-07-20	--	1	10	0	680
163	SC00510028AAB1	76-09-04	<.5	<1	ND	440	540
167	SC00510028DDC1	78-07-21	--	1	<20	<10	350
168	SC00510034DDD1	78-07-28	<.1	1	ND	<10	640
170	SC00510035DAC1	78-07-28	<.1	<1	ND	30	650
172	SC00510124DDD1	78-06-20	--	1	5	<10	500
174	SC00609406CBA1	79-07-25	--	--	--	<1	--
175	SC00609406DCB1	79-07-25	--	--	--	<1	--
176	SC00609407BBA1	79-09-07	<.1	2	--	<1	--
177	SC00609501CCA1	79-07-24	--	--	--	<1	--
183	SC00609511ADD2	75-09-18	<.5	<1	ND	<10	610
232	SC00609909ABA1	76-09-01	<.5	1	ND	<10	700
235	SC00609930BAD1	76-09-04	<.5	2	ND	<10	1100
237	SC00609932CCB1	75-09-12	.0	3	0	0	540
245	SC00610014AAB1	78-07-26	<.1	1	<20	20	380

Table 10.--*Analyses of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Latitude	Longitude	Seq. no.	Date of sample	Flow rate, instantaneous (gal/min)	Specific conductance (μmhos)	pH (units)	Temperature (°C)	Hardness (mg/L)	Hardness, noncarbonate (mg/L)
248	SC00610016ABC1	39°32'20"	108°33'23"	01	78-07-26	1.5	510	7.7	6.0	220	0
250	SC00610031CAA1	39°29'23"	108°35'48"	01	78-06-20	6.0	430	7.6	7.0	210	2
253	SC00610033ADB1	39°29'37"	108°33'08"	01	78-06-21	2.0	650	7.8	6.5	300	38
260	SC00610111DCC1	39°32'32"	108°37'47"	01	78-06-20	3.0	510	7.8	7.5	230	8
261	SC00610124ACA1	39°31'21"	108°36'32"	01	75-09-13	4.5	510	7.9	12.0	240	0
264	SC00709705BAB1	39°28'50"	108°14'51"	01	76-09-04	130	1,010	7.3	10.0	430	10
265	SC00709705BDB1	39°28'37"	108°14'49"	01	77-08-02	.9	875	--	8.7	400	15
					77-09-06	.1	850	7.2	10.0	390	0
269	SC00709714ADC1	39°26'47"	108°10'54"	01	75-08-08	4.5	480	7.4	11.5	200	0
270	SC00709714DDB1	39°26'25"	108°10'53"	01	77-08-01	--	380	--	17.5	200	0
271	SC00709927ACD1	39°25'08"	108°25'31"	01	75-08-06	4.5	1,180	7.5	12.0	470	49
					77-08-02	4.5	900	--	11.5	470	55
					77-09-06	--	1,100	7.2	11.5	470	37
273	SC00710008DDB1	39°27'27"	108°34'16"	01	78-07-13	150	780	7.6	9.0	300	0
274	SC00710009ACD1	39°27'41"	108°33'12"	01	76-09-03	40	980	7.7	10.0	350	7
					78-07-13	20	820	7.6	9.0	330	21
276	SC00809707CCA1	39°22'09"	108°15'56"	01	75-08-05	4.5	4,400	7.4	12.0	1,300	807
277	SC00809806BCB1	39°23'28"	108°22'33"	01	78-07-12	1.0	2,120	8.8	12.0	32	0
278	SC00809807AAB1	39°22'47"	108°21'45"	01	75-08-07	27	3,300	7.3	10.0	1,100	483
279	SC00809907CCB1	39°22'10"	108°30'03"	01	75-08-05	9.0	2,000	7.7	10.5	690	280
280	SC00809916DCD1	39°21'10"	108°26'06"	01	78-07-07	1.5	2,340	7.3	13.5	900	467
281	SC00809927ADB1	39°20'02"	108°24'44"	01	78-07-06	--	2,270	7.8	17.0	990	740
282	SC00810008CCC1	39°22'28"	108°34'37"	01	78-07-11	.1	1,480	7.6	10.0	540	265
283	SC00810009BDA1	39°22'38"	108°33'04"	01	78-07-11	.3	1,280	7.7	17.0	490	211
284	SC00810010DCB1	39°22'13"	108°31'48"	01	78-07-11	.5	1,420	7.8	8.0	660	405
285	SC00B10011DAA1	39°22'27"	108°30'18"	01	77-09-02	--	1,300	6.8	10.8	520	117
286	SC00810012DCB1	39°22'15"	108°29'58"	01	78-07-07	1.3	1,360	7.6	11.0	540	150

Table 10.--*Analyses of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Date of sample	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L)	Bicarbonate, field (mg/L)	Alkalinity, field (mg/L)	Carbon dioxide, dissolved (mg/L)
248	SC00610016ABC1	78-07-26	57	19	23	18	.7	.2	280	230	8.9
250	SC00610031CAA1	78-06-20	60	15	11	10	.3	.5	260	210	10
253	SC00610033ADB1	78-06-21	76	26	37	21	1.0	.3	--	--	8.0
260	SC00610111DCC1	78-06-20	60	19	20	16	.6	.4	270	220	6.8
261	SC00610124ACA1	75-09-13	63	20	16	13	.5	.7	310	253	6.2
264	SC00709705BAB1	76-09-04	91	49	62	24	1.3	2.8	510	421	41
265	SC00709705BDB1	77-08-02	83	48	60	24	1.3	2.6	470	390	--
		77-09-06	78	47	59	25	1.3	2.7	470	390	47
269	SC00709714ADC1	75-08-08	57	13	27	23	.9	1.6	250	204	16
270	SC00709714DDB1	77-08-01	58	14	32	25	1.0	1.2	260	210	--
271	SC00709927ACD1	75-08-06	77	67	110	34	2.3	2.0	510	420	26
		77-08-02	78	68	110	33	2.2	1.9	510	420	--
		77-09-06	73	69	110	34	2.3	2.0	520	430	52
273	SC00710008DDB1	78-07-13	62	36	50	26	1.3	.8	380	310	15
274	SC00710009ACD1	76-09-03	66	45	67	29	1.6	1.0	420	344	13
		78-07-13	61	43	67	31	1.6	1.7	380	310	15
276	SC00809707CCA1	75-08-05	220	180	720	55	8.9	4.5	590	485	37
277	SC00809806BCB1	78-07-12	5.7	4.3	500	97	39	1.3	410	340	1.0
278	SC00809807AAB1	75-08-07	160	160	370	43	5.0	3.9	700	576	56
279	SC00809907CCB1	75-08-05	120	96	250	44	4.2	2.1	510	416	16
280	SC00809916DCD1	78-07-07	160	120	260	39	3.9	3.5	520	430	41
281	SC00809927ADB1	78-07-06	180	130	200	31	2.8	2.2	300	250	7.6
282	SC00810008CCC1	78-07-11	87	79	150	37	2.9	1.8	340	280	15
283	SC00810009BDA1	78-07-11	100	58	110	33	2.2	1.0	340	280	11
284	SC00810010DCB1	78-07-11	120	88	140	31	2.4	1.5	320	260	9.0
285	SC00810011DAA1	77-09-02	93	69	120	34	2.4	1.7	490	400	123
286	SC00810012DCB1	78-07-07	98	71	120	33	2.3	1.8	480	390	19

Table 10.--*Analyses of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Date of sample	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Solids, dissolved (tons per day)	Solids, dissolved (tons per acre-ft)	Nitrogen, NO_2+NO_3, dissolved (mg/L)	Phosphorus, ortho, dissolved (mg/L)
248	SC00610016ABC1	78-07-26	25	2.0	.10	19	284	--	.38	1.5	--
250	SC00610031CAA1	78-06-20	11	1.4	.20	19	246	--	.33	--	--
253	SC00610033ADB1	78-06-21	40	2.9	.10	17	356	--	.48	--	--
260	SC00610111DCC1	78-06-20	36	1.8	.10	15	285	--	.39	--	--
261	SC00610124ACA1	75-09-13	20	1.7	.10	21	295	.00	.40	1.2	.030
264	SC00709705BAB1	76-09-04	120	5.3	.60	19	603	--	.82	1.3	.010
265	SC00709705BDB1	77-08-02	130	5.9	.70	20	581	1.4	.79	1.7	.010
		77-09-06	110	5.8	.70	20	554	--	.75	1.6	.000
269	SC00709714ADC1	75-08-08	40	3.0	.20	25	290	.00	.39	1.1	.060
270	SC00709714DDB1	77-08-01	49	2.6	.10	25	310	--	.42	.54	.010
271	SC00709927ACD1	75-08-06	290	4.4	.30	19	822	--	1.1	.11	.010
		77-08-02	260	4.0	.30	20	793	.02	1.1	.10	.010
		77-09-06	280	4.6	.30	20	815	--	1.1	.19	.040
273	SC00710008DDB1	78-07-13	89	3.2	.30	22	451	--	.61	.43	.020
274	SC00710009ACD1	76-09-03	130	2.8	.30	21	540	--	.73	.38	.030
		78-07-13	150	3.7	.30	22	537	--	.73	.60	.030
276	SC00809707CCA1	75-08-05	2,300	31	.40	12	3,760	.10	5.1	.48	<.010
277	SC00809806BCB1	78-07-12	710	6.7	.50	9.0	1,440	--	2.0	.06	.020
278	SC00809807AAB1	75-08-07	1,200	14	.30	15	2,270	.37	3.1	4.8	.010
279	SC00809907CCB1	75-08-05	740	8.9	.20	20	1,490	.08	2.0	.57	.010
280	SC00809916DCD1	78-07-07	960	2.1	.20	8.3	1,770	--	2.4	1.6	.010
281	SC00809927ADB1	78-07-06	1,100	2.2	.10	15	1,780	--	2.4	.06	.010
282	SC00810008CCC1	78-07-11	520	3.7	.20	17	1,030	--	1.4	.10	.010
283	SC00810009BDA1	78-07-11	420	3.8	.10	24	886	--	1.2	.10	.010
284	SC00810010DCB1	78-07-11	640	4.8	.20	21	1,180	--	1.6	.09	.010
285	SC00810011DAA1	77-09-02	370	5.7	.30	19	920	--	1.3	.14	.020
286	SC00810012DCB1	78-07-07	370	4.1	.20	14	919	--	1.2	.15	.010

Table 10.--*Analyses of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Date of sample	Phosphate, ortho, dissolved (mg/L)	Aluminum, dissolved (µg/L)	Arsenic, dissolved (µg/L)	Boron, dissolved (µg/L)	Cadmium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Lithium, dissolved (µg/L)
248	SC00610016ABC1	78-07-26	--	--	6	30	ND	<2	<10	3	5
250	SC00610031CAA1	78-06-20	--	--	--	--	--	--	<10	--	--
253	SC00610033ADB1	78-06-21	--	10	9	50	0	1	0	8	5
260	SC00610111DCC1	78-06-20	--	--	--	--	--	--	<10	--	--
261	SC00610124ACA1	75-09-13	.09	--	7	40	ND	<2	20	<2	<10
264	SC00709705BAB1	76-09-04	.03	--	2	110	ND	<2	<10	<2	40
265	SC00709705BDB1	77-08-02	.03	--	--	--	--	--	10	--	--
		77-09-06	.00	--	--	--	--	--	10	--	--
269	SC00709714ADC1	75-08-08	.18	--	5	30	ND	<2	30	ND	<10
270	SC00709714DDB1	77-08-01	.03	--	--	--	--	--	20	--	--
271	SC00709927ACD1	75-08-06	.03	--	0	80	0	1	0	1	20
		77-08-02	.03	--	--	--	--	--	10	--	--
		77-09-06	.12	--	--	--	--	--	30	--	--
273	SC00710008DDB1	78-07-13	.06	<100	4	60	2	<2	<10	3	20
274	SC00710009ACD1	76-09-03	.09	--	3	60	ND	ND	<10	ND	20
		78-07-13	.09	<100	4	60	3	<2	<10	9	20
276	SC00809707CCA1	75-08-05	.00	--	<1	140	<2	<2	<10	2	40
277	SC00809806BCB1	78-07-12	.06	<100	2	60	3	ND	<10	7	40
278	SC00809807AAB1	75-08-07	.03	--	<1	150	<2	2	<10	5	50
279	SC00809907CCB1	75-08-05	.03	--	<1	40	ND	ND	<10	<2	30
280	SC00809916DCD1	78-07-07	.03	<100	<1	130	ND	ND	60	3	4
281	SC00809927ADB1	78-07-06	.03	10	<1	30	<2	ND	50	4	
282	SC00810008CCC1	78-07-11	.03	<100	2	30	<2	<2	<10	2	
283	SC00810009BDA1	78-07-11	.03	<100	3	<20	<2	ND	<10	3	
284	SC00810010DCB1	78-07-11	.03	<100	2	30	3	ND	<10	4	[illegible]
285	SC00810011DAA1	77-09-02	.06	--	--	--	--	--	600	--	--
286	SC00810012DCB1	78-07-07	.03	<100	<1	50	<2	ND	700	2	20

Table 10.--*Analyses of the quality of water from springs*--Continued

Site number on plate 2	Local identifier	Date of sample	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Zinc, dissolved (µg/L)	Manganese, dissolved (µg/L)	Strontium, dissolved (µg/L)
248	SC00610016ABC1	78-07-26	<.1	1	ND	<10	410
250	SC00610031CAA1	78-06-20	--	--	--	<10	--
253	SC00610033ADB1	78-06-21	--	3	10	0	540
260	SC00610111DCC1	78-06-20	--	--	--	<10	--
261	SC00610124ACA1	75-09-13	<.5	1	<20	120	530
264	SC00709705BAB1	76-09-04	<.5	4	ND	<10	1,100
265	SC00709705BDB1	77-08-02	--	--	--	0	--
		77-09-06	--	--	--	10	--
269	SC00709714ADC1	75-08-08	<.5	1	ND	80	--
270	SC00709714DDB1	77-08-01	--	--	--	40	--
271	SC00709927ACD1	75-08-06	.0	1	0	0	--
		77-08-02	--	--	--	0	--
		77-09-06	--	--	--	0	--
273	SC00710008DDB1	78-07-13	--	1	ND	<10	880
274	SC00710009ACD1	76-09-03	<.5	2	ND	<10	820
		78-07-13	--	1	ND	<10	890
276	SC00809707CCA1	75-08-05	<.5	19	<20	<10	--
277	SC00809806BCB1	78-07-12	--	1	ND	<10	140
278	SC00809807AAB1	75-08-07	<.5	12	ND	<10	--
279	SC00809907CCB1	75-08-05	<.5	8	ND	<10	--
280	SC00809916DCD1	78-07-07	--	5	<20	<10	2,400
281	SC00809927ADB1	78-07-06	--	1	<20	<10	3,800
282	SC00810008CCC1	78-07-11	--	2	ND	<10	2,100
283	SC00810009BDA1	78-07-11	--	1	20	<10	1,900
284	SC00810010DCB1	78-07-11	--	2	ND	<10	2,200
285	SC00810011DAA1	77-09-02	--	--	--	30	--
286	SC00810012DCB1	78-07-07	--	5	<20	30	2,400

Table 11.--*Analyses of the quality of water in wells*

Site number on plate 3	Local identifier	Latitude	Longitude	Seq. no.	Date of sample	Specific conductance (µmhos)	pH (units)	Temperature (°C)	Hardness (mg/L)	Hardness, noncarbonate (mg/L)	Calcium, dissolved (mg/L)
1	SC00509408ACC1	39°37'46"	107°57'48"	01	77-10-16	500	--	10.5	140	0	30
					77-10-17	590	8.7	12.0	77	0	16
					77-10-17	1,250	8.7	13.0	56	0	13
					77-10-19	750	8.5	14.0	73	0	15
					77-10-23	670	--	16.5	64	0	13
2	SC00509419DDD1	39°35'32"	107°58'37"	01	77-10-30	490	8.4	10.0	190	0	42
					77-10-30	500	8.8	11.0	180	0	41
3	SC00509421CDC1	39°35'33"	107°56'57"	01	77-10-08	540	9.2	6.0	130	0	36
					77-10-12	660	9.3	13.0	79	0	20
4	SC00509501BDC1	39°38'36"	108°00'24"	01	77-10-23	460	8.3	7.0	57	0	13
					77-10-25	800	8.2	15.0	38	0	5.0
					77-10-27	1,550	8.4	17.0	55	0	9.0
5	SC00509514CBD1	39°36'37"	108°01'43"	01	77-09-25	700	8.5	10.0	120	0	17
					77-09-25	750	9.2	13.0	180	0	21
					77-09-28	700	8.5	10.0	120	0	15
					77-10-03	870	8.4	18.0	87	0	12
6	SC00509530CCC1	39°34'42"	108°06'29"	01	79-04-23	925	7.3	18.0	390	59	76
8	SC00509536DCA1	39°34'01"	107°59'55"	01	77-10-07	700	8.1	13.5	62	0	15
10	SC00509704BBD1	39°38'50"	108°17'22"	01	75-08-12	1,550	7.9	22.0	40	0	5.0
21	SC00609629DAA1	39°29'36"	108°07'25"	01	69-03-20	1,260	7.4	14.0	540	0	130
22	SC00609827CAB1	39°30'09"	108°19'16"	01	77-08-18	425	7.4	15.0	130	0	32
					77-09-06	220	7.7	14.8	95	0	[illegible]
23	SC00609830CCB1	39°30'00"	108°22'50"	01	77-08-02	2,000	--	12.0	600	317	41
25	SC00609833DCC1	39°28'59"	108°19'21"	01	77-08-02	800	--	11.3	400	0	75
					77-09-06	1,250	7.5	12.5	480	0	83
26	SC00609833DDD1	39°28'59"	108°19'39"	01	79-04-25	975	7.2	20.0	420	0	76
27	SC00609834BDC1	39°29'23"	108°19'14"	01	79-04-25	1,230	7.1	12.0	440	53	78
28	SC00609907BAC1	39°33'11"	108°29'14"	01	77-08-02	700	--	12.0	240	0	44
					77-09-06	750	7.2	12.5	160	0	22
32	SC00709602BDB1	39°28'13"	108°04'44"	01	79-04-24	1,700	7.5	15.5	870	322	150
34	SC00709612BBB1	39°27'32"	108°04'00"	01	69-03-20	1,870	7.4	16.0	720	209	140
43	SC00809717CBA1	39°21'29"	108°14'57"	01	78-11-15	4,500	7.2	13.5	1,300	835	170
					79-05-15	4,500	7.2	14.0	1,400	889	200
46	SC00809717CBA4	39°21'32"	108°14'53"	01	79-05-18	2,900	7.2	10.0	890	408	140
58	SC00809807AAD1	39°22'42"	108°21'37"	01	77-08-02	2,100	--	17.5	660	152	100
					77-09-06	1,200	7.2	18.0	570	88	82

Table 11.--*Analyses of the quality of water in wells*--Continued

Site number on plate 3	Local identifier	Date of sample	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Percent sodium	Sodium adsorption ratio	Potassium, dissolved (mg/L)	Bicarbonate, field (mg/L)	Alkalinity, field (mg/L)	Carbon dioxide, dissolved (mg/L)	Sulfate, dissolved (mg/L)
1	SC00509408ACC1	77-10-16	14	67	52	2.6	.5	300	250	--	43
		77-10-17	8.6	140	80	7.2	.4	410	340	1.3	11
		77-10-17	5.6	320	93	19	.5	830	720	2.6	12
		77-10-19	8.2	160	83	8.5	.3	460	380	2.3	23
		77-10-23	7.4	180	86	10	.7	520	430	--	11
2	SC00509419DDD1	77-10-30	19	55	39	1.8	.4	310	260	2.0	25
		77-10-30	18	57	41	1.9	.3	310	260	.8	25
3	SC00509421CDC1	77-10-08	10	62	50	2.4	1.0	270	230	.3	30
		77-10-12	6.7	140	79	7.2	1.4	390	320	.3	30
4	SC00509501BDC1	77-10-23	5.6	89	78	5.4	.4	230	190	1.8	25
		77-10-25	6.2	250	93	18	.6	690	570	6.9	3.6
		77-10-27	7.6	450	95	27	.6	1,130	950	7.1	23
5	SC00509514CBD1	77-09-25	19	140	71	5.6	.9	450	370	2.3	33
		77-09-25	30	150	65	5.0	.7	490	410	.5	71
		77-09-28	18	250	83	10	.8	680	600	3.4	24
		77-10-03	13	220	85	11	.7	600	520	3.8	8.7
6	SC00509530CCC1	79-04-23	48	80	31	1.8	1.4	400	330	32	190
8	SC00509536DCA1	77-10-07	5.6	170	86	9.8	.5	460	380	5.8	10
10	SC00509704BBD1	75-08-12	6.3	390	96	28	1.1	880	723	18	8.8
21	SC00609629DAA1	69-03-20	51	90	26	1.7	15	660	538	41	180
22	SC00609827CAB1	77-08-18	15	31	31	1.2	16	190	160	12	37
		77-09-06	8.0	9.6	16	.4	9.5	120	98	3.8	20
23	SC00609830CCB1	77-08-02	120	230	45	4.1	2.9	340	280	--	740
25	SC00609833DCC1	77-08-02	52	90	33	2.0	2.7	500	410	--	150
		77-09-06	66	100	31	2.0	3.0	580	480	29	190
26	SC00609833DDD1	79-04-25	55	84	30	1.8	2.9	510	420	51	170
27	SC00609834BDC1	79-04-25	60	120	37	2.5	3.5	480	390	61	260
28	SC00609907BAC1	77-08-02	32	88	44	2.5	2.0	400	330	--	94
		77-09-06	26	130	63	4.5	2.6	410	340	41	110
32	SC00709602BDB1	79-04-24	120	230	36	3.5	4.1	670	550	34	720
34	SC00709612BBB1	69-03-20	90	200	38	3.4	5.0	630	513	40	600
43	SC00809717CBA1	78-11-15	220	740	55	9.0	4.4	610	500	61	2,300
		79-05-15	210	700	53	8.4	4.3	590	480	59	2,100
46	SC00809717CBA4	79-05-18	130	410	50	6.1	4.1	580	480	58	1,300
58	SC00809807AAD1	77-08-02	100	480	61	8.3	2.6	620	510	--	1,100
		77-09-06	88	540	67	10	1.8	590	480	59	1,200

Table 11.--*Analyses of the quality of water in wells*--Continued

Site number on plate 3	Local identifier	Date of Sample	Chloride, dissolved (mg/L)	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Solids, dissolved (tons per day)	Solids, dissolved (tons per (acre-ft)	Nitrogen, NO_2+NO_3, dissolved (mg/L)	Phosphorus, ortho, dissolved (mg/L)	Phosphate, ortho, dissolved (mg/L)
1	SC00509408ACC1	77-10-16	2.6	.30	21	329	--	.44	.08	.040	.12
		77-10-17	6.0	.10	16	410	50.9	.55	.05	.030	.09
		77-10-17	5.0	.60	13	830	--	1.1	.11	.050	.15
		77-10-19	3.4	3.0	17	460	143	.62	.05	<.010	.00
		77-10-23	6.2	4.9	16	498	--	.67	.06	.020	.06
2	SC00509419DDD1	77-10-30	1.8	.60	21	322	--	.43	.02	<.010	.00
		77-10-30	1.8	.90	21	323	--	.43	.01	<.010	.00
3	SC00509421CDC1	77-10-08	1.5	.30	21	303	--	.41	.01	.010	.03
		77-10-12	7.2	2.2	16	421	--	.57	.02	.130	.40
4	SC00509501BDC1	77-10-23	2.2	1.5	18	269	--	.36	.04	.010	.03
		77-10-25	4.3	5.2	14	632	--	.85	.05	.010	.03
		77-10-27	13	11	14	1,120	--	1.5	.05	.010	.03
5	SC00509514CBD1	77-09-25	10	5.4	17	467	--	.63	<.10	<.010	.00
		77-09-25	10	3.4	18	562	--	.76	.01	<.010	.00
		77-09-28	8.6	6.4	19	729	--	.99	.02	.050	.15
		77-10-03	10	5.6	19	620	--	.84	.02	.020	.06
6	SC00509530CCC1	79-04-23	12	.70	17	623	--	.85	1.7	--	--
8	SC00509536DCA1	77-10-07	5.5	7.1	14	459	--	.62	.07	.050	.15
10	SC00509704BBD1	75-08-12	100	11	11	972	--	1.3	.01	.020	.06
21	SC00609629DAA1	69-03-20	7.9	1.1	23	827	--	1.1	--	--	--
22	SC00609827CAB1	77-08-18	11	.60	9.5	242	--	.33	.91	.010	.03
		77-09-06	3.3	.20	7.9	143	--	.19	.30	.140	.43
23	SC00609830CCB1	77-08-02	17	1.1	19	1,340	--	1.8	<.10	.010	.03
25	SC00609833DCC1	77-08-02	15	1.1	19	651	--	.88	.70	.010	.03
		77-09-06	19	1.0	19	766	--	1.0	2.4	.020	.06
26	SC00609833DDD1	79-04-25	19	1.0	18	678	--	.92	1.4	--	--
27	SC00609834BDC1	79-04-25	22	1.2	18	800	--	1.1	.96	--	--
28	SC00609907BAC1	77-08-02	3.3	.60	20	481	--	.65	.52	.010	.03
		77-09-06	4.3	.50	18	515	--	.70	.66	.020	.06
30	SC00709602BDB1	79-04-24	17	1.3	18	1,600	--	2.2	.37	--	--
32	SC00709612BBB1	69-03-20	18	.70	19	1,390	--	2.0	--	--	--
43	SC00809717CBA1	78-11-15	26	.40	16	3,780	--	5.1	.09	.010	.03
		79-05-15	24	.50	15	3,550	4.5	4.8	.10	.010	.03
46	SC00809717CBA4	79-05-18	20	.70	14	2,310	3.7	3.1	.76	.050	.15
58	SC00809807AAD1	77-08-02	11	.60	15	2,110	--	2.9	3.0	.010	.03
		77-09-06	15	.60	13	2,230	--	3.0	.16	.040	.12

Table 11.--*Analyses of the quality of water in wells*--Continued

Site number on plate 3	Local identifier	Date of sample	Aluminum, dissolved (µg/L)	Arsenic, dissolved (µg/L)	Boron, dissolved (µg/L)	Cadmium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Lithium, dissolved (µg/L)	Mercury, dissolved (µg/L)
1	SC00509408ACC1	77-10-16	--	170	140	ND	<2	80	5	30	<.1
		77-10-17	--	72	420	<2	ND	200	2	110	<.1
		77-10-17	--	26	470	ND	ND	50	<2	170	<.1
		77-10-19	--	160	2,000	ND	<2	40	<2	90	<.1
		77-10-23	--	65	2,100	ND	3	40	2	110	<.1
2	SC00509419DDD1	77-10-30	--	2	90	<2	ND	<10	<2	40	<.1
		77-10-30	--	2	140	ND	ND	<10	2	50	<.1
3	SC00509421CDC1	77-10-08	--	140	130	ND	2	30	ND	<10	<.1
		77-10-12	--	1,100	430	ND	<2	130	2	70	<.1
4	SC00509501BDC1	77-10-23	--	9	170	ND	ND	50	ND	50	<.1
		77-10-25	--	14	3,300	ND	<2	70	<2	430	<.1
		77-10-27	--	60	4,100	ND	<2	50	2	330	<.1
5	SC00509514CBD1	77-09-25	--	21	260	ND	ND	350	ND	130	<.5
		77-09-25	--	5	190	ND	ND	780	ND	100	<.5
		77-09-28	--	5	420	ND	ND	70	ND	100	<.5
		77-10-03	--	8	500	ND	ND	20	ND	100	<.1
6	SC00509530CCC1	79-04-23	--	3	120	<2	38	170	8	30	<.1
8	SC00509536DCA1	77-10-07	--	8	1,000	ND	5	2,000	8	100	<.1
10	SC00509704BBD1	75-08-12	20	<1	3,300	--	ND	50	ND	330	--
21	SC00609629DAA1	69-03-20	<100	--	160	--	50	30	--	70	--
22	SC00609827CAB1	77-08-18	--	--	--	--	--	340	--	--	--
		77-09-06	--	--	--	--	--	70	--	--	--
23	SC00609830CCB1	77-08-02	--	--	--	--	--	2,500	--	--	--
25	SC00609833DCC1	77-08-02	--	--	--	--	--	<10	--	--	--
		77-09-06	--	--	--	--	--	30	--	--	--
26	SC00609833DDD1	79-04-25	--	2	200	<2	4	<10	<2	60	<.1
27	SC00609834BDC1	79-04-25	--	3	230	<2	8	<10	ND	80	<.1
28	SC00609907BAC1	77-08-02	--	--	--	--	--	<10	--	--	--
		77-09-06	--	--	--	--	--	20	--	--	--
30	SC00709602BDB1	79-04-24	--	1	180	<2	ND	2,400	ND	80	<.1
32	SC00709612BBB1	69-03-20	100	--	100	--	30	30	--	40	--
43	SC00809717CBA1	78-11-15	--	1	180	2	3	270	4	70	<.1
		79-05-15	--	2	180	<2	2	190	ND	60	<.1
46	SC00809717CBA4	79-05-18	--	1	350	<2	<2	40	ND	80	<.1
58	SC00809807AAD1	77-08-02	--	--	--	--	--	130	--	--	--
		77-09-06	--	--	--	--	--	310	--	--	--

Table 11.--*Analyses of the quality of water in wells*--Continued

Site number on plate 3	Local identifier	Date of sample	Selenium, dissolved (µg/L)	Zinc, dissolved (µg/L)	Manganese, dissolved (µg/L)	Strontium, dissolved (µg/L)
1	SC00509408ACC1	77-10-16	2	500	4	2,400
		77-10-17	<1	20	<10	1,000
		77-10-17	<1	20	<10	660
		77-10-19	<1	20	20	1,300
		77-10-23	<1	40	<10	980
2	SC00509419DDD1	77-10-30	<1	2	<10	2,600
		77-10-30	<1	<20	<10	2,500
3	SC00509421CDC1	77-10-08	<1	180	<10	1,700
		77-10-12	6	130	20	1,200
4	SC00509501BDC1	77-10-23	<1	<20	4	900
		77-10-25	<1	<20	8	400
		77-10-27	1	150	8	810
5	SC00509514CBD1	77-09-25	<1	20	30	2,800
		77-09-25	<1	20	30	3,900
		77-09-28	<1	<20	<10	2,800
		77-10-03	<1	ND	20	2,200
6	SC00509530CCC1	79-04-23	2	30	<10	1,300
8	SC00509536DCA1	77-10-07	<1	120	20	1,200
10	SC00509704BBD1	75-08-12	<1	<20	<10	740
21	SC00609629DAA1	69-03-20	--	190	30	1,800
22	SC00609827CAB1	77-08-18	--	--	100	--
		77-09-06	--	--	40	--
23	SC00609830CCB1	77-08-02	--	--	70	--
25	SC00609833DCC1	77-08-02	--	--	<10	--
		77-09-06	--	--	<10	--
26	SC00609833DDD1	79-04-25	2	50	<10	1,300
27	SC00609834BDC1	79-04-25	2	100	<10	1,100
28	SC00609907BAC1	77-08-02	--	--	<10	--
		77-09-06	--	--	<10	--
30	SC00709602BDB1	79-04-24	<1	150	440	2,300
32	SC00709612BBB1	69-03-20	--	1,300	10	1,500
43	SC00809717CBA1	78-11-15	10	60	80	4,000
		79-05-15	6	40	60	3,600
46	SC00809717CBA4	79-05-18	6	50	<10	2,100
58	SC00809807AAD1	77-08-02	--	--	60	--
		77-09-06	--	--	80	--

Table 12.--*Records of selected wells in the Roan Creek and Parachute Creek basins*

[Al, well in alluvium of Roan Creek; V, vertical-flow log; C, caliper log; D, discharge log; L, lithologic log; S, specific-conductance log; T, temperature log; W, water-type hydrograph]

Site number on plate 3	Local identifier	Latitude	Longitude	Seq. no.	Surface elevation (ft)	Date drilled	Total depth (ft)	Depth of geologic markers (ft)			Casing details	
								Top of Mahogany zone	Bottom of Mahogany zone	Base of Parachute Creek Member	Diameter (in.)	Depth (ft)
1	SC00509408ACC1	39°37'46"	107°57'48"	01	8,815	Oct. 1977	1,925	1,105	1,210	1,805	---	
2	SC00509419DDD1	39°35'32"	107°58'37"	01	8,775	Oct.-Nov. 1977	1,650	925	1,060	1,610	---	
3	SC00509421CDC1	39°35'33"	107°56'57"	01	8,980	Oct. 1977	1,547	855	960	---	---	
4	SC00509501BDC1	39°38'36"	108°00'24"	01	8,598	Oct.-Nov. 1977	2,060	1,200	1,350	1,860	---	
5	SC00509514CBD1	39°36'37"	108°01'43"	01	8,380	Sept.-Oct. 1977	1,920	980	1,125	1,640	---	
8	SC00509536DCA1	39°34'01"	107°59'55"	01	8,605	Oct. 1977	1,086	855	990	---	---	
9	SC00509703ACB1	39°38'40"	108°15'45"	01	8,120	1975	1,000	830	949	---	6 to	32
10	SC00509704BBD1	39°38'50"	108°17'22"	01	7,778	---	1,230	480	608	---	[1]3 to	270
11	SC00509712CDB1	39°37'22"	108°13'44"	01	7,851	1975	605	432	560	---	None	
12	SC00509714CCA1	39°36'34"	108°14'07"	01	8,120	1975	1,000	654	782	---	3 to	40
13	SC00509716ACC1	39°36'54"	108°16'52"	01	8,251	1975	958	784	910	---	4 to	25
14	SC00509716DCA1	39°36'31"	108°16'44"	01	8,651	---	1,420	1,155	1,272	---	3½ to	881
15	SC00509717ACB1	39°36'55"	108°18'09"	01	8,185	---	---	350?	512?	---	5 to	30
16	SC00509725ABA1	39°35'28"	108°13'23"	01	8,240	---	800	---	---	---	5 to	20
17	SC00509727ABD1	39°35'22"	108°15'39"	01	8,616	---	1,301	1,040	1,145	---	3½ to	209
18	SC00509727ABD2	39°35'22"	108°15'39"	02	8,612	---	1,760	1,040	1,145	1,482	3½ to	1,130
19	SC00509732ACA1	39°34'22"	108°17'52"	01	7,760	---	375	236	330	---	6½ to	30
20	SC00509735BCB1	39°34'18"	108°15'10"	01	8,060	---	120	---	---	---	None	
42	SC00809717BDC1	39°21'38"	108°14'45"	01	5,048	June 1978	39	---	---	---	---	
43	SC00809717CBA1	39°21'29"	108°14'57"	01	5,058	June 1978	47	---	---	---	---	
44	SC00809717CBA2	39°21'31"	108°14'54"	01	5,049	June 1978	49	---	---	---	---	
45	SC00809717CBA3	39°21'34"	108°14'50"	01	5,043	June 1978	39	---	---	---	---	
46	SC00809717CBA4	39°21'32"	108°14'53"	01	5,045	June 1978	42	---	---	---	---	
47	SC00809717CBA5	39°21'32"	108°14'52"	01	5,044	June 1978	40	---	---	---	---	
48	SC00809717CBA6	39°21'32"	108°14'53"	02	5,045	Jan. 1979	40	---	---	---	---	
49	SC00809717CBA7	39°21'31"	108°14'51"	01	5,045	Jan. 1979	40	---	---	---	---	
50	SC00809717CBA8	39°21'29"	108°14'57"	02	5,056	June 1978	54	---	---	---	---	
52	SC00809717CBB1	39°21'31"	108°14'59"	01	5,054	June 1978	45	---	---	---	---	
53	SC00809717CBC1	39°21'25"	108°15'01"	01	5,066	June 1978	49	---	---	---	---	
54	SC00809717CBC2	39°21'27"	108°14'59"	01	5,062	June 1978	45	---	---	---	---	
55	SC00809717CBD1	39°21'28"	108°14'57"	01	5,055	June 1978	54	---	---	---	---	
56	SC00809718AAB1	39°21'54"	108°15'14"	01	5,072	June 1078	40	---	---	---	---	

Table 12.--*Records of selected wells in the Roan Creek and Parachute Creek basins*--Continued

Site number on plate 3	Local identifier	Date drilled	Initial water level (ft)	Transmissivity (ft^2/day)	Interval tested from surface downward (ft)	Remarks
1	SC00509408ACC1	Oct. 1977	730	---	---	C,S,D-Uinta base at 700 ft
2	SC00509419DDD1	Oct.-Nov. 1977	500-550	20	997	C,S,D,W-Water zone above Mahogany zone
				10	1,650	Uinta base at 500 ft
3	SC00509421CDC1	Oct. 1977	520	420	900	C,S,D,W-Uinta base at 525 ft
				520	1,547	
4	SC00509501BDC1	Oct.-Nov. 1977	630	---	---	C,S,D,W-Uinta base at 825 ft
5	SC00509514CBD1	Sept.-Oct. 1977	760	20	1,054	C,S,D-Uinta base at 650 ft
				100	1,248	Upper zone 0-900 ft
				100	1,920	Middle zone 1,100-1,200 ft
						Lower zone below 1,300 ft
8	SC00509536DCA1	Oct. 1977	590	240	1,086	C,S,D-One water zone below Mahogany zone
						Small inflow above Mahogany zone
						Uinta base at 600 ft
9	SC00509703ACB1	1975	199	---	---	C,T,D
10	SC00509704BBD1	---	flowing	---	---	C,T,D-Gassy well
11	SC00509712CDB1	1975	88	---	---	C,T-No measureable vertical flow
12	SC00509714CCA1	1975	153	---	---	C,T,D
13	SC00509716ACC1	1975	112	---	---	C,T,D
14	SC00509716DCA1	---	841	---	---	C,T,D
15	SC00509717ACB1	---	174	---	---	C,T,D
16	SC00509725ABA1	---	163	---	---	C,T
17	SC00509727ABD1	---	572	---	---	C,T
18	SC00509727ABD2	---	620	---	---	C,T
19	SC00509732ACA1	---	252	---	---	C,T-Muddy hole
20	SC00509735BCB1	---	28	---	---	C,T
42	SC00809717BDC1	June 1978	16	---	---	Al,W
43	SC00809717CBA1	June 1978	26	---	---	Al,L,W
44	SC00809717CBA2	June 1978	20	---	---	Al,W
45	SC00809717CBA3	June 1978	12	---	---	Al,W
46	SC00809717CBA4	June 1978	16	---	---	Al,L,W
47	SC00809717CBA5	June 1978	14	---	---	Al,W
48	SC00809717CBA6	Jan. 1979	16	---	---	Al,W
49	SC00809717CBA7	Jan. 1979	19	---	---	Al,W
50	SC00809717CBA8	June 1978	26	---	---	Al,W
52	SC00809717CBB1	June 1978	24	---	---	Al
53	SC00809717CBC1	June 1978	41	---	---	Al
54	SC00809717CBC2	June 1978	32	---	---	Al,W
55	SC00809717CBD1	June 1978	26	---	---	Al,W
56	SC00809718AAB1	June 1978	35	---	---	Al,W

[1]Inside 6-inch casing

SUPPLEMENTAL WELL DATA
(Figures 6-35)

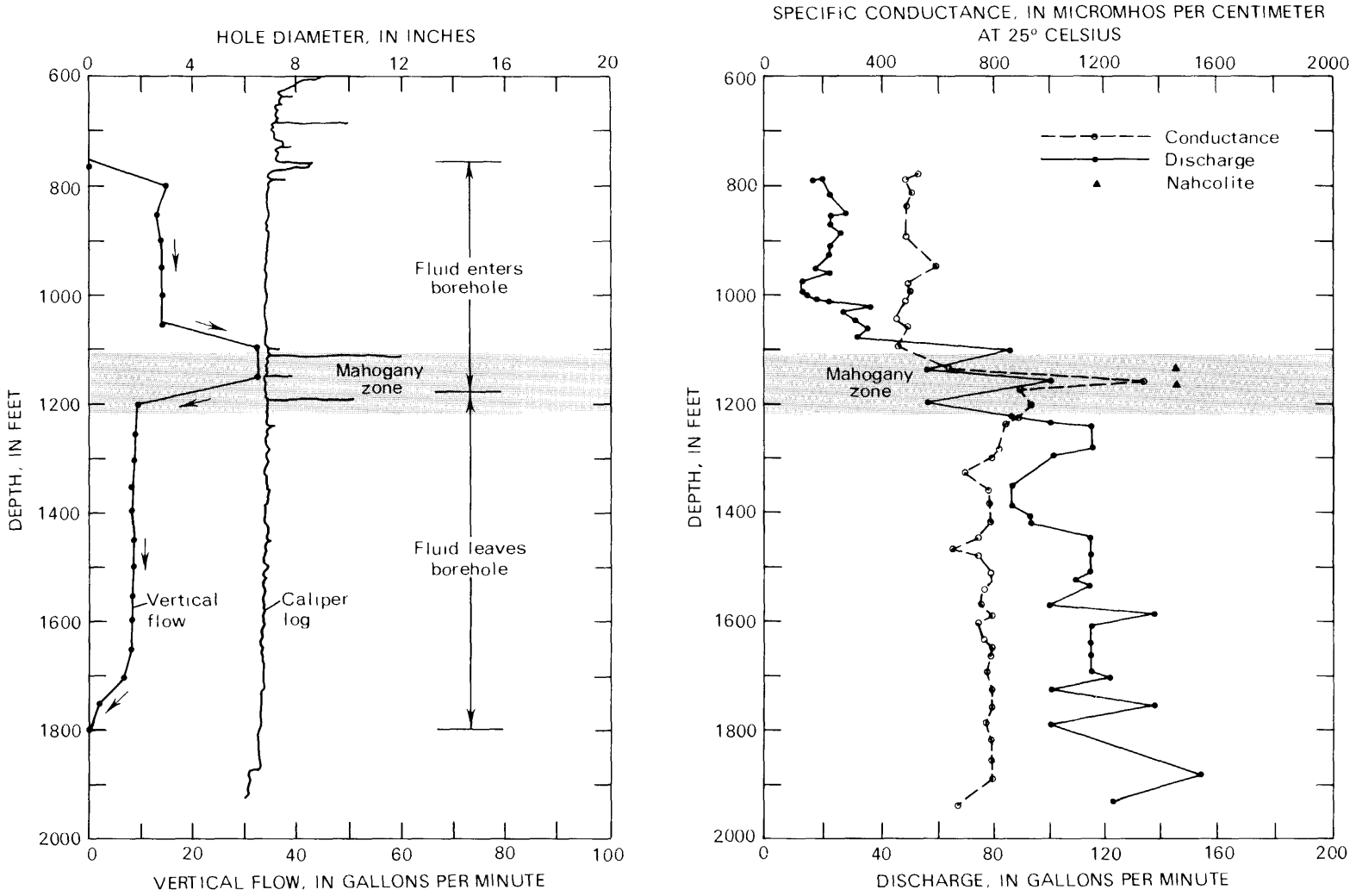


Figure 6.--Well no. 1--Vertical-flow data from radioactive-tracer logs, caliper log, and discharge and specific-conductance logs of fluids produced during drilling.

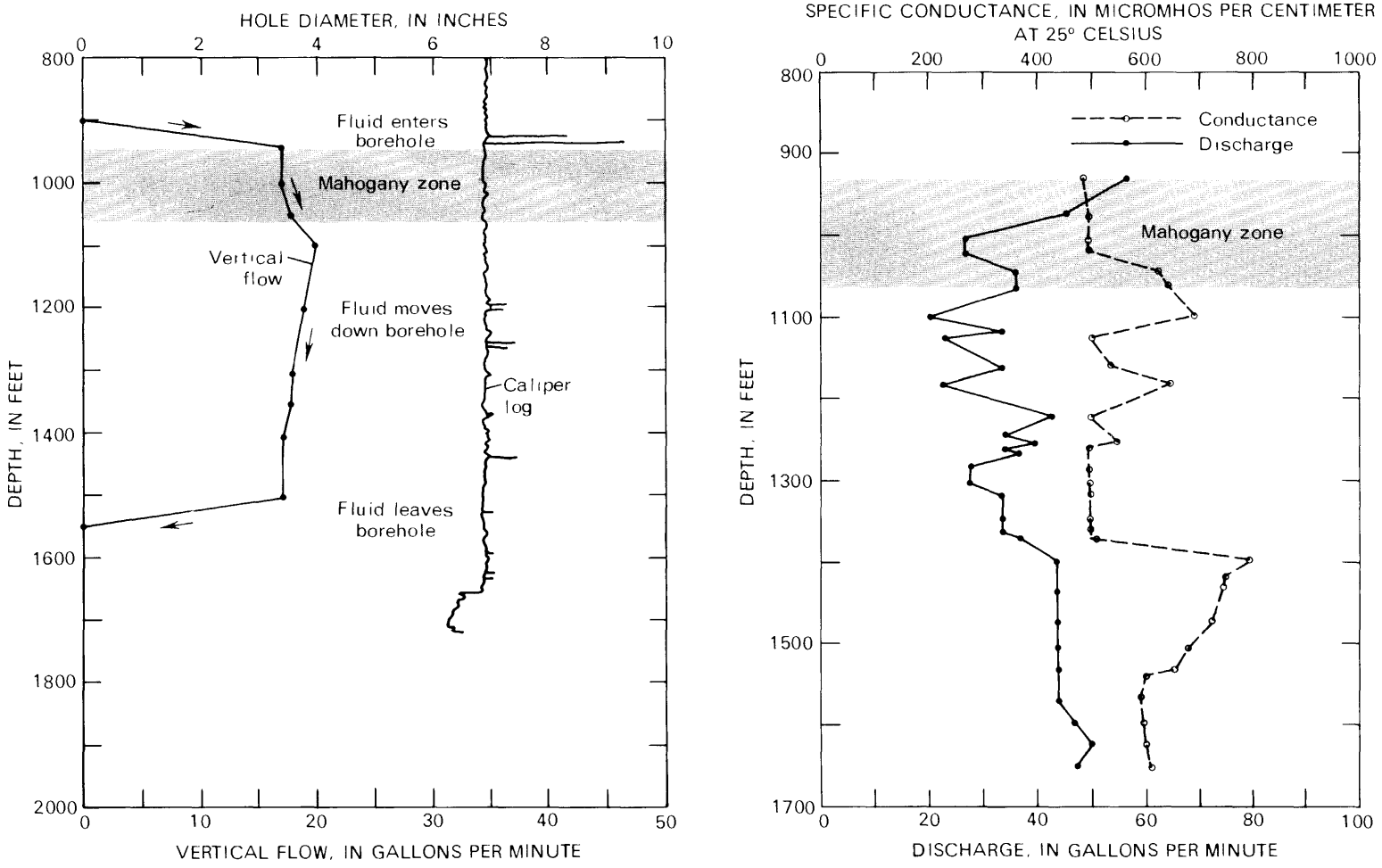


Figure 7.--Well no. 2--Vertical-flow data from radioactive-tracer logs, caliper log, and discharge and specific-conductance logs of fluids produced during drilling.

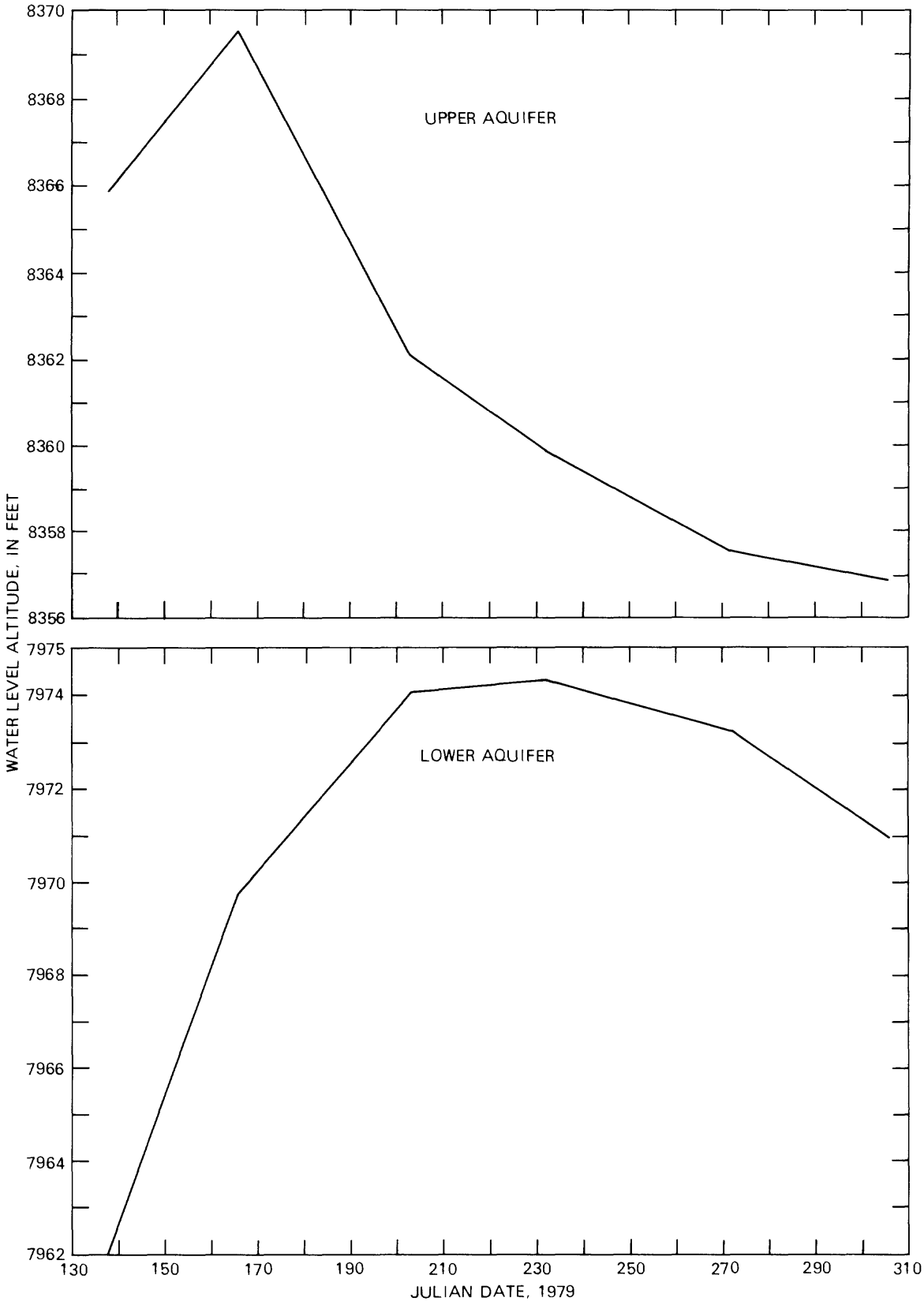


Figure 8.--Well no. 2--Water levels of upper and lower aquifers.

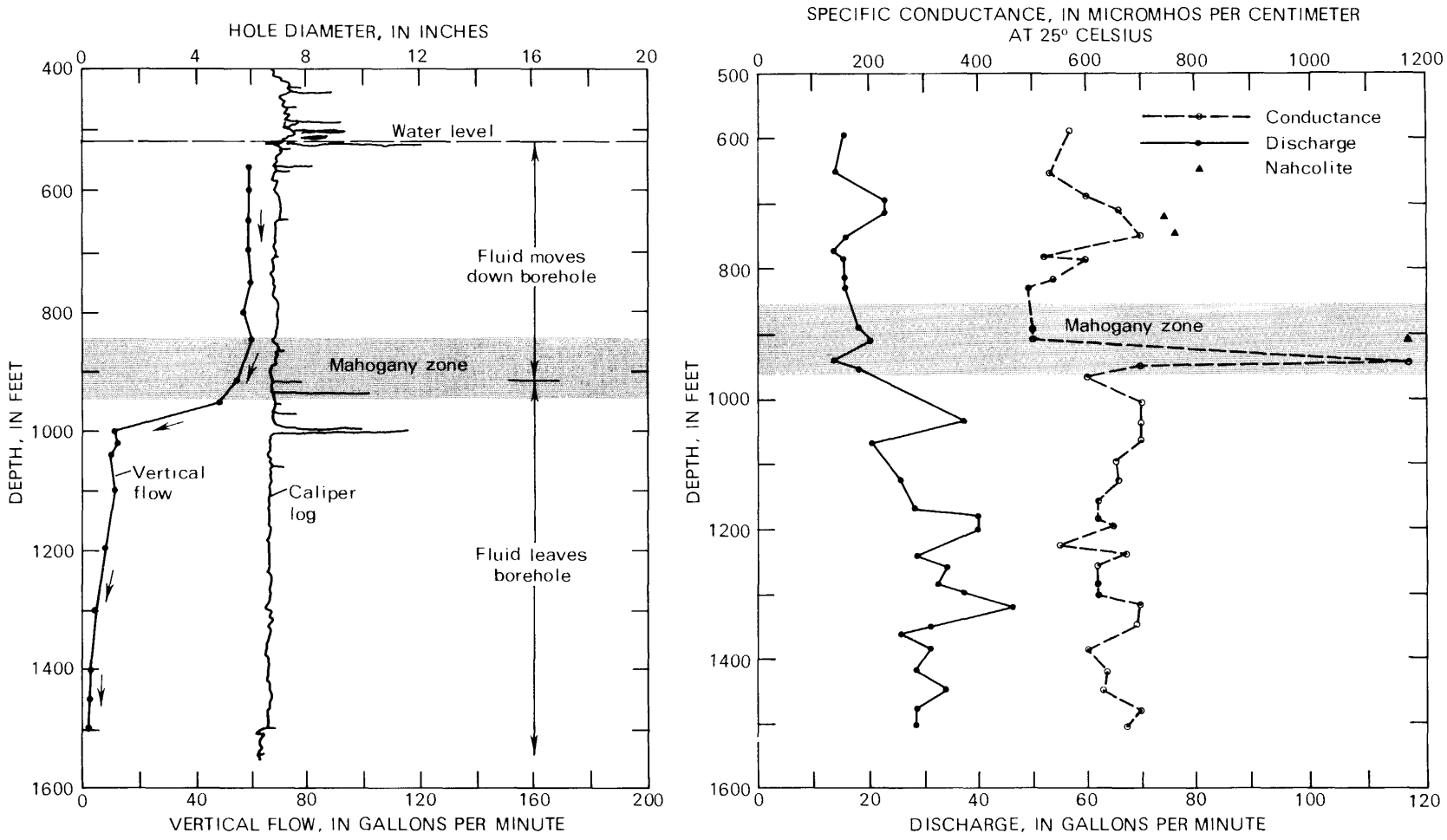


Figure 9.--Well no. 3--Vertical-flow data from radioactive-tracer logs, caliper log, and discharge and specific-conductance logs of fluids produced during drilling.

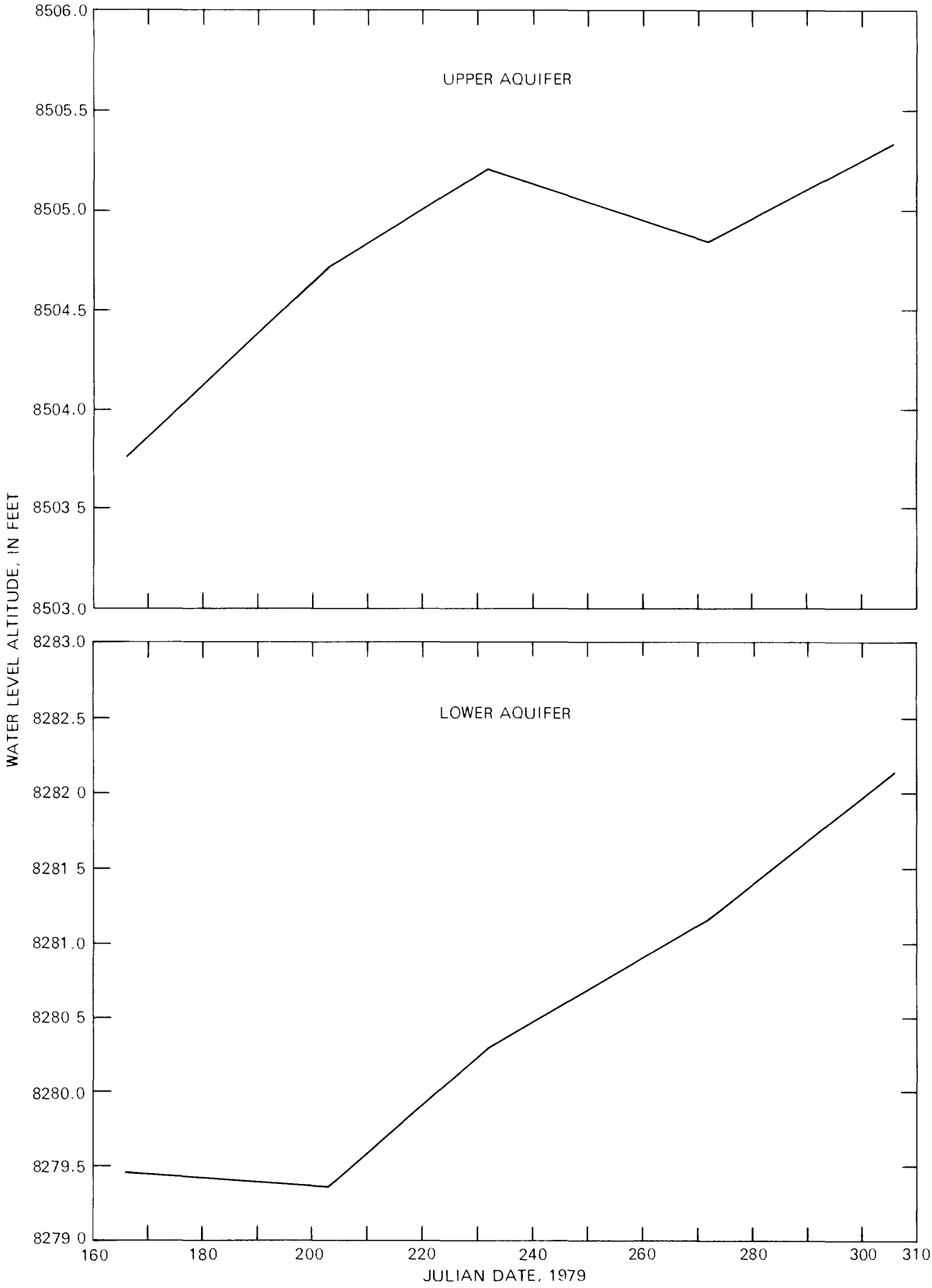


Figure 10.--Well no. 3--Water levels of upper and lower aquifers.

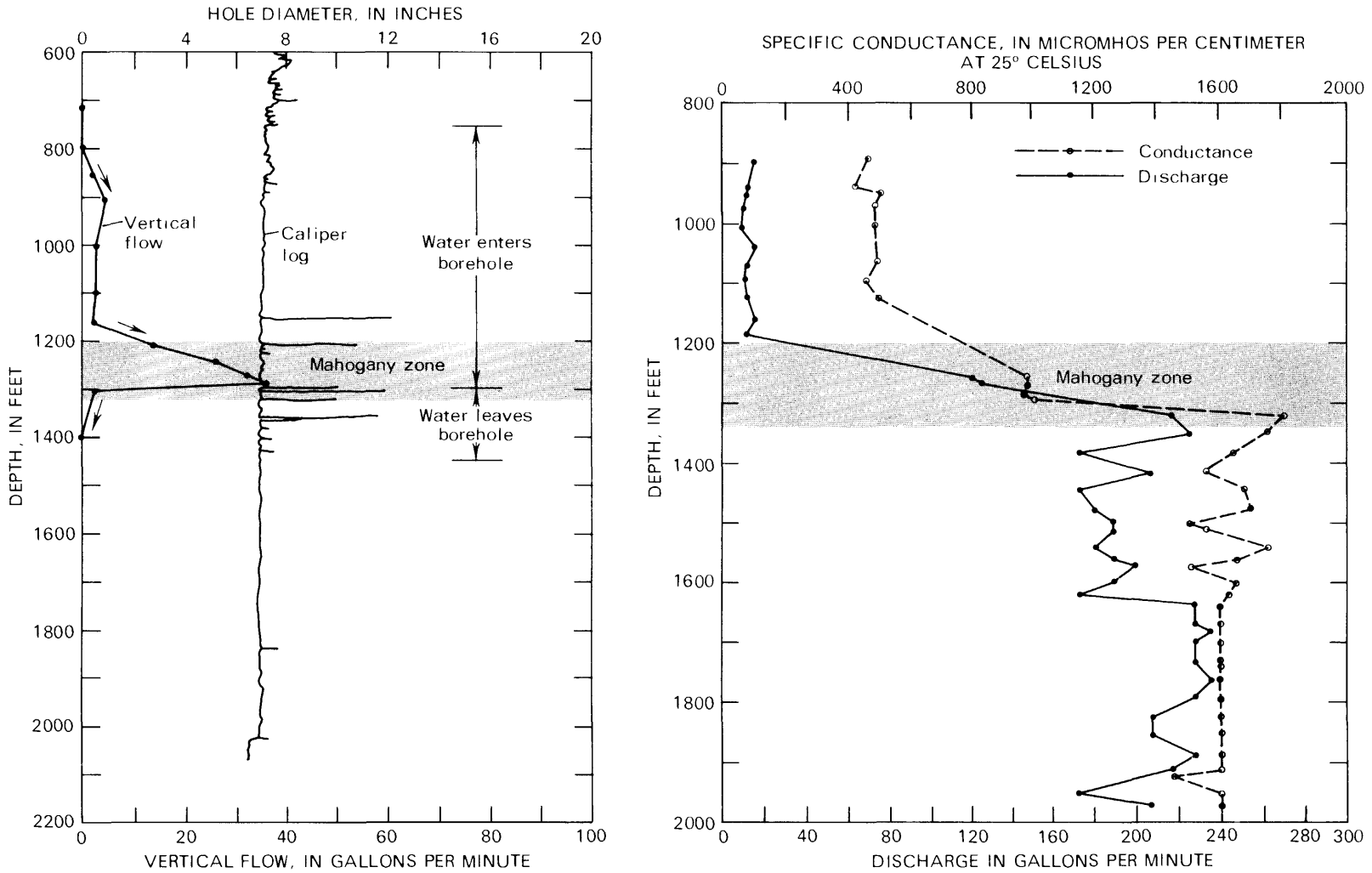


Figure 11.--Well no. 4--Vertical-flow data from radioactive-tracer logs, caliper log, and discharge and specific-conductance logs of fluids produced during drilling.

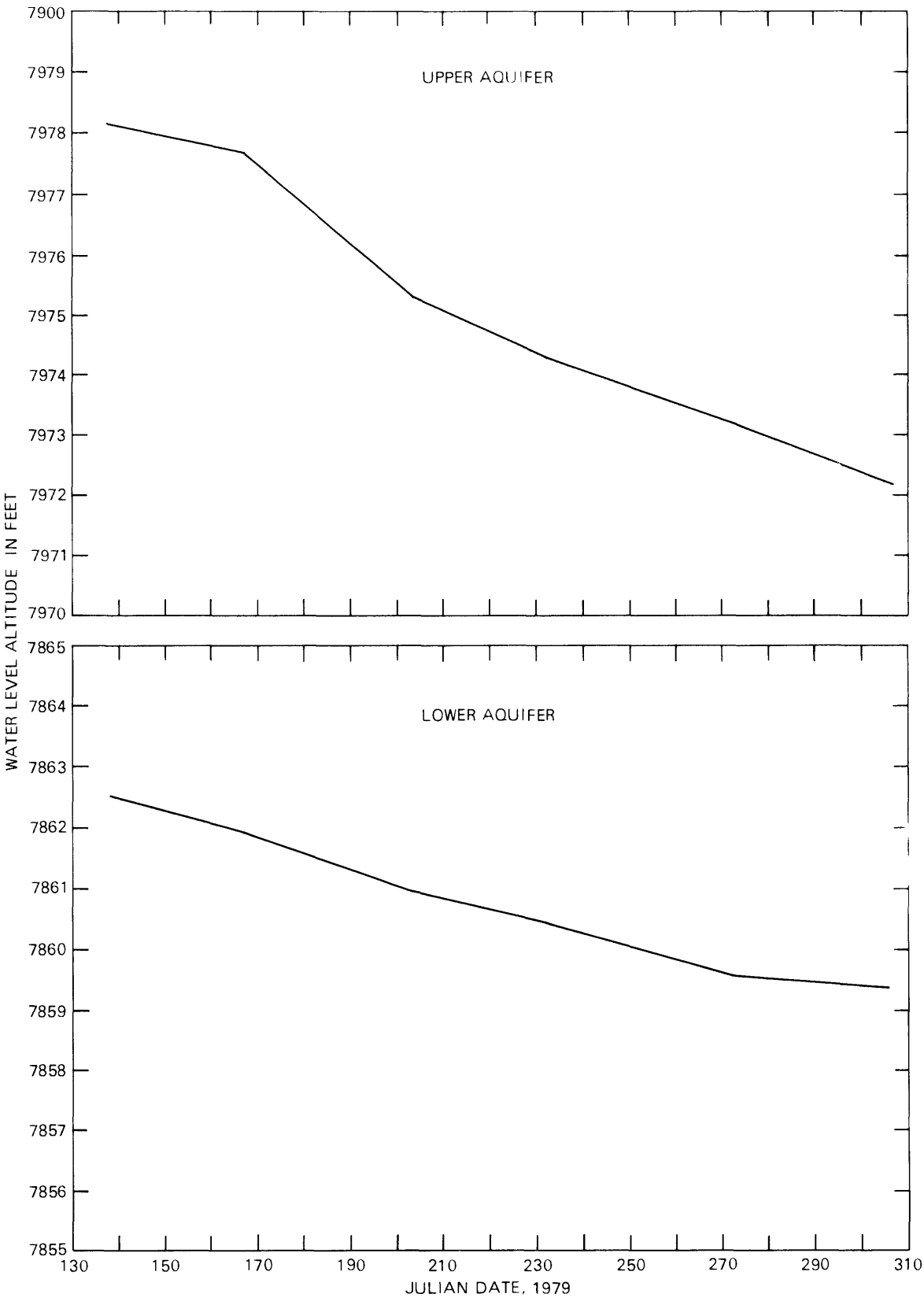


Figure 12.--Well no. 4--Water levels of upper and lower aquifers.

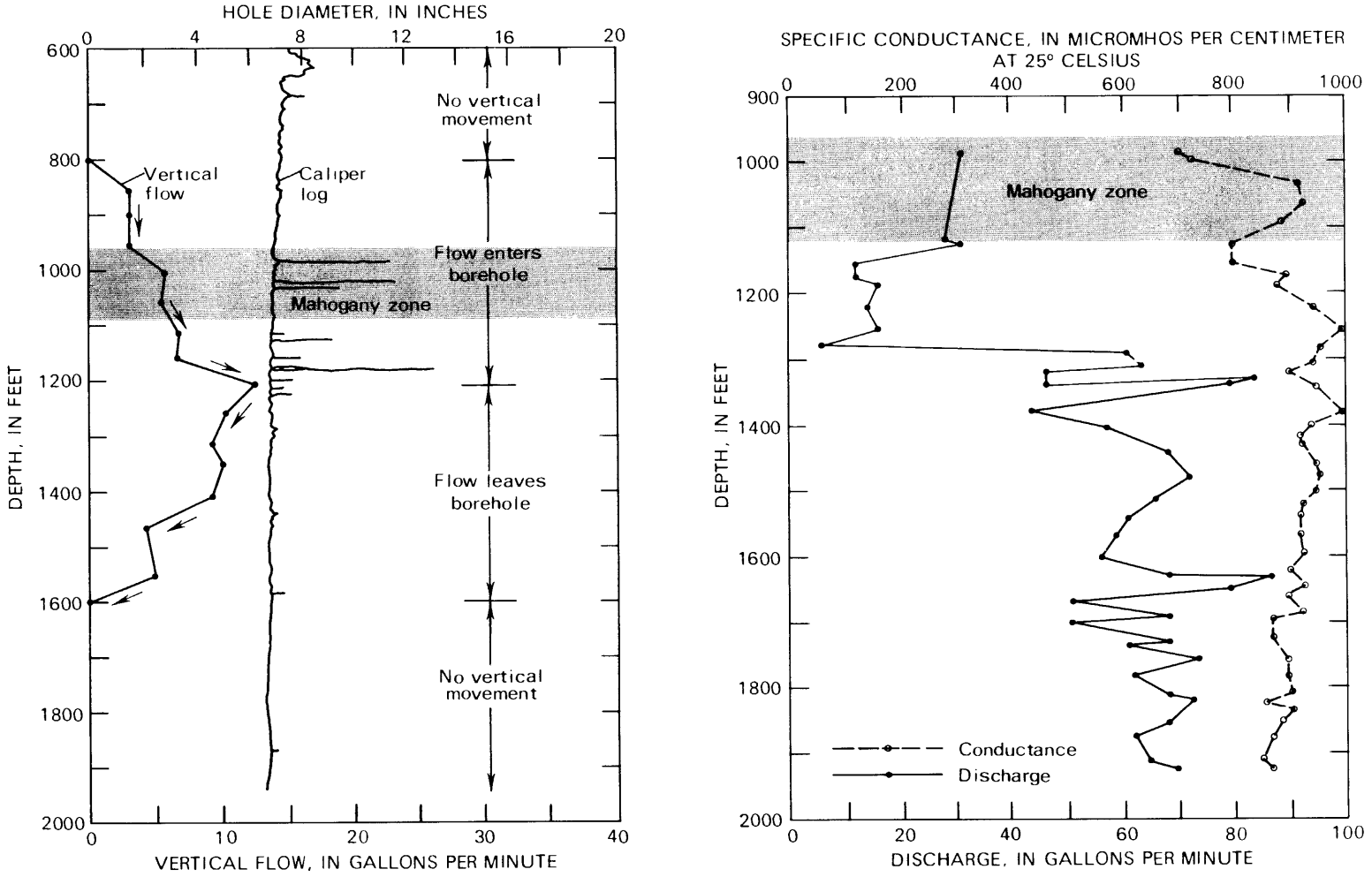


Figure 13.--Well no. 5--Vertical-flow data from radioactive-tracer logs, caliper log, and discharge and specific-conductance logs of fluids produced during drilling.

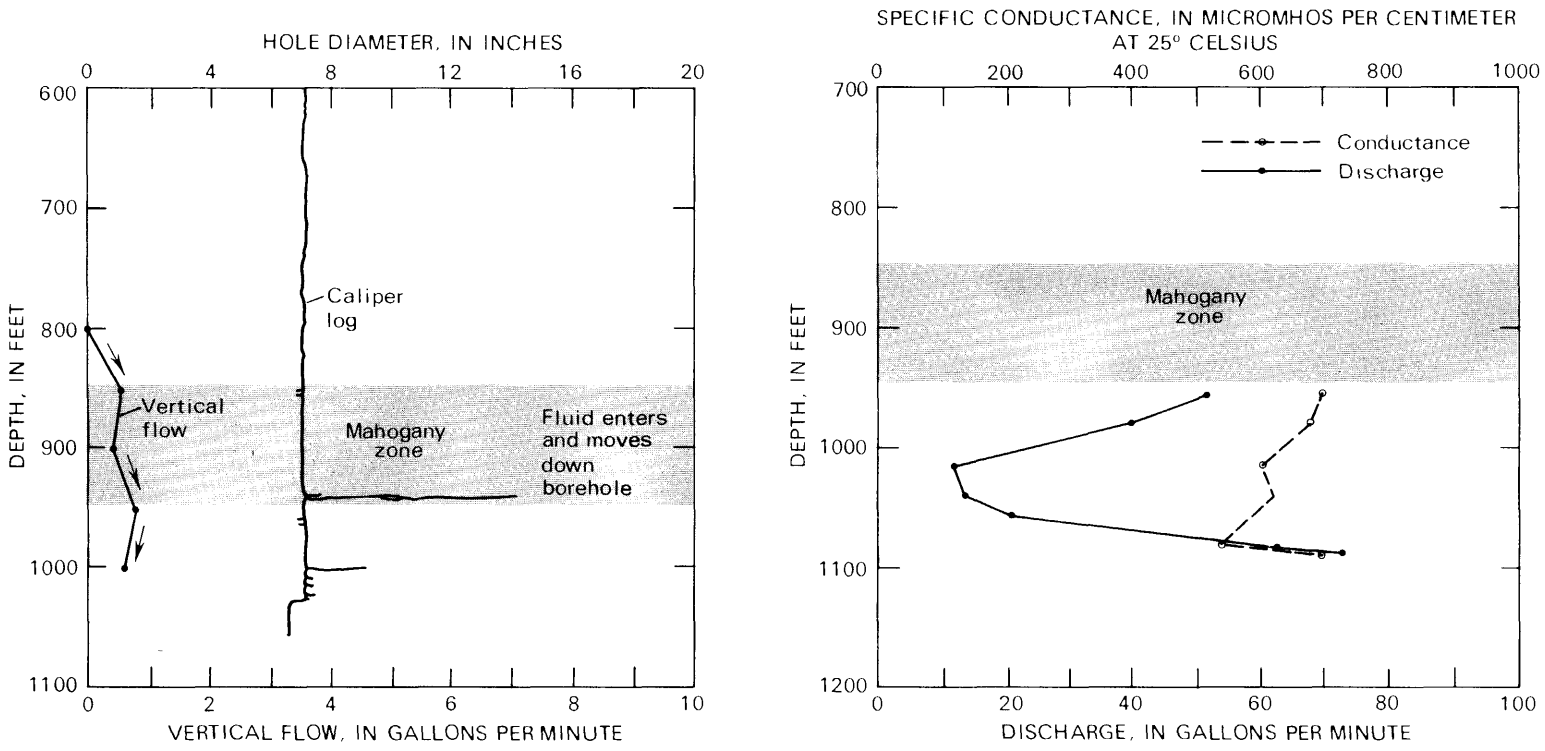


Figure 14.--Well no. 8--Vertical-flow data from radioactive-tracer logs, caliper log, and discharge and specific-conductance logs of fluids produced during drilling.

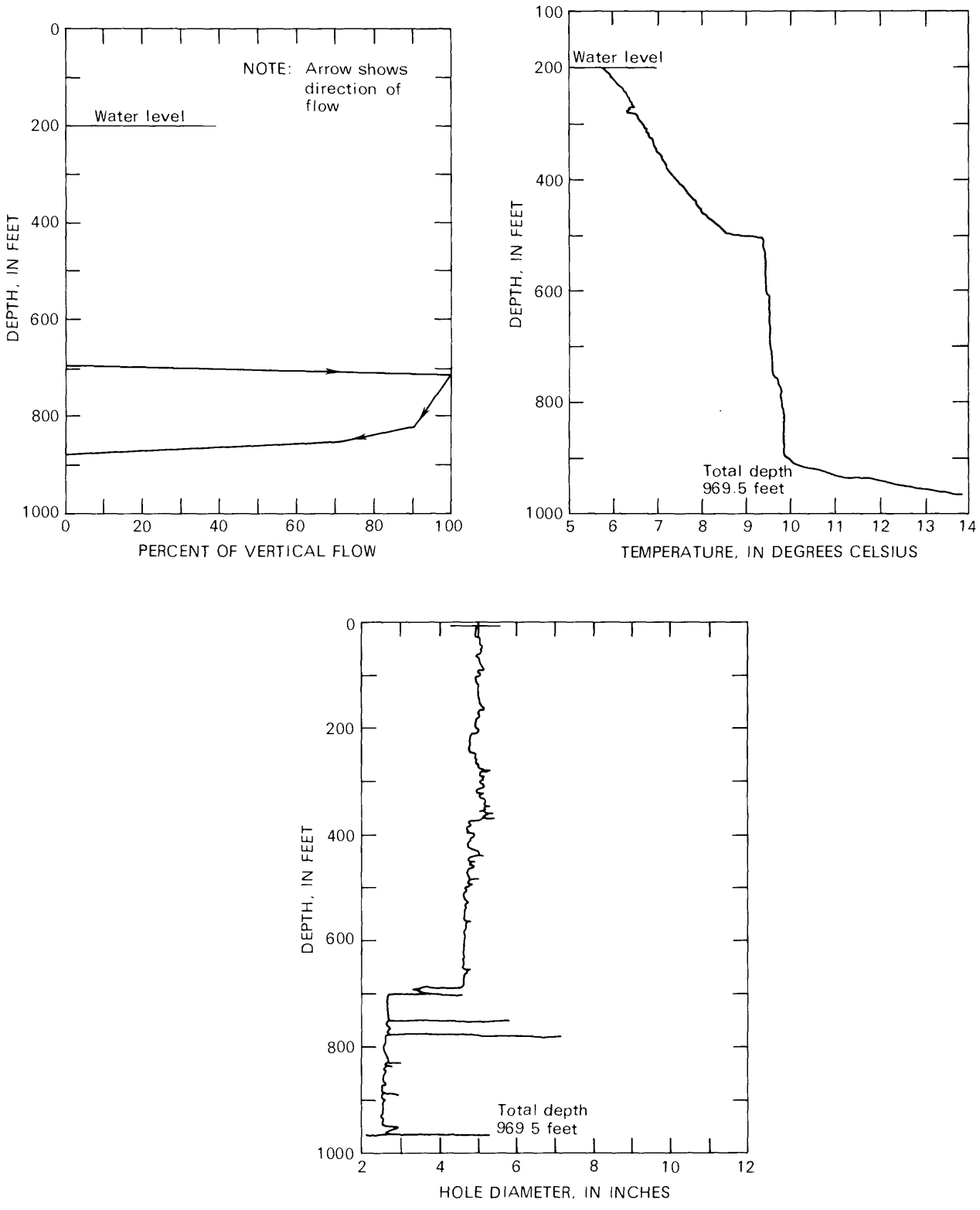


Figure 15.--Well no. 9--Vertical-flow, caliper, and temperature logs.

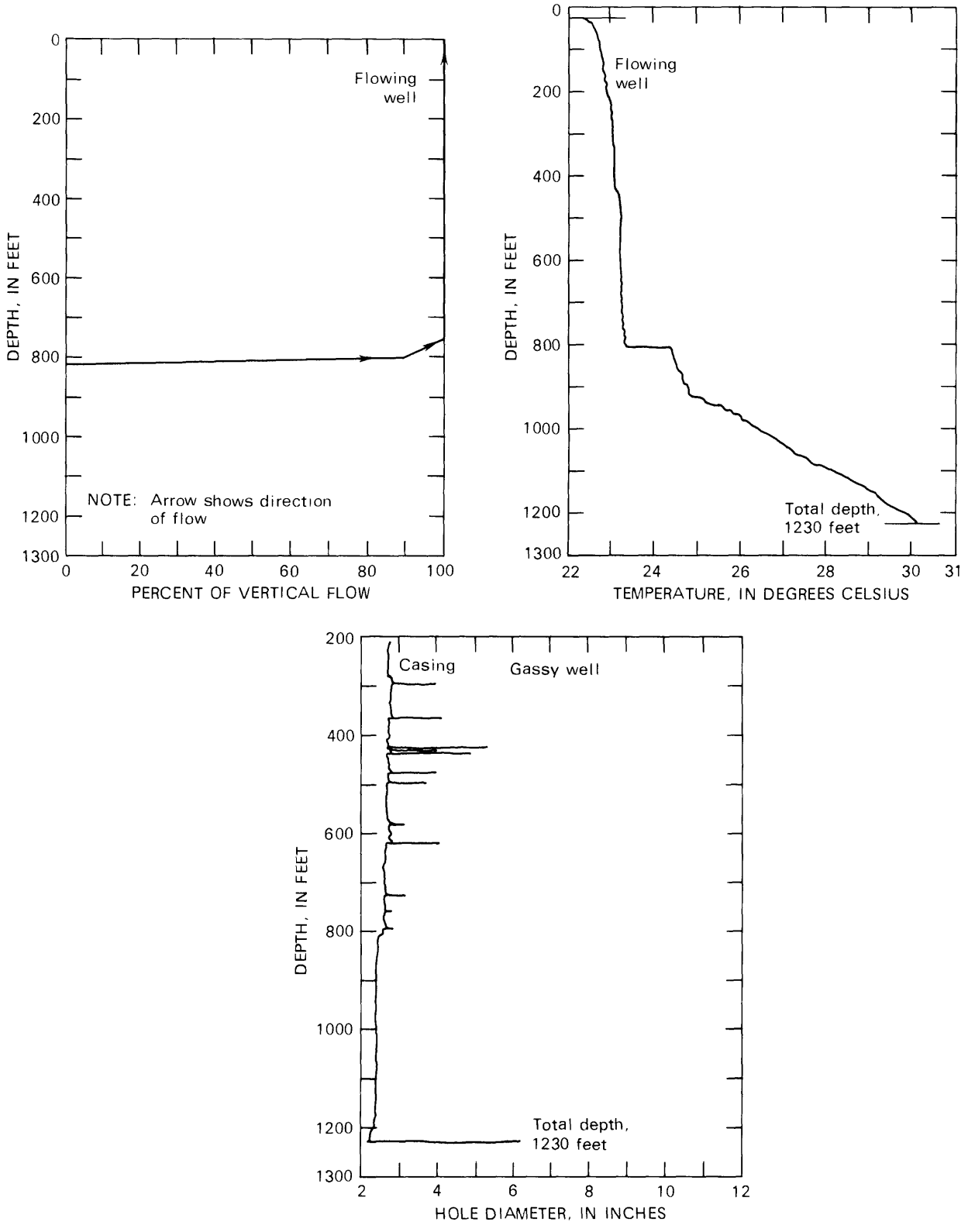


Figure 16.--Well no. 10--Vertical-flow, caliper, and temperature logs.

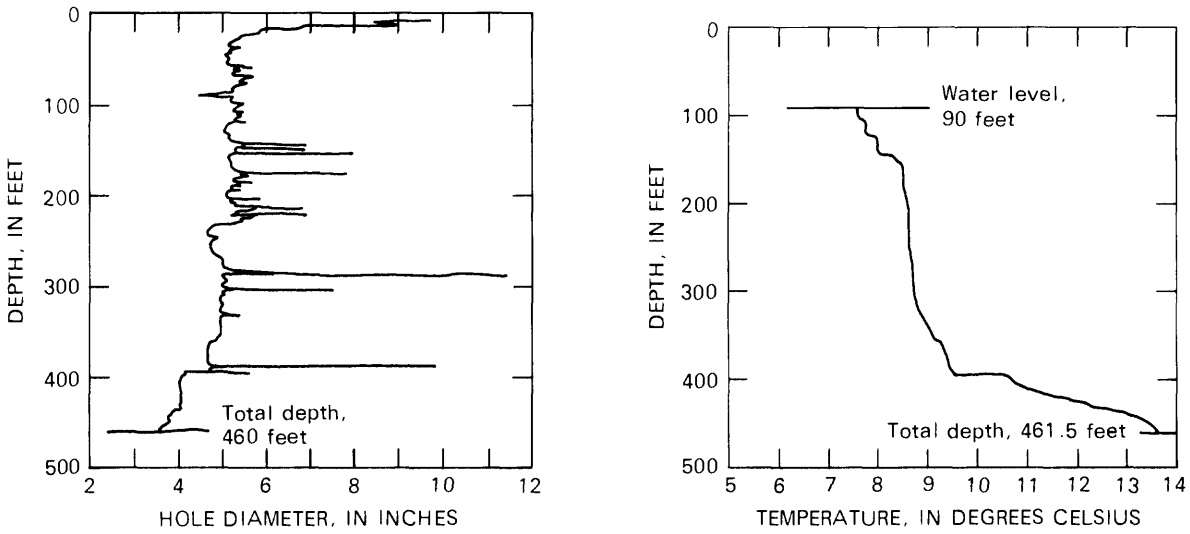


Figure 17.--Well no. 11--Caliper and temperature logs.

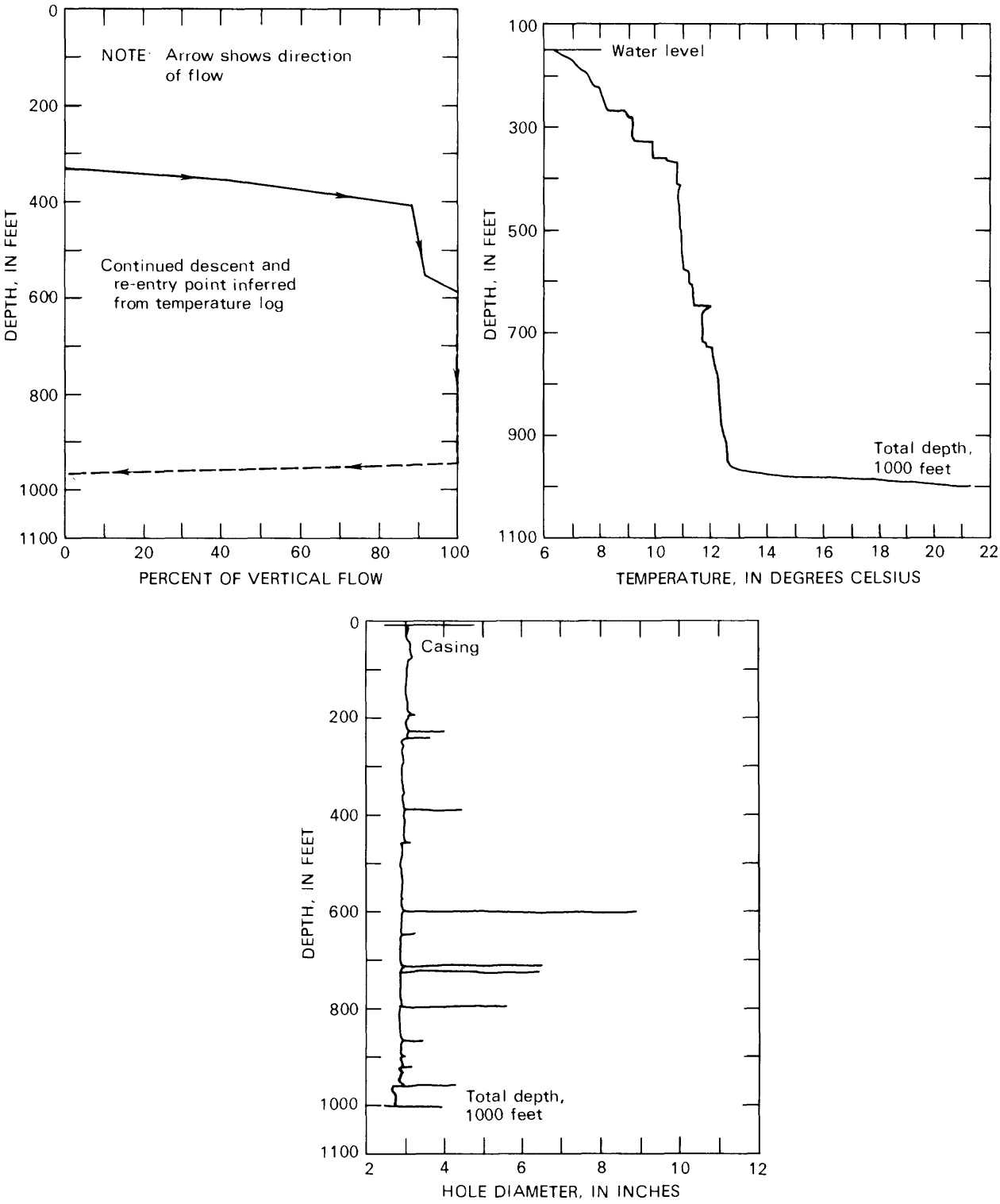


Figure 18.--Well no. 12--Vertical-flow, caliper, and temperature logs.

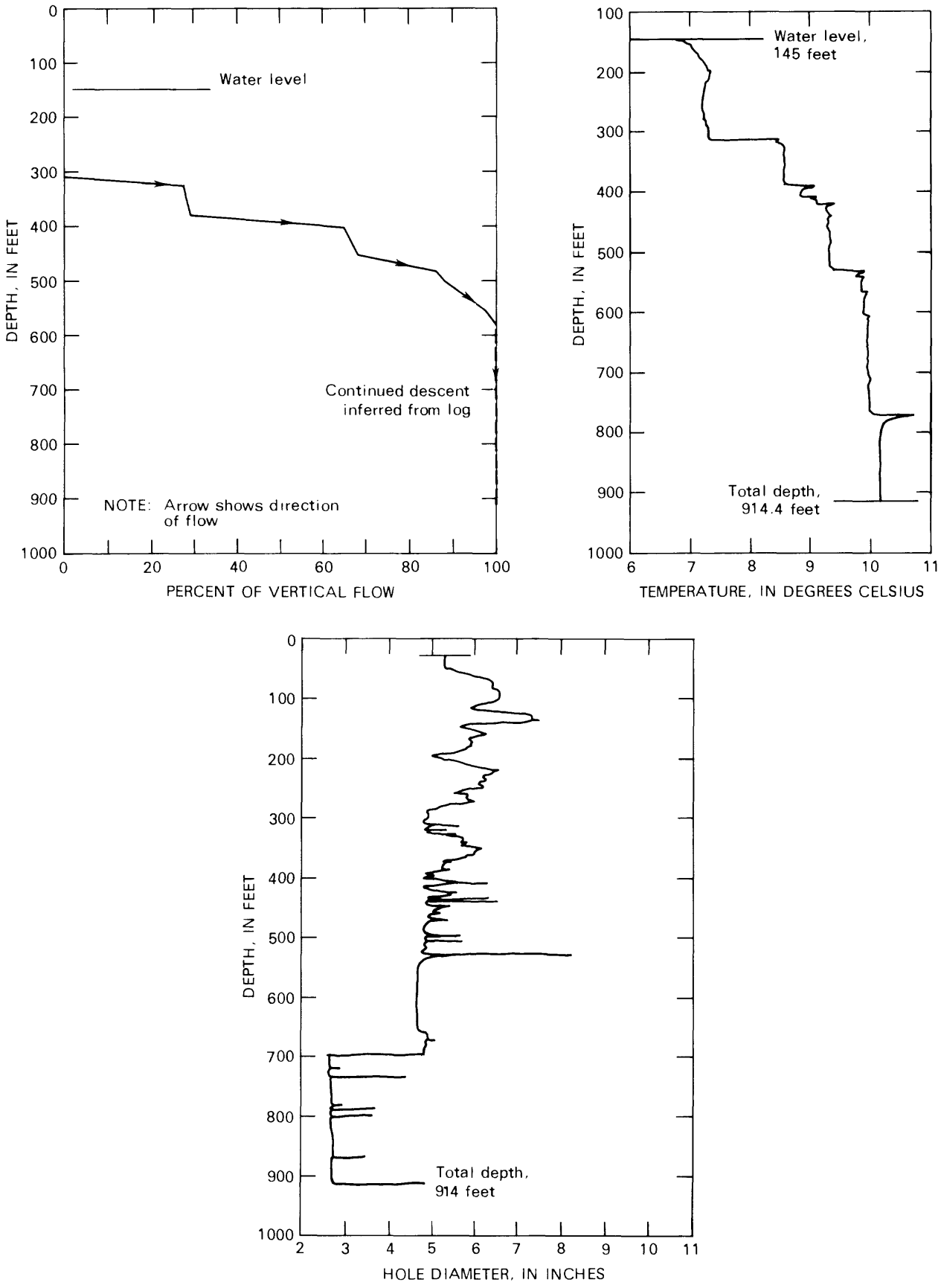


Figure 19.--Well no. 13--Vertical-flow, caliper, and temperature logs.

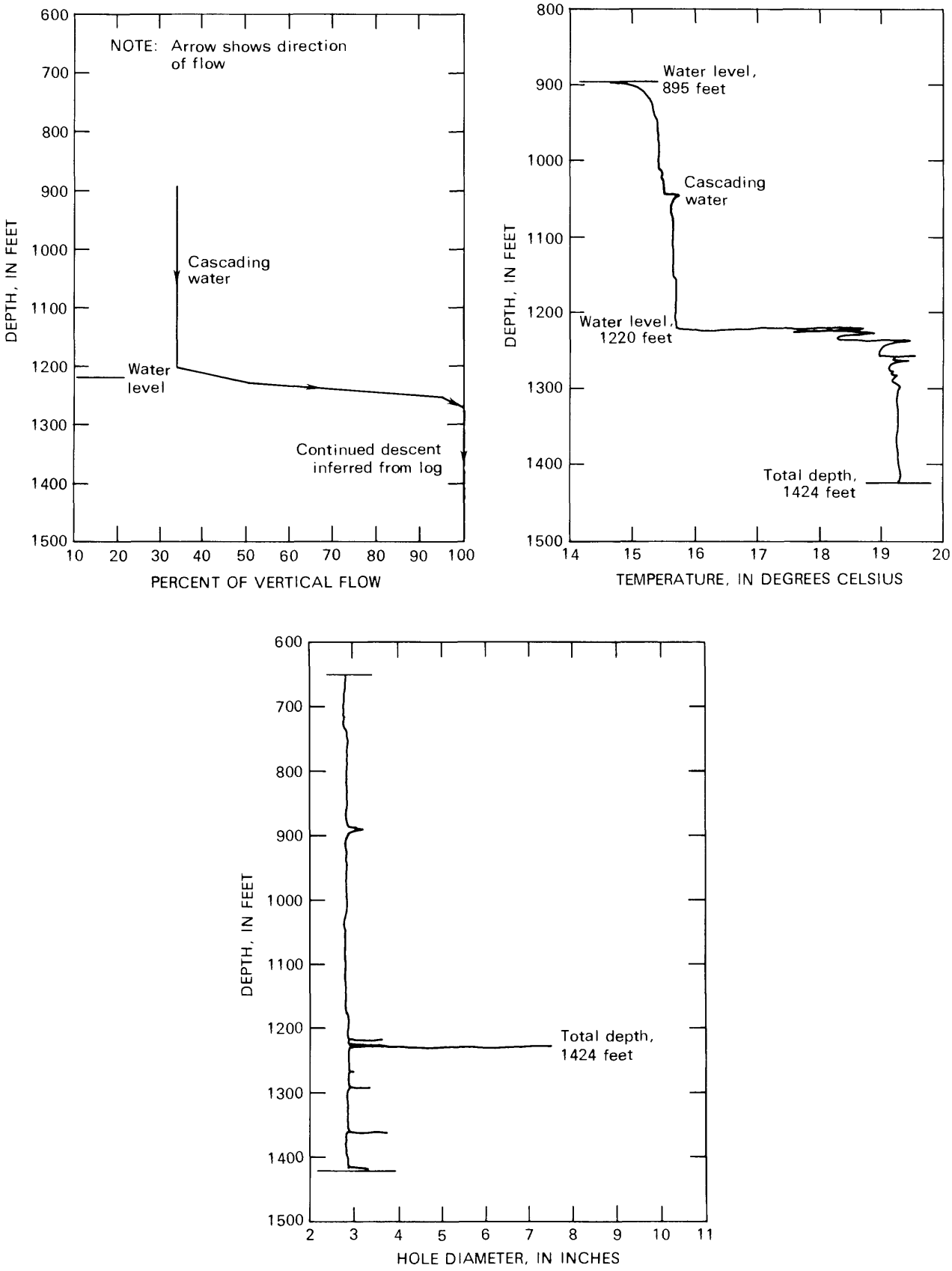


Figure 20.--Well no. 14--Vertical-flow, caliper, and temperature logs.

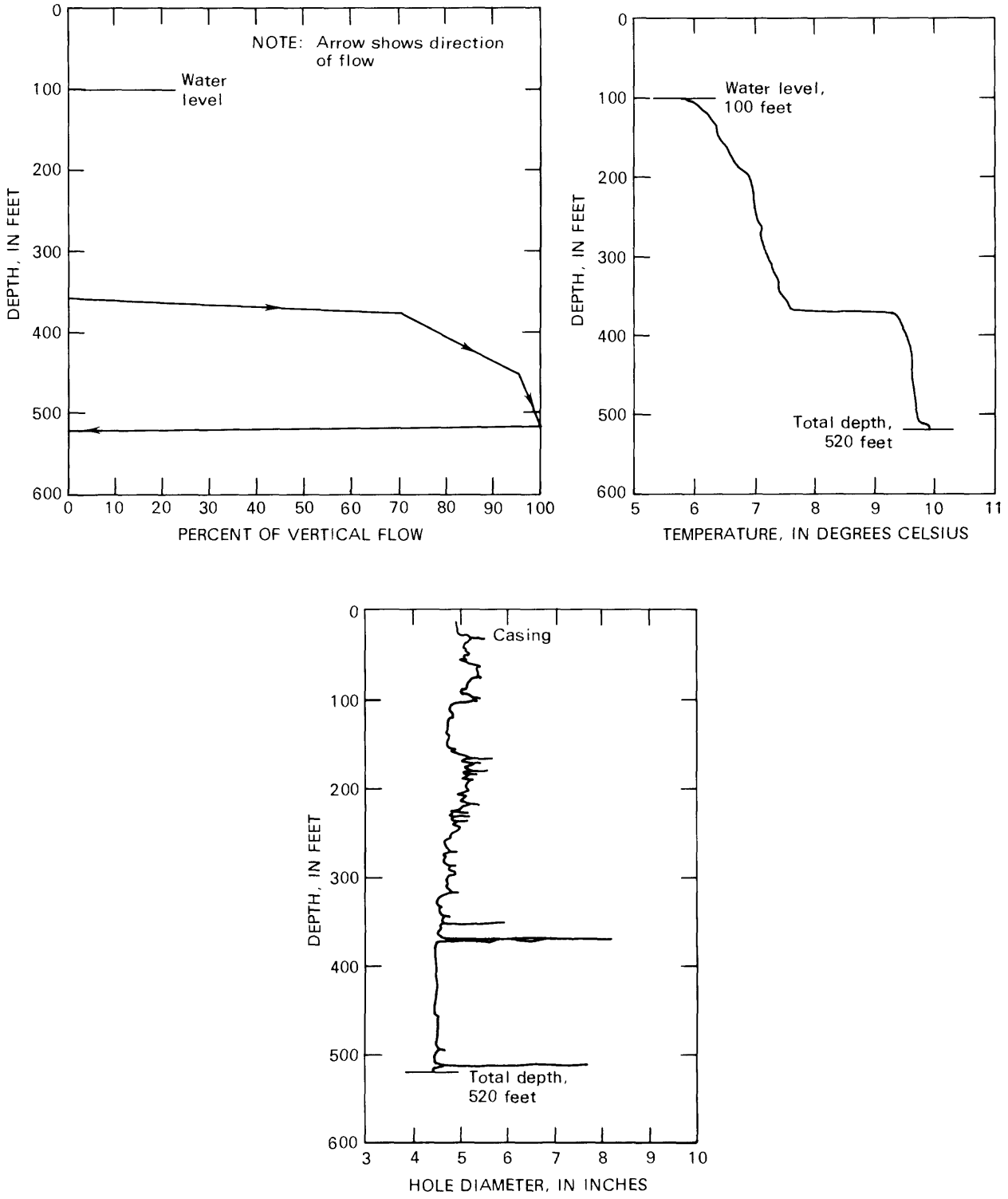


Figure 21.--Well no. 15--Vertical-flow, caliper, and temperature logs.

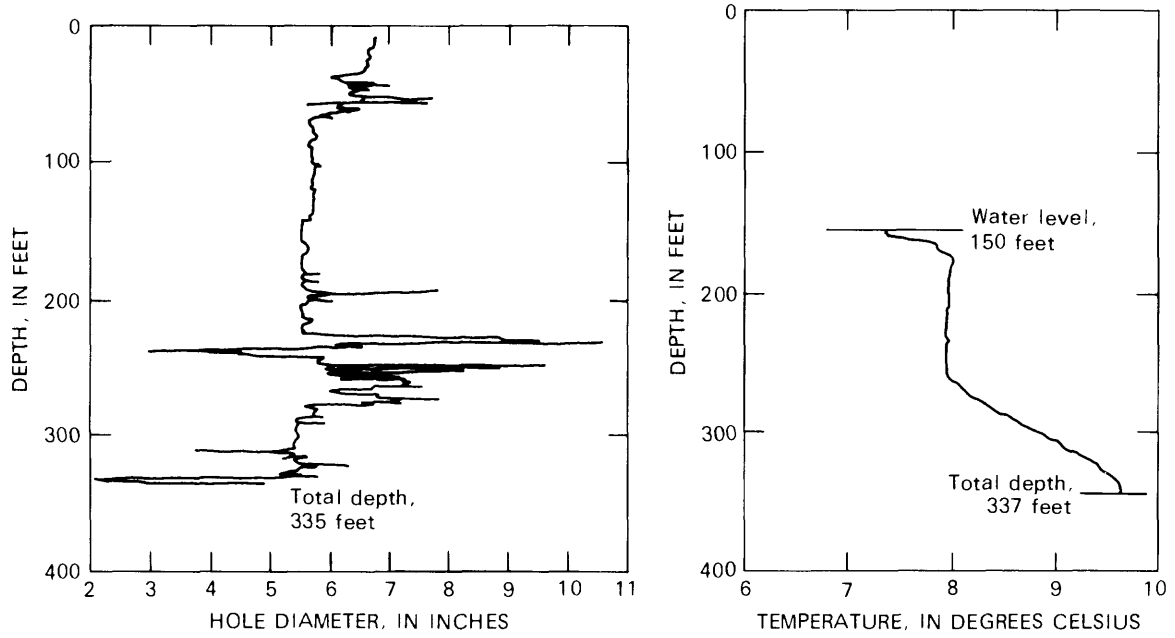


Figure 22.--Well no. 16--Caliper and temperature logs.

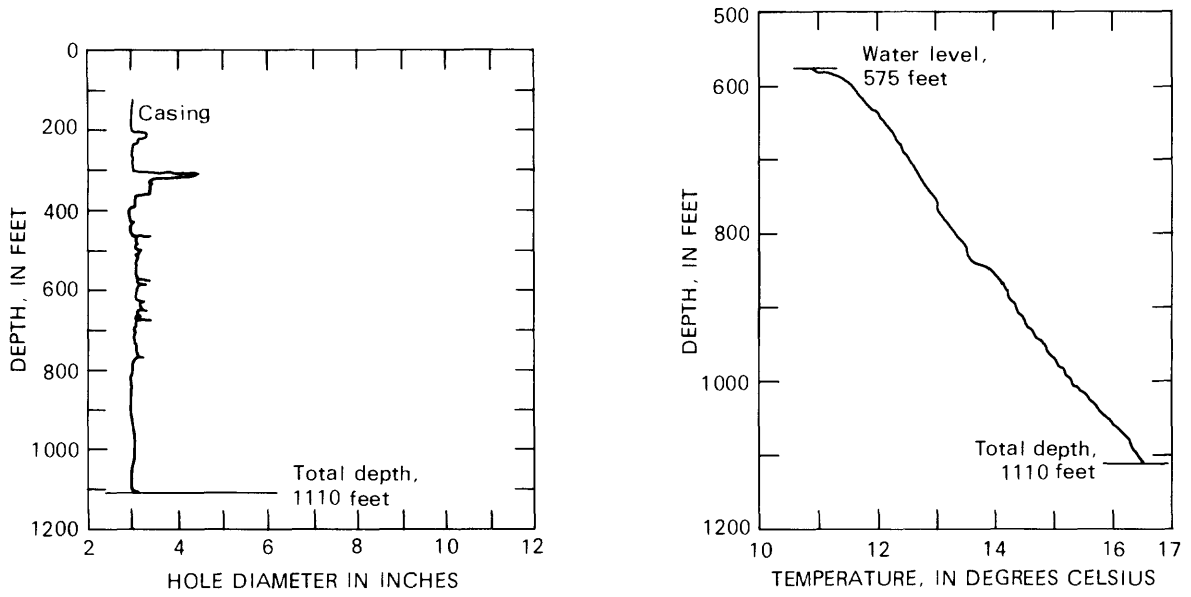


Figure 23.--Well no. 17--Caliper and temperature logs.

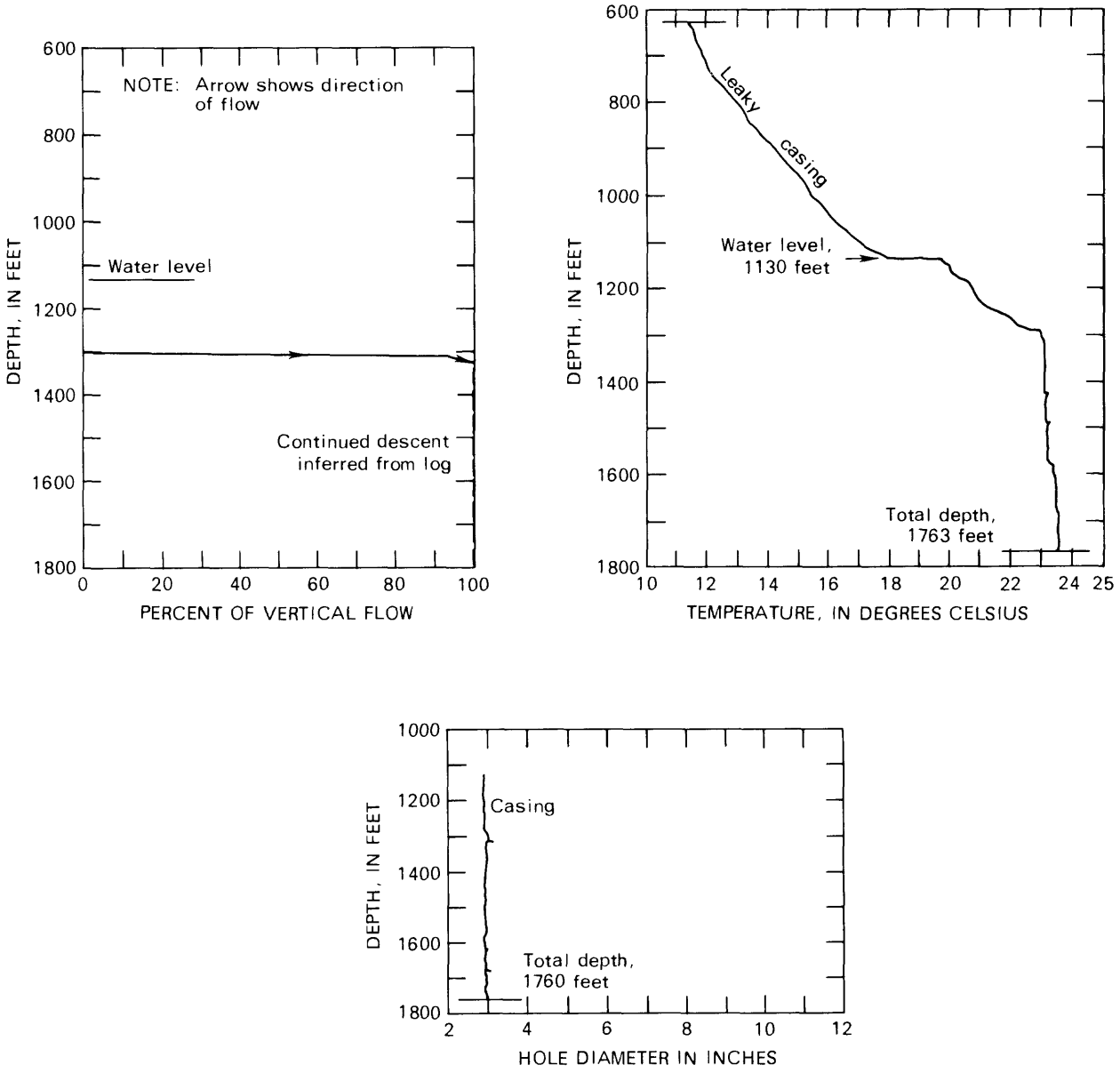


Figure 24.--Well no. 18--Vertical-flow, caliper, and temperature logs.

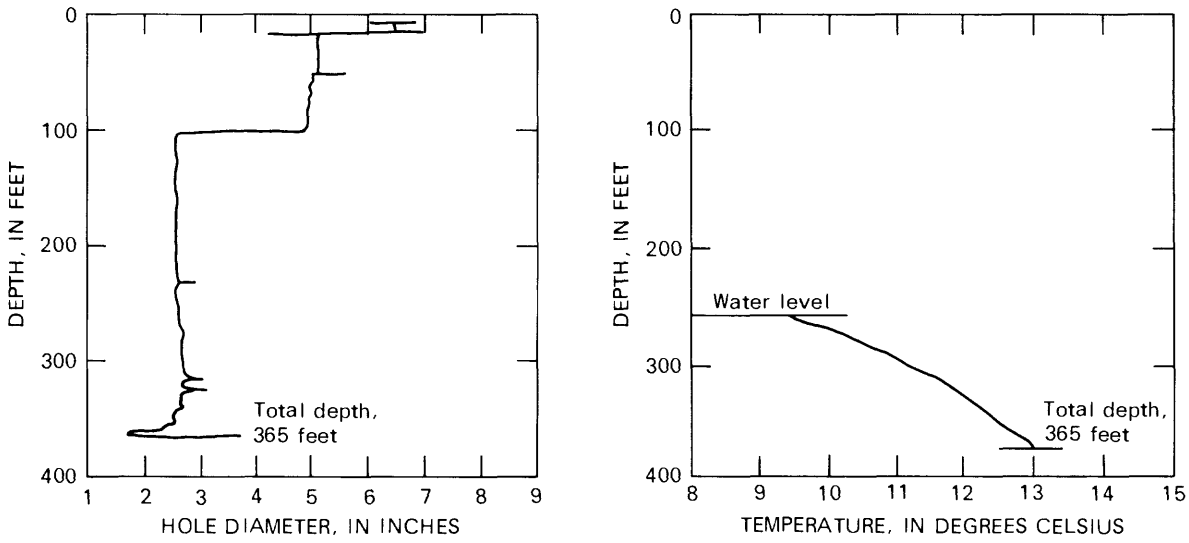


Figure 25.--Well no. 19--Caliper and temperature logs.

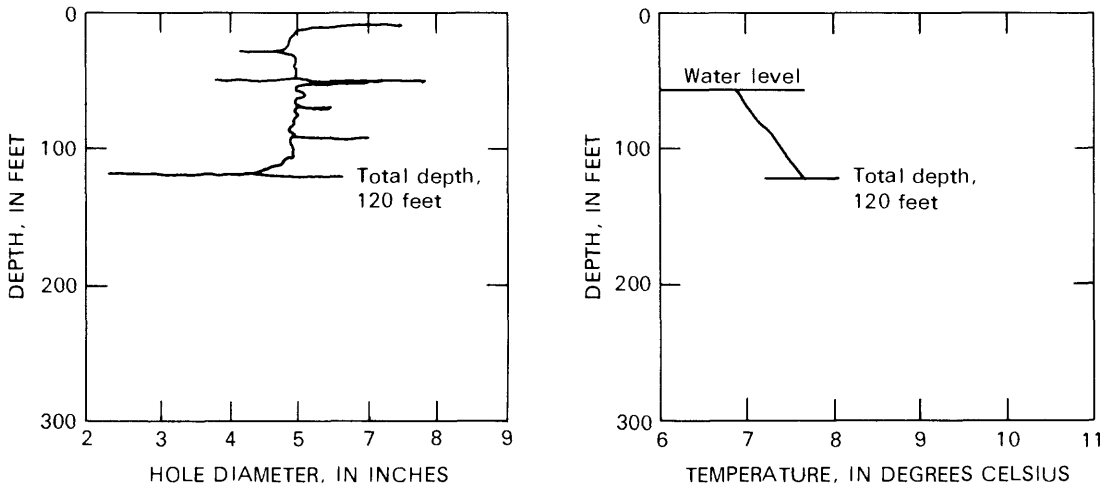


Figure 26.--Well no. 20--Caliper and temperature logs.

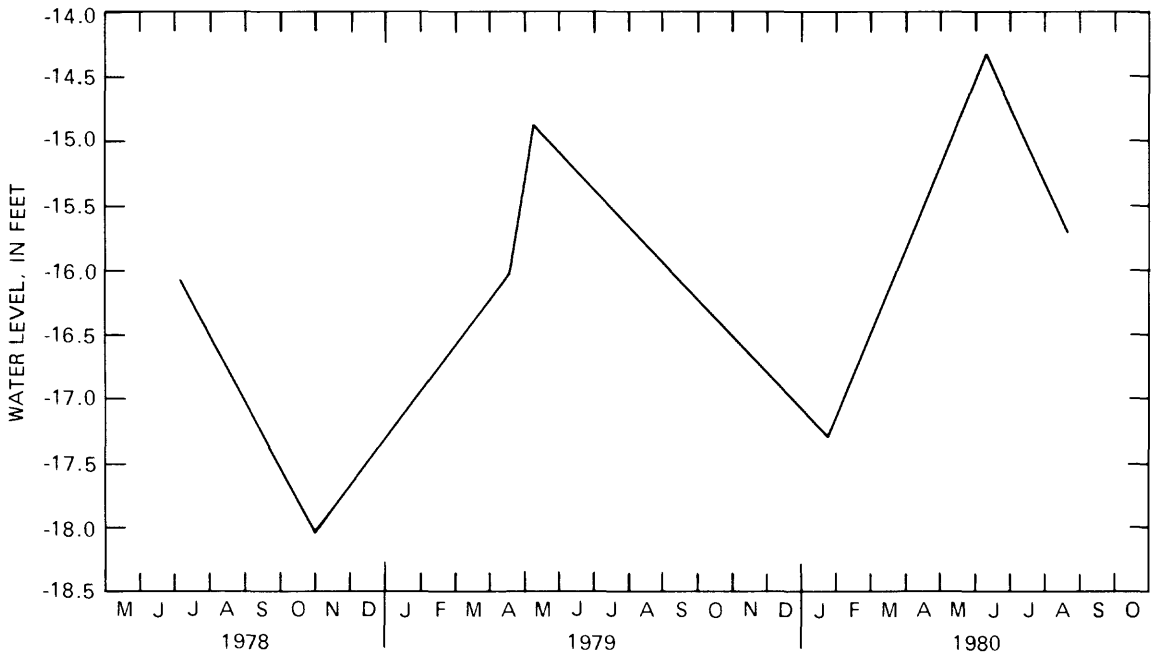
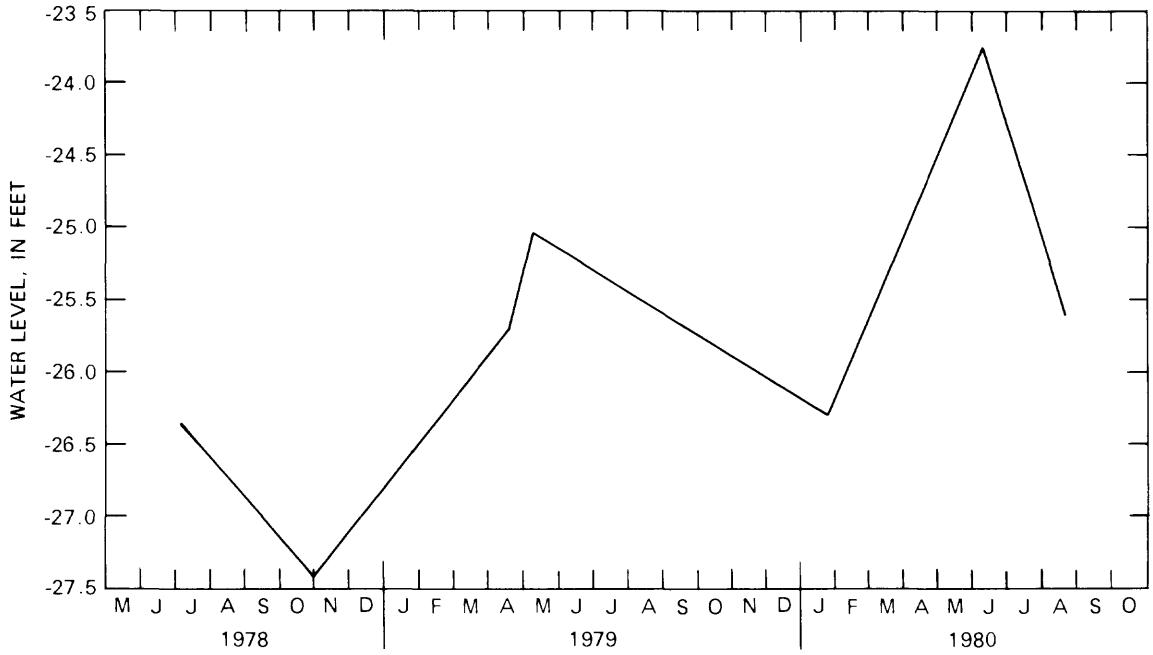


Figure 27.--Well no. 42--Water-level hydrograph.



LITHOLOGY	ALLUVIUM	FROM (feet)	TO (feet)	REMARKS
	Surface material	0	5	
	Clay, brownish-gray	5	12	
	Clay, dark brown	12	15	
	Gravel, greater than 1/4-inch, well-rounded; calcareous	15	16	
	Clay, sandy; contains some gravel; calcareous	16	22	
	Clay, sandy; grades downward into sandier material containing gravel; calcareous	22	25	
	Clay, sand, gravel	25	27	
	Sand, coarse, gravel larger than 1-inch, some clay, calcareous	27	30	
	Clay, brown, sand, and gravel larger than 1/4-inch; calcareous	30	34	
	Clay, gray, some sand and gravel	34	41	
	Clay, gray	41	47	Hard drilling contact with Wasatch Formation

Figure 28.--Well no. 43--Water-level hydrograph and lithologic log.

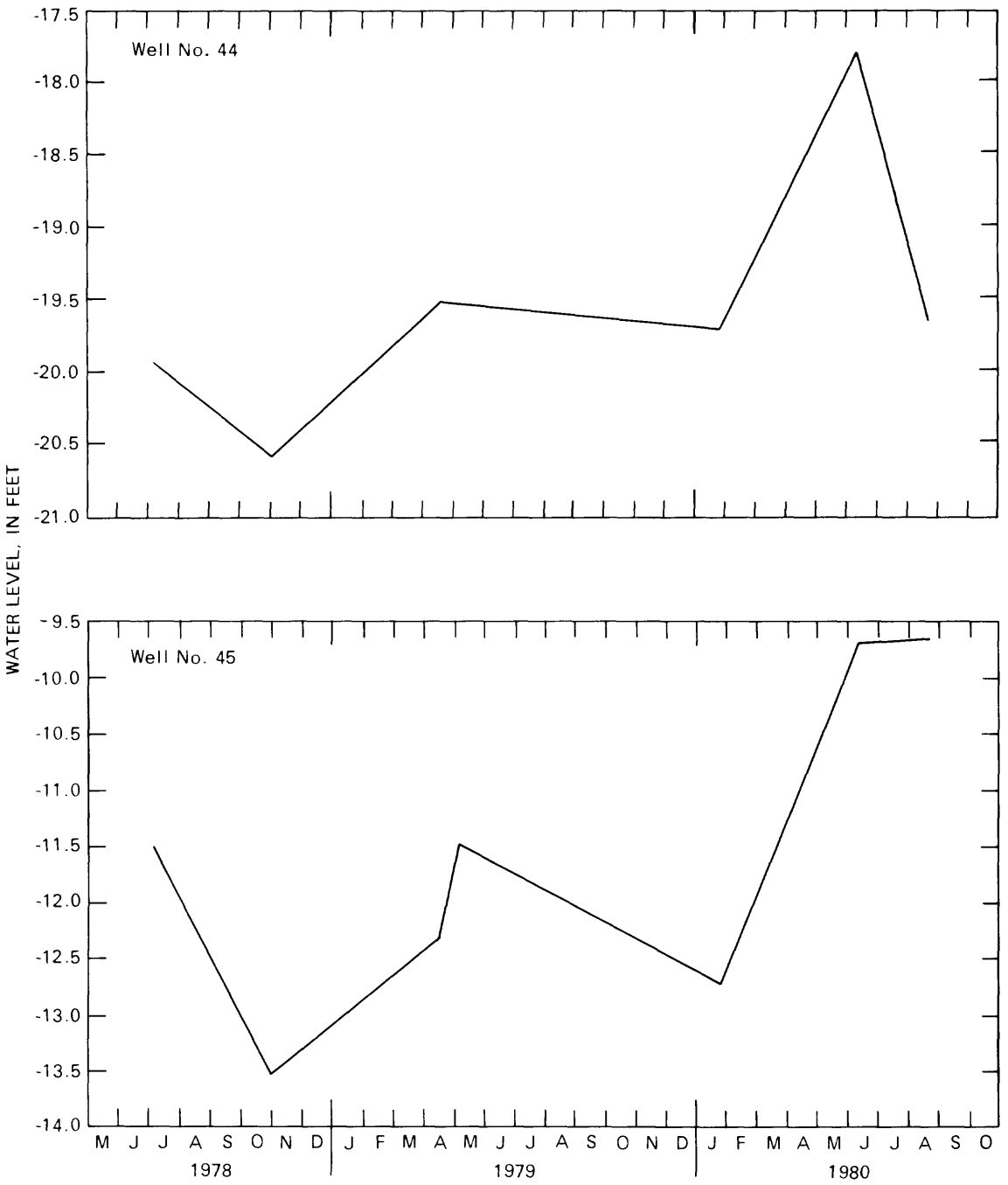
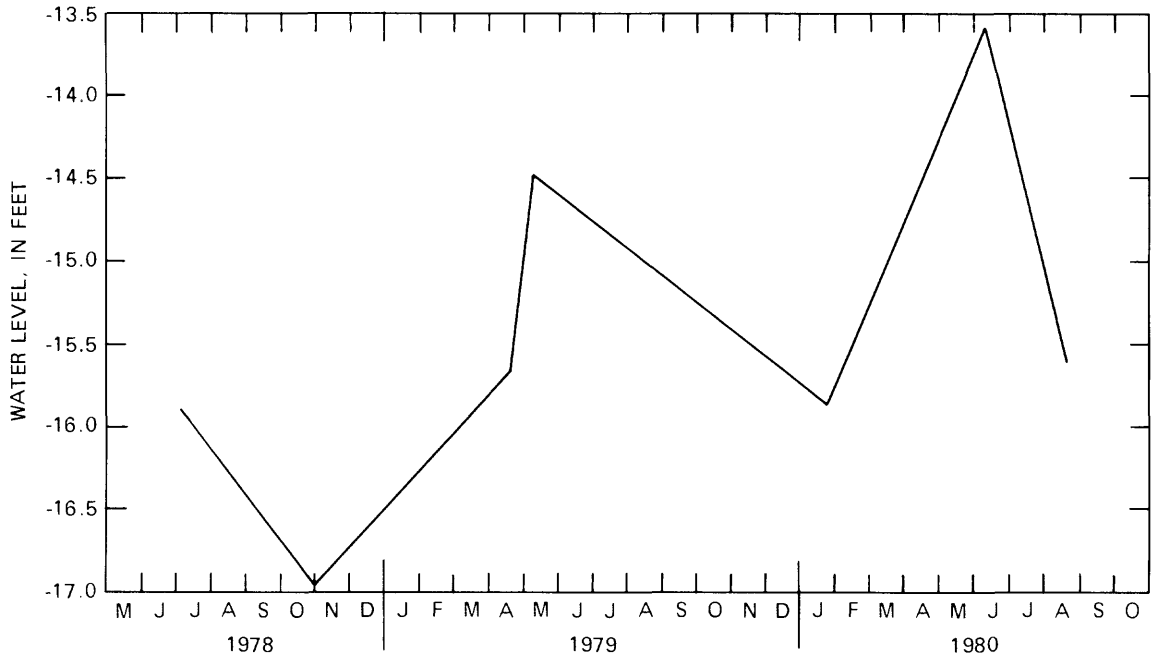


Figure 29.--Well nos. 44 and 45--Water-level hydrographs



LITHOLOGY	ALLUVIUM	FROM (feet)	TO (feet)	REMARKS
	Silt, gray, sandy	0	1	
	Sand and silt	1	4	
	Gravel, in lens	4	5	
	Clay, sandy, contains cobbles	5	10	
	Sand and gravel, coarse, interbedded with clay	10	25	
	Sand and gravel, some interbedded clay, calcareous	25	37	
	Clay, gray, hard	37	42	Contact with Wasatch Formation

Figure 30.--Well no. 46--Water-level hydrograph and lithologic log.

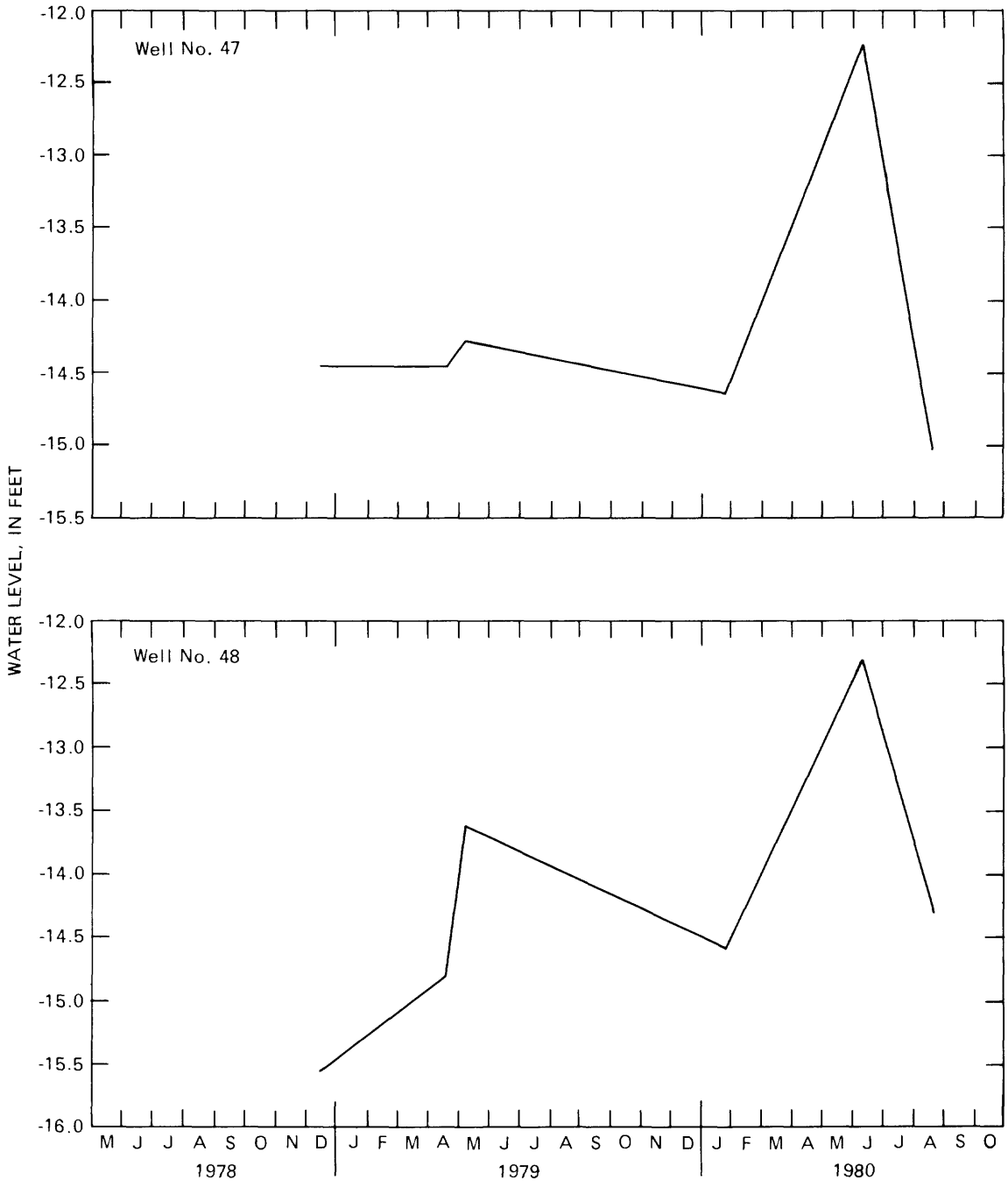


Figure 31.--Well nos. 47 and 48--Water-level hydrographs.

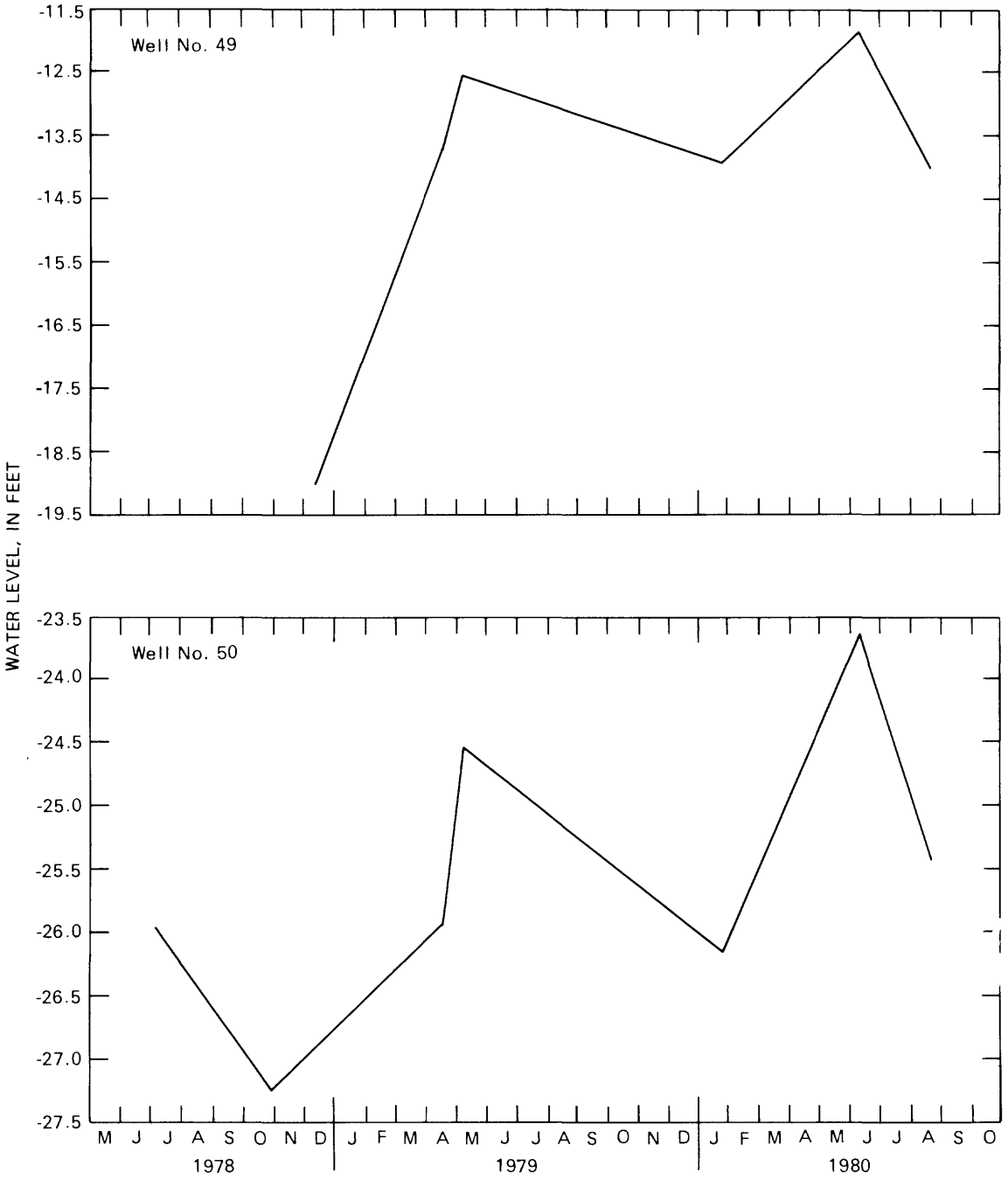


Figure 32.--Well nos. 49 and 51--Water-level hydrographs.

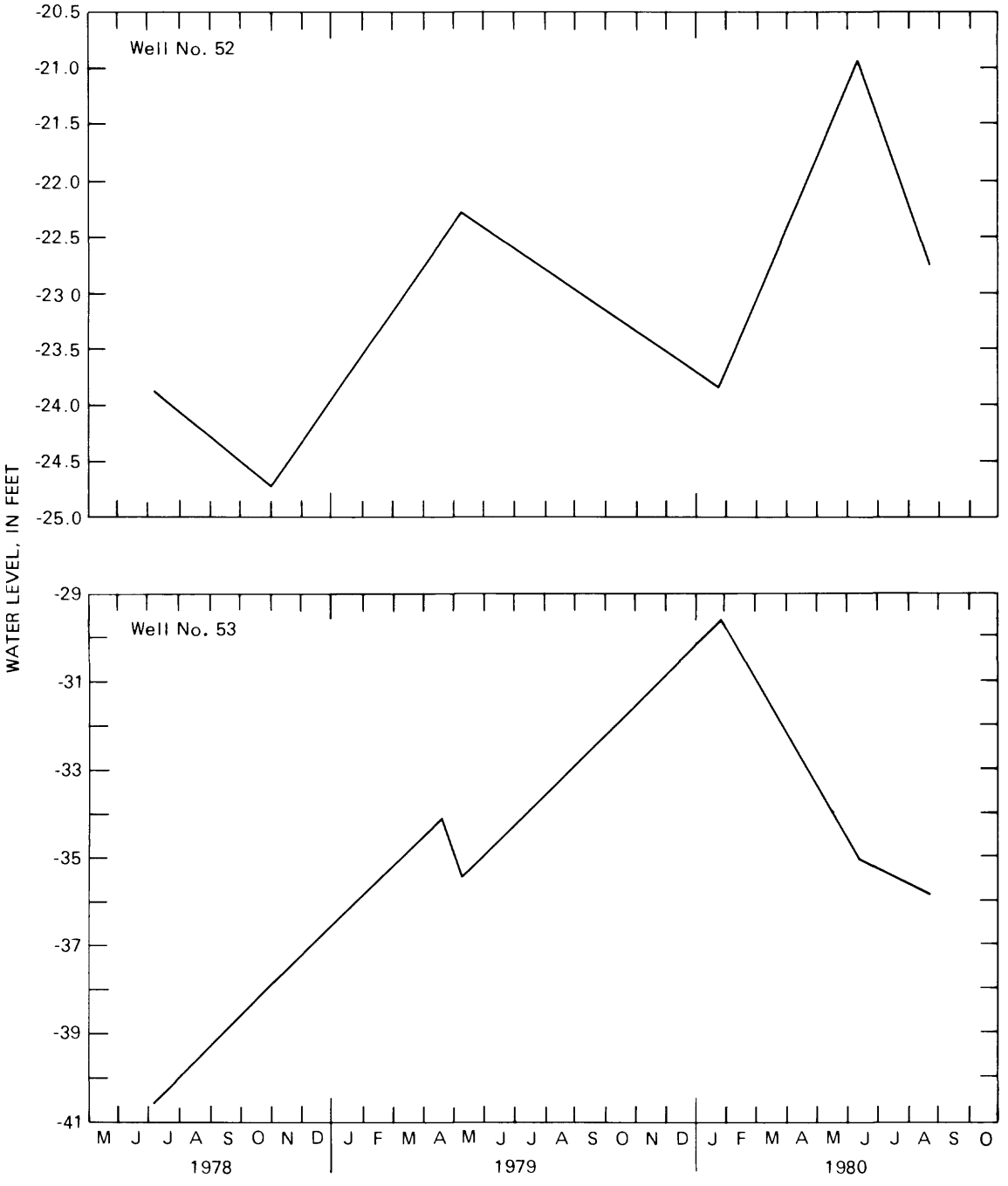


Figure 33.--Well nos. 52 and 53--Water-level hydrographs.

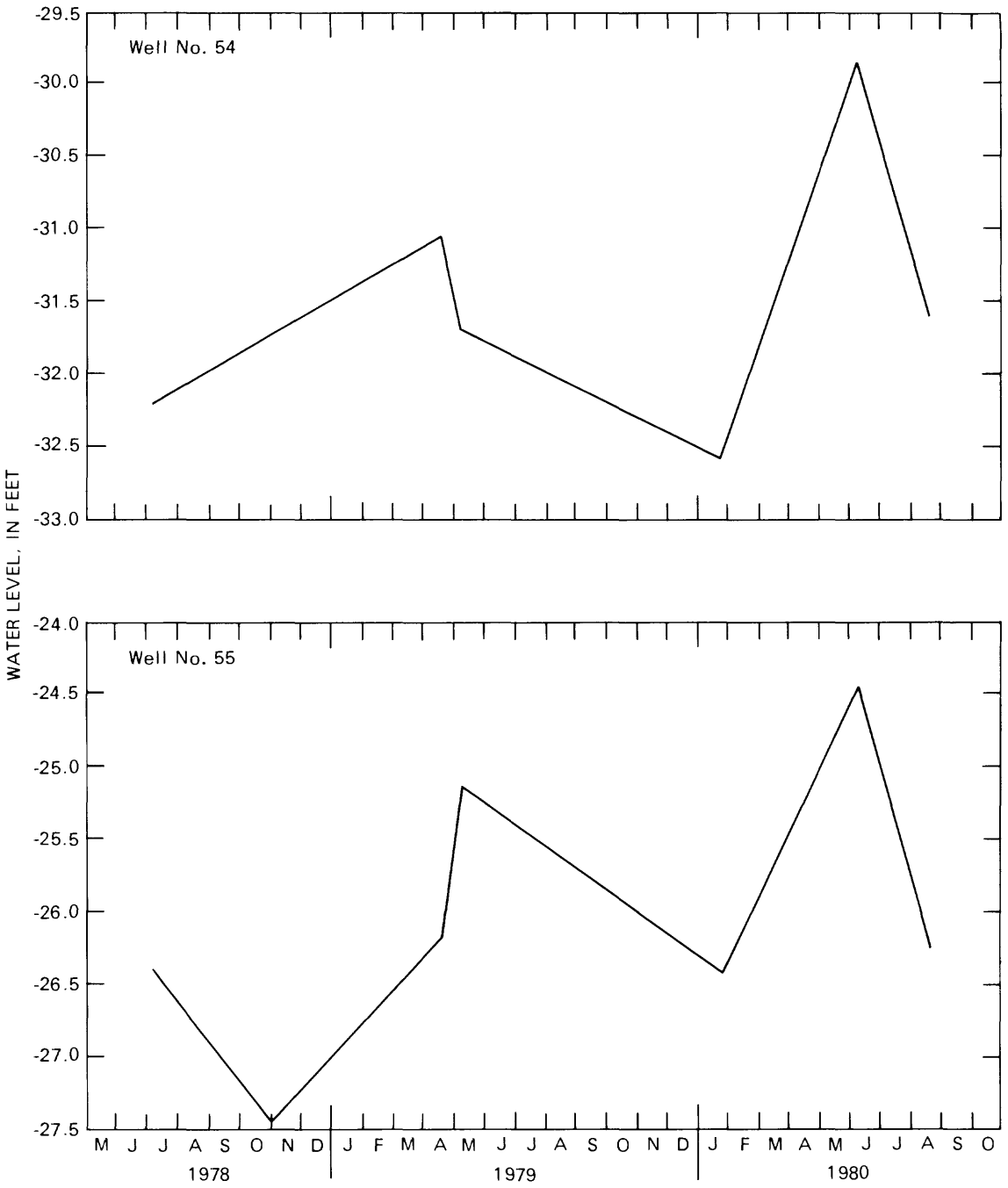


Figure 34.--Well nos. 54 and 55--Water-level hydrographs.

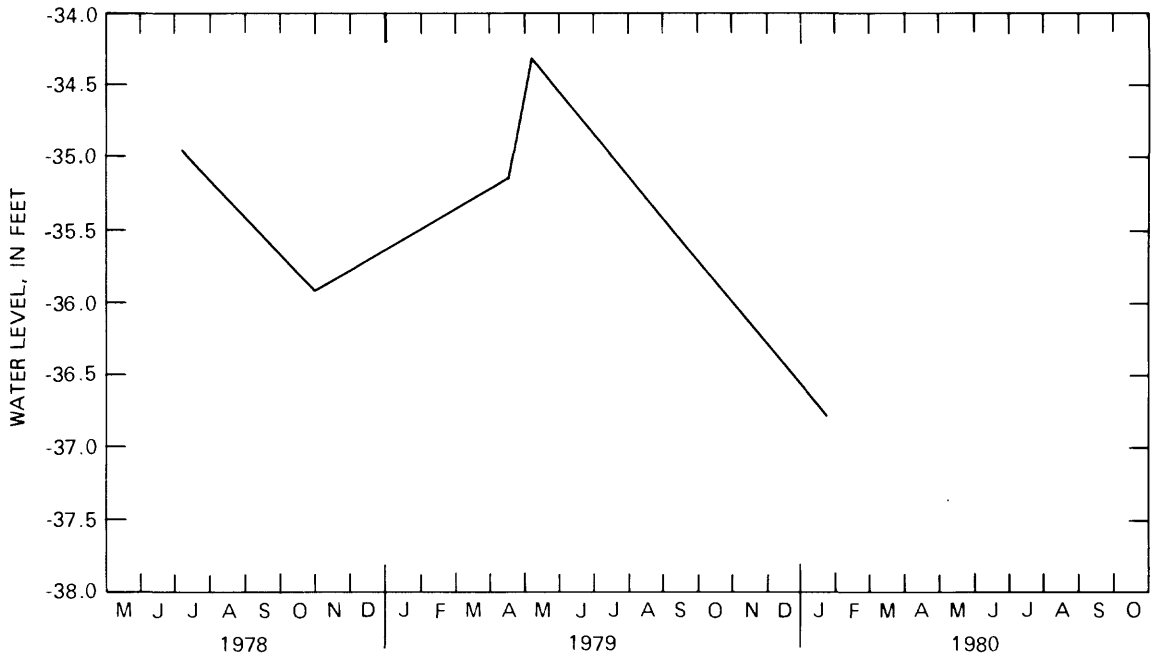


Figure 35.--Well no. 56--Water-level hydrograph.

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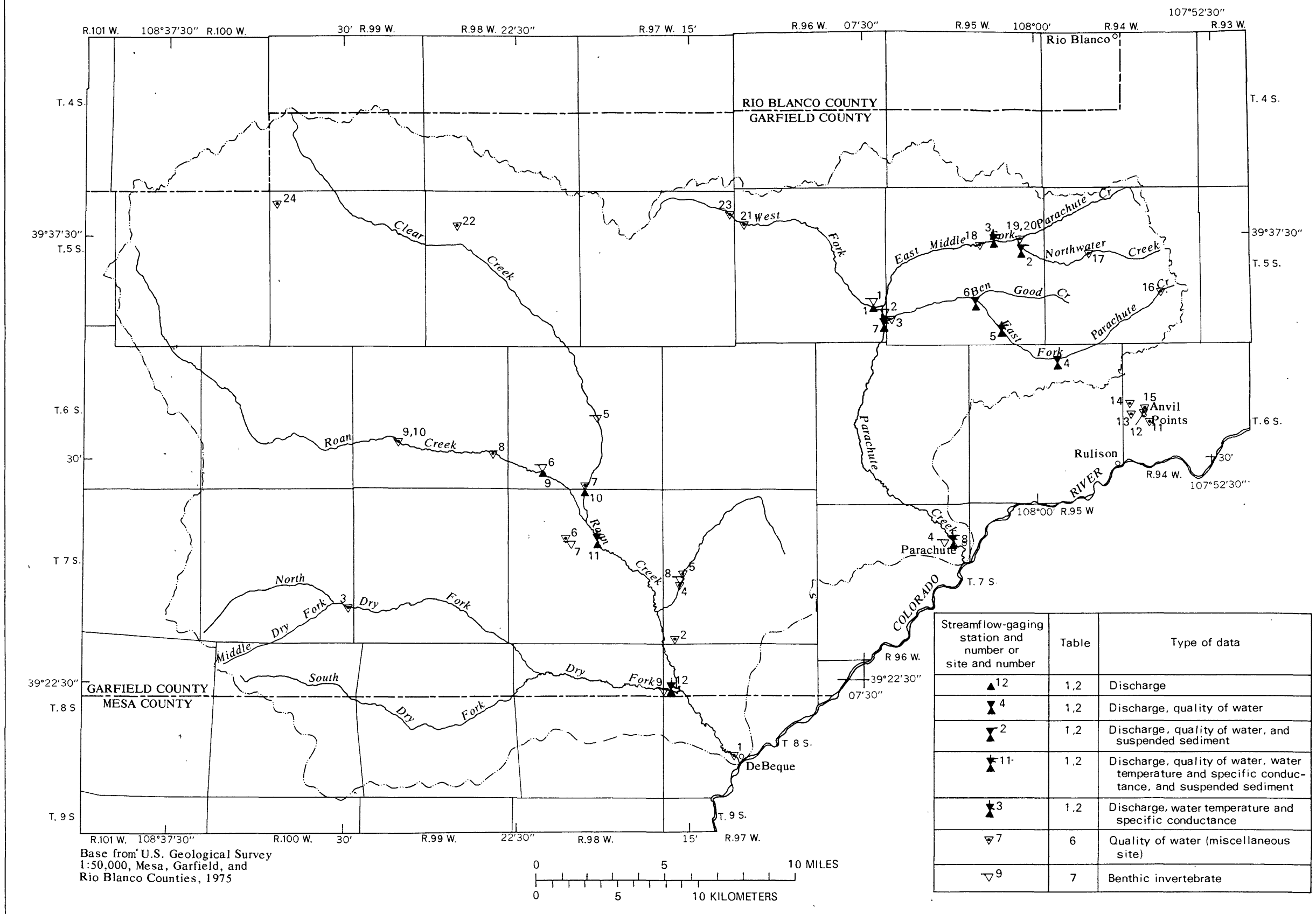
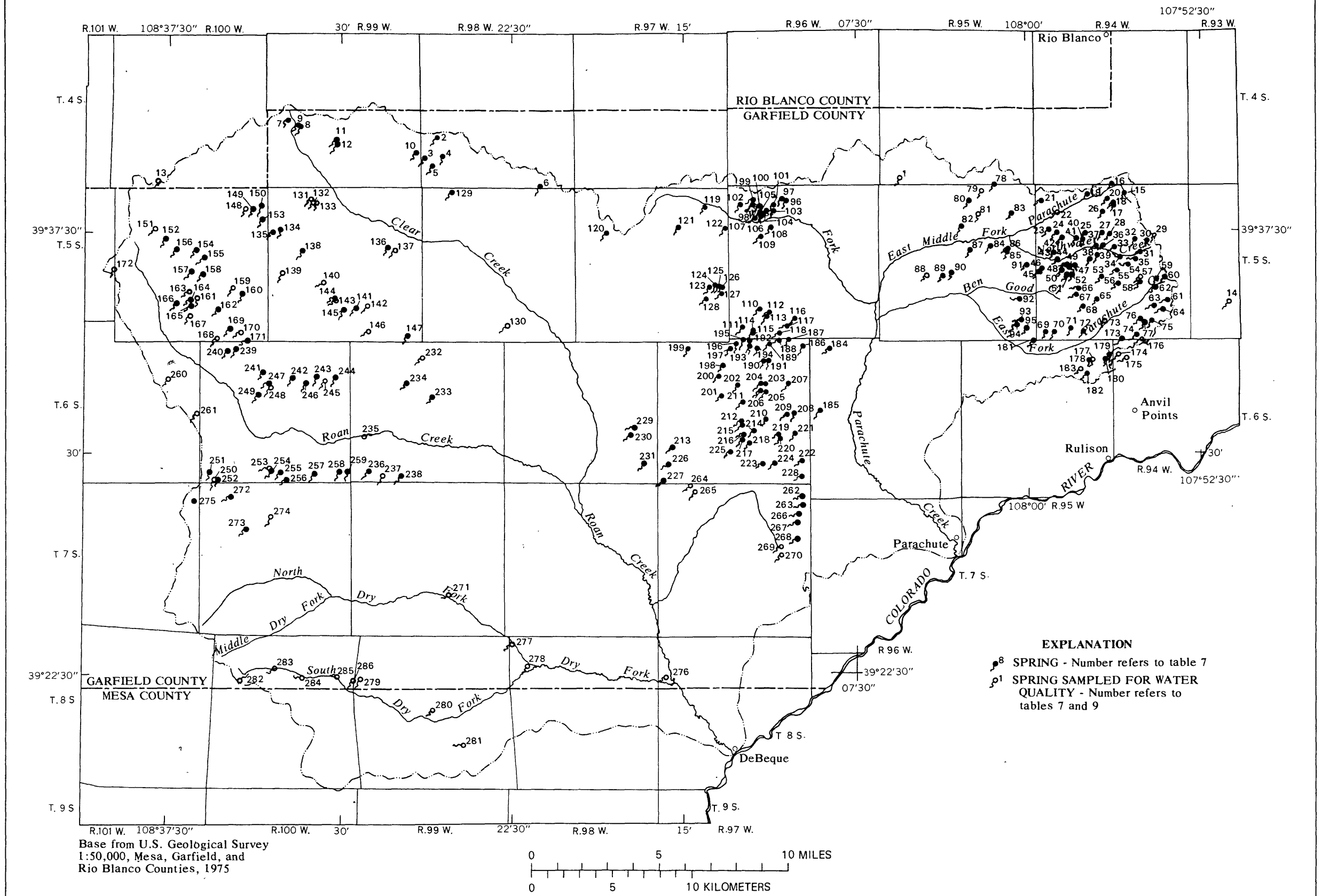
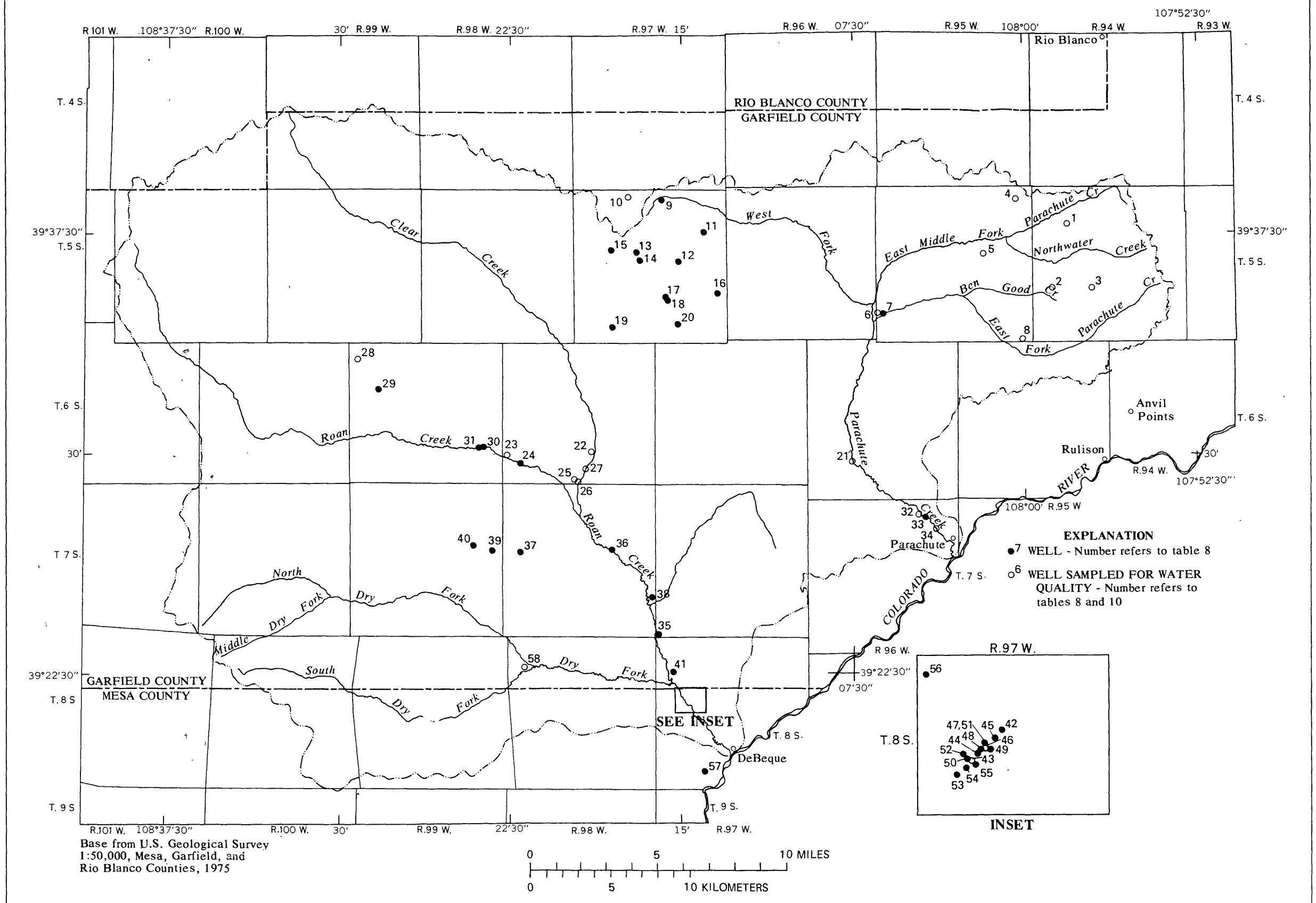


Streamflow-gaging station and number or site and number	Table	Type of data
▲12	1,2	Discharge
⧗4	1,2	Discharge, quality of water
⧗2	1,2	Discharge, quality of water, and suspended sediment
★11	1,2	Discharge, quality of water, water temperature and specific conductance, and suspended sediment
★3	1,2	Discharge, water temperature and specific conductance
▽7	6	Quality of water (miscellaneous site)
▽9	7	Benthic invertebrate

MAP SHOWING SURFACE-WATER DATA-COLLECTION SITES IN ROAN CREEK AND PARACHUTE CREEK BASINS, NORTHWESTERN COLORADO



MAP SHOWING SPRINGS FOR WHICH DATA ARE AVAILABLE IN ROAN CREEK AND PARACHUTE CREEK BASINS, NORTHWESTERN COLORADO



MAP SHOWING WELLS FOR WHICH DATA ARE AVAILABLE IN ROAN CREEK AND PARACHUTE CREEK BASINS, NORTHWESTERN COLORADO